**Drone Technopolitics:**
**A History of Race and Intrusion on the U.S.-Mexico Border, 1948-2016**

by

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## DEDICATION

*To Yiyi and all those who steadfastly struggle to build a different kind of world.*

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## TABLE OF CONTENTS

## LIST OF FIGURES

## ABSTRACT

This dissertation introduces unmanned aerial systems (UASs) as key instruments in the matter of governing the United States-Mexico border from 1948 to 2016. While many scholars and activists have scrutinized U.S. military drone operations outside the United States, this project examines the little known past and ongoing usage of UASs within U.S. territory. It studies how drones enacted associations to the U.S. frontier, nation-making, and racial politics. The dissertation does so by interrogating discourses across a variety of sources that include military and technical reports, governmental and corporate memoranda, popular culture, user manuals, activist and artistic interventions, oral history interviews and newspaper coverage. Drones on the borderlands, I argue, were first scripted to perform the role of an enemy and later on they were designed to target those populations imagined as enemy intruders. UASs were media infrastructures that sought to establish and govern racial differences within and beyond the territorial confines of the U.S. nation. Drones were, in short, an imperial formation.

Because drones combine air power with information technologies, my project begins by exploring the emergence of the aviation industry in San Diego and its associations with frontier politics in the early-twentieth century. The first chapter tells the story of this industry and how it grew invested in drones during the Cold War—UASs shaped how racialized border "intruders" were imagined and engaged by the U.S. military. The second chapter follows the idea of "intruders" in the 1970s when the U.S. Immigration and Naturalization Service, informed by the science of cybernetics, installed intrusion detection systems on the southern border and treated

the border as an information system. The third chapter studies how, in the aftermath of the attacks of 9/11, drones became the strategic system through which to target the racialized "enemies" of the nation. The final chapter engages contemporary activist and artistic interventions that opened possibilities for a different way of relating in the securitized borderlands.

In short, this dissertation examines the social construction of drones and intrusion detection systems as technologies of border control. Across the fields of U.S. immigration history and Latinx Studies, scholars have shown how ideas about race, citizenship and the nation shaped the establishment of a restrictive immigration regime since the turn of the nineteenth-century. Meanwhile, scholars of Science, Technology, and Society have been critical in understanding how political rationalities, such as national imaginaries, both shape the development of and are embedded in technological artifacts. And yet, a gap exists in these two literatures as to how racial formation, U.S. immigration, and these artifacts were co-constructed. An analysis of technopolitics, or the political objectives coded into objects, allows for a nuanced understanding of how immigration policy was articulated through infrastructures. This project remedies this gap by tracing how differential relations between human and nonhuman entities were articulated in/through electronic and digital technologies such as drones and intrusion detection systems. To study relations of difference, it mobilizes archival research and actor-network-theory to redraw the ideas, objectives and relationships of historical actors producing drones. Through discourse analysis of the thoughts and practices of actors such as engineers, technicians, military officials, journalists, and artists, among others, I assemble an image of how these individuals imagined drones and how their politics informed the creation of these machines.

# INTRODUCTION

## Towards a Theory of the Border Technopolitical Regime

A group of three people ran. They most likely ran for cover to protect themselves from the missile shot by an aircraft hovering close to them. Human figures, missile and plane were only visible through their contours. Both human bodies and the aircraft (see Figure 1) were shaded in black while the missile and its trajectory trail were in white. The group of people consisted of what seemed to be a man, a woman, and a young girl with pigtails. As for the plane, the contours revealed the shape of a military unmanned aerial system (UAS), perhaps General Atomics' MQ-1 Predator. The missile, however, was harder to make out from its shape. To help decode the scene, a statement accompanied it which read: "NYPD Drones. Protection when you least expect it." The scene and statements were printed on a large blue poster that, together with other posters showing variations of the scene, were designed to convince spectators that this was part of a public service announcement campaign. Official logos for the Ad Council, the City Government of New York City and the New York Police Department (NYPD) were all included. The posters were placed across dozens of Van Wagner Communications ad display cases in New York City in September 2012.[1] For months the NYPD investigated who was behind the production and installation of the posters, many of which were placed on ad spaces in the heavily

[1] Matt Harvey and Aymann Ismail, "Wanted 'Drone' Poster Artist Discusses How He Punked the NYPD," *ANIMAL*, September 24, 2012, http://animalnewyork.com/2012/wanted-drone-poster-artist-discusses-how-he-punked-the-nypd/.

policed area of Times Square in Manhattan. Towards the end of November 2012, the person responsible was apprehended by the Police.


Figure 1. Essam Attia, "Drone Campaign" (2012)
(source: http://i0.wp.com/content.animalnewyork.com/wp-content/uploads/NYPD_drone_posters.jpg; picture by Jason "JayShells" Shelowitz)

The "Drone Campaign" (2012), as the series of posters were called, was created by visual and conceptual artist Essam Attia to reflect on "the great power government wields with…drones." These "aerial robots," as he called them, "can be used to anonymously track, target and kill suspected terrorists and even an unsuspecting 16 year old American citizen."[2] The work was concerned with what drones could do, how they could do it, and from where they could act: the automation of surveillance and of lethal force from high above the air. Of equal importance was against whom these "aerial robots" acted. Worry derived from the fact that the boundaries of enmity used to orient drones towards their targets were porous. Imagined foes

[2] Essam Attia, "Drone Campaign" (2012), https://essamattia.com/drone-campaign/.

("suspected terrorists") could quickly turn into casualties of war ("unsuspecting 16 year old American citizen"). Attia's description of an "unsuspecting" target was a clear reference to the assassination of Abdulrahman al-Awlaki in Yemen on October 14, 2011. The son of an alleged operational leader of al-Qaeda in the Arabian Peninsula, al-Awlaki was killed by a drone strike and, like his father, was not protected by his U.S. citizenship. "If the government is going to be firing Predator missiles at American citizens," Jameel Jaffer of the American Civil Liberties Union told the *Washington Post* at the time, "surely the American public has a right to know who's being targeted, and why."[3] Just like the ACLU, Attia's "Drone Campaign" also searched for answers. The slogan for NYPD Drones, "protection when you least expect it," pointed spectators to reflect on how technology often worked in unanticipated and undesirable ways. Instead of a mastered technology performing as expected, that which was designed to "protect" could become the same thing that hunts after you. After all, the family who ran away from the missile was definitely not protected. Neither was al-Awlaki with his U.S. citizenship. They were hunted and targeted by a dark, shadowy drone. It was this governmental power to determine who was an enemy and its surprising potential to fail that unsettled Attia.

The design of drone targets, as revealed by the silhouette of the family on the bottom left corner of the poster in Figure 1, has been inconspicuously bound to U.S. efforts around border enforcement. The family silhouette was originally designed by John Hood, a Native American graphic artist who worked for the California Department of Transportation (Caltrans) back in the late 1980s.[4] During this period, many unauthorized border crossers were being struck by moving

[3] Cited in Craig Whitlock, "U.S. Airstrike that Killed American Teen in Yemen Raises Legal, Ethical Questions," *Washington Post*, October 22, 2011, https://www.washingtonpost.com/world/national-security/us-airstrike-that-killed-american-teen-in-yemen-raises-legal-ethical-questions/2011/10/20/gIQAdvUY7L_story.html.
[4] Victor Morales, "Iconic Sign Evokes Connection to Long Walk," *Indian Country Today*, October 12, 2008, https://indiancountrymedianetwork.com/news/iconic-sign-evokes-connection-to-long-walk/.

vehicles across the motorways of the San Diego region. So Caltrans requested a new caution sign that would alert drivers of possible obstructions ahead. The rectangular sign (see Figure 2) included big block letters that read "CAUTION" and below them, just like in the "Drone Campaign" poster, a man, a woman, and a young girl with pigtails appear to run from right to left. The design, Hood told the San Diego Union-Tribune, did not only represent migrants "running across the freeway…they are running from something else as well. I think it's a struggle for a lot things—for opportunities, for freedom."[5] This family was not merely running away "from something else," perhaps the Border Patrol. It was also doing its best to reach a better destination, a place that would offer "opportunities" and "freedom." They literally ran for their lives. Though it is not clear if Attia was aware of the history of this design, its inclusion in his campaign evoked a symbolic and material link between drones and the U.S.-Mexico border. The silhouette of the family persisted as an imagined threat, something beckoning actors to be vigilant. The migrant family was a target for hunting entities like the Border Patrol and drones.

Attia's own personal story brought together these themes around migration and drones as U.S. military instruments in foreign territories. Though born in Maine, his professional website describes him as being of Egyptian descent. Attia also served three years in the U.S. Army as a geospatial analyst at the beginning of the Iraq War in 2003. Later on he studied photography at the School of Visual Arts in New York City from where he graduated in 2011. Once he graduated, Attia pursued a series of projects that reflected on questions of liberty and justice which slowly developed into his "Drone Campaign."

[5] Kate Morrissey, "Last of Iconic Illegal Immigration Crossing Signs Has Vanished in California," *Los Angeles Times*, February 10, 2018, http://www.latimes.com/local/lanow/la-me-immigration-sign-20180210-story.html.


Figure 2. Caution immigrant crossing sign used in San Diego during the 1990s (source: https://upload.wikimedia.org/wikipedia/commons/b/bb/W54_Special_%28CA-San_Ysidro%29_-vector.svg)

Reflecting on his artistic method for "Drone Campaign," Attia argued that he meant to "alter" the drone's "context and thus its associated connotations."[6] Their overwhelming use in northern Africa, the Middle East and southern Asia has helped create a troubling association between drones, these regions, and their inhabitants. As I write this, the Bureau of Investigative Journalism states that, since 2004, there have been a minimum of 4,788 confirmed drone strikes by the U.S. armed and intelligence forces in Pakistan, Yemen, Somalia and Afghanistan.[7] The Bureau estimates that between 7,497 and 10,858 people have been killed as a result of these strikes. By speculating with the existence of a NYPD Drone program, Attia hoped to denaturalize the association between drones and war operations outside the territorial U.S. The

[6] Attia.
[7] These numbers include data from January 2004 to April 2018. For up-to-date information see: Bureau of Investigative Journalism, "Drone Warfare," *Bureau of Investigative Journalism*, https://www.thebureauinvestigates.com/projects/drone-war.

civilian space of contemporary urban life in the U.S. was imaginarily conscripted. Everyone now lived underneath the persistent stare and aerial shadow of warring Predators. Yet the silhouette of the targeted family betrayed a stubborn difference. Everyone was not equally targeted. Before a drone was mobilized against someone, there was a process whereby a targetable subject, an "enemy," was created. Even in Attia's case, the unauthorized migrant family endured as a drone target and so did the rarely known relation between drones and the U.S.-Mexico border.

I began the introduction to this dissertation with the speculative designs of Attia because I also aim to alter the context and associated connotations entangled with drones. Their growing use by the U.S. military in its "War on Terror" has dislodged drones and their politics from the history of border enforcement on the southern borderlands. "Drone Technopolitics: A History of Race and Intrusion on the U.S.-Mexico Border, 1948-2016" tackles this issue. The project introduces UASs as key instruments in the operations of the border technopolitical regime. Examining military and technical reports, governmental and corporate memoranda, correspondence, user manuals, and newspaper coverage since the Cold War, "Drone Technopolitics" traces how drones came to enact associations to U.S. frontier imaginary, nation making, and racial formation. Drones, in short, were technologies of rule and, I argue, they were media infrastructures that sought to establish and govern racial differences within and beyond the territorial confines of the U.S. nation. The dissertation shows how the U.S. empire-nation required the production and targeting of an enemy against whom to construct its imagined community. This led to the creation of complex infrastructures of enmity that became temporal, enduring commitments. These infrastructures set the conditions of possibility for the persistent production of enemies—these were existential threats that could not be allowed to co-exist in U.S. public life.

"Drone Technopolitics" is organized chronologically into two parts. The first studies drones as the combination of air power and information technologies. Hence, it spans roughly the first half of the twentieth-century and explores the emergence of the aviation industry in San Diego and its associations with frontier politics. It tells the story of how UASs shaped the ways border "intruders" were imagined and engaged by the U.S. military. The project then follows the idea of "intruders" in the 1970s when the U.S. Immigration and Naturalization Service (INS), informed by the science of cybernetics, installed intrusion detection systems on the southern border and treated the borderlands as a data-filled environment to be ruled by computing machines. The second part of the project then studies how drones, embedded in a growing post-9/11 homeland security infrastructure, generated an operative image that oriented how Customs and Border Protection (CBP) agents would target "Mexicans," "other-than-Mexicans," and "terrorists." This part concludes by engaging contemporary activist and artistic efforts to transform how Latinx migrant bodies were publicly understood. Rather than perpetuating the narrative of "intrusion," which has been assiduously used to justify the existence of the border technopolitical regime, activists and artists resituated migrants as vectors of systemic violence. By doing so, they opened different ways of relating to migrants and the borderlands traversed by questions of human rights.

One of the main theoretical contributions of "Drone Technopolitics" is the concept of border technopolitical regime. I propose it as a way to name the historical entities involved in governing the material boundaries of the U.S. nation. The concept builds on the work of Gabrielle Hecht who defines technopolitical regimes as those associated entities—peoples, ideas, institutions, ways of acting, technological devices, and political goals—that promote a certain

style of technological development.[8] They are regimes in the sense that, as Hecht says, they are made of people who govern and are informed by ideas that orient how they and the artifacts they produce act upon the world. Regimes also prescribe the kinds of subjects and objects—such as peoples, knowledge, artifacts—that can be included in their midst or that should be excluded from them. Chapter 2, for example, shows how the border technopolitical regime that emerged in the 1970s did so through the influence of cybernetic ideas, military research and development, and the INS's construction of an "electronic fence" along the southern border with Mexico. Installed experimentally in the region of San Diego, the "electronic fence" actualized the border technopolitical regime's aim to manage and administer the territorial boundaries of the U.S. It did so by monitoring those human bodies and populations the regime categorized as "intruders" to the nation: Mexicans. More contemporaneously, this governmental desire for a target was also made manifest in Attia's NYPD poster through the use of the migrant family silhouette.

The border technopolitical regime is not unlike what others have called the homeland security-industrial complex.[9] Michael Welch defines the homeland security-industrial complex as a partnership between government and military officials, and private interests in the U.S. that together set the course for state policy in the realms of national security and public safety. This complex was created in "response to growing concern and anxiety over the threat of terrorism."[10] Some of the actors involved in the operations of the complex are, according to border studies

[8] Gabrielle Hecht, *The Radiance of France: Nuclear Power and National Identity after World War II* (1998; repr., Cambridge: MIT Press, 2009), 16.
[9] Josiah Heyman, "Capitalism and U.S. Policy at the Mexican Border," *Dialectical Anthropology* 36, no. 3-4 (December 2012), 263-277; Junaid Rana, "The Racial Infrastructure of the Terror-Industrial Complex," *Social Text* 34, no. 4 (December 2016), 111-138; James Risen, *Pay Any Price: Greed, Power, and Endless War* (Boston: Houghton Mifflin Harcourt, 2014), xiv-xvi; Louis Uchitelle and John Markoff, "Terrorbusters, Inc.," *New York Times*, October 17, 2004; Michael Welch, "Seeking a Safer Society: America's Anxiety in the War on Terror," *Security Journal* 19, no. 2 (2006), 93-109.
[10] Welch, 102-103.

scholar Josiah Heyman: border wall contractors, electronic surveillance contractors, private detention center operators, and the Border Patrol.[11] One key difference between the homeland security-industrial complex and the border technopolitical regime is found in that the former was a post-9/11 political formation and the latter helps explain broader historical processes associated to border making in the U.S. Similarly, and because of its association to the metaphor of a "regime," the latter is not limited to political economic concerns which is a major methodological impulse behind studies of the homeland security-industrial complex. In this sense, the border technopolitical regime sheds light on how actors engaged each other. It also elucidates how government and military officials, technicians, and the broader public engaged ideas, technological artifacts and institutions in the making of knowledge, infrastructural and economic arrangements, and sociopolitical visions in the defense of the nation.

In what follows, I elaborate further the contributions of "Drone Technopolitics" to the fields of U.S. immigration history, border studies, Science, Technology and Society (STS), and a subset of the drone literature found at the intersection of the humanities and social sciences. This is succeeded by a summary of all four chapters of the dissertation and a methodological reflection. The next section explores in more depth how the U.S.-Mexico border has historically been a site of contestation and the roles technology played in attempting to ameliorate or subdue it.

## The U.S.-Mexico Border as a Site of Technopolitical Struggle

The territory of the U.S.-Mexico border is not a fixed area with neatly defined boundaries but rather a site of struggle, a never-ending process, made and remade, shaped and shaping the

[11] Heyman, 268.

history of U.S. empire. Amy Kaplan's work on "the anarchy of empire" in U.S. cultural production shows how U.S. empire has long struggled to subdue and control disorder to the point that it became a figure of its undoing.[12] One such site where disorder was staged—it presented itself but was also produced—was in the construction of borders. U.S. empire since the nineteenth century has, Kaplan argues, wrestled with a paradoxical desire to establish boundaries and patrol them while also shattering these same borders through expansion.[13] Perhaps no other discourse encapsulated this paradoxical desire so poignantly than Manifest Destiny, a kind of preordained justification for continental expansion. "Americans," border historian Rachel St. John holds, "embraced the notion that their national boundaries would continue to expand to incorporate ever more land and people under the umbrella of republican government."[14] Manifest Destiny expressed a political, civilizational drive to bring lands and people into the fold of a Western government. Science and technology offered U.S. actors some of the ideas, tools, and methods through which borders could be expanded, constructed, and policed. As they did so, actors would also execute inclusion in and exclusion from the nation.

The struggle to construct and control the U.S.-Mexico border has lingered since the end of the U.S.-Mexican War of 1846-1848. St. John argues in *Line in the Sand* that,

> From its very beginnings the border eluded state control…The discrepancy between the ability of the nation-states to delimit the boundary line in the [T]reaty [of Guadalupe Hidalgo] and to demarcate it on the ground marked the beginning of a long history in which the border would repeatedly reveal the divide between the states' aspirations and their actual power.[15]

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[12] Amy Kaplan, *The Anarchy of Empire in the Making of U.S. Culture* (Cambridge: Harvard University Press, 2002), 13.
[13] Ibid., 15.
[14] Rachel St. John, *Line in the Sand: A History of the Western U.S.-Mexico Border* (Princeton: Princeton University Press, 2011), 17.
[15] St. John, 13-14.

Yet the state's failure to control the border did not preclude it from pursuing this end in the past century and a half. Mapping, a key technology in the imagination and articulation of empires,[16] was employed after the U.S.-Mexican War in an attempt to demarcate the domain of U.S. sovereignty and of social membership. Operations on the ground, however, encountered unexpected difficulties when the Joint U.S. and Mexican Boundary Commission struggled to navigate the contested and treacherous terrains of the south/northwest, depending which side they were on. The indeterminacy of this territory was made plain when peace commissioners had to constantly negotiate with Native Americans like the Pimas and Maricopa for protection, assistance, and safe-passage.[17] More a borderlands than the site of a stable and effective border, this zone was under very different and competing sovereignties that called into question the U.S. government's claim over the land and its peoples. In the end, the mapping technological "fix" of the mid-nineteenth century could only generate a symbolic domain for U.S. sovereignty while it charted a space for ongoing struggles in decades to come.

Medical knowledge was yet another domain during the late-nineteenth and early-twentieth centuries were a struggle to define spaces for social membership in the U.S. unfolded. In her work on medicalization and nation building along the U.S.-Mexico border, Alexandra Stern shows how passage of the 1893 National Quarantine Act and subsequent immigration acts standardized medical inspection into law.[18] Physicians at sea and land ports of entry examined the bodies of immigrant and non-immigrant aliens, as well as performed cursory psychological profiles of them, gauging any possible reasons to enforce their exclusion. Along the U.S.-Mexico

[16] James R. Akerman (ed.), *The Imperial Map: Cartography and the Mastery of Empire* (Chicago: Chicago University Press, 2009).
[17] St. John, 31-35.
[18] Alexandra Minna Stern, "Buildings, Boundaries, and Blood: Medicalization and Nation-Building on the U.S.-Mexico Border, 1910-1930," *Hispanic American Historical Review* 79, no. 1 (February 1999), 41-81.

border of the 1910s-1920s, medicalization was incorporated directly into the entry process by turning land port buildings into assembly lines. Migrant bodies moved from one kind of inspection to another as they navigated their way through the building: delousing, bathing, vaccination, clothing and baggage disinfection, medical evaluation. In the process, human bodies were turned into excludable or includable subjects, into categories. "Boundaries, at this edge of the empire-nation," Stern contends, "moved reversibly from the epidermis or body itself, to the landscape of rivers and deserts, and onto bodies *en masse*, or 'races,' as classified by censuses and other indexical strategies."[19] And still, the medicalization of inspection struggled to make sense of how Mexicans troubled U.S. racial logics predicated on the binary white and black. It was the focus of eugenic discourses on blood that allowed for the production "of a new racialized group at once non-white and non-black, while helping to delimit Mexico as a totally foreign land."[20] The racialization of Mexicans as subjects and population was a maneuver designed with the aim of severing the shared histories of the U.S. southwest in the early-twentieth century. Racial difference, a key technology of rule of the U.S. empire-nation, was intended to help border officials govern the degrees of inclusion/exclusion by which subjects could participate and belong or not to the U.S. imagined community.[21]

Medical and eugenic discourses on racially troubling populations fanned the flames of nationalist rhetoric as immigration inspectors and, later on, Border Patrol agents operationalized the exclusions of Mexicans. Eugenics, as an epistemology, produced segmented and quantified bodies whose terms of inclusion or exclusion could be statistically defined in the shape of data. This statistical definition was coded into law in the National Origins Act of 1924. U.S.

[19] Ibid., 52.
[20] Ibid., 81.
[21] Nayan Shah, *Contagious Divides: Epidemics and Race in San Francisco's Chinatown* (Berkeley: University of California Press, 2001), 6-7.

immigration historian Mae Ngai argues that the Act of 1924 helped shape the constitution of a "white American race, in which persons of European descent shared a common whiteness distinct from those deemed to not be white. In the construction of whiteness, the legal boundaries of both white and nonwhite acquired sharper distinction."[22] These boundaries were, in turn, actualized through demographic data about immigrants and the specific racial and national qualities quantified by research pursued by the Galton Society's Eugenics Institute.[23] Both eugenics and the Act of 1924 coproduced a statistical analysis of race grounded in a continuing need for data. Data, thus, became the things to be collected and circulated as a way to make sense of the world. They were equally a group of things, among many, shaped by and shaping the contours of belonging to the body politic.

Enacting and controlling the border through bodies and data about these bodies revealed a commitment to sorting as a biopolitical practice. Sorting depended on the capacity of U.S government actors to categorize entities into discrete subjects or objects. This gave actors the ability to target specific categories of people for exclusion. Border historian Kelly Lytle Hernández has shown that Mexicans were a critical target of the Border Patrol since its formation in 1924.[24] This dissertation demonstrates, however, that "Mexicans," both as subjects and categories, were not just targeted but branded as "intruders" and "enemies" through the operations of the border technopolitical regime. Chapters 1 and 2, for example, show how the concept of "intrusion," spawned through U.S. aerial military exercises, was translated from the fuselage of drones flying over the Gulf of Mexico during the 1950s-1960s onto the bodies of

[22] Mae Ngai, *Impossible Subjects: Illegal Aliens and the Making of Modern America* (Princeton: Princeton University Press, 2005), 25.
[23] See ibid. (especially Chapter 1) and Alexandra Minna Stern, *Eugenic Nation: Faults and Frontiers of Better Breeding in Modern America* (Berkeley: University of California Press, 2005).
[24] Kelly Lytle Hernández, *Migra!: A History of the U.S. Border Patrol* (Berkeley: University of California Press, 2010).

Mexican migrants in the 1970s. The presence of Mexicans in the U.S., interpreted as an act of "intrusion," has been continually mobilized by government officials, anti-immigration advocates, and members of the U.S. public to justify the usage of different infrastructures and technologies—walls, fences, and electronic and digital systems. The latter of these helped sort bodies by monitoring the southern borderlands for unauthorized border crossing activity, data of which were recorded and used to prioritize the Border Patrol's zones of enforcement.

The associations between the Border Patrol, electronic technology, the military, the defense industry and academia in the United States in 1970 helped lay the foundations for the emergence of the border technopolitical regime. This is the focus of Chapter 2 which addresses the moment when intrusion detection systems, initially designed by scientists and developed by the MITRE Corporation for U.S. Army ventures in Vietnam, where adopted by the Border Patrol to put an end to a so-called "silent invasion" by unauthorized migrants. Hence, another way to examine this regime is through its production of infrastructures. Geoffrey Bowker et al. argue that infrastructures consist of both static and dynamic elements of equal importance in the functioning of a system. Infrastructures are the underlying features of a system that allow it to work. They are situated sociotechnical systems that are designed and configured with prescribed objectives. Infrastructures are sets of pervasive and enabling resources brought together through a series of relations around particular objects and subjects.[25] By focusing on the infrastructures of the border technopolitical regime I grapple with the sociotechnical systems that were designed to demarcate the boundaries of the nation. The border was not already "there," on the desert

[25] Geoffrey C. Bowker et al., "Toward Information Infrastructure Studies; Ways of Knowing in a Networked Environment," in *International Handbook of Internet Research*, eds. Jeremy Hunsinger, Lisbeth Klastrup and Matthew Allen (Dordrecht: Springer, 2010), 98-99; Susan Leigh Star and Karen Ruhleder, "Steps towards an Ecology of Infrastructure: Complex Problems in Design and Access for Large-Scale Collaborative Systems," in *Proceedings of the 1994 ACM Conference on Computer Supported Cooperative Work* (New York: ACM, 1994), 253.

landscape. It had to be produced and infrastructures were at the center of such production. Stern's work on medicalization and land port buildings as ways of marking the border on Mexican bodies in the early-twentieth century is an example of how the border technopolitical regime depended on infrastructures. Without infrastructures, the border as an object of sovereign power could not and cannot exist. This dissertation is centered on some of the critical artifacts of the border technopolitical regime's modern infrastructure: drones, intrusion detection systems, and other electronic and digital technologies.

It is in the field of STS that I find some of the theoretical vocabulary and methodologies to study infrastructures and technology. Hecht's concept of technopolitics is first among these because it helps me understand "the strategic practice of designing or using technology to constitute, embody, or enact political goals"; technopolitics are the hybrid forms of power that are articulated in artifacts and systems as well as the methods by which things are done.[26] A focus on technopolitics requires, for example, that I account for how and where drones came together as well as how and where they were deployed. Rather than taking them in abstraction, I approach drones and intrusion detection systems as situated technologies within the southern U.S. borderlands—primarily in San Diego, the Gulf of Mexico, and the Border Patrol's Tucson Sector in Arizona. These locations were chosen because the technologies I study were either developed, tested, or used there, or a combination of these. Tackling these processes in a situated fashion allows me to also trace their political rationalities as well as the relations between entities involved in the production of UASs. Political rationalities are important, Hecht reminds us, because they "act together to govern technological development and pursue technopolitics."[27] In

[26] Hecht, *The Radiance of France*, 15 and "Introduction," in *Entangled Geographies: Empire and Technopolitics in the Global Cold War Era*, ed. Gabrielle Hecht (Cambridge: MIT Press, 2011), 3.
[27] Hecht, *The Radiance of France*, 16.

the case of the southern border, political rationalities around "silent" and "invisible" "intrusions" dictated the kinds of technologies imagined to solve such a "problem." Among the relations studied here were the habits and behaviors imposed back upon humans by human/nonhuman delegates, or what Bruno Latour calls prescriptions.[28] Prescriptions are inscribed on delegates by actors; they are tinged with moral, ethical and political valuations. Drones were such delegates and, to make them "talk," this dissertation follows their technical development in conjunction to the social spaces from which they emerged and within which they were supposed to function. Through the words of engineers, technicians, military officials and others, drones came to embody a varied assortment of ideas. The STS approach described here opens up space to examine the boundary making politics embedded in and articulated by U.S. drones. UASs were integral components of the border technopolitical regime's objective of ordering the social space of the borderlands.

The unceasing practices for ordering social space were constitutive of empires or what Ann Laura Stoler calls imperial formations. These were an assemblage of political entities that relied on their technologies of rule, both the devices and practices by which exceptions were produced: "harboring and building on territorial ambiguity, redefining legal categories of belonging and quasi-membership, and shifting the geographic and demographic zones of *partially* suspended rights."[29] Imperial formations were not clearly bordered or bounded polities and so they were incessantly drawing and erasing their boundaries of rule. Such boundaries demarcated and traced the spatial arrangements within/through which actors acted and subjects were made. Such subjects were positioned differentially along a spectrum of belonging that

[28] Bruno Latour, "Mixing Humans and Nonhumans Together: The Sociology of a Door-Closer," *Social Problems* 35 (1988), 301.
[29] Ann Laura Stoler, "On Degrees of Imperial Sovereignty," *Public Culture* 18, no. 1 (December 2006), 128.

sought to manage participation in the body politic. The spectrum of belonging spanned from the normative citizen going through second-class citizens and citizens-in-waiting all the way to non-citizens.[30] Drones were an embodiment of the processes through which imperial formations differently ordered and administered territories, peoples, and goods. For example, Chapter 3 demonstrates this by closely examining the ways UASs since 2004 in Arizona have constructed an operative image to order encounters on the southern borderlands at the same time that these systems helped enclose entities within a networked sensory regime.

Imperial formation's redefinitions of legal categories of belonging is highlighted here through the concept of empire-nation. The couplet empire-nation helps underscore the ways in which imperial formations sought to establish differences through which to order and manage populations. These differences cut along multiple lines—national, racial, gender, sexual, able bodied, and so on—and were embodied by and embedded in disparate objects which included, though were not limited to, human bodies, practices, and technical devices.[31] Conceptions of imperial formation's own national subject—who was a citizen and who was not—were constructed through this effort. In light of Stoler's definition of imperial formations, the empire-nation is then caught up in the delineation of shifting geographic and demographic zones of inclusion and exclusion. Citizenship, immigration status, and racial categorization became organizing rubrics for how and why certain peoples were contained, aggregated, or discarded

[30] Ann Laura Stoler, *Duress: Imperial Durabilities in Our Times* (Durham: Duke University Press, 2016), 177-178.

[31] In addition to Stoler's work, my approach to empire-nation is indebted to: Geoffrey C. Bowker and Susan Leigh Star, *Sorting Things Out: Classification and Its Consequences* (Cambridge: MIT Press, 1999); Margot Canaday, *The Straight State: Sexuality and Citizenship in Twentieth-Century America* (Princeton: Princeton University Press, 2011); Paul Kramer, *The Blood of Government: Race, Empire, the United States, and the Philippines* (Chapel Hill: University of North Carolina Press, 2006); Natalia Molina, "'In a Race All Their Own': The Quest to Make Mexicans Ineligible for U.S. Citizenship," *Pacific Historical Review* 79, no. 2 (May 2010), 167-201; Ngai; Shah; Stern, "Buildings, Boundaries, and Blood."

from the nation's body politic. The empire-nation was in constant gestation, contestation and reproduction. It was, in short, "in constant (re)formation."[32] As such the empire-nation was necessarily ongoing and multi-sited.

I infuse the STS approach to technopolitics with an engagement of imperial formations for multiple reasons. First, I am responding to the historical context of the southwest U.S. borderlands. The settlement of the Western "frontier" unfolded through the displacement, dispossession, and evisceration of Native Americans and Mexicans. These processes were and continue to be integral to the functioning of the U.S. empire-nation. Second, such an approach helps crystallize the media matter of rule—that is, the infrastructural assemblage of wires, aluminum alloys, feedback loops, discourses, bodies, institutions, and territories that constitute the empire-nation. Technopolitics further fleshes out the materiality of imperial formations. Lastly, by engaging technopolitics in a context of imperial formations, I show how bodies and populations were and remain differently distributed in the assemblage. Each was brought into the fold, shaped and positioned asymmetrically by various actors in government, the military, industry, academia and the public.

U.S. immigration historians and Latinx Studies scholars have shown that ideas about race, citizenship and the nation shaped the formation of an increasingly restrictive immigration regime since the turn of the nineteenth century.[33] STS scholars underscore the ways that politics and values, such as national imaginaries, are pre-inscripted or embedded in technological

[32] Stoler, *Duress*, 190.
[33] Miroslava Chávez-García's *States of Delinquency: Race and Science in the Making of California's Juvenile Justice System* (Berkeley: University of California Press, 2012); Erika Lee, "Enforcing the Borders: Chinese Exclusion along the U.S. Borders with Canada and Mexico, 1882-1924," *The Journal of American History* 89, no. 1 (June 2002), 54-86; Natalia Molina, *Fit to Be Citizens?: Public Health and Race in Los Angeles, 1879-1939* (Berkeley: University of California Press, 2006); Ngai; Shah; Stern, *Eugenic Nation*.

artifacts. There is room within these two literatures, hence, to explore how racial formation and U.S. immigration were shaped by and shaping media infrastructures. This dissertation inquires how power was articulated in and through the infrastructures of the border technopolitical regime, especially through such artifacts like drones and intrusion detection systems.

## Empire of Drones

After more than half a century in development and almost two decades of intensive use, drones are today a ubiquitous military technology for intelligence gathering, aerial strikes, and other tactical deployments. Two historical events led to their growing visibility in public debates about war, science, technology, and society. As the U.S. embarked on its endless "War on Terror" in late 2001, the U.S. government and military identified the need for an instrument through which they could quickly exert their force across the globe. In November 2002, the U.S. Central Intelligence Agency armed UASs and killed suspected terrorists outside a battlezone for the first time.[34] Aerial drone strikes—euphemistically called "targeted killings"—grew in intensity from 2002 to 2016. President George H. W. Bush authorized 50 of these strikes during his presidency while President Barack Obama authorized 506 during his. Despite the fact that President Obama was awarded the Nobel Peace prize in 2009, one of his presidency's lasting legacies was intensifying the reliance of U.S. military power in the practice of aerial drone strikes.[35] The second event that brought drones into public prominence was the extrajudicial killing of Anwar al-Awlaki, Samir Khan and Abdulrahman al-Awlaki in the fall of 2011. Both

[34] "CIA 'Killed al-Qaeda suspects' in Yemen," *BBC News*, November 5, 2002, http://news.bbc.co.uk/2/hi/2402479.stm.
[35] Micah Zenko, "Obama's Embrace of Drone Strikes Will Be a Lasting Legacy," *New York Times*, January 12, 2016, https://www.nytimes.com/roomfordebate/2016/01/12/reflecting-on-obamas-presidency/obamas-embrace-of-drone-strikes-will-be-a-lasting-legacy.

Anwar al-Awlaki and Samir Khan were killed because the U.S. intelligence community had identified them as linked to al-Qaeda in the Arabian Peninsula.[36] Abdulrahman al-Awlaki, the 16-year old son of Anwar, was killed by a drone strike that actually did not target him but someone else. All three were U.S. citizens and, according to a 2012 lawsuit submitted by the American Civil Liberties Union and the Center for Constitutional Rights, the U.S. government had "violated the Constitution's fundamental guarantee against the deprivation of life without due process of law."[37] The combination of these two events and the pursuits of the U.S. military in the field of robotics has led to a growing critical interest in drones as objects of public engagement and study. But, what is a drone?

Drones are autonomous or remotely piloted vehicles that perform a variety of missions from reconnaissance and surveillance to armed engagement. Historically, the term drone was used to refer to remotely piloted vehicles (RPVs), which, though unmanned, required the active control of a human entity. This was done initially with radio waves emitted from a controlling device on the ground or mounted on a different vehicle and sent to another device that, equipped on the "unmanned" vehicle itself, actuated its different mechanisms such as motor speed and steering. RPVs were not limited to aircraft and included other ground and naval units. Aerial RPVs, as discussed in Chapter 1, were first developed to train anti-aircraft gunners and pilots to shoot down enemy aircraft. And it was not until the Cold War that the U.S. military began using

[36] Andrea Miller's work examines the case of al-Awlaki as endemic of the preemptive logic of the drone. Such logic is associated to a racialized and juridical landscape in which Muslim bodies are imagined as sources of potential violence. "(Im)Material Terror: Incitement to Violence Discourse as Racializing Technology in the War on Terror," in *Life in the Age of Drone Warfare*, eds. Lisa Parks and Caren Kaplan (Durham: Duke University Press, 2017), 112-133.
[37] "Al-Aulaqi v. Panetta – Constitutional Challenge to Killing of Three U.S. Citizens," *ACLU*, June 4, 2014, https://www.aclu.org/cases/al-aulaqi-v-panetta-constitutional-challenge-killing-three-us-citizens.

drones for reconnaissance and surveillance purposes.[38] Throughout their development, technicians worked on increasing the autonomy of drones via the use of electronics and, later on, computers. These afforded UASs the capability of deciding and executing actions without the intervention of a human actor. Increases in autonomy led to changes in nomenclature as these vehicles began autonomously executing a plethora of actions. Hence, there has been a turn away from "remotely piloted vehicle" to a cybernetics-informed and more nuanced conception of drones as "unmanned systems." Throughout this dissertation, the terms "drone" and "unmanned aerial system" are treated as synonymous. Chapter 3 is devoted to "stingless" UASs used on the border today—they don't carry weapons—and which are operated by the CBP's Office of Air and Marine for patrol, investigations, and disaster relief.[39] All information or "raw data" gathered in their operations is processed, exploited, and disseminated by the Office of Intelligence and Investigative Liaison. DHS has employed drones in a sustained fashion since 2004 with the purpose of conducting missions in remote areas, generally too rugged for access or otherwise considered a high risk for manned aircraft or CBP personnel on the ground.[40]

A growing literature has emerged across the humanities and social sciences that both document and study highly secretive drone operations. M. C. Elish's work, for example, examines the distributions of labor embedded in these operations and explains them as the products of "a particular set of historical moments and sociotechnical conditions": the pursuit of an "electronic battlefield" in Vietnam, which I cover in Chapter 2, as well as the precision guided missiles used during the Gulf War and the use of UASs during conflicts in the Balkans in the

[38] William Wagner, *Lightning Bugs and Other Reconnaissance Drones* (Fallbrook, CA: Armed Forces Journal International, 1982).
[39] U.S. Department of Homeland Security, "Privacy Impact Assessment for the Aircraft Systems," DHS/CBP/PIA-018, September 9, 2013, http://www.dhs.gov/sites/default/files/publications/privacy-pia-cbp-aircraft-systems-20130926.pdf.
[40] Ibid.

early 2000s.[41] Across these three historical events, Elish identifies the articulation of an operational logic—the remote split—founded on the "technological capacity to conduct warfare at a distance."[42] Such operational logic and technological capacity has been at the center of political and ethical concerns. Popular press, policy, and activist circles have raised important considerations on the political economy of drones as well as the effects of drone operations on civilian populations, human rights, foreign relations, and international law.[43]

Other STS scholars like Peter Asaro and Lucy Suchman interrogate the ethical tests of robotic and remote split warfare.[44] Asaro addresses the ways autonomous and semi-autonomous technologies challenge just war theory's principles of discrimination and proportionality. He concludes that the international community should establish new sets of conventions to regulate the use of autonomous technologies, and that such conventions ought to be agreed upon in international law and treatises.[45] On the other hand, Suchman centers on drone warfare's pursuit of situational awareness, that is "the ability to maintain a constant, clear mental picture of

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[41] M. C. Elish, "Remote Split: A History of US Drone Operations and the Distributed Labor of War," *Science, Technology, & Human Values* 42, no. 6 (2017), 1102, 1106.
[42] Ibid., 1101.
[43] Abigail R. Hall and Christopher J. Coyne, "The Political Economy of Drones," *Defence and Peace Economics* 25, no. 5 (2014), 445-460; Shahzad Bashir and Robert D. Crews, eds., *Under the Drones: Modern Lives in the Afghanistan-Pakistan Borderlands* (Cambridge: Harvard University Press, 2012); Medea Benjamin, *Drone Warfare: Killing by Remote Control* (London: Verso, 2013); Christian Enemark, *Armed Drones and the Ethics of War: Military Virtue in a Post-Heroic Age* (London: Routledge, 2014); Human Rights Clinic at Columbia Law School and the Center for Civilians in Conflict, *The Civilian Impact of Drones: Unexamined Costs, Unanswered Questions* (2012), http://web.law.columbia.edu/sites/default/files/microsites/human-rights-institute/files/The%20Civilian%20Impact%20of%20Drones.pdf; Jeremy Scahill and the Staff of The Intercept, *The Assassination Complex: Inside the Government's Secret Drone Warfare Program* (New York: Simon & Schuster, 2017); P. W. Singer, *Wired for War: The Robotics Revolution and Conflict in the Twenty-First Century* (New York: Penguin Press, 2009).
[44] Peter Asaro, "How Just Could a Robot War Be?," in *Current Issues in Computing and Philosophy*, eds. Adam Briggle, Katinka Waelbers and Philip A. E. Brey (Amsterdam: IOS Press, 2008), 50-64; Lucy Suchman, "Situational Awareness: Deadly Bioconvergence at the Boundaries of Bodies and Machines," *Media Tropes* 5, no. 1 (2015), 1-24.
[45] Asaro, 64.

relevant information and the tactical situation."[46] At the core of situational awareness was the military problematic of distinguishing between friends and enemies, of deciding who should and who should not be targeted. Situational awareness frames the operations by which some populations are treated as friends while others become enemies, which consequently makes them into targets. Executed through systems of remote control, Suchman argues, the moment of decision and its distribution across messy sociotechnical assemblages highlight the increasingly fraught recognition of their objects. The contingent process of discriminating targets from non-targets has lethal repercussions on the lives of many who are disproportionately submitted to a war from nowhere. Such unjust exercise of warfare has led these and other STS scholars to pursue, among other things, the regulation of robotic warfare through the International Committee for Robots Arm Control. I am inspired by Asaro and Suchman's work for questioning the ethical implications of drone warfare. This dissertation contributes to these efforts by placing drone warfare within U.S. territory. The UASs I wrote about did not shoot at unauthorized border crossers but they were instrumental in an enforcement approach that drove crossers further into remote areas of the borderlands, where hundreds lose their lives every year.[47]

Some scholars have argued that drones are the embodiment of new political formations and logics at the heart of U.S. empire. Grégoire Chamayou's philosophical investigation of drone-hunters—those used in aerial strikes—asks how drones affect the practice of war, especially in terms of their relation to the production of enemies and the state's relation to its

[46] Major Brad C. Dostal cited in Suchman, 1.
[47] The U.S. CBP has considered arming Predator B UASs with non-lethal weapons, though they have not yet moved forward with it. Jennifer Lynch, "Customs & Border Protection Considered Weaponizing Drones," *Electronic Frontier Foundation*, July 2, 2013, https://www.eff.org/deeplinks/2013/07/customs-border-protection-considered-weaponizing-drones.

subjects. "The attempt to eradicate all direct reciprocity in any exposure to hostile violence," something which the remote split seeks to achieve, as Chamayou argues, "transforms not only the material conduct of armed violence technically, tactically, and psychically, but also the traditional principles of a military ethos officially based on bravery and a sense of sacrifice."[48] Drones are seen then as instrumental in propelling changes to the conduct of war as well as to the ethics and laws of war by embodying a drive for a "warfare without risk." Joseph Pugliese's *State Violence and the Execution of Law,* meanwhile, argues that drones, torture and black sites are the materialization of an "imperial right to open access of targeted territories and bodies [that] overrides the so-called universalist status of the human rights apparatus."[49] He is especially interested in critiquing how U.S. state biopolitical practices segment populations between those made to live and those allowed to die. Though both of these works are grounded in empirical analyses of U.S. drone operations, their aim is to offer a broad conceptualization of what drones are and what they do no matter the historical particularities of the given space where they intervene. "Drone Technopolitics" positions drones in relation to the histories of racial imaginaries of the southern borderlands and to the histories of border enforcement. It does so by examining how the category of "intruder," once used to describe target drones in the Cold War, and the practice of "intrusion" were mapped onto the so-called problem of "illegal aliens" and border control.

Other scholars have argued that in order to understand U.S. drone operations today, one has to attend to their concrete place as historical instruments of U.S. empire. Some of these scholars generally prioritize the role of UASs in U.S. interventions on foreign territories such as

[48] Grégoire Chamayou, *A Theory of the Drone*, trans. Janet Lloyd (New York: New Press, 2015), 15, 17.
[49] Joseph Pugliese, *State Violence and the Execution of Law: Torture, Black Sites, Drones* (London: Routledge, 2013), 225.

Somalia, Pakistan, Yemen, Iraq, Syria, and Afghanistan.[50] Within this critique of an empire of drones, the work of Derek Gregory and Ian G. R. Shaw are of note. Gregory, for example, has been a long-standing voice in understanding drones not as uniquely harmful for their transformation of "warfare without risks," but as emblematic of a conceptual and material project, by the United States and its allies, to enclose the globe as a site of permanent war—what he calls "the everywhere war."[51] I take from Gregory the sense that studying drones removed from the political objectives they were meant to achieve reproduces the popular imaginary that assumes technology as politically neutral. As Shaw contends, U.S. drone warfare must be understood in relation to "the growth of the U.S. national security state: the conglomeration of military institutions, intelligence agencies, and police organizations designed to protect the U.S. homeland."[52] Drone warfare, in other words, has been enmeshed with a regime created to safeguard the security of the U.S. nation. And perhaps there has been no other site that the U.S. empire-nation has struggled more to control than the U.S.-Mexico border. Here is where "Drone Technopolitics" intervenes in this strand of the drone literature by teasing out how the southern border was a fundamental space in the development of drone warfare. Instead of offering a general description of what drone warfare is or was, I am more interested in examining the particularities of drone warfare in the southern U.S. borderlands. What is the place of the U.S.-Mexico border in the history of drones and, by inverse, what is the place of drones in the history of the U.S.-Mexico border?

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[50] For example: Bashir and Crews; Benjamin; Matt Delmont, "Drone Encounters: Noor Behram, Omer Fast, and Visual Critiques of Drone Warfare," *American Quarterly* 65, no. 1 (March 2013), 193–202; Derek Gregory, "Drone Geographies," *Radical Philosophy* 183 (2014), http://www.radicalphilosophy.com/article/drone-geographies.

[51] Derek Gregory, "The Everywhere War," *The Geographical Journal* 177, no. 3 (September 2011), 238–250.

[52] Ian G. R. Shaw, *Predator Empire: Drone Warfare and Full Spectrum Dominance* (Minneapolis: University of Minnesota Press, 2016), 5.

In brief, my contribution to the study of drones is to examine the untold story of their historical development in association to the U.S.-Mexico border and their contemporary use there. The drone literature has often elided discussion of the situated development of drones by devoting its critical impetus to scrutinize U.S. military operations outside the United States. Even when drone operations are examined, there is little acknowledgement of past and ongoing use within U.S. territory. But more importantly, what has not been addressed is how border making in the southern U.S. borderlands helped shape the kinds of politics embedded in drones. Drones, as this dissertation shows, embodied the idea of "intrusion" as a danger to eradicate. In the case of Cold War drone research and development, as Katherine Chandler suggests and as Chapter 1 makes explicit, there was an "interplay between what [wa]s domestic, personal, and secret," which created, in turn, unmanned systems embodying a series of relationships "between the 'enemy' and 'us,' and 'home' and 'abroad'."[53] This continuous exercise in demarcating the boundaries of space, subjects and objects was at the heart of the U.S. empire-nation and, concomitantly, of drone design and operations.

"Drone Technopolitics" contributes to the drone literature by employing a situated approach to drone design and use that is traversed by U.S. imperial formations. This dissertation centers the ways political rationalities around the U.S.-Mexico border informed and were embedded in the development of drones. But by the same token, it also shines a light on how drones shaped border making in the southern U.S. borderlands. Lastly, my dissertation contributes to these conversations by inquiring how tightly defined spatial histories and the emergence of a border technopolitical regime were entangled with drones.

[53] Katherine Chandler, "A Bee with an Electronic Brain: Drone Flights in Cold War America," *Humanity* 6, no. 2 (Summer 2015), 310.

## Chapter Summaries

All chapters follow a similar structure. They open with a short story that helps combine the different elements of each chapter's argument. This is then followed by a summary of the chapter itself, its main argumentative thrust, and its theoretical framework. The chapters then map out a discursive milieu that both contextualizes the development and use of certain technologies as well as highlights how this same milieu was also shaped by technology. In the case of the first three chapters, ideas are traced in their relations with institutions, corporations, people and technologies. This allows me to assemble the formation of a particular technopolitical regime. After discussing said regime, the chapters close with an analysis of a technology as it was used. The fourth chapter differs slightly from this structural organization because it does not tell the story of a technopolitical regime. Instead its impetus is on how contemporaneous actors have responded to the machinations of the border technopolitical regime.

The first chapter, "The Making of a Drone: Air Power and Scripting the Frontier, 1948-1970," investigates the creation of jet target drones and their use in Project William Tell, an U.S. Air Force military exercise held over the Gulf of Mexico during the Cold War. To better understand these exercises, the chapter contextualizes them by paying attention to the emergence of air power as a military concept and its associations to broader sociopolitical processes in southern California. By air power I mean an assemblage of entities brought together with the purpose of managing life and death from the air. "The Making of a Drone" then moves on to probe how Ryan Aeronautical contributed to the development of air power, which later became aerospace power, through the development of technologies for push-button warfare such as drones. In its final section, the chapter explores the entanglement between Ryan Aeronautical's Firebee and the borderlands with the coproduction of the U.S. empire-nation. Firebees flown in

Project William Tell were imagined as foreign "intruders" threatening to hurt the nation. Their association with "intrusion," the chapter shows, was colored by public debates about Mexican immigration and the presence of a racialized Other in the frontier. The chapter argues that Firebees were an U.S. imperial technology of rule through which the boundaries of territory and of enmity were negotiated and enforced. In order to understand these exercises and the scripts assigned to drones, the chapter's primary materials were compiled from period newspapers, popular cultural productions and, most importantly, archival documents collected from the San Diego Air & Space Museum. In the Museum I gained access to Ryan Aeronautical's rich discursive imagination. The thoughts of journalists, military theorists, government and military officials, technicians, and the broader U.S. public helped me map how Cold War anxieties, frontier imaginaries, and racial constructs were grafted onto high-flying Firebees.

The idea of drones as "intruders" on the borderlands of the U.S. empire-nation was translated onto the bodies of Mexican migrants in 1970. They were the "enemies" against which the U.S. had to mobilize its resources. Chapter 2, "The 'Electronic Fence': Automation and Infrastructures of Border Control in the 1970s," deals with the moment when Mexicans were imagined as "intruders" threatening the nation. At its center, the chapter probes the moment when INS constructed an experimental "electronic fence" or intrusion detection system on the U.S. border—mainly along parts of the U.S.-Mexico border in California and Texas. The system, originally developed for military use in Vietnam, established the conditions of possibility for future collaborations between the U.S. military, the electronics industry, academia and the Service. This is what I have termed the border technopolitical regime and which three decades later, after the attacks of September 11, 2001, others now call the homeland security-industrial complex. The system also signaled a shift in the Service whereby border enforcement activities

began being understood predominantly in informational terms. Cybernetic ideas circulating in the period left a lasting impression on INS officials who stressed that information was imperative to control the immigration system and the border itself. In automating border enforcement, a sociotechnical arrangement was produced in data capture, management, and processing which I have called the cybernetic border. Materials published by the INS, journalistic coverage, technical reports, and military documents are used throughout the chapter to argue that cybernetic ideas and the "electronic fence" were adopted to create the border on land and on people's bodies.

Future digital and electronic technologies have been indebted to the "electronic fence." And the Predator B UAS, in use by the CBP since 2005, was among the latest technological iterations of the cybernetic border from the 1970s. Chapter 3 explains why Predator Bs were adopted by the CBP but also what kinds of political rationalities were coded in their operations. To make its case, the chapter is devoted to the circulation of discourses about risk in the 1990s and 2000s, the creation of the DHS and the operation of drones as part of the Arizona Border Control initiative. "Systems of Enmity: Drones and the Border Technopolitical Regime, Post-9/11" is devoted to the post-Cold War moment at the turn of twenty-first century when actors in the U.S. wrestled to identify a national enemy. One way to find the "enemy" was to invest in the development and use of technologies that would reveal their hidden location. Drones became, in the eyes of government officials, technicians, and the broader U.S. public, the ideal systems for finding surreptitious enemies of the U.S. empire-nation. This development was coterminous to the government's construction of categories that constrained its operations: "Mexicans," "Other-than-Mexicans," and "person from special interest country." Inscribed in these categories were racial imaginaries that identified certain populations as "risks" and "threats": Latinxs and, after

9/11, Arabs and Muslims. The chapter, in short, shows how drones were used to create an operative image that demarcated the boundaries of enmity on these subjects' bodies. Its archive consists of DHS documents, government reports, Congressional hearings, corporate materials, and surveillance footage from Predator Bs used on the southern border.

Chapter 4, "Techniques of Dissent in the Age of the Border Machine," flips the script on the dissertation's heavy reliance on governmental, military, and corporate sources. It draws together a series of activist and artistic interventions that critiqued the border technopolitical regime and, in doing so, the chapter features techniques of dissent. At the same time that Essam Attia embarked on his "Drone Campaign" (see

Figure *1*) in 2012, Ricardo Dominguez, Ian Alan Paul, and Jane Stevens simulated a drone crash in the middle of the University of California San Diego campus. The coincidence of both of these artistic interventions signaled a growing public interest and anxiety around the idea that drones where coming "home." Yet as this dissertation makes explicit, especially through Chapters 1 and 2, drones and their technopolitics never really left. This much was intuited by Attia when he used the caution traffic sign with the migrant family as a way to associate the inside/outside of the U.S. empire-nation. Chapter 4, then, is devoted to the digital works of Humane Borders, Dominguez, Paul, Stevens, and Josh Begley because they challenged the ways that the border technopolitical regime operated at the intersection of life, death, and data by fabricating "intruder" targets. Emphasizing how the regime depended on processes of fabrication led actors to identify the literal and metaphorical dimensions of the machine as their critical artifacts. The chapter, then, is dedicated to databases and drones as two of the machines actors thought with and against. Actors speculated with the failures of machines to imagine a different

way of being and relating in the borderlands. By doing so, they opened an "elsewhere" whereby the fabrication of "intrusion" and the treatment of the Other as an enemy was interrupted.

## Methodological Reflection: Of Closed Worlds and Closed Gates

When I decided to write about military drones on the U.S.-Mexico border, I found myself with the challenge of writing about an object cordoned off by what Peter Galison calls the "closed world" of military research and military technology. Galison describes it very poetically when he states that, "The closed world is not a small strongbox in the corner of our collective house of codified and stored knowledge. It is we in the open world—we who study the world lodged in our libraries,…*we* who are living in a modest information booth facing outwards, our unseeing backs to a vast and classified empire we barely know."[54] The design, technical elements, and some of the people involved in the development of military technology, among other things, are kept secret through the usage of government classification schemes. Even when documents might be released through Freedom of Information Act requests, chunks of information might be redacted, to all extent removed, to prevent others from knowing and, at times, to protect the people involved. As soon as I began researching the Predator B UAS, the main drone used in U.S. border enforcement, I found myself with a very limited number of sources because I was interested in knowing what engineers and technicians thought, what they discussed.

To ameliorate the limitations of the closed world, I sought out ways to document the ideas of drone engineers at General Atomics in San Diego—the defense manufacturer who designed and developed the Predator B. One way I thought I would do this was through oral

[54] Peter Galison, "Removing Knowledge," *Critical Inquiry* 31, no. 1 (Autumn 2004), 231.

history interviews. After failing to secure access to technicians through known contacts, I decided to contact General Atomics directly. Not finding a direct email address to write to, I sent a request for information using an electronic form in GA's website. In this message, I explained my project on the history of drones on the U.S.-Mexico border and my interest on their Predator B UAS. A few days passed when I was told that, "our engineers are focused on meeting customer requirements and don't have the luxury of time to assist with student projects." Nevertheless, I insisted. So during a visit to San Diego a few months later—all this happened in early 2016—, I took a ride to General Atomics' headquarters next to the University of California San Diego campus. My ride left me near the pedestrian entrance to GA's headquarters. I walked up to the closed gate and was greeted by a security guard. Quickly after I introduced myself, he asked me, "Do you have an appointment?" To which I responded, "No, I don't." His face expressed surprise. I explained that I couldn't find a helpful contact through GA's website and that I hoped someone in the PR department or division could be of help. Again, he looked at me in disbelief. The guard then asked for some identification to verify I was in fact a researcher from the University of Michigan. I quickly handed him my business card and my Michigan ID. He proceeded to pick up the phone and called someone higher up in the security chain. He explained the situation to them, who I was and why I was there. "Say no one can help him?," the guard said out loud. "O.K." Once he hung up the phone, he looked at me and said, "you heard. They said no one. You saw, I tried." Whomever he talked to actualized the enclosure of knowledge made possible by the "closed world," though in this case it was embodied by the gate that literally closed behind me.

Faced with no direct access to current engineers and technicians, I set out to find those that had documented their historical participation in drone development and other border

enforcement activities—people and organizations whose materials had been released from the tightly guarded classification regime. Corporate and governmental public records gave me insight into some of the debates officials held with regards to drone design, use, experimentation as well as border and immigration enforcement strategies and technologies. For example, the INS published a periodical called *I and N Reporter*, later renamed *INS Reporter*, and it contains articles written by a variety of INS officials. These articles give insight of when and why some technologies were used, like computers in the Service's 1960s-1970s effort to automate file management. When it came to the archive of Cold War technologies like drones, I was left with the challenge of figuring out how to do research with what Mihir Pandya calls a "fragmented Cold War archive."[55] Such fragmentation was the result of a concerted effort to produce gaps and omissions in the public record. Whenever I confronted gaps in the materials—some of which were intentionally vague because not all the information was cleared by the classification regime—I then consulted newspaper coverage and popular cultural productions to help fill-in the gaps but also to confirm or challenge what other sources were saying. Here is where scientifictions came into play as sites where the connections between humans and the objects of air power were understood. Examples of scientifictions are cultural productions like movies, graphic design, performance and visual arts, among others. For more contemporary drone operations, I was able to find promotional materials published by General Atomics as well as real footage of drones used along the border. It would seem counterintuitive that DHS would publicize surveillance footage but it actually serves an important role as a public relations tool. I gained access to these videos through the Defense Visual Information Distribution Service, a

[55] Mihir Pandya, "The Vanishing Act: Stealth Airplanes and Cold War Southern California," in *Blue Sky Metropolis: The Aerospace Century in Southern California*, ed. Peter J. Westwick (Berkeley: Huntington-USC Institute on California and the West, 2012), 105.

platform of the Department of Defense's Defense Media Activity whose mission is to provide "high quality multimedia products and services to inform, educate, and entertain Department of Defense audiences around the world."[56] In the end, the project is grounded in an eclectic archive of materials through which relations between entities were traced.

To make my case, I have relied on sources from the spheres of government, industry, the military, and mass media. Technical, governmental, and military reports as well as white papers, newspaper coverage, film, and surveillance footage, among other documents, were used to historically draw associations between the border, drones, and "intruder" subjects. This meant that there was limited engagement with how different groups contested these associations on the ground and across time. In part, I have been limited by a lack of historical sources that documented how actors in the borderlands reacted to the use of drones and intrusion detection systems. Drones or remotely piloted vehicles, as shown in Chapter 1, were not a hot-button topic in public debates until the twenty-first century. Instead, the public's imagination in the mid-twentieth century was enthralled by aviation, nuclear power, computers, and space exploration. When it came to intrusion detection systems, Chapter 2 makes plain, they were thought to be part of the Immigration and Naturalization Service's modernization efforts because of their association to electronics and computers. Responses to their use, however, were rarely critical. The pages of some of the biggest newspapers, like the *New York Times*, the *Washington Post* and the *Los Angeles Times*, tended to only mention how intrusion detection systems were used to help efforts in controlling the vast border landscape. There were probably groups who did respond critically to electronic surveillance operations on the border at that time. Their absence from the first two chapters should not be taken as a statement of their inexistence but as a result

[56] Defense Media Activity, https://www.dma.mil/About-DMA/Mission-Vision/.

of how governmental archives and newspaper accounts privileged certain actors over others. To ameliorate this limitation, I supplied my own critical reading of the border technopolitical regime since the mid-twentieth century. And, in the case of responses to the contemporary regime, the focus of Chapter 4, I rely on the critical work of activists and artists. Through their words and deeds I was able to imagine an "elsewhere," a different kind of world to the one constructed through the border technpolitical regime's fixation on "intrusion" and enmity.

## CHAPTER I

### The Making of a Drone: Air Power and Scripting the Frontier, 1948-1970

In an early fall morning in 1965 crews from the United States Air Force and Ryan Aeronautical were readying aircrafts for takeoff. Within a heavy-walled enclosure a launch operator pressed a button igniting the jet-assisted take-off engine of one of the aircrafts. Minutes later, radars at Ground Control Intercept registered the incoming presence of an "enemy" bomber close to U.S. territory on the Gulf of Mexico. Aboard their planes, Air Force pilots were promptly scrambled "for the search, intercept and 'kill' of the 'enemy' target."[1] Their aim was to protect civilians across U.S. cities from the destructive force of aerial bombardment. Airborne radars scanned space and successfully locked on the target. U.S. pilots flying over the Gulf fired away their missiles and shot down the enemy menace. U.S. cities, their inhabitants and their infrastructures, were safe once again. Not long after, however, Air Force pilots took on another threat and so events repeated themselves over the course of ten days. Project William Tell was the name of this weapons meet organized by the U.S. Air Force.

The simulation exercise tested the capabilities of the national defense system in the event that an air attack was launched against the U.S. "Survival," General Curtis E. LeMay stated, "may depend upon the skills of the men who man the weapons of the Air Defense Command." He also added that Project William Tell offered "the most realistic proving ground, short of

[1] "Firebee Missions Add Realism to William Tell '65," in *William Tell 1965: Firebee News* (c. 1965), Boxes Ryan Collection – RPV, San Diego Air & Space Museum (SDASM).

actual combat conditions, that we can provide to evaluate these vital capabilities."[2] In this exercise, the enemy threat was not your typical piloted jet, so the question of "the men who man[ned]" that "weapon" was of a more complicated nature. The weapon in question was the remotely piloted and self-navigating aircraft designed by Ryan Aeronautical called the Firebee.

The Firebee, originally called Q-1 and later redesigned as the Q-2, was a drone developed since 1948 which had three purposes: to train, to simulate, and to test. Firstly, as a remotely controlled target, it was central to the training of anti-aircraft artillery and automatic weapons units in the Army and Navy as well as fighter, bomber, and attacking aircraft at altitudes from sea level to 40,000 feet.[3] In so doing, and contrary to its non-working bee 'brethren' (stingless male bees), drones developed by Ryan Aeronautical worked extensively by offering pilots a "realistic" target that could simulate the operation of high-speed enemy fighter aircraft. Q-2s were supposed to mimic the capabilities and actions of other piloted airplanes. Lastly, their use in training exercises was supposed to test the United States' aerial defenses along its territorial borders. Drones challenged the preparedness of the U.S. military in the event of an aerial attack. Defending territory through the deployment of aircraft was considered, at the time, a fundamental and inevitable component of modern warfare and air power. A constituting force of the empire-nation, air power was the mobilization of aerial technologies for the control and management of life on the ground. It brought together devices, people, practices, and discourses whose aim was to afford actors the capacity to act from the air in administering populations.[4]

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[2] General Curtis E. LeMay cited in "Ryan Firebee at Project William Tell" (c.1958), Album 109, "Ryan Library Albums," SDASM.
[3] "Report No. 4929-34A. Detail Specification for a Jet-Propelled Aerial Target" (25 March 1950; revised 15 January 1951) and Guided Missile Section, Air Materiel Command, U.S. Air Force, "Pilotless Aircraft" (1 Feb. 1948), Album 108, "Ryan Library Albums," SDASM.
[4] William Mitchell, *Our Air Force: The Keystone of National Defense* (New York: E. P. Dutton & Company, 1921), 1; United States Air Force Junior ROTC, *Aerospace Science: History of Air Power* (Maxwell Air Force Base, AL: Air University Press, 1986), 3-19.

U.S. pursuit of air power throughout the Cold War was informed by a variety of political concerns. Prominent among them were heightened anxieties around the emergence of the Soviet Union as a nuclear power. The devastation caused by the atomic bombs of Hiroshima and Nagasaki in 1945 drove fear to the hearts and minds of the U.S. public and government. Intent on limiting the growth in territory and influence of as well as putting pressure on the Soviet Union, President Harry S. Truman announced his administration's turn towards a policy of containment in 1947. A new conflict began between the U.S. and the Soviet Union. Such a conflict grew in complexity after the latter's successful testing of an atomic bomb. Anti-communism and geopolitics, thus, helped shape the development of air power. Similarly, advocates of air power, which included military and civilian alike, "saw [it] not only as the shape of the future but also as the promise of a better tomorrow."[5] Scientific endeavors materialized by air power would, advocates imagined, propel the nation forward and, therefore, guarantee its progress in economic and political terms. Through the political work of advocates, air power was entangled to a sense of national security and modern social progress throughout much of the 1950s. Were there, however, other politics associated to air power and technological development?

"The Making of a Drone: Air Power and Scripting the Frontier, 1948-1970" is inspired by Science Studies scholars like Gabrielle Hecht and Paul Edwards who call us to move beyond national security rationales in the study of Cold War science and technology research in the U.S. Hecht and Edwards beckon us to consider a broader range of politics shaping and being shaped by technological development.[6] A key question then for this chapter is what kinds of politics

[5] Steve Call, *Selling Air Power: Military Aviation and American Popular Culture after World War II* (College Station: Texas A&M University Press, 2009), 10.
[6] Gabrielle Hecht and Paul N. Edwards, *The Technopolitics of Cold War: Toward a Transregional Perspective* (Essays on Global and Comparative History; Washington, D.C.: American Historical Association, 2007).

were entangled with air power. To answer this question, "The Making of a Drone" examines the design and use of drones from 1948 to 1970. Drones during this period were an embodiment of U.S. imperial formations; they were a technology of rule through which territorial ambiguity was negotiated and exclusion of external and internal enemies was attempted.[7] The chapter elucidates the place of drones in terms of nation making by tracing the entanglements between drones and ideas around racialized populations and frontier making.

Drones, I argue, were delegates that prescribed human behavior within spatial relationships. Based on normalizing ideas about "foreign" bodies, they dictated how U.S. citizens ought to (re)act when faced with the presence of intruders in national territory. Target drones, in use since the 1930s, were thought to offer a way to train anti-aircraft gunners and airplane pilots to take down "enemies" without the danger of unnecessarily hurting pilots or damaging aircraft. As "foreign" or "enemy," remotely piloted vehicles came to articulate the place of alien bodies threatening the existence of the U.S. nation. Air Force pilots as well as other state and corporate actors were trained to eliminate them through the enactment of certain biopolitical scripts. Following Bruno Latour's conceptualization of scripts, I understand biopolitical scripts as the scenes, either figurative or non-figurative, played by human or nonhuman actors in the administration of populations.[8] Biopolitical scripts, consequently, verge on the governance of peoples organized around and through a series of categories like "intruder," "alien," or "Mexican." These scripts set the stage for how actors related to one another, for how they ought to behave. Pilots, radar systems, and other entities were instructed and trained in military exercises like Project William Tell to construe the Firebee as an enemy threat. During these

[7] For imperial formations see: Ann Laura Stoler, *Duress: Imperial Durabilities in our Times* (Durham: Duke University Press, 2016), 177-178, 199.
[8] Bruno Latour, "Mixing Humans and Nonhumans Together: The Sociology of a Door-Closer," *Social Problems* 35 (1988), 304-305.

exercises, the high-flying Firebee played the role of a foreign body or force. In their foreignness, drones helped articulate an idea of who or what belonged to the space of the nation and who did not. They translated the notion of "intrusion" into the southern borderlands.

"The Making of a Drone" is broken into three sections. The first grapples with the question of air power and its formulations before and during the Cold War. At its heart are the writings of air power theorists such as Giulio Douhet and William Mitchell as well as the development of air power in San Diego. This section posits that air power was an imperial formation, a mode of governing and administering populations reliant on aerial technology. Air power comprised an amalgam of devices, instruments, procedures, people, industries, institutions, and relations put together for the aerial management of life and death on the earth's surface.[9] Studying the design and use of drones requires a thorough engagement with their relation to the politics of air power. The second section addresses San Diego's Ryan Aeronautical as a site of production for modern air power, especially for its pursuit of drones and push-button warfare. Long before drones became prominent instruments for surveillance and "targeted killings" by the U.S. military, there was Ryan Aeronautical's Firebee. It did not target other human bodies, it was itself the target. Section three explores how drones and air power were entangled with the borderlands in the coproduction of the U.S. empire-nation. Intruder and frontier politics, the section argues, were embedded in Firebees used in Project William Tell. This military exercise rehearsed and prescribed how foreign, "intruder" entities in the borderlands were to be engaged. Thus, Project William Tell helped demarcate the nation's boundaries. For the last two sections, the chapter relies on ideas by a variety of actors such as

[9] It could be argued that air power mobilizes both geontopolitics and biopolitics for it makes visible, as Elizabeth Povinelli argues, the ways the latter depends on the former's distinctions between the lively and the inert. *Geontologies: A Requiem to Late Liberalism* (Durham: Duke University Press, 2016), 5.

engineers and graphic designers at Ryan Aeronautical, and soldiers and officers in the U.S. Air Force. The chapter also draws from "scientifictions"—science and technology as conjured in legends and popular culture—because these were the sites where sense was made of the connections between humans and the objects of air power.[10] Scientifictions considered in the chapter include graphic design work at Ryan Aeronautical, the film *Invasion of the Body Snatchers*, and the radio and television series *The Lone Ranger*.

Before moving on, let me make an important point with regards to the chapter's approach to time. To better understand drones, the chapter first delves into the discursive and material infrastructures that set their conditions of possibility. Hence, the opening section begins in the early twentieth century as a way to grasp air power as both a historical concept and as a technopolitical assemblage. This section connects abstract formulations of air power to their application on the U.S. southern borderlands. It is at this point that readers move on to the beginning of the Cold War (1947) to contextualize the rise of push-button warfare and drone design. The final section continues the chronological movement established by the previous two sections. At its core, is the usage of drones in Project William Tell. Though Project William Tell continued after 1970, this chapter examines those exercises that fall between 1958 and 1970. The first of these dates marks the moment when the Air Force, Army and Navy awarded Ryan Aeronautical a contract to research and develop jet-powered drone aircraft. The latter (1970), meanwhile, seems like an appropriate cut-off point because it brings into sharper focus the U.S.-Mexico border. It was in 1970, after all, that intrusion detection systems were transferred from the Department of Defense to the U.S. Border Patrol and installed along the boundary line to tackle the "illegal alien" problem (the focus of Chapter 2). Through this transfer we follow the

[10] Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network-Theory* (Oxford: Oxford University Press, 2005), 82.

deployment of the category of "intruder" which, the current chapter shows, was integral to the boundary work of drones along U.S. territorial borders. Project William Tell and Firebee drones were an embodiment of air power in the borderlands—a staged contest between intruders and the national security apparatus of U.S. empire.

## The Politics of Air Power and the "Air Capital of the West"

The academic literature on air power generally favors the place of bombers and attack aircraft as well as the thoughts and actions of pilots, government officials, the aviation industry, and public figures such as journalists and intellectuals.[11] This literature is, for the most part, an intellectual and cultural history that accounts for the formation, circulation and adoption of ideas throughout the first half of the twentieth century. From a slightly different tack, social historians have studied the relationships of labor and the aerospace industry in southern California to understand not just how and why the region became such a focal point for the industry but also what were the broader consequences this had on the region and the nation.[12] Historians of science and technology, meanwhile, have addressed the development of aerospace devices and knowledges by engaging their technical and broader social milieu.[13] The approach followed here contributes to these conversations by tracing the entanglements between air power and U.S.

[11] See, for example: Paul Boyer, *By the Bomb's Early Light: American Thought and Culture at the Dawn of the Atomic Age* (New York: Pantheon, 1985); Call; Thomas Hippler, *Bombing the People: Giulio Douhet and the Foundations of Air-Power Strategy, 1884-1939* (Cambridge: Cambridge University Press, 2013); David R. Mets, *The Air Campaign: John Warden and the Classical Airpower Theorists* (Maxwell Air Force Base, Alabama: Air University Press, 1998); Michael S. Sherry, *The Rise of American Air Power: The Creation of Armageddon* (New Haven: Yale University Press, 1987); E. Warner, "Douhet, Mitchell, Seversky: Theories of Air Warfare," in *Makers of Modern Strategy: Military Thought from Machiavelli to Hitler*, ed. Edward Mead Earle (1943; repr., Princeton: Princeton University Press, 1971), 485-503.

[12] Peter J. Westwick, ed. *Blue Sky Metropolis: The Aerospace Century in Southern California* (Berkeley: Huntington-USC Institute on California and the West, 2012).

[13] Paul E. Ceruzzi, *Beyond the Limits: Flight Enters the Computer Age* (Cambridge: MIT Press, 1989); David Mindell, *Digital Apollo: Human and Machine in Spaceflight* (Cambridge: MIT Press, 2008).

imperial formations before and during the Cold War. It demonstrates how air power was marked by racial anxieties around the survival of the U.S. nation.

Among the "prophets" of air power, Douhet and Mitchell are two towering figures. Throughout the twentieth century, and still to this day, their ideas shaped the contours of what U.S. air power was, and what it could and ought to do. Douhet was a member and officer of the Italian military in the late-nineteenth and early-twentieth centuries. His career was marked by continuous engagements and experimentations with mechanized warfare which coalesced into an articulation of a theory of air power. These engagements were documented in his writings which were mostly meant for a military audience. Mitchell, on the other hand, was a U.S. military officer who during World War I flew some of the first U.S. war planes. His aerial deployments in Europe were a kind of revelation for what he termed the U.S.'s keystone of national defense—its air force—and for which he advocated for in the popular press until his death in 1936. Both Douhet and Mitchell continue to be extensively studied, quoted and respected within the U.S. military—especially in the U.S. Air Force.[14] Examining the works of these two theorists begins to reveal the politics embedded in the assemblage of air power.

Air power relied on a multitude of actors, devices, processes, and practices that worked in concert to take, as Douhet proposed, "command of the air." Published in 1921, *The Command of the Air* offered Italian readers an articulate exposition of what was later understood as air power. The book was, in part, an analysis of aerial warfare carried out by European forces during World War I. Through it Douhet offered his insights on the strategy and tactics of air power. In a

[14] Examples of their continued influence in U.S. military thought and training: James Trapier Lowe, *A Philosophy of Air Power* (Lanham, MD: University Press of America, 1984); Colonel Philip S. Meilinger, *10 Propositions Regarding Air Power* (Air Force History and Museums Program, 1995); Mets; U.S. Air Force Academy, *Special Bibliography Series: Air Power and Warfare* (Colorado Springs, CO: U.S. Air Force Academy Library, 1978).

contemporary introduction to the seminal *The Command of the Air*, the editor argues that air power for Douhet "became the use of space *off* the surface of the earth to decide war *on* the surface of the earth" (emphasis mine).[15] Unilaterally controlling events on the surface of the earth, either on land or sea, was a strategic role only aerial forces could fulfill. Douhet held that,

> To have command of the air means to be in a position to wield offensive power so great it defies human imagination. It means to be able to cut an enemy's army and navy off from their bases of operation and nullify their chances of winning the war. It means complete protection of one's own country, the efficient operation of one's army and navy, and peace of mind to live and work in safety.[16]

Air power went beyond human imagination for it promised, when "correctly" developed, absolute aggression and protection. Total superiority over an enemy rose from the soil of a speculative fiction. Air power grew from a preventive logic that hoped to disarm (an)other before they could disrupt a nation's "peace of mind." It was an offensive/aggressive mode of relating to an imagined enemy, an Other, and this mode was premised on a desire for self-protection, for self-perpetuation. Following this logic, to have command of the air meant that an air force, made up of devices and actors dedicated to acting from the air, could dictate and constrain the behavior of enemies as a means to guarantee societal survival. The influence of this new ensemble of entities, as a consequence, went beyond the practices of war.

Incursions into the aerial environment opened up a new plane of enforcement for politics. After all, war was, as the nineteenth-century military thinker Carl von Clausewitz dictated, "merely the continuation of policy by other means."[17] It was equally clear for Douhet that war could not be severed from social or political life. "The prevailing forms of social organization,"

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[15] Giulio Douhet, *The Command of the Air*, trans. Dino Ferrari (1942; repr., Washington, D.C.: Air Force History and Museums Program, 1998), viii.
[16] Ibid., 23.
[17] Carl von Clausewitz, *On War*, trans. Michael Howard and Peter Paret (1976; repr., Oxford: Oxford University Press, 2007), 28.

he argued, "have given war a character of national totality—that is, the entire population and all the resources of a nation are sucked into the maw of war."[18] Two things were of importance here. First was that, before any war could take place, various actors were industriously working to make it a possibility. Conflict was the result of national bodies channeling their energy and resources while organizing their knowledge infrastructures to produce the necessary instruments of war. The mobilization of the nation and its resources for war meant all its constituents assumed the role of legitimate targets. Secondly, the vastness of the aerial environment, Douhet thought, meant there was no space beyond the reach of air power. All of life was now enveloped by the unceasing menace of aerial attack and, because no area would continue "liv[ing] in safety and tranquility," the battlefield could not "be limited to actual combatants."[19] In other words, the technological affordances of flight were coded with the multiplication and dispersion of battlefields; spaces for battle and air strikes could be found throughout the nation. This, in turn, transformed all citizens into combatants which is to say they were now targets. The nation, as made from its territory, resources, and peoples, was all a field for war and its manufacturer. General William Mitchell was of the same mind.

During the 1920s and early 1930s, Mitchell was among the most outspoken and forceful proponents of air power in the U.S. He saw aircraft as "set[ting] aside all ideas of frontiers. The whole country," he argued, "now becomes the frontier and, in case of war, one place is just as exposed to attack as another place."[20] The frontier here, as in much popular culture, was a space were racial differences were enforced through law, policy, and technology. Though he seemed to contend that air power got rid of the frontier, Mitchell quickly reasoned that it dispersed the

[18] Douhet, 5.
[19] Ibid., 10.
[20] William Mitchell, *Winged Defense: The Development and Possibilities of Modern Air Power—Economic and Military* (New York: G. P. Putnam's Sons, 1926), 4.

frontier to the point of making "the whole country" and the globe into a "frontier." Just as it happened with the U.S. western frontier, an imperial logic was embedded in air power. The features of this imperial logic were territorial expansion, the redrawing of boundaries, and population displacement and dispossession. The whole planet and, for that matter, every country was imagined now to be within the reach of whoever exploited aviation's potential. More troubling, "the trend in war [since the First World War was] to treat combatant and non-combatant alike, if to do so [realized] any substantial military gain."[21] While combatants had been generally construed as the members of state armed forces, non-combatants were the non-armed and non-belligerent citizens of the same state. The expansive, imperial logic of air power blurred the boundaries of countries and also those between combatants and non-combatants. All human actors and the whole planet were now treated as participants and sites in the social fabrication of war. Yet not everyone was subjected to air power in the same ways.

The city of San Diego, for example, held a special place in the production of air power's imperial logics. From the "civilizing" endeavors of Spanish settlers to the "pacification" efforts of U.S. settlers against Native Americans in the nineteenth century, imperial logics were continually rehearsed in San Diego through the displacement, dispossession, management, and eradication of peoples. These practices often materialized through an assortment of entities and discourses. Two are of notice here. First was the conceptualization of San Diego as a testament to the success of the U.S. frontier. The growth of San Diego in the early twentieth century owed much, California Governor James Gillett and others argued, to the pioneering duty of U.S. citizens "to perform on the Pacific slope."[22] The western frontier, after all, opened the door to the

[21] Lester Nurick, "The Distinction between Combatant and Noncombatant in the Law of War," *The American Journal of International Law* 39, no. 4 (October 1945), 680.
[22] Cited in Matthew Bokovoy, *The San Diego World's Fairs and Southwestern Memory, 1880-1940* (Albuquerque: University of New Mexico Press, 2005), 23.

Pacific frontier. The second assortment of entities and discourses through which imperial formations materialized was air power. From the early twentieth century San Diego grew into becoming the "Air Capital of the West" through the associations between the U.S. Navy, the San Diego Chamber of Commerce, city hall, and a variety of aircraft parts and manufacturers.[23] Air power linked San Diego to the civilizing mission of "the West." San Diego was made into a space to test the boundaries of technological and political imagination.

San Diego's location near the U.S.-Mexico border and its proximity to the Pacific Ocean led local leaders at the turn of the century to exhort the federal government and the U.S. military to invest in the city's defenses.[24] An interesting case was that of the *Los Angeles Times*, which actively reported and supported the efforts of aviation boosters across Southern California, especially in Los Angeles and San Diego. In reporting aviation exhibitions early on in the twentieth century, the newspaper helped to construct the modern glare of flight but it also made the case for its military and economic value. The city of San Diego became one of the premier experimental sites where aviation advocates struggled to identify fruitful uses for planes. In one of such attempts in 1911, Harry S. Harkness, a collaborator of aviation entrepreneur Glenn Curtiss, flew from Fort Rosecrans, San Diego to Tijuana. The aim of his flight was to deliver orders from a commander to a subordinate officer stationed along the border. In doing so, the *Los Angeles Times* concluded, Harkness demonstrated "the practical use of the aeroplane as a scout in time of war."[25] Yet what Harkness wanted, he told the U.S. Chief Signal Officer in Washington, D.C., was for the U.S. government and military to support "further experiments in

[23] San Diego Chamber of Commerce, Aviation Department, *The Aviation Industry Looks to San Diego!* (San Diego: San Diego Chamber of Commerce, 1940).
[24] Abraham Shragge, "'A New Federal City': San Diego during World War II," *Pacific Historical Review* 63, no. 3 (August 1994), 340-341.
[25] "Harkness Flies Over the Line," *Los Angeles Times*, February 8, 1911.

connection with the use of aeroplanes as applied to coast artillery and signal service." Though early in their development airplanes were envisioned as offensive instruments, armed with artillery, they were also imagined to function as transmitters of signals or information. Harkness offered his services to pursue experiments in these two fronts. For it, he required the help of the sparse military installations around San Diego, Fort Rosecrans and Point Loma. The same year Harkness flew "over the [border] line," *Los Angeles Times* reporter John S. M'Groarty proclaimed that, with the opening of the Panama Canal in 1915, San Diego would "guard the gates of the first American port of call."[26] The city was imagined as an armed ("guard") entryway, strategically positioned to play a role in how U.S. actors would protect the interests of the nation. In a more fundamental manner, with their eyes turned towards the Pacific frontier and the Americas, Harkness and others construed San Diego as a critical site for the development of air power and the expansion of U.S. interests.

To protect San Diego was to "guard the gates" of the U.S. empire-nation. One key group of actors in the development of air power were those involved in the formation of the military-industrial complex. The people and institutions that were a part of what Mike Davis calls San Diego's "private governments" gave the city a distinct flair among others in California.[27] Aviation entrepreneurs—often times called pioneers, a term which beckons the frontier imaginary of old—did not merely perform aerial pirouettes. They built the foundations upon which an incipient defense industry would rise. This defense industry was heavily invested—literally and metaphorically—in the articulation of the empire-nation as the U.S. became involved in the First and Second World Wars, and in imperial ventures in the Caribbean, Central

[26] John S. M'Groarty, "History Is Repeated: Franciscan Fathers at San Diego," *Los Angeles Times*, July 20, 1911.
[27] Mike Davis, Kelly Mayhew and Jim Miller, *Under the Perfect Sun: The San Diego Tourists Never See* (New York: New Press, 2003).

America, and the Pacific.[28] The western frontier gave way to an imperial frontier to be exploited by aviation's pioneers.

Mitchell's theorization offered a vision that anchored air power in an imperialist framework that split the world into civilizing and uncivilized forces, Western and non-Western nations.[29] It was the task of "the white races of western Europe and America" to fully exploit air power's defensive qualities to protect themselves from the aggressions of non-Western, Asian "yellow races."[30] Mitchell feared that the growing "friction…between the white [the West] and yellow races [Asia]" stemmed from the latter's attempts to take their share of the wealth which the former had amassed. Of equal importance was the fact that, since the turn of twentieth century, U.S. public discourse had come to value ideas about "health" and "cleanliness" which Chinese men and women were perceived not to fulfill. Chinese bodies, deemed "unhygienic" and "unhealthy," were therefore believed to be dangerous and inadmissible to the U.S. nation.[31] Their inadmissibility pushed them into the margins of legal personhood. Chinese border crossers in this period, for example, were the public image of the "illegal." Immigration historian Erika Lee shows that their capacity to perform across racial lines allowed them to enter the U.S. undetected.[32] In doing so, the "illegal" epitomized a continuing "foreign" menace against which

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[28] See, for example: María Eugenia Estades Font, *La presencia militar de Estados Unidos en Puerto Rico, 1898-1918: intereses estratégicos y dominación colonial* (Río Piedras: Ediciones Huracán, 1988); Gilbert M. Joseph, Catherine LeGrand, and Ricardo Donato Salvatore, eds., *Close Encounters of Empire: Writing the Cultural History of U.S.-Latin American Relations* (Durham: Duke University Press, 1998); Paul Kramer, *The Blood of Government: Race, Empire, the United States and the Philippines* (Chapel Hill: University of North Carolina Press, 2006); Walter LaFeber, *Inevitable Revolutions: The United States in Central America*, Second Edition (New York: W. W. Norton, 1993).
[29] Mitchell, *Winged Defense*, 4, 19; William Mitchell, "Give America Airplanes or We Shall Perish as a Nation" (1934), Box 27, Folder 1, General William Mitchell papers, Manuscript Reading Room, Library of Congress.
[30] Mitchell, "Give America Airplanes."
[31] Nayan Shah, *Contagious Divides: Epidemics and Race in San Francisco's Chinatown* (Berkeley: University of California Press, 2001), 12.
[32] Erika Lee, "Enforcing the Borders: Chinese Exclusion along the U.S. Borders with Canada and Mexico, 1882-1924," *The Journal of American History* 89, no. 1 (June 2002), 62-63.

the resources of the empire-nation had to be constantly mobilized. Mitchell thus concluded that "[t]he future preservation of the independence of [the U.S.] depends on air power."[33] National preservation, which implied a racial ordering of local and global spaces, was guaranteed by the development and exercise of air power by "white" or so-called Western societies.

Air power, then, was intricately bound to the exercise of police power. This is the claim of sociologist Mark Neocleous who insists that the development of air power cannot be severed from the actions of imperial actors in colonial spaces.[34] In the context of the U.S. southwestern borderlands, for example, air power was mobilized during the Mexican Revolution in an attempt to control and administer populations. The U.S. military organized an expedition in March 1916 led by Brigadier General John J. Pershing. "The expedition is," the U.S. State Department announced, "simply a necessary punitive measure, aimed solely at the elimination of marauders who raided Columbus[, New Mexico] and who infest an unprotected district near the border, which they use as a base in making attacks upon the lives and property of our citizens within our own territory."[35] The "marauders" alluded to by the State Department were Pancho Villa and his men who had embarked on cross-border "raids." These "marauders" were identified as subjects who "infest." Implicit in the statement was the idea that they were racially undesirable, a public health threat to the safety of the U.S. nation. Aircraft used in the Pershing Expedition gathered and transmitted information on the movements of people in the border zone.[36] Air power in this instance was mobilized within a larger effort that sought to eradicate a particular group and keep

[33] Mitchell, "Give America Airplanes."
[34] Mark Neocleous, "Air Power as Police Power," *Environment and Planning D: Society and Space* 31 (2013), 578-593.
[35] State Department document cited in "Rumor of Recall of Troops False," *New York Times*, April 9, 1916.
[36] "Hard Flying for Aviators with Pershing Expedition," *Atlanta Constitution*, March 28, 1916; "The Need of Aeroplanes," *Washington Post*, March 27, 1916.

it from freely moving across the international boundary between the U.S. and Mexico. U.S. officials saw air power as an instrument to protect the "lives and property of [U.S.] citizens." In other words, air power would deny Mexican "bandits" their means of subsistence, it would manage and control population interactions across vast expanses of terrain, survey land and people, and bring about an acquiescing border subject. Air power was, hence, already imagined as not exclusively bound to the domain of "war." It was rather a crucial practice in the constitution of governmental power and the empire-nation's civilizing mission in "non-Western" spaces.

Such a "civilizing" mission was not dissimilar to that advocated by those aligned with sea power. In the context of U.S. history, Rear Admiral Alfred T. Mahan is largely considered the architect of U.S. sea power. His ideas became influential just before and after the Spanish-American War. Mahan studied the histories of the British and of other European empires as a way to draw from these the necessary lessons which would allow the U.S. to grow into a worldwide actor. Sea power was "not only the military strength afloat, that rules the sea or any part of it by force of arms, but also," Mahan concluded, "the peaceful commerce and shipping from which alone a military fleet naturally and healthfully springs, and on which it securely rests."[37] A navy, whether armed or not, was bound to commercial pursuits. Ruling the sea meant that a nation's navy would exert force or influence on another to keep and guarantee the open flow of goods and people. Mahan's positivist bent led him to construe sea power in teleological terms as the result of an inevitable progression triggered by a nation's wants and needs. "As a nation, with its unarmed and armed shipping, launches forth from its own shores," he reasoned, "the need is soon felt of points upon which the ships can rely for peaceful trading, for refuge and

[37] Alfred T. Mahan, *Mahan on Naval Warfare: Selections from the Writings of Rear Admiral Alfred T. Mahan*, ed. Allan Westcott (Boston: Little, Brown, and Co., 1918), 21.

supplies."[38] In other words, nations, imagined as predisposed for commerce, would inevitably pursue the shipment and import of goods and resources. This led to "the need" and establishment of trading posts that, in many instances, became colonies. In other words, Mahan's formulation of sea power was entangled with commercial and political endeavors that necessarily relied on the settlement of foreign lands and the governing of foreign bodies.

The emergence of air power as a doctrine challenged the strategic position held by sea power, though it was not until September 1947 that the U.S. created a separate branch for its air service. Up to this moment, aviation was merely treated as a supplement within the Army and Navy. Yet this did not keep air power from slowly growing in influence within the military's ranks. At the first meeting of the Air Force Association in 1947, General Dwight D. Eisenhower told attendees that "mankind must decide right now whether the airplane shall enslave or liberate him."[39] Liberation, Eisenhower thought, was only viable in the use of air power by the U.S. because it was this nation which struggled against "a political philosophy of aggression and human enslavement." Communism was the unnamed political philosophy in his remarks. In his anti-communist zeal, Eisenhower delivered a forceful argument that crystallized how air power would pick up sea power's "civilizing" politics.

> In the formula for universal peace and justice there is one essential ingredient which we of the United States can supply—a steady resolution to devote ourselves untiringly to the pursuit of yet greater human mastery of the air. Thereby we shall better be able to work for the protection of man's rights, for the increase of wealth and its better distribution, for the services of man and his peaceful living.[40]

The U.S. would, in this formulation, operate globally as an arbiter of law and commerce, and purveyor of wealth. Advocates thought air power accelerated the movements of goods and

[38] Ibid., 18.
[39] John Stuart, "Eisenhower Says Air Is Peace Key," *New York Times*, September 16, 1947.
[40] Ibid.

people. It could keep a vigilant eye over the locations of enemies, gather additional information on their actions and, when necessary, attack their positions. The aerial domain and the speed of flight gave planes a superiority over naval and land forces. Nations who wished to protect themselves from air power could only do so effectively, advocates concluded, with their own air power. Rights would be protected and peace would endure, not through sea power but through "mastery of the air."

The emergence of air power is framed in relation to imperial formations as a way to grasp the operations of this technology of rule. Echoing Ann Laura Stoler, imperial formations are understood as unstable and unclearly bounded polities incessantly drawing and erasing its own boundaries of rule. Such boundaries demarcate and trace the spatial arrangements within/through which actors act and subjects are made. Imperial formations rely on practices and devices that both produce and govern exceptions: that demarcate territorial insides/outsides, legal and social categories of belonging/exclusion.[41] Imagined as independent from the ground or sea, air power advocates fabricated a new terrain from which to produce and order social space. In the context of the U.S.-Mexico border, for example, the aerial environment was instrumental for those U.S. actors who attempted to segment and reorganize borderlands populations into different national and racial imaginaries. As a technology of rule, it helped redefine legal categories of belonging and exclusion (e.g., combatant/non-combatant, friend/enemy, citizen/"marauder") by harboring territorial ambiguity. In this sense, air power operationalized the redrawing of national territorial boundaries and the organization of land.

The following sections show how air power's role in the U.S. was not exclusive to imperial ventures in foreign territories. Air power was also important in a "domestic" sense as an

[41] Ann Laura Stoler, "On Degrees of Imperial Sovereignty," *Public Culture* 18, no. 1 (December 2006), 128.

assemblage that contributed to order the management and flow of goods, communication, people, and land.[42] Drones, initially developed as targets and later on designed for other missions like reconnaissance and surveillance, were instruments of U.S. air power's entanglements with governing the empire-nation at "home" and "abroad." It is to the context of Cold War technopolitics and the pursuit of push-button warfare that we now turn.

## Cold War Drones and the Rise of Push-Button Warfare

"Explosion!" read the headline of a *New York Times* article published on September 25, 1949.[43] The explosion referenced by the headline was the Soviet Union's first nuclear detonation. News of the event, the article informed its readers, triggered two responses: hope and fear. The former stemmed from the belief that the two superpowers—the United States and the Soviet Union—could now meet on equal nuclear ground and move towards peace. The latter response, however, was gripped by the bipolar antagonism of the geopolitical struggle between both countries; this antagonism spelled out the prospect of inevitable, mutual nuclear annihilation. Belief in deterrence, or the proactive development of U.S. military weapons and technology as a strategy to dissuade the enemy from taking action, was fueled, in part, by this fear of mutual destruction. How to protect the United States from nuclear and aerial bombardment became an operative force behind much technological development post-1945—

[42] See, for example: Mitchell, *Winged Defense*; M. C. Branch, *Aerial Photography in Urban Planning and Research* (Cambridge: Harvard University Press, 1948); Norman Green and Robert Monier, "Aerial Photographic Interpretation and the Human Geography of the City," *The Professional Geographer* 9, no. 5 (1957), 2-5; United States, Air Force ROTC, *Foundations of Air Power* (Maxwell Air Force Base, AL: Headquarters, Air Force ROTC, U.S. Air Force, 1958); United States, Air Force Junior ROTC, *Aerospace Science: History of Air Power* (Maxwell Air Force Base, AL: Air University Press, 1986); Jennifer Light, *From Warfare to Welfare: Defense Intellectuals and Urban Problems in Cold War America* (Baltimore: Johns Hopkins University Press, 2003).
[43] "Explosion!," *New York Times*, 25 September 1949.

especially as it pertained to air power and aviation.[44] Yet the shape and politics of this development were not predetermined.

People in the U.S. identified certain technologies with the potential to order and protect society. Chief among them were computing with its close ties to cybernetic thought (as explored in Chapter 2) and aviation with its promise for a worldwide, boundary transgressing command of the air and ground. Cybernetics, born at the intersection of military and academic knowledge infrastructures, studied communication and control processes in animals and machines. Within the U.S. military, cybernetics and computing were mobilized as ways to automate calculation like plotting the movement of enemy targets, to control weapons, to guide aircraft, and to simulate scenarios for analysis.[45] In a broader sense, John E. Pfeiffer wrote in the *New York Times*, cybernetics was "the stuff that dreams [we]re made on."[46] Human brains and bodies, he reasoned, were "poorly designed for some of the activities upon which modern society depends. This is an age of statistics, tables and charts, and the brain never was particularly adept at doing calculations." Modern society relied, in other words, on data collection and processing. And only cybernetics could provide such a society with the adequate tools. Cybernetics was ultimately understood as central to the development of computing which was, in turn, identified as a powerful technology that exceeded human capacities. Computing aided in the automation of human labor, either on the factory floor or through the complex analysis of data. And automation was already thought of in the U.S. public as "king of the social frontier," forever moving society towards "the new stage in the world's technology."[47] It expanded the territory of the possible.

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[44] Call [see especially Chapter 2].
[45] Paul N. Edwards, *The Closed World: Computers and the Politics of Discourse in Cold War America* (Cambridge: MIT Press, 1996), 70-71.
[46] John E. Pfeiffer, "The Stuff that Dreams Are Made On," *New York Times*, January 23, 1949.
[47] David A. Morse, "Promise and Peril of Automation," *New York Times*, June 9, 1957.

Cybernetics, computers, and automation, in other words, were treated as the new foundations for the organization of modern life.

Two military pursuits that brought together cybernetics and aviation were intercontinental ballistic missiles (ICBM) and drones. But only the first excited people's imaginations. ICBMs, which depended on microprocessors to control their flightpaths and maneuvers, were sources of dread because their development was linked to the promise of destruction of far-away targets. Or as two journalists described them in 1954, "[s]uch a weapon will wed the ultimate in destructiveness with the ultimate in striking power. There will be no defense against this ultimate weapon, nor any warnings of its coming."[48] This "ultimate weapon" and the potential to arm them with nuclear warheads were an enduring source of anxiety for the general public and for military officials. The U.S. worked intensively to develop ICBMs as part of its deterrence strategy. Drones, on the other hand, generated little public interest. News articles that reported their development and use treated them as just another military project or instrument.[49] Prior to 1948, drones were mostly radio-controlled target devices used in anti-artillery weapons training.[50] Their feats rarely went beyond the purview of the military world. One instance when drones garnered any public appeal was in their association to computing. This was communicated by newspapers who described some of them as "robot plane[s]" or "robots in

[48] Joseph Alsop and Stewart Alsop, "Russia Near Ultimate Weapon," *Washington Post and Times Herald*, July 25, 1954.
[49] "Jet to Power Targets," *New York Times*, February 22, 1953; "Ryan to Make Pilotless Jets," *New York Times*, July 7, 1954; "New Ryan Aeronautical Order," *Wall Street Journal*, February 27, 1957; "$3.9 Million in Orders to Ryan," *Los Angeles Times*, June 7, 1959.
[50] For pre-1948 drones see: Laurence R. Newcome, *Unmanned Aviation: A Brief History of Unmanned Aerial Vehicles* (Reston: American Institute of Aeronautics and Astronautics, Inc., 2004); Adam Rothstein, *Drone* (New York: Bloomsbury, 2015) [Chapter 2].

air."[51] Calling them in this manner signaled to readers that these remotely-piloted aircraft were of a different kind.

Figure 3. Air Force Q-2A Firebee at Lindbergh Field
(source: Ryan 01943, Firebee Photos Vol. 1, SDASM)

One such "robot plane" built on the premise and promise to order and protect the U.S. nation was the Q-2 drone (Figure 3). Designed in 1948 by San Diego's Ryan Aeronautical, the 1,800 lb. Q-2 airframe was made of aluminum, magnesium, and stainless steel, had an overall height of 5 ft. 4 in., an overall length of 16 ft. and 8 in., and a wingspan of 11 ft. 2 in. It was the first drone of its kind to be powered by a jet engine—sometimes the J-44 Fairchild turbojet or the J-69 Marbore jet engine.[52] What made a Q-2 a "robot plane" was the fact that it used electronic and computing technology to execute some of its command and control functions: from the

[51] "Robot Plane for Target Use Unveiled," *Los Angeles Times*, February 22, 1953; "Jet to Power Targets."
[52] The Firebee went through multiple variations and modifications throughout its development and use. The descriptions included here are meant to give the reader a sense of the dimensions of this semi-autonomous aircraft more than offer a fixed set of characteristics. F. Warren, "History of the Q-2," in *Firebee...Symposium*, Report No. G-60-3 (San Diego: Ryan Aeronautical Company, 1958), Boxes Ryan Collection – RPV, SDASM; "Drone Design," *Ryan Reporter* 15, no. 2 (April 1954), 1.

onboard computer used to program its navigation paths to the radio waves transmitting control commands from a remote location. In lieu of this information, "robot plane" operated as a sign that the military was an advanced, modern enterprise. The allure and prestige of electronic and computer technologies were, after all, on the rise during the 1950s-60s; they were harbingers of a different world.[53] Calling Q-2s "robots in air" associated the aircraft with this imaginary. Additionally, and despite its limited budget and small dimensions or its underwhelming popular reception, drone research and development grew to play an important role in U.S. readiness against nuclear devastation. More to the point, drones embodied a particular technopolitical frontier by which the empire-nation shaped and transgressed its borders through the operations of remote control. It is to Ryan Aeronautical's work on push-button warfare that we now turn.

Ryan Aeronautical has been at the center of U.S. aviation history since it was founded by ex-Army pilot T. Claude Ryan in San Diego in 1922. Yet what threw this aviation company into the national and international spotlight was the plane flown by Charles Lindbergh, the Ryan NYP also known as the Spirit of St. Louis. After Lindbergh's trans-Atlantic flight in 1927, Ryan Aeronautical's fame grew and so did their contracts. A testament to the global and local reach of Ryan was its collaboration with the North Island Naval Air Station in San Diego, the first air station in the U.S. Pacific coast. The company constructed sport planes and trainers used to prepare World War II pilots during the 1930s; the Ryan School of Aeronautics, the oldest aviation school in the U.S. under its original management in 1939, was one of nine commercial schools chosen by the Air Corps to conduct primary training of flying cadets.[54] In other words,

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[53] Edwards, *The Closed World* and Fred Turner, *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopianism* (Chicago: University of Chicago Press, 2008).

[54] Arthur P. Allen and Betty V. H. Schneider, *Industrial Relations in the California Aircraft Industry* (Berkeley: Institute of Industrial Relations, University of California, 1956), 5; "R&D," *Ryan Reporter* 13, no. 6 (1952), 43; "Fledgling Wings," *Ryan Reporter* 13, no. 6 (1952), 53-55.

Ryan Aeronautical contributed to the defense economy through the manufacture of aeronautical products (e.g. parts and planes) and the production of specialized knowledge. When the time came for the Navy, Army and Air Force to award a contract for new experimental jet-powered target drones at the end of World War II, the San Diego aircraft company was well known for its design and technical proficiency.

The drone program at Ryan Aeronautical grew out of its Guided Missiles Development and the U.S. military pursuit of push-button warfare. In the development of push-button warfare, military officials and technicians were not only engaged in tackling technical problems, they were also involved in a myth making enterprise. The Firebird guided missile was under secret design and development for two years before being publicly and fully disclosed in 1949.[55] Ryan Aeronautical used the name of a Russian fairy tale animal, Firebird, as a way to, perhaps, underscore the national provenance of who ought to be at the end of the missile's destructive force. "[The] 'Firebird' can't be changed into a beautiful princess at a sorcerer's whim. Instead it remains a potentially deadly weapon, perhaps heralding the day of so-called 'push-button' warfare."[56] Like the folkloric animal, this Firebird glowed across the sky as its jet engine propelled the device towards its target; the encounter of the two ended in a fiery and explosive spectacle of destruction. The aerial spectacle was, more importantly, triggered after an Air Force pilot pressed a button in their cockpit which released the missile.

It is in the speculative promise of "push-button" warfare that we find some of the core components of guided missile and drone design politics. Push-button warfare was an extension of air power. As defined in the Department of the Army's *Armed Forces Talk*, it was "warfare

[55] "Air Force Tells of Firing Rocket Missiles By the 'Scores' After Two Years' Secrecy," *New York Times*, November 14, 1949.
[56] "Ryan Firebird," *Ryan Reporter* 10, no. 9 (December 1949), 10.

that use[d] *long-range, guided* missiles—*pilotless* missiles that can be projected from one continent to another, over oceans or wide spaces of polar ice."[57] Similarly, in *A Program for National Security* (1947), advisors to President Harry Truman defined push-button warfare as the era "in which intercontinental rockets with atomic warheads wipe out tens of millions [of people] overnight."[58] In this sense, rockets, missiles, and ICBMs occupied a privileged position in the formulation of the U.S. military's technopolitical project of push-button warfare. It was a project that aimed to fabricate massive death in distant locations. While both definitions stressed push-button warfare was undergirded by the use of "long-range, guided missiles" of the intercontinental kind, the concept was commonly understood in looser terms. It encompassed the use of any kind of autonomous or semi-autonomous missile for lethal purposes, no matter the distance. At the center of push-button warfare, thus, were remote control technologies and devices that could be operated without the aid of a human pilot on board—the so-called *un*manning of warfare.

The unmanning of warfare and air power post-World War II were haunted by the specter of the mushroom cloud. In the shadow of nuclear weaponry, aerial supremacy over an Other was a question of national and civilizational survival. Toward the end of the 1950s, *Ryan Reporter* stressed how "[o]ur survival," which is to say U.S. national survival "still depends on whether the enemy gets through our air defense system to dump his lethal charge."[59] Most air power theorists believed command of the air meant taking the lead in attack and removing any or all enemy aerial threat. On the one hand, guided missiles offered the U.S. Air Force a new tool to achieve aerial supremacy against enemy forces by remotely targeting aircrafts, air bases and

[57] U.S. Department of the Army, "Push-Button Warfare," *Armed Forces Talk* no. 202 (1947), 2.
[58] U.S. President's Advisory Committee on Universal Training, *A Program for National Security* (Washington, D.C.; United States Government Printing Office, 1947), 12.
[59] "Pushbutton Targets," *Ryan Reporter* 20, no. 3 (August 1959), 5.

other critical military infrastructure. On the other hand, and from a defensive standpoint, guided missiles sought to intercept and destroy enemy targets in the air and on the ground as they threatened U.S. territory. Of special note here is the fact that military officials and the defense industry saw guided missiles as vessels for atomic warheads, poison gas, or some other deadly payload.[60] The emergence of air power, Douhet's *Command of the Air* previously envisioned, meant that no surface of the earth could continue "liv[ing] in safety and tranquility." The battlefield and combatants were everywhere. Atomic guided missiles, however, raised the stakes of air power's destructive force.

Policymakers, military officials, corporate actors, and members of the public sphere in the U.S. underscored the need for an aggressive military research agenda built around the notion of push-button warfare and a politics of unmanning. Ensuring the U.S. would "remain militarily strong" meant, a *New York Times* editorial argued, it would not have "to pay the inevitable penalty of weakness—submission to the will of others."[61] The editorial identified recruitment and training of soldiers as well as continued investments in air power as fundamental to "remain[ing] militarily strong." In a similar vein, a *Los Angeles Times* article sentenced, "[w]e must work very hard toward the push-button era, paradoxically, so that we may prevent, through our potential strength, just such a war."[62] Using the highly gendered dyads of strength/weakness, supporters of push-button warfare underscored their belief in a very masculinist perspective of power. The U.S. military needed to showcase its "muscle," or its brutal capacity to destroy the enemy. Masculine violence was embedded, in this sense, in the instruments of push-button

[60] Department of the Army, "Push-Button Warfare," 5; Douglas Aircraft developed an air-to-air rocket with an atomic payload called Genie. A non-atomic version, the MA-1 Genie Rocket, was used against Firebee drones during Project William Tell. "Ryan Firebee at Project William Tell," Album 109.
[61] "The Penalty of Weakness," *New York Times*, March 17, 1948.
[62] "Only 10 Years to Push-Button Warfare," *Los Angeles Times*, November 9, 1946.

warfare. Removing male soldiers from danger was achieved through a sort of *un*-manning that promised the perpetuation of their "strength." Similarly, the dangers of nuclear destruction required, military officials and defense intellectuals argued, a more centralized yet dynamic military.[63] Unmanning unfolded through the automation of certain processes. For example, automation allowed for human labor to be redirected elsewhere while allowing to centralize and accelerate the speed of decision making. "Assist[ing] or replac[ing] human skill in aiming and operating advanced weapons" such as guided missiles was one of the ways unmanning was integrated into military technology and practice.[64] Push-button warfare, then, promised two things: to extend the reach of a kind of masculine violence coded in its instruments and to provide the technical capacity of pinpoint accuracy required to bring down any nuclear, aerial attack.

The specter of atomic destruction was simultaneously a source of fear and boon. It was leveraged to justify the need for growing military research and funding. The same site that was imagined as the "Birthplace of the Atomic Age" back on July 16, 1945, Alamogordo in New Mexico, was soon after transformed in the late 1940s into the testing stage for push-button warfare technologies. Guided missiles and other pilotless aircraft designed by various companies, among them Ryan Aeronautical, were tested there with the direct collaboration of the Air Force's Air Research and Development Command.[65] Push-button technologies were at their core constructs of a desire for "safe" distance. Safety and security were to be delivered, some argued, by removing humans from harm's way through remote control. To keep nuclear devastation far away from the citizens and soldiers of the U.S. nation, the military and its

[63] Edwards, 70-71.
[64] Ibid., 65.
[65] "Birthplace of the Atomic Age," *Ryan Reporter* 14, no. 4 (1953), 2-5, 27.

industrial/corporate partners pursued automation, or more concretely the full integration of electronics and computing to war-making.

Cybernetics was the blueprint for automation. In the case of Ryan Aeronautical's Firebee, Katherine Chandler has shown the intersection between cybernetic discourses and how this drone worked. To do this, Chandler analyzes an in-depth article published by the company's *Ryan Reporter*. In most issues published after October 1949, articles versing on the Firebee offered readers an overview of the target plane or they disclosed some specific and, what they sometimes imagined, game-changing function. "The Bee with the Electronic Brain" (1953), for example, explained how the Q-2 drone made use of electronics as means to achieve semi-autonomous control. Radio waves sent from its command control system activated an assortment of mechanisms in the aircraft. The system, described as the "push-button heart of the 'Firebee' project" was a "black box" made up of "a control stick and switches."[66] These stick and switches controlled flight maneuvers, governed engine speed, and the aircraft's recovery system via radio signals sent to a radio command guidance receiver installed on the drone. Like a "brain" responding to environmental or organism stimuli, Chandler argues, the receiver triggered the modulation or preservation of the drone's flight behavior.[67] In this manner, the linking of the drone's "electronic brain" with the pilot's "black box" created a cybernetic system that governed informational inputs and outputs in the machine. Together they integrated human control into the organism-like machine. The human pilot was transformed into one of various control mechanisms within the machine, which led to the articulation of a cyborg human-machine assemblage. Among the automated functions were the flight path and the activation of the

[66] "The Bee with the Electronic Brain," *Ryan Reporter* 14, no. 2 (1953), 13.
[67] Katherine Chandler, "A Drone Manifesto: Re-Forming the Partial Politics of Targeted Killing," *Catalyst: Feminism, Theory, Technoscience* 2, no. 1 (2016), 10.

parachute recovery system. The former consisted of programming a timing motor that commanded the vessel to climb, fall, turn, and roll over to reach a desired altitude.[68] Because Firebees were meant for multiple and reliable flights, a recovery system was designed to guarantee their repeated use. This system was triggered from the remote control or automatically, in case of power failure or loss of radio command from the ground control station.[69] In other words, the machine was able to function somewhat autonomously from its human pilot. Such an assemblage contributed to its capacity of being *un*manned.

Unmanning did not require a delinking of human-machine but a reconfiguring of its relationships. Entanglements between aircraft, "black box," and pilot remained crucial to the operation of Q-2 drones as pilots on the ground used the "black box" controller to execute flight commands. Without the human-machine feedback loop the drone, as a system, could not function. Despite the "black box's" best efforts to bracket or disassociate the technical from the political, in what follows we find that actors formulated clear articulations of the political in the technical. The next section makes clear how *drone technopolitics* brought together anxieties about the reproduction of the empire-nation and the articulation of air power. In the deployment of Firebees we come to see the co-shaping of air power and biopolitical scripts in the frontier.

## Q-2 Drones: Biopolitical Scripts in the Frontier

How could the military interrupt the incursion of enemy aircraft into national territory and, thus, prevent the unleashing of nuclear annihilation? This question troubled much of the U.S. military during the Cold War. Military officials like General LeMay thought U.S. national

[68] Warren, "History of the Q-2."
[69] "In Place of a Pilot," *Ryan Reporter* 17, no. 4 (August 1956), 30.

survival in the 1950s relied on the preparation of soldiers to fend off any aerial attacks.[70] After all, the danger posed by enemy air power could only be addressed, air power theorists held, by an equally aggressive air power program. Ryan Aeronautical's Firebee drone was mobilized to protect the nation by tackling what was called the "interception problem" because the drone "simulate[d]," the *Los Angeles Times* said, "almost exactly all piloted jet plane maneuvers."[71] Q-2 drones offered a way to mimic high-speed jet aircraft and, in so doing, gave fighter plane pilots a "realistic target." Military officials arranged the interception of intruder aircraft into a cornerstone of national defense and, concomitantly, of national survival. Positing intruders as central targets for the defense of the nation, however, was not the exclusive domain of military concerns. Instead, the military built on broader anxieties about migrant bodies and the border.

By the time jet-propelled drones were integrated into U.S. military weapons meets in 1958, another kind of "intruder" was already the focus of government officials and the wider U.S. public. The largely "Mexican migratory agricultural proletariat," Mae Ngai suggests, came to the fore through government projects such as the Bracero Program (1942-1964) and the efforts of agribusiness.[72] Comprising Mexican Americans, legal and unauthorized Mexican immigrants, and imported contract workers, this Mexican transnational labor force was the target of concerted attempts to monitor, contain and manage it. An integral part of the Bracero Program, for example, was the careful and systematic control of migrant populations. The U.S. Border Patrol, Kelly Lytle Hernández shows, was tasked with "prevent[ing] Mexican laborers from surreptitiously crossing into the United States and to aggressively detect and deport those who had successfully affected illegal entry." Among its strategies, which were generally coordinated

[70] LeMay cited in "Ryan Firebee at Project William Tell," Album 109.
[71] Ryan Aeronautical Company, "Ryan Firebee: Pilotless Jet Plane" (1955), Album 109, "Ryan Library Albums," SDASM; "Robot Plane for Target Use Unveiled."
[72] Ngai, 128.

with Mexican government officials, was the use of airplanes to airlift deportees from Holtville, California, and Brownsville, Texas, into central Mexican states like Guanajuato, Guadalajara and San Luis Potosí. These airlifts were used in 1951 and 1952 in the deportation of 85,561 Mexicans.[73] Hence, air power was by now an integral technology in the management of Mexican populations in the borderlands and in border making itself.

Within and beyond the U.S. southwest, this migrant population came to embody the intractability of the border—their presence signaled a sense of bounded "foreignness." The legal concept of "alien" placed some bodies within and beyond the bounds of the U.S. body politic. U.S. law's definition of an alien was "any person not a citizen or national of the United States."[74] Immigrant aliens were those who had been formally admitted for residency in the U.S. while nonimmigrant aliens were those given temporary admission into the country under one of the more than twenty-five visa categories. The category of alien signaled both an intent to administer how certain bodies participated within U.S. society but also how they could be excluded.[75] In their sociolegal inquiries into the U.S. production of Mexican-migrant "illegality," Ngai and Nicholas De Genova show how the systematic targeting of Mexicans shaped and was shaped by a specifically spatialized sociopolitical imagination. The U.S. southern border and Mexican bodies occupied privileged positions in the collective construction of foreignness. These

[73] Kelly Lytle Hernández, "The Crimes and Consequences of Illegal Immigration: A Cross-Border Examination of Operation Wetback, 1943 to 1954," *Western Historical Quarterly* 37, no. 4 (Winter 2006), 423, 430. For more information on earlier manifestations of air power on the U.S.-Mexico border see: Paul Vanderwood and Frank N. Samponaro, *Border Fury: A Picture Postcard Record of Mexico's Revolution and U.S. War Preparedness, 1910-1917* (Albuquerque: University of New Mexico Press, 1988).
[74] Immigration and Nationality Act of 1952 (Pub. L. No. 82-414).
[75] See, for example: Lee; Mae Ngai, "The Strange Career of the Illegal Alien: Immigration Restriction and Deportation Policy in the United States, 1921-1965," *Law and History Review* 21, no. 1 (Spring 2003), 69-107; Luis F. B. Plascencia, "The 'Undocumented' Mexican Migrant Question: Re-Examining the Framing of Law and Illegalization in the United States," *Urban Anthropology and Studies of Cultural Systems and World Economic Development* 28, no. 2/3/4 (Summer, Fall, Winter 2009), 375-434.

supposed migrants were racialized through the legal category of "illegal alien" which, in the U.S. public imaginary, further entrenched their place as "invasive violators of the law, incorrigible 'foreigners,' subverting the integrity of 'the nation' and its sovereignty from within the space of the U.S. nation-state."[76] The making of a sovereign nation was thought to be dependent on the enactment of a legal territory and "illegal aliens" challenged such attempts. They represented the transgression of said territory while also inhabiting it. As subversive subjects of U.S. sovereignty, "illegal aliens" constituted a permanent and enduring "foreign" threat. In their "foreignness," they resonated heavily in the U.S. imaginary with the condition of intruder.

The term "intruder" comes from the Latin *intrudere* (*in-* + *trudere* or to thrust in). Since the seventeenth century, at least, "intruder" became a way to characterize the actions of someone or something that had trespassed a given sovereign or spiritual space.[77] The intruder meddled in the affairs of another, it thrusted itself unto the other. Of particular note is that to intrude had a territorial quality to it. Hence, whomever was characterized as an intruder transgressed the minimal space that allowed one's potential to act. In the U.S. military, "intruder" was generally used in two ways. One was the concept of "intruder operations." The United States Joint Chiefs of Staff defined these as offensive military exercises performed by day or night over enemy territory with the primary objective to destroy enemy aircraft in the vicinity of their bases.[78] The

[76] Ngai, "Braceros, 'Wetbacks,' and the National Boundaries of Class"; Nicholas De Genova, "The Legal Production of Mexican/Migrant 'Illegality'," *Latino Studies* 2, no. 2 (July 2004), 161. For more on "Mexican illegality": Marla Andrea Ramírez, "The Making of Mexican Illegality: Immigration Exclusions Based on Race, Class Status, and Gender," *New Political Science* (2018), DOI: 10.1080/07393148.2018.1449067.

[77] See, for example: John Cleveland, *The King's Disguise* (London: s.n., 1646); John Allington, "A Continuation of the Grand Conspiracy by the Insolent Usurper and the Regal Intruder, Described in the Following Two Sermons" (London: Printed for R. Royston, at the Angel in Ivy-Lane, 1660); Sovereign Scotland, "Act and Proclamation anent Intruders into Churches" (Edinburgh, 1706); New York (State) Laws, Statutes, etc., "The Following is a Copy of an Act of Assembly of our Neighbours of Newyork…An Act to Prevent Intrusions" (March 11, 1796).

[78] United States, Joint Chiefs of Staff, *A Dictionary of United States Military Terms, Prepared for the Joint Usage of the Armed Forces* (Washington, D.C.: Public Affairs Press, 1963), 116.

second use given by the U.S. military to the idea of intruder was of an unauthorized and extraneous actor that entered a space in a surreptitious manner. Intruders did not belong and did not wish to belong to their surroundings. Their aim was to incur damage on its host. The term itself ("intruder"), however, was not yet levelled against the Mexican migratory agricultural proletariat. Among other things, it would take the boundary work of remotely piloted vehicles like the Firebee to generate this entanglement.

Uneasiness about intruding subjects during the Cold War was further complicated by the fear that communist agents would infiltrate U.S. society to undermine it and cause it harm. From "leftists" in Hollywood to the efforts of the House Un-American Activities Committee, the U.S. public was imbued in panic, a sort of unceasing paranoia as to the ideological purity of its citizens.[79] An excellent manifestation of this anxiety can be found in the popular film *Invasion of the Body Snatchers* (1956) which chronicled the strange hysteria spreading among the inhabitants of a small town in California. Townspeople, while retaining their outward appearance, felt as strangers to their own relatives and friends. The result of an otherworldly plant-life that descended from the skies, the plant grew into strange pods that turned into "blank" copies of the men, women, and children of the town's inhabitants. The "blanks" drained the normal emotions off their human hosts until they were drained of their humanity. These alien life-forms intruded into the serenity of "American" society and, in its stead, created an emotionless, brainwashed and homogeneous world. The film can surely be read as an articulation

[79] Thomas Doherty, *Cold War, Cool Medium: Television, McCarthyism, and American Culture* (New York: Columbia University Press, 2003); Brenda Murphy, *Congressional Theatre: Dramatizing McCarthyism on Stage, Film, and Television* (Cambridge: Cambridge University Press, 1999); David H. Price, *Threatening Anthropology: McCarthyism and the FBI's Surveillance of Activist Anthropologists* (Durham: Duke University Press, 2004); Ellen Schrecker, *Many Are the Crimes: McCarthyism in America* (Boston: Little, Brown and Company, 1998); Alan Wald, "The Costs of McCarthyism," *Against the Current* XV, no. 1 (April 2000) and *American Night: The Literary Left in the Era of the Cold War* (Chapel Hill: University of North Carolina Press, 2012).

of communist hysteria resulting from McCarthyism. The body "blanks" representing the ideological undoing of liberal individuality in the backyard of capitalist utopia, the U.S. small town. But at play was also a different kind of worry.

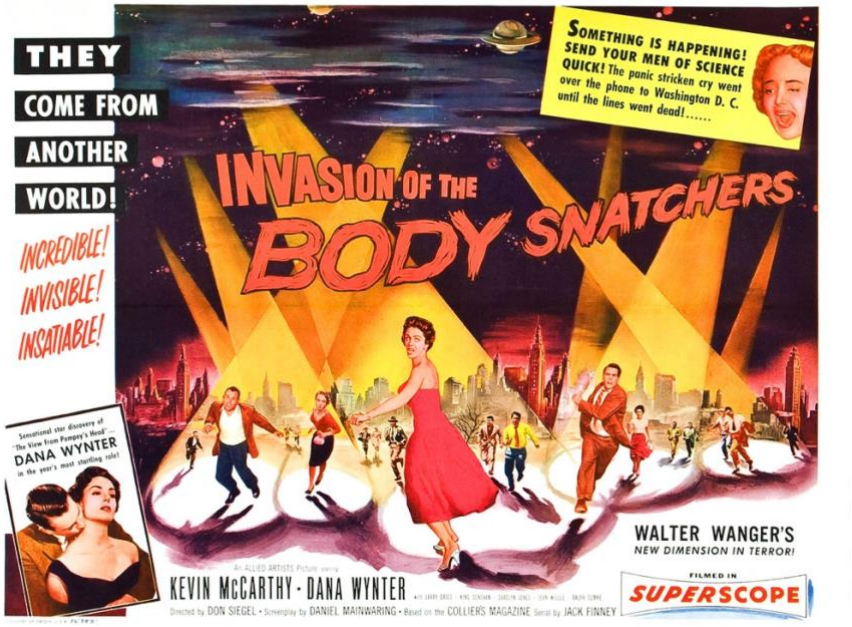


Figure 4. Poster for *Invasion of the Body Snatchers* (1956)

*Invasion of Body Snatchers* was equally a reflection on the place of air power and migration in modern U.S. life. This much can be gleaned from one of the film's posters (Figure 4). In it, beams of light that shone down from the sky (but also from space) were a trope for air power. They were an ethereal menace that hovered over and subjugated people in "panic," people who ran but could not hide. A result of the illumination of the aerial beams was that they created shadows of the people running below. These shadow subjects represented the altering effect that alien life had on small-town "America." The plant spores, after all, "come from another world" and no defense stopped or destroyed them before they intruded and planted themselves on U.S. soil. Enemy air power haunted the popular imagination and alien plant-life were an embodiment of this menacing, intruder force. Furthermore, setting the plot in the

southwest was also an unsettling premise for a public reaping the benefits of the empire-nation. California was a synecdoche of the U.S. empire-nation, the territory where and upon which the U.S. declared its imperial designs to the world after war with Mexico in the nineteenth century. "Border anxiety," such as the one represented in the aerial menace of alien plant-life, "and U.S. immigration policy were directly linked to, and products of, U.S. expansionism."[80] The film's connection to border anxiety was intensified by the way the poster highlighted how the "aliens" were "invisible" and "insatiable." The purported invisibility of "illegal aliens," a topic discussed extensively in the next chapter, was at this time a growing source of anxiety for government officials. "Aliens" were scripted as dangerous entities of the nation and *Invasion of the Body Snatchers* staged this dilemma. The film mobilized a speculative trauma of losing imperial standing and what was at stake in the systematic management and administration of difference.

Like the alien plant-forms in the film, Q-2 drones flew across the sky as if "from another world" or, more precisely, another country. For example, an ad on *Ryan Reporter* told its readers that the Firebee was an "'enemy' jet over America."[81] The idea of "America," already imbued with an imperial ethos that construes a whole hemisphere as its divinely ordained territory and domain, signals a key political objective. Drones came to embody practices through which participants aimed to protect and preserve the U.S. empire-nation. Along these lines the Air Force's Air Defense Command argued it was necessary that a weapon system be assembled to protect the nation from an ever-present menace. According to the 4756th Drone Squadron stationed at Tyndall Air Force Base, this "weapons system had three prime factors: the pilot, his aircraft, and the ground controller who directed him to the 'intruder.' The [Firebee] drone

[80] Lee, 72.
[81] "Firebee: 'Enemy' Jet over America," *Ryan Reporter* 19, no. 2 (May 1958) [back cover].

assumed the role of the 'intruder' and acted the part well."[82] Defending the nation was the responsibility of a "weapons system" that comprised human and nonhuman entities. Meanwhile, drones, playing the role of "intruders," simulated the actions of enemy fighter jets and bombers.

More importantly, drones were delegates of a kind of "foreignness," that which was similarly coded unto Mexican bodies through the categories of "illegality," "illegal alien," and "illegal." Q-2s were scripted to play the role of a foreign menace. The "'enemy' jet over America" was already understood as "foreign" since the notion of intruder was necessarily entangled to what were deemed to be extraneous subjects and objects. In the military imagination, intruder aircraft flew across national lines to execute attacks. Just as "aliens" were supposed to be the extraneous, foreign-body targets of the U.S. immigration system, "intruder" objects and subjects were hailed by a socio-technical assemblage built around their targeting, destruction and exclusion. Of central importance here were the practices by which those that belonged and those that did not were discerned—friendly aircraft from intruders, true U.S. citizens from "alien" bodies. Border and boundary making were, in conclusion, crucial for the reproduction of the empire-nation and these practices coalesced in the Air Force's Project William Tell.

[82] Benjamin P. Curry (ed.), "The 4756th Drone Squadron and the Firebee Drone" (Gunter AFB, Alabama: Air Defense Command, U.S. Air Force, 1966?), Album 109, "Ryan Library Albums," SDASM.


Figure 5. Firebee, the Target. William Tell 61 (1961)
(source: Album 109, "Ryan Library Albums," SDASM)

"The ultimate target for a weapon is the enemy." These were the opening words published in an informational packet documenting Ryan Aeronautical's participation in Project William Tell 1958.[83] The "weapon[s]" referenced in the statement were GAR-1 Falcon guided missiles and MA-1 Genie rockets designed and manufactured by Hughes and Douglas, correspondingly. The "target," depicted in Figure 5, was Ryan Aeronautical's Q-2 Firebee drone. Project William Tell was a weapons meet organized by the U.S. Air Force's Air Defense Command and initially consisted of a ten-day war game exercise in which targets, weapons, and carriers (interceptor aircraft and pilots) were deployed to test the United States' national defense system. Like the Lone Ranger in the southwest, Air Defense Command was out to institute order in the lawless frontier. It was armed with "modern" intercepting jet-aircraft, guided missiles and rockets to tackle the threat of intruder operations. "Our [U.S.] survival," *Ryan Reporter* argued in 1959, "still depends on whether the enemy gets through our air defense system to dump his lethal

[83] "Ryan Firebee at Project William Tell" (c.1958), Album 109.

charge."[84] And to make sure the "enemy" did not penetrate U.S. aerial defenses, Air Defense Command held war games like Project William Tell.

The Project was exclusively focused in tackling the "interception problem," hence it was just a phase within the larger Annual World-Wide Weapons Meet hosted by the Air Force. By "interception problem" actors meant tracking and destroying any and all intruding aircraft, generally thought as a bomber, before they unleashed their payload on a U.S. city or target. Tyndall Air Force Base in Florida was the staging area for William Tell and from there carriers broke ground and pulled skyward on way to intercept "enemy" fighters.[85] Q-2 drones, imagined as "enemies," flew high (above 30,000 feet) and low (5-15,000 feet) missions without warning over the Gulf of Mexico. Remote ground control operated their "black boxes" to execute drone flight maneuvers while the top 13 Air Defense interceptor teams were pitted against them flying a variety of jet aircraft: Convair F-102, Northrop F-89J, and North American F-86L.

Drones were both a part of the human-machine assemblage of the empire-nation and a way to test it. Officials at Ryan Aeronautical and the military argued that Project William Tell, organized since 1958, "provide[d] an opportunity for realistic testing of the Air Defense Command's ability to stop a surprise aircraft attack on this country."[86] But what made it "realistic?" First, they held, it was the use of jet-powered aircraft in targeting exercises. This kind of aircraft was seen as a marked improvement from previous rotor-powered planes. Jet-powered targets simulated ongoing and developing fighting conditions for pilots. Technicians at Ryan Aeronautical argued that "[p]ractice makes perfect, but only when targets simulate[d] enemy aircraft performance to test crews and weapons."[87] These target simulations should not be

[84] "Pushbutton Targets," *Ryan Reporter* 20, no. 3 (August 1959), 4.
[85] "Ryan Firebee at Project William Tell," *Ryan Reporter* 19, no. 4 (October 1958), 1-3.
[86] Ibid.; "$3.9 Million in Orders to Ryan," *Los Angeles Times*, 7 June 1959, A19.
[87] Ryan Aeronautical Company, "Ryan Firebee: Pilotless Jet Plane."

confused with automated simulations executed by computers. According to Edwards, the latter were based on calculations and abstractions because military and government officials lacked substantive experiences and observations to apply to specific problems.[88] In the case of target simulations, jet-powered targets supplied extensive opportunities to measure and gauge the behaviors of pilots and anti-aircraft weaponry. The capacity and efficiency of Air Force crews were also tested. Military technicians had to excel in maintaining aircraft under the duress of combat conditions. Drones, in the end, simulated the conditions of the battlefield in so far as they replicated the actions of fighter jets.

The second reason Q-2 Firebees and Project William Tell were thought to be "realistic" was that they were seen as ideal to tackle the interception problem. The interception problem "could be simulated to a degree of authenticity that approache[d] true combat conditions…If the pilot missed, he could correct his mistakes and try again, and no American cities would be annihilated [by bombers] in the process."[89] New fighter jet planes required target aircraft that could challenge their high speeds and maneuvering capabilities in a safe environment. The fact that Firebees were remotely piloted also offered the opportunity to employ live ammunition and test newly developed guided missiles, rockets, anti-radar and anti-aircraft technology. But despite technical and training justifications, Project William Tell was also informed by broader ideas about masculine liberty and border/boundary making in the frontier.

A recounting of the story of William Tell helps us understand the symbolic weight generated in calling the U.S. weapons with his name.[90] William was a Swiss folk hero and his

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[88] Edwards, 120.
[89] Ryan Aeronautical Company, "Ryan Firebee: Pilotless Jet Plane."
[90] There are a variety of versions of the William Tell story which qualify or modify each character's role, place of residence and relation to each other. The complexity of these stories, however, is beyond the focus of this chapter. For more information see: Marc H. Lerner, "William Tell's Atlantic Travels in the Revolutionary Era," *Studies in Eighteenth-Century Culture* 41 (2012), 85-114.

story functions as a foundational myth for the Swiss confederacy since, at least, the sixteenth century. A simple inhabitant of the "Swiss" canton of Uri, William was oppressed by the tyrannical bailiff Gessler—sometimes represented as a local aristocrat and other times as a member of foreign claims on "Swiss" territory. William Tell refused to acquiesce to Gessler's rule and was, thus, challenged to acknowledge it. A renowned marksman, he was forced to shoot an apple off his son's head. His success frustrated Gessler and this led to being imprisoned. William Tell escaped and soon after took his revenge on Gessler—killing him. Despite the myriad re-imaginations and theatrical performances of William Tell, he generally came to embody the values of masculine independence and liberty. Framed within the context of an ideological and geopolitical struggle with the Soviet Union, the U.S. Air Force came to imagine William Tell as "symbol of man's freedom, of man's resistance to a tyrant oppression."[91] Whenever "the free man's homeland [was] threatened," an Air Force promotional film for Project William Tell 1965 told viewers, "he prepares to defend it." Spectators as well as military officials and technicians found in William the indomitable spirit of resistance, precision and revenge.

Throughout the nineteenth and twentieth centuries the story of William Tell continued to compel audiences in the United States. His fighting spirit took new shapes and names. In the early 1800s, the German playwright Friedrich von Schiller wrote a play based on Tell that was later adapted in 1829 into an opera by Gioachino Rossini. The opera's overture finale became, more than a century later, the theme song for *The Lone Ranger* in radio, television and film. Another fighting spirit, the Lone Ranger translated William Tell into the context of the U.S.

[91] "Aerial Gunnery Competition – 1965 – WDTVLIVE42," YouTube video, 27:17, published by wdtvlive42 – Archive Footage, October 22, 2011, https://www.youtube.com/watch?v=h_GiA3ktnEU&t=635s&index=2.

southwest borderlands. He was a former Texas Ranger—a paramilitary, settler colonial organization created in the nineteenth century for the "pacification" of Mexican and Native American communities.[92] Together with his Native American partner, Tonto, they protected vulnerable individuals or groups by fighting powerful adversaries in the "southwest territory of the U.S." Clearly operating within a revisionist framework, the Lone Ranger took on (white) villains to bring forth what Michael Ray Fitzgerald calls a "benevolent white supremacy."[93] As the narrative voice over in the 1949 pilot episode states, the Lone Ranger "was a fabulous individual, a man whose presence brought fear to the lawless and hope to those who wanted to make this frontier-land their home."[94] Following a frontier mentality, only the development and modernization of Western territories could, in the end, protect inhabitants from the evil forces of "non-civilized" life. *The Lone Ranger* television series ran from 1949 to 1957—the dawn of the Cold War—and reimagined the past as a way to think the present. The male bravado exuded by the Lone Ranger was crucial in deterring any and all menaces. Like William Tell before him, he resisted a somewhat tyrannical force—lawlessness—and championed the cause of liberty. The television series portrayed the expansion and territorial consolidation of the U.S. nation in conjunction to the reproduction of U.S. governmental power, both private and public. Together these functioned as protective factors in the face of a different kind of "lawless" threat.

[92] For more on the history of the Texas Rangers see: Kelly Lytle Hernández, *Migra!: A History of the U.S. Border Patrol* (Berkeley: University of California Press, 2010); Benjamin Heber Johnson, *Revolution in Texas: How a Forgotten Rebellion and Its Bloody Suppression Turned Mexicans into Americans* (New Haven: Yale University Press, 2003); and Rachel St. John, *Line in the Sand: A History of the Western U.S.-Mexico Border* (Princeton: Princeton University Press, 2011).
[93] Michael Ray Fitzgerald, "The White Savior and His Junior Partner: The Lone Ranger and Tonto on Cold War Television (1949-1957)," *The Journal of Popular Culture* 46, no. 1 (2013), 98.
[94] "The Lone Ranger 1949 - 1957 and Closing Theme," YouTube video, 2:01, published by TeeVees Greatest, February 23, 2016, https://www.youtube.com/watch?v=p9lf76xOA5k.

By naming the military exercise "Project William Tell," actors participated in the reproduction of a structure of feeling whereby "foreign" subjects were imagined and felt as inherently suspect and, at worst, enemies of the nation.[95] Project William Tell staged the enactment of racializing biopolitical scripts. In their film about Project William Tell 1965, the Air Force argued that "yesterday and today, a nation's defense forces must keep alert, ready to counter an invader's approach. That is what military training is all about: setting up and maintaining defense capable of repelling enemy attack. Principal enemy during William Tell meets is the Ryan Firebee."[96] The recurring naming of drones as "intruders" and "enemies" emphasized the ways actors came to relate to extraneous bodies in the borderlands. These bodies were seen as requiring targeting, policing and, whenever necessary, elimination. The U.S. military imagined itself as taking on the place of William Tell and of the Lone Ranger. The ideological and geopolitical struggle between liberal capitalism (freedom) and communism (tyranny) was read through the Swiss legend. Pilots were trained in emulating William Tell's targeting precision and proficiency while defense systems were tested in "realistic" simulations. The Lone Ranger's connection to William Tell helped retrace the frontier imaginary which pervaded much of U.S. air power. Taking the place of the Lone Ranger, folks at the U.S. military and Ryan Aeronautical came to renew their commitment to the civilizing project of the empire-nation in the frontier. Soldiers, engineers, and technicians wrestled with the "lawless" menace of communism, nuclear annihilation, enemy air power, and migrant flows embodied by drones. The fighter pilots honed their sharpshooting skills by targeting and shooting at "intruder" Q-2 drones.

[95] I am mobilizing "structure of feeling" here as articulated by Raymond Williams who defines it as a set of social experiences through which meanings and values were actively felt as they were simultaneously related to systematic beliefs and forms of meaning making. "Structures of Feeling," in *Marxism and Literature* (Oxford: Oxford University Press, 1977), 128-135.
[96] "Aerial Gunnery Competition – 1965 – WDTVLIVE42."

In promotional material for William Tell ’61 (Figure 5), Firebees were represented within the concentric circles of a bull’s eye. They were delegates of a speculative enemy, “the target,” and as such they worked to be taken down.

In doing so, Firebee drones contributed to the reproduction of the empire-nation. Such an endeavor resonates with the role of the stingless drone bee, from which remotely piloted vehicles derived their most common name—drones. The genetic material of a colony was either continued within the same colony or introduced into a new colony through the mating of multiple drones with a virgin queen bee. The queen bee then laid fertilized and unfertilized eggs throughout her life, reproducing the life of the colony.[97] Q-2 Firebees tested the defenses of the U.S. empire-nation by penetrating its territory—war games were held in the New Mexican desert, the Gulf of Mexico, and Puerto Rico—as well as by challenging its newest and older military technologies. By being an integral part of the research and development process testing the “offspring” of the military-industrial complex, Firebees contributed to the reproduction of material and knowledge infrastructures of the empire-nation. Through Q-2 drones flying in the borderlands, the U.S. military retraced the boundaries of the nation and actualized its imperial claims over territory and populations.

[97] K. E. Boes, “Honeybee Colony Drone Production and Maintenance in Accordance with Environmental Factors: An Interplay of Queen and Worker Decisions,” *Insectes Sociaux* 57, no. 1 (February 2010), 1-9.

Figure 6. Pilot with Hughes GAR-1 Falcon Missiles (source: "Ryan Firebee at Project William Tell," Album 109, SDASM)

Furthermore, the destruction of an unmanned vehicle such as the Firebee came to embody the gendered warfare dyads of protector/protected and warrior/enemy. The U.S. soldier, like the Lone Ranger, was seen in popular discourse as a male protector, the guardian of the vulnerable female nation.[98] In the exercise of their masculinity, pilots shielded and defended the nation's territory (body) and honor from the threats of other male enemies. Project William Tell set the stage in the Cold War for such gender play. Unmanning meant that fighter pilots, armed with all sorts of rockets and guided missiles, would protect the exposed U.S. population from the air power of other nations—played by the high-flying Firebee drone. In the early stages of "becoming unmanned," as Mary Manjikian calls it, the U.S. military reinforced gender constructs that positioned male pilots as the warrior protectors of the nation.[99] As seen in Figure 6, the pilot's masculinity is physically and symbolically enhanced by the large, thick missiles. The pilot looks at the length of the GAR-1 missile which equals his height; the missile replicates his stature. He looks serious yet calm. With one hand he holds his helmet, while the other touches one of the two missiles. The

[98] Marko Dumančić, "Spectrums of Oppression: Gender and Sexuality during the Cold War," *Journal of Cold War Studies* 16, no. 3 (Summer 2014), 190-204.
[99] Mary Manjikian, "Becoming Unmanned," *International Feminist Journal of Politics* 16, no. 1 (2014), 48-65.

connection between these three represents the cool assemblage of pilot, fighter jet (signaled by the helmet), and weapon. The "robot plane" might have challenged the pilot but it was no match for U.S. masculine force and skill as embodied in the assemblage. After all, drones were tasked to serve these men or like Ryan Aeronautical phrased it in one of their ads, "[the] target drone is being used to sharpen the sights of the men who man the nation's air defense system."[100] By *un*manning the targets, the nation was manned. Likewise, eliminating the enemy threat would constitute another sort of *un*manning; U.S. fighter pilots would destroy the masculine violence of the enemy and in doing so neutralize his virility. The "virgin land" of the U.S. nation could stand unblemished by the voracious appetite of enemy air power. Despite possible anxieties stemming from an unmanned, "robot" vehicle crisscrossing the skies, jet-powered target drones were integral in reproducing gendered imaginations of warfare, the U.S. nation, and the enemy other.

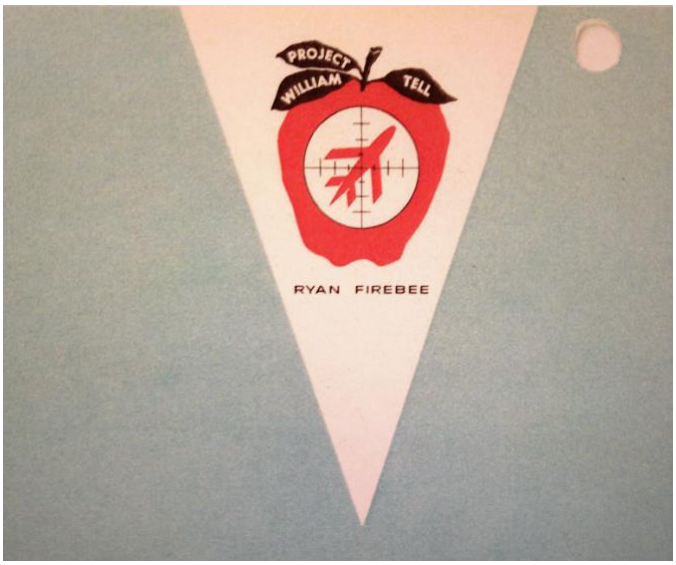


Figure 7. Ryan Firebee at Project William Tell (c.1958)
(source: Album 109, "Ryan Library Albums," SDASM)

Air power in the borderlands sought to differentiate between bodies programmed for inclusion or for exclusion, and between the interior and exterior territories of the U.S. empire-

[100] "Firebee: 'Enemy' Jet over America."

nation. Drone pilots and airborne pilots enacted scripts governing how "intruders" were to be engaged and managed. Concentric circles were imagined around intended targets. In keeping with this formulation, other Project William Tell materials (Figure 7) echoed the feats of the Swiss hero by depicting crosshairs targeting a Firebee within an apple.[101] Thus, intruders were engaged through the distinction of friend/enemy. Like Tell before them, the human-machine assemblage mobilized to fight oppression. The shape of this oppression was found in Cold War and imperial social anxieties around foreign subjects that needed tracking, targeting, and destroying/controlling.

As the Cold War emerged in the late 1940s, Q-2 aircraft flew over the blue waters of the Gulf of Mexico and over the white sands of the New Mexico desert. On the ground below, the public was joined by military and government officials, and technicians that gazed upward with anticipation for the next bomb to drop. What they feared was simultaneously that which they produced. Formulated by theorists such as Douhet and Mitchell, air power figured prominently in the U.S. Air Force's pursuit of aerial technology as means through which to manage and administer populations. Menacing empire-nations armed with aircrafts and nuclear arsenals threatened one another with annihilation. The public panicked. Military research agendas were buttressed. Yet the specter of mutually-assured-destruction was not the exclusive motivating force behind the growth of drones.

Rationales beyond considerations over national security informed the development of technology during the Cold War. Throughout this chapter, I discussed how panics surrounding Soviet spies, communist infiltrators, and the Mexican migratory agricultural proletariat metamorphosed into the not-quite-insect fuselage of the Firebee. Q-2 Firebees tested the

[101] "Big Apple," *Ryan Reporter* 24, no. 4 (November-December 1963), 3-5.

defenses of the U.S. empire-nation by penetrating its territory as well as by challenging new and old military technologies. But as the chapter shows, air power in the borderlands also sought to differentiate between bodies meant for inclusion or exclusion. This was how frontier and migration politics also played pivotal roles in the production of technology like the Q-2. Military and Ryan Aeronautical officials inscribed drones as "foreign," "enemy" threats to the U.S. nation. Drone operations were initially framed by the encounter between computing and air power that made drones into strange "robots in air," a seemingly uncomfortable proposition for the U.S. public. During the 1950s, drones were then assigned the role of lawless "intruders" through the settler drama that was Project William Tell. A reference to both William Tell and the Lone Ranger, the military exercise showcased how frontier and migration politics were entangled in two ways with the making of drones in the middle of the twentieth century. On the one hand, the concept of "intruder" slowly transitioned from the domains of military knowledge and the metal frames of autonomous aircraft into the flesh and bones of Mexican bodies. The idea of "intruders" in the borderlands, the next chapter reveals, soon found its rearticulation in the development and installation of intrusion detection systems on the U.S.-Mexico border. On the other hand, the sense of alienage which permeated how the U.S. public imagined immigrants—though only Mexicans were explored here—came to shape the production of drones.

The chapter argued that drone pilots and airborne pilots in Project William Tell enacted biopolitical scripts governing how actors in the borderlands were to be imagined and the roles they ought to play. Air Force pilots were the brave, manly figures that made the U.S. military strong, while drones represented the submitted and weakened un-manned enemy. These scripts, more importantly, demarcated how "intruders" were to be engaged and managed. Intruders were

enemies and, as such, required elimination. Through Q-2 drone incursions, the U.S. military retraced the boundaries of the nation and actualized its imperial claims over territory and populations. Despite the political struggles of Mexican Americans in the U.S. military and the LGBT community as well as the growing critiques to patriarchy by second wave feminists, actors in the U.S. military and in weapons manufacturing insisted on articulating a White-heteronormative vision of masculinity during the Cold War. Through weapons meets such as Project William Tell, Firebees simulated crossing the nation's borders. Targeting, tracking, and shooting them down were integral to the reproduction of the boundaries of territory and identity. The making of the Q-2 drone was, in short, bound to the border/boundary making of the empire-nation.

## CHAPTER II

### The Electronic Fence: Automation and Infrastructures of Border Control, 1970s

For two straight days, sensor No. 139 sent radio signals to the Border Patrol's station in San Ysidro, California. A light flashed intermittently, as if someone or something activated it. To Border Patrol agents, the sensor's uninterrupted activation was a clear sign that it was malfunctioning. The light for sensor No. 103, by contrast, was off when it suddenly turned on. Data of its activation were automatically recorded on a magnetic tape back on sector headquarters where a desk officer radioed the nearest patrol car. "Minutes later," James P. Sterba wrote in the *New York Times* in 1973, "three Mexicans, attempting to sneak into the United States, were tracked down and caught as a result of the electronic detection system" installed "along the Mexican border."[1] The system described by Sterba was commonly known as the "electronic fence." It relied on the operation of different components: ground sensors, radio waves and transmitters, signal processors, computers, magnetic tapes, and Border Patrol agents, among others. "It [wa]s a far cry from the Patrol Inspector of fifty years ago," agents reflected, "who rode miles of desert on horseback or who walked miles of tote roads or border slash on snowshoes in search of foot prints to track down illegal aliens."[2] Sensors were programmed to detect different kinds of phenomena, from seismic sensors measuring the applied stress of footsteps to infrared sensors that measured body heat. All components of the "electronic fence"

[1] James P. Sterba, "Electronic Vigil Fails to Stem Mexican Alien Influx," *New York Times*, July 22, 1973.
[2] "The First Fifty Years," *I and N Reporter* 23, no. 1 (Summer 1974), 2.

were meant to work in concert to monitor, record, and circulate information of those (see Figure 8) the *INS Reporter* called "intruders." But who were these "intruders?" And why were intrusion detection systems used to control them?

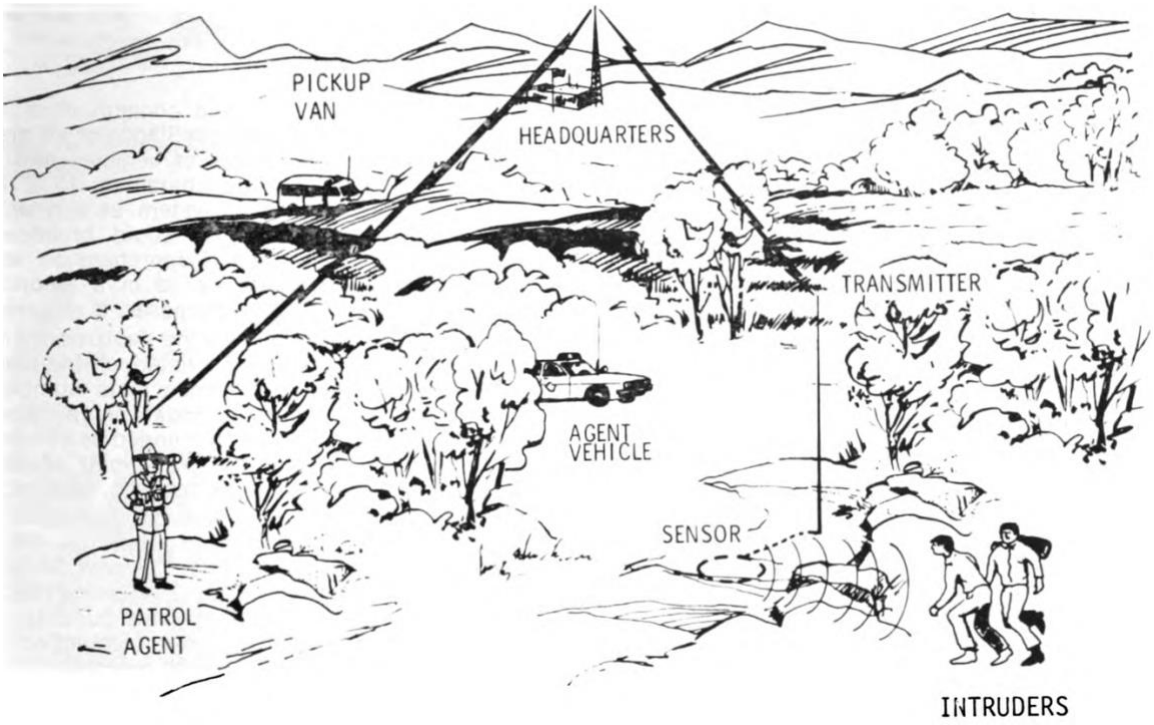


Figure 8. Diagram of the Border Patrol's intrusion detection system
(source: Harry D. Frankel, "INS Research and Development Programs," *INS Reporter* 26, no. 3 (Winter 1977-1978), 35)

In the U.S. public debate of the 1970s, the southern border was imagined as out of control due to the "thousands" of migrants that crossed it, overwhelming an understaffed U.S. Border Patrol.[3] In 1963, the Border Patrol, the enforcement arm of INS, located around twenty-one thousand "deportable aliens" who attempted entry-without-inspection across the border. Ten years later, in 1973, that number rose to more than half a million "deportable aliens" for an average increase of 41% per year. In the span of a decade the total number of apprehended

[3] Ruben Salazar, "Thousands Cross Border," *Los Angeles Times*, August 31, 1969.

"deportable aliens" on the U.S.-Mexico border was almost two million.[4] INS officials and the public at large associated "deportable aliens" to the southern border and, more specifically, to Mexicans. They were the "intruders" drawn in the *INS Reporter*'s diagram; they were the targets of intrusion detection systems. After the end of the Bracero Program in 1964 and passage of the Immigration and Nationality Act of 1965, anxious federal officials and engineers struggled to control the border and "intruders."

Officials at the Immigration and Naturalization Service (INS) answered this logistical challenge by mobilizing cybernetic ideas—the scientific study of communication and control mechanisms in organisms and machines—to make sense of the border and address the failures of the immigration system. Cybernetics emphasized that systems depended on information to execute its control mechanisms—in other words, to exist. Intrusion detection systems, like the one mapped by the *INS Reporter*, were designed to expand the reach of the Border Patrol by automatically monitoring and recording accurate information from phenomena. "These supersensitive devices," INS Officer Robert J. Seitz held, "allow one officer monitoring the 'control box' to cover a far wider territory than could be observed on ordinary 'still watch.' Through use of the device he can call in patrol units to areas where the instrument indicates movement."[5] Ground sensors placed on different border locations multiplied the capacity of agents to detect the presence of "intruders." These, in turn, were shaped by the technology into data-producing subjects, data inputs of a border information system this chapter calls cybernetic border. No longer hidden, "intruders" and their actions were now perceived and recorded by a system attuned to their existence. A *Washington Post* reporter commented that government

[4] "Border Patrol" (n.d.), Folder 1, Vertical File "United States, Immigration and Naturalization Service, Office of Planning and Evaluation," United States Citizenship and Immigration Services (USCIS) History Reference Library.
[5] Robert J. Seitz, "Border Patrol at Work: Frontier Beat," *I and N Reporter* 18, no. 3 (January 1970), 36.

actors found in technology a way to "save many precious man hours" and maximize the work executed by Border Patrol agents.[6] Cost-saving rationales in the 1970s were not uncommon for advocates of automation and of new electronic technologies. But, as the same reporter argued, sensors along the Mexican border were not just a cost-saving solution to a staffing problem. They were designed to help Border Patrol agents control "wetbacks and narcotic smugglers." In depicting Mexicans through racist epithets that marked them as unauthorized border crossers, cheap labor, and drug peddlers, the "electronic fence" was revealed as targeting Mexican bodies for exclusion.

Scholars in American studies and border studies have shown the myriad ways that certain immigrant communities were racially construed and targeted for exclusion by U.S. immigration policies.[7] The border studies literature has probed how the southern borderlands have been transformed through the usage of military technologies and military doctrines since, at least, the air power operations of Brigadier General John J. Pershing against Pancho Villa and his revolutionary forces in the 1910s.[8] This chapter contributes to these conversations by studying the co-construction of electronic technology and race. Border technology obfuscated the ways its technical operations were entangled with discourses around unwanted populations. As such, it is

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[6] Ken W. Clawson, "U.S. Testing Sensors Along Mexican Border," *Washington Post*, July 18, 1970.
[7] Erika Lee, "Enforcing the Borders: Chinese Exclusion along the U.S. Borders with Canada and Mexico, 1882-1924," *The Journal of American History* 89, no. 1 (June 2002), 54-86; Mae Ngai, *Impossible Subjects: Illegal Aliens and the Making of Modern America* (2004; repr., Princeton: Princeton University Press, 2005); Kelly Lytle Hernández, "The Crimes and Consequences of Illegal Immigration: A Cross-Border Examination of Operation Wetback, 1943 to 1954," *Western Historical Quarterly* 37, no. 4 (Winter 2006), 421-444.
[8] Paul J. Vanderwood and Frank Samponaro, *Border Fury: A Picture Postcard Record of Mexico's Revolution and U.S. War Preparedness, 1910-1917* (Albuquerque: University of New Mexico Press, 1988); Timothy Dunn, *The Militarization of the U.S.-Mexico Border, 1978-1992: Low-Intensity Conflict Doctrine Comes Home* (Austin: Center for Mexican American Studies, 1996); Peter Andreas, *Border Games: Policing the U.S.-Mexico Divide* (2000; 2nd ed., Ithaca: Cornell University Press, 2009); Joseph Nevins, *Operation Gatekeeper and Beyond: The War on "Illegals" and the Remaking of the U.S.-Mexico Boundary* (2002; 2nd ed., New York: Routledge, 2010).

crucial to understand both how intrusion detection devices worked and how they targeted Mexicans as racialized "intruders."

An infrastructure of technologies and knowledges built around these targets emerged as a result. Josiah Heyman's work on the homeland security-industrial complex highlights that this formation was not merely the result of government restructuring post-9/11 but the continuation of an escalation in enforcement dating to the 1990s. A network of private detention center operators, and border wall and electronic surveillance contractors, among others, coalesced around the U.S. national mission to defend "the homeland" against terrorist and other security threats.[9] This chapter links the emergence of the homeland security-industrial complex back to the articulation of a national security apparatus during the Cold War. The linkages between the military-academic-industrial complex and the border grew in intensity through the intersection of cybernetics thinking, and immigration and border enforcement efforts. A new way of thinking about the border predicated on the centrality of information coincided with the institutional and infrastructural reorganization of the Immigration and Naturalization Service.

To study the "electronic fence" is to grasp the intersections between automation, nation-making, and racial sorting logics. I explore these intersections by discussing how "illegal aliens" were perceived as racial problems threatening the nation in the 20th century and how INS responded to them. Officials thought border enforcement efforts had to be revamped. "Sign cutting" and communications operations in particular illustrate the ways that cybernetics gave officials the conceptual apparatus to treat the border as an information system. Attention to information led INS to import intrusion detection systems, originally developed for the Vietnam

[9] Josiah Heyman, "Capitalism and U.S. Policy at the Mexican Border," *Dialectical Anthropology* 36, no. 3-4 (December 2012), 268-271 and "Constructing a Virtual Wall: Race and Citizenship in U.S.-Mexico Border Policing," *Journal of the Southwest* 50, no. 3 (Autumn 2008), 305-333.

War, to the U.S.-Mexico border. In southeast Asia, these systems were used to automate security operations along South Vietnam's borders. They exposed, more importantly, how the U.S. empire-nation sought to police and undo its own boundaries, boundaries once built domestically through the material entanglements between electronic technology, race, and conceptions of the frontier.

I argue that cybernetic ideas and intrusion detection systems were adopted to draw an electronic "line in the sand" in the management and administration of the U.S.-Mexico border.[10] Drawing this electronic line generated two enduring effects. First, actors and machines traced the boundaries of the nation on the ground and on human bodies—bodies and populations imagined as "intruders." Second, people were abstracted into data inputs and outputs to be measured and analyzed. The "electronic fence," I contend, was an expression of the cybernetic border, a sociotechnical arrangement centered on data capture, management, and processing. Despite its repeated failures to command territory and people, the "electronic fence" was part of an imperial control fantasy that spanned the globe—from the jungles of southeast Asia to the southwestern borderlands. Technical breakdowns, such as the case of sensor No. 139, were endemic to the system but these did not keep it from continuing to deliver the illusion of mastery. Decades prior to the post-9/11 increase in cybersecurity measures, the U.S.-Mexico border of the 1970s was one of the critical spaces where government actors experimented with automating the control of racialized populations.

To understand border technopolitics, I trace associations or relations between various ideas, institutional arrangements, and technical operations. Intrusion detection systems were part

[10] Rachel St. John writes about "how a line in the sand became a conditional barrier between two nations and their people." *Line in the Sand: A History of the Western U.S.-Mexico Border* (Princeton: Princeton University Press, 2011).

of a regime committed to producing gaps and omissions in the public record about technological and military research. This required the examination of various sources to help fill-in the gaps. New ideas about the border circulated via short articles written by INS officials in the *I and N Reporter* (renamed *INS Reporter*) and through their statements in the press. Similarly, analyzing how journalists described the "illegal alien" problem and the "electronic fence" shows how these technologies were socially constructed. In addition, technical reports, congressional hearings, annual reports, authorization and budget requests, and press coverage reveal the institutional arrangements of the agencies responsible in managing the border. Finally, I reconstructed the technical operations of the border by engaging technical reports, congressional hearings, and journalistic coverage. The operation of the "electronic fence" exposes how intruding "illegal aliens" were rendered "knowable." Tracing ideas, institutional arrangements and technical operations is a method that aims to grasp how discourses shaped technology at the same time that technology impacted the conditions of political possibility.

## The "Illegal Alien" Problem and the Dawn of the Border as an Information System

Restrictive immigration policy like that articulated in the National Origins Act of 1924 was pivotal in the construction of the "illegal alien" problem. This legislation instituted a quota system that limited the number of entrants to the United States from outside the Western Hemisphere and differentiated those entrants according to their national origin. The National Origins Act, immigration historian Mae Ngai argues, "defined the world formally in terms of country and nationality but also in terms of race. The quota system distinguished persons of the 'colored races' from 'white' persons from 'white' countries."[11] Some people deemed to be part

[11] Ngai, 27.

of the "colored races" were granted entry into the U.S., except for those identified as excludable people ineligible for citizenship (i.e., Chinese and Japanese). These populations embodied a sense of foreignness that placed them outside the bounds of the U.S. nation. Inside its territory, Ngai concludes, "illegal aliens" "ha[d] no right to be present," they were "at another juridical boundary."[12] Numerical restriction contributed to the construction of a subject whose existence was an expression of the limit of the law.

As part of the Western Hemisphere, Latin American countries were not constrained by the quota system, although this did not mean migrants from these countries were free from government and corporate attempts to monitor, restraint and deport them. Mexican migrant workers in the Imperial Valley during the 1930s and 1940s, for example, were the targets of a concerted effort to make them into what Natalia Molina calls "deportable immigrants."[13] Targeted for their participation in organized labor activities and their border crossing practices, Mexican workers were construed by government officials at INS and the Border Patrol as potential carriers of disease. This imagined potential for disease opened the door for Mexican migrants to become deportable. In fact, the category of "deportable alien" was an accounting category used by INS officials to track, measure and sort the interactions between Border Patrol and targeted populations. "Deportable aliens" were identified for transgressing the conditions of their admission or for crossing the border without authorization.[14] It helped differentiate bodies, between those that deserved to remain within and those that ought to be removed from the nation. U.S. officials relied on the language of disease written into law since the Immigration Act

[12] Ibid., 6.
[13] Natalia Molina, "Constructing Mexicans as Deportable Immigrants: Race, Disease, and the Meaning of 'Public Charge'," *Identities* 17, no. 6 (2010), 641-666.
[14] U.S. Immigration and Naturalization Service (INS), *Annual Report of the Immigration and Naturalization Service for 1973* (Washington, D.C.: U.S. Government Printing Office, 1973), 9.

of 1882, which prohibited the entry of any "convict, lunatic, idiot, or any person unable to take care of himself or herself without becoming a public charge."[15] Molina argues that, "[r]acializing Mexicans and Mexican Americans alike as dependent disease carriers helped to mark both populations as deviant, dangerous, and outside the bounds of social membership within the United States."[16] The category of "deportable alien," combined with the spatial focus on the southern border, signaled that officials at INS made it a priority to target a population imagined as intractably foreign. Even when these populations were outside the 1924 quota system, public and private actors developed different mechanisms through which their inclusion in and exclusion from the U.S. nation was managed.

The role given to the Border Patrol during the Bracero Program reveals the management of Mexicans and Mexican Americans during the mid-twentieth century.[17] While large proportions of the U.S. labor force were busy with military efforts during World War II, the U.S. and Mexican governments pursued a temporary farm-worker program that ran from 1942 to 1964. Known as the Bracero Program, it contributed to changing the demographics of the country through the steady, even if circulating, influx of Mexican workers.[18] The Border Patrol's focus, during this period, was mostly directed to policing unsanctioned Mexican migration.[19] Such a narrow focus, Kelly Lytle Hernández argues,

> drew a very particular color line around the political condition of illegality. Border Patrol practice, in other words, imported the borderlands' deeply rooted racial divides arising from conquest and capitalist economic development into the making of U.S. immigration law enforcement and, in turn, transformed the legal/illegal divide into a problem of

[15] Sec. 2, Immigration Act of 1882, 47th Congress, Sess. I (22 Statutes-at-Large 214).
[16] Molina, "Constructing Mexicans as Deportable Immigrants," 659.
[17] For more on the Bracero Program: Ngai; Kelly Lytle Hernández, *Migra!: A History of the U.S. Border Patrol* (Berkeley: University of California Press, 2010).
[18] Douglas S. Massey, Jorge Durand and Karen A. Pren show that Mexican migrations during and after the end of the Bracero Program used to be circular. "Why Border Enforcement Backfired," *American Journal of Sociology* 121, no. 5 (March 2016), 1557-1600.
[19] Hernández, *Migra!*, 103.

race.[20]

In its 1947 *Annual Report*, INS held that, "[d]uring the year the force became more concentrated along the Mexican border because of the unprecedented number of aliens entering illegally there." That year the Border Patrol had 734 officers, or about 60% of its total force, authorized on the southern border, while 117 were on the Gulf and Florida. By contrast, 378 officers patrolled the entire Canadian border.[21] The higher presence of agents on the southern border betrayed two things. On the one hand, as INS Annual Reports stated, the problem of "deportable aliens" and "surreptitious entries" was construed as a Mexican one, since "most of the immigration violations were created by an influx of Mexican aliens across the land border of the Southwest Region."[22] On the other, the Border Patrol was a police force meant to discipline and punish Mexicans as a migrant labor population. Mexican presence in the U.S. represented the failure of controlling the U.S.-Mexico border.

The sense of foreignness with which immigrants were entangled, through categories like "deportable alien" and "intruder," also invoked the idea of "the enemy" to a larger U.S. public. In an article for the *Los Angeles Times*, Bob Williams told readers that U.S. authorities had failed to prevent "illegal aliens" from establishing "a beachhead for the Third World" in the U.S.[23] Williams adopted the language of war to identify southern California as a "beachhead," a defensive position from where landing forces could launch attacks. "Illegal aliens," linked to the "Third World" but thought of as mostly Mexican, represented the landing enemy force. They

[20] Ibid., 222.
[21] INS, *Annual Report of the Immigration and Naturalization Service for the Fiscal Year Ended June 30, 1947* (Philadelphia: U.S. Department of Justice, 1947), 24.
[22] INS, *Annual Report of the Immigration and Naturalization Service 1966* (Washington, D.C.: U.S. Government Printing Office, 1966), 12.
[23] Bob Williams, "Illegal Aliens Win a Beachhead for the Third World," *Los Angeles Times*, June 4, 1978.

were responsible for carrying out a "silent and sometimes invisible invasion." In a similar vein, INS Commissioner Leonard F. Chapman described "illegal immigrants" as constituting a "vast and silent invasion…fast reaching the proportions of a national disaster."[24] Referring to their entry in these terms positioned "illegal aliens" as untrustworthy, threatening and unknowable subjects. They acted covertly, whenever and wherever no one could perceive their presence. "Illegal aliens" were not migrating to contribute to U.S. society; they hid their true intentions. They were an "invasion." The propensity to use the language of war to talk about immigration and border enforcement colored these efforts with an existential hue. The "threat narrative," as Leo R. Chavez has called it, identified Mexicans as people who could not become part of the U.S. for they represented a danger to the continuity of the U.S. as an imagined community.[25] Their linguistic, kinship, religious and other cultural practices marked them as inexorably separate from dominant conceptions of "America." Mexicans, euphemistically named through categories like "illegal aliens" and "deportable aliens," were the targets of a war for who could belong to the nation and who could not.

Anxieties about rising "illegal" migration in the 1950s and early 1960s converged with panics around drug smuggling and consumption. In the Texan borderlands, for example, these panics had repercussions on Mexican families targeted by local and federal actors. Government officials mobilized images of Mexican domestic spaces as harbingers of disease and illegal narcotics throughout the 1950s with the aim of construing them as criminal. Mexican families were rounded up, arrested and photographed in attempts to document and make evident their

[24] Leonard F. Chapman, Jr., "Illegal Aliens: Time to Call a Halt!," *The Reader's Digest* (October 1976), 188.
[25] For "Latino threat narrative": Leo R. Chavez, *The Latino Threat: Constructing Immigrants, Citizens, and the Nation*, Second edition (2008; repr., Stanford: Stanford University Press, 2013).

supposedly deviant proclivities.[26] By the time President Richard Nixon embarked on his war on drugs in 1969, the notions that Mexicans and Mexican Americans were criminal and that the border was a nefarious zone were ingrained in the U.S. public imaginary.[27] Newspapers constrained the ongoing pursuit to solve "the problem of illegal aliens" and the "drug-smuggling war" to the southern borderlands.[28] Federal government efforts like Operation Intercept in 1969, which instituted harsher inspection procedures on border crossing from Mexico, perpetuated the sense of the border and of its "foreign" subjects as lawless. Imagined as criminal, Mexicans and Mexican Americans were treated as threats to the stability of the U.S. nation, and so actors pushed for the development and deployment of practices and technologies to control them.[29] It was within this context of heightened anxieties over the safety of a national body overwhelmed by "illegal migration"—especially Mexican— and "drug smuggling" that cybernetic ideas began leaving their mark at INS.

Cybernetics was a new interdisciplinary field of scientific study dedicated to communication and control processes in machines and in living organisms. It blossomed at the intersection of military, academic, and industrial research in the United States during and after

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[26] ToniAnn Treviño, "Narcotics, Family Networks, and State Imposition of Stigma: Policing the Mexican Community in Texas through Kinship, 1951-1959" (paper presented at The Newberry Borderlands and Latina/o Studies Seminar, Chicago, January 2016).

[27] For more on the War on Drugs and migration: Paul Gootenberg, *Andean Cocaine: The Making of a Global Drug* (Chapel Hill: University of North Carolina Press, 2009); and Curtis Marez, *Drug Wars: The Political Economy of Narcotics* (Minneapolis: University of Minnesota Press, 2004).

[28] "Nixon Declares Electronic War on Drug-Smuggling from Mexico," *The Globe and Mail*, September 9, 1969; Jack Anderson and Les Whitten, "U.S. Losing Drug-Smuggling War," *Washington Post*, August 24, 1973; "Immigration Head Voices Alarm over the Problem of Illegal Aliens," *New York Times*, December 21, 1975; Everett R. Holles, "Hundreds of Mexican Children Cross Border to Engage in Crime," *New York Times*, March 27, 1977.

[29] For the biopolitical management of Mexican life in the U.S.: Marez; Alexandra Minna Stern, *Eugenic Nation: Faults and Frontiers of Better Breeding in Modern America* (Berkeley: University of California Press, 2005); Natalia Molina, *Fit to Be Citizens?: Public Health and Race in Los Angeles, 1879-1939* (Berkeley: University of California Press, 2006); Hernández, *Migra!*; and Miroslava Chávez-García's *States of Delinquency: Race and Science in the Making of California's Juvenile Justice System* (Berkeley: University of California Press, 2012).

World War II. Norbert Weiner, a mathematician at the Massachusetts Institute of Technology (MIT), was among its foundational figures. Cyberneticians thought that the production and circulation of messages/information explained how an entity sustained itself, as well as how it related to, cohered or clashed with other entities.[30] The concept of *feedback* helped cyberneticians to frame the circulation and processing of information.[31] This meant that any given entity required the existence of some mechanism by which the inputs, transmissions and outputs of information were monitored, ordered, and regulated. Wiener argued that feedback was about the *control* of a machine or organism on the basis of its *actual* performance rather than its *expected* performance.[32] Feedback, in other words, concerned the ordering of an entity's purposeful behavior and its subsequent responses relative to its given goal.

Cyberneticians understood human and non-human entities in analogous terms. Blurring the boundary between one and the other allowed them to abstract and articulate a universal language that would effectively name processes in both flesh and metal. In other words, "Wiener believed," as Fred Turner contends,

> that biological, mechanical, and information systems, including then-emerging digital computers, could be seen as analogues of one another. All controlled themselves by sending and receiving messages, and, metaphorically at least, all were simply patterns of ordered information in a world otherwise tending to entropy and noise.[33]

At MIT's Radiation Laboratory, for example, cybernetics helped researchers work out solutions to 1940s-era military problems, such as how to shoot an airplane from the sky. Academic and military researchers worked on how to track the course of an airplane, measure its movements

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[30] Norbert Wiener, "Cybernetics," *Scientific American* 175, no. 5 (1948), 14 and *Cybernetics, Or Control and Communication in the Animal and the Machine* (1948; repr., Cambridge: MIT Press, 1961), 161.
[31] Halpern, 46.
[32] Norbert Wiener, *The Human Use of Human Beings: Cybernetics and Society* (Boston: Houghton Mifflin, 1950), 12.
[33] Fred Turner, *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopianism* (Chicago: University of Chicago Press, 2008), 22.

and predict its future position. Anti-aircraft gun, gunner, airplane, pilot, projectile, and aero-dynamics were imagined as an interlocking system that could be statistically defined in the pursuit of a goal—shooting down the plane.[34] At the center of it all was messages and information which allowed for these different entities to be intelligible to each other.

Scholars positioned cybernetics as crucial to understanding a wide range of problems affecting all sorts of systems. Chief among these was the problem of government. Karl Deutsch, a Harvard professor of political science and key figure in the translation of cybernetics into the realm of politics in the early 1960s, argued that the problem of government was a question of steering—of controlling the inputs, outputs, and feedback loops of systems.[35] In a similar vein, Wiener argued that "society [could] only be understood through the study of the messages and the communication facilities which belong[ed] to it."[36] Cybernetics engaged information by breaking down the behaviors of an entity or system into smaller points. These points were then assembled into patterns of order for transmission. Information consisted of a transmitted pattern "that [wa]s received and evaluated against the background of a statistical ensemble of related patterns."[37] The task of government's control mechanisms was to organize the chaotic interactions of entities into patterns of order for the benefit of government's existence and survival.

The creation of the Office of Planning and Evaluation (P&E) in January 1974 was emblematic of the influence of cybernetic principles in the reorganization of INS. Two years

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[34] Arturo Rosenblueth, Norbert Wiener and Julian Bigelow, "Behavior, Purpose, Teleology," *Philosophy of Science* 10, no. 1 (1943), 19; Wiener, "Cybernetics," 14 and *Cybernetics*, 6-7.
[35] Karl W. Deutsch, *The Nerves of Government: Models of Political Communication and Control* (1963; repr., New York: Free Press, 1966), xxvii.
[36] Wiener, *The Human Use of Human Beings*, 9. Weiner moved with cautious excitement when espousing the use of cybernetics to solve social problems. *The Human Use of Human Beings* is precisely an ethical meditation on the dangers or threats cybernetics posed to humanity.
[37] Deutsch, 84.

prior to the creation of P&E, Leonard F. Chapman, Jr., a former Marine Corps General, had been picked by President Richard Nixon to reinvigorate INS.[38] Among other things, a note published by *I and N Reporter* stated, he was picked for his role as an administrator in the Marines where he was responsible in integrating computers and automation to military management.[39] In other words, actors thought he knew how to use the latest technology as a means of transforming the operations of an organization. Yet it was not just that he used technology, but that he was exposed to new currents in management such as systems thinking. When P&E was created, Chapman told officials "to look at INS operations" and "come up with innovative ways" for the Service to execute its work.[40] One of the ways it did so was by implementing a management-by-objectives (MBO) regime that relied on a systems understanding of INS. The Service was imagined as an interlocking hierarchy of offices and branches or "subsystems," each with individual tasks and objectives to be achieved but that still had to work in concert for the success of the overall system.[41] P&E would develop, review, and evaluate policies, programs, systems, and structures to determine "the effective utilization of resources, the cogent assessment and establishment of future functional requirements and mission objectives, and the reconciliation of special managerial problem areas to insure congruence with mission objectives."[42] Said differently, the office took on the role of the governor or steersman found in the root of the word

[38] Daniel J. Tichenor, *Dividing Lines: The Politics of Immigration Control in America* (Princeton: Princeton University Press, 2002), 29.
[39] "Introducing Leonard F. Chapman, Jr. Our New Commissioner," *I and N Reporter* 22, no. 4 (Spring 1974), 43.
[40] Lisa S. Roney, "Memorandum for Marian Smith, Historian" (June 20, 2003), Folder 1, Vertical File "United States, Immigration and Naturalization Service, Office of Planning and Evaluation," USCIS History Reference Library.
[41] John C. Aplin, Jr., and Peter P. Schoderbek, "A Cybernetic Model of the MBO Process," *Journal of Cybernetics* 10, no. 1-3 (1980), 19.
[42] INS, *Annual Report of the Immigration and Naturalization Service 1976* (Washington, D.C.: U.S. Government Printing Office, 1976), 1-2.

"cybernetics"—κυβερνάω (kubernáo) meaning "to steer, navigate or govern." It required that each INS office and branch had precise objectives with clearly identified resources for their attainment. P&E would then, relying on Wiener's cybernetic principle of feedback, assess each subsystem based on their "actual" and not their "expected" performance. Reviews were meant to aid in steering the subsystem towards its goals.

Chapman's MBO regime, which became known as the Commissioner's Planning System (COMPS), also mobilized cybernetic principles like *purpose* as it linked all INS resource requests with objectives. In other words, this management approach was designed "to identify and budget critical Service needs and to channel I&NS efforts in new, directed, and purposeful ways through the development of long range forecasts and short term impact plans."[43] The emphasis on *purposefulness* as a way to *steer* INS plans and efforts is of note here. The concept of "purpose," according to Arturo Rosenblueth, Norbert Wiener and Julian Bigelow, denoted that an act or behavior was directed towards the voluntary attainment of a goal.[44] When it came to cybernetics and government, Deutsch argued that any attempt to impact an environment and its actors was susceptible to the establishment of "some relatively fixed goal or purpose…by which the application of power c[ould] be guided and directed. This guidance [wa]s indispensable for the sustained effectiveness of any system that applie[d] power to its environments."[45] Through its development and assessment of policies, programs, systems and operations, P&E offered INS and its interlocking subsystems a way to guide and direct their actions on the border environment in "purposeful ways."

[43] Ibid., 3.
[44] Rosenblueth, Wiener and Bigelow, 18.
[45] Deutsch, 110.

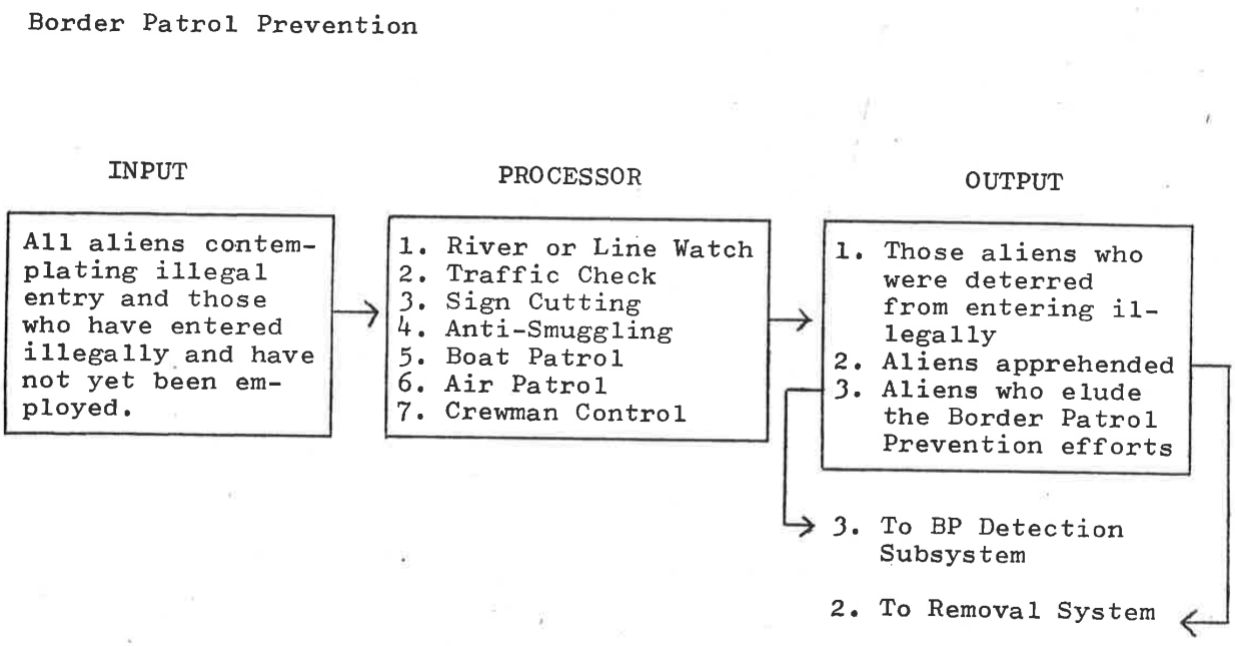


Figure 9. Diagram of the Prevention System: Border Patrol Subsystem
(source: INS, Office of Planning and Evaluation, "Section II. Detection System Part II. Border Patrol Subsystem" (1974), Folder 2, Vertical File "United States, Immigration and Naturalization Service, Office of Planning and Evaluation," USCIS History Reference Library)

In one of its assessments of the "Border Patrol Subsystem" (as shown in Figure 9), for example, P&E broke prevention operations into discrete parts. Operations in this diagram were coded in the language of information technology as consisting of inputs, processors, and outputs. All activity began when the system was triggered by an input: "aliens contemplating illegal entry and those who have entered illegally and have not yet been employed." Prevention, in other words, revolved around the actions of "aliens" entering the country without authorization ("illegally"). Engaging these subjects required that Border Patrol agents employ a variety of "processor" practices. These were techniques and technologies designed to generate a clearly defined goal or "output." Among the outputs of processor practices were the apprehension of "aliens" or their avoidance of Border Patrol prevention operations. Each prompted the activation of different subsystems ("removal" or "detection"). By framing the borderlands as an abstract

problem of inputs, processors, and outputs, INS officials hoped to adopt the "cool" neutral logic of computers processing information. And yet, the continued insistence that the immigration "problem" was produced by a specific subject—Mexicans imagined as "deportable aliens"—demonstrated the tensions within this abstract formulation.

Facilitating the integration of cybernetics into the everyday operations of the Border Patrol was the fact that, to some extent, the border was already treated as an information environment. Evidence of this was the "processor" practice of sign cutting. Formally taught at the Border Patrol Academy, sign cutting was defined by one INS official as "recognizing and interpreting physical signs of the movement and activities of persons who have crossed the border without inspection."[46] Changes imprinted on the natural landscape, such as footprints and vehicle tracks, were *a priori* understood as suspect. They were "signs" or evidence of the presence of someone or something that should not have been there. Traces left behind were data that Border Patrol agents could use not only to identify the presence of an "intruder," but also to figure out their direction. To "cut" meant two things. First, agents broke the large border terrain into discrete or manageable segments to scrutinize. And second, agents severed the path of those attempting entry-without-inspection; track-producing subjects would be removed from the border and their tracks would reach a dead end. Sign cutting strove to transform "intruders" from unknowable entities into knowable, excludable subjects.

While sign-cutting was a central enforcement practice, it was also a way of enacting the Border Patrol's exclusionary desire and its role in frontier making.[47] In an article celebrating the fifty years of the Border Patrol, the *I and N Reporter* described sign cutting as

> a skill practiced by the American Indian, long before the arrival of Columbus. Later, it was practiced by hunters, frontiersmen and trappers who left the beaten trail to locate

[46] Frank R. Royal, "In-Service Training Programs," *I and N Reporter* 9, no. 2 (October 1960), 17.
[47] William Turner, "Signcutting and Aerial Observation" (n.d.), USCIS History Reference Library.

> game or to detect an enemy in the area. Also, during the settlement of the West, sign cutting was used successfully to track down cattle rustlers and other outlaws.[48]

In its publication, INS imagined Border Patrol agents as "playing Indian" in performing sign cutting.[49] A purported Native American practice was appropriated by "frontiersmen" for the purposes of settling "the West." The targets of the practice shifted depending on context—at times they were game, at others they were enemies or even law transgressors ("cattle rustlers and other outlaws"). In the end, they were subjects that sustained or disturbed the tenuous balance of the settler project. Now practiced in the modern borderlands, though especially in the southwest, sign cutting rearticulated the frontier politics of managing and containing the Other. Border Patrol agents tracked and apprehended unauthorized border crossers. Sign cutting perpetuated the settler project in the southwest by enforcing its immigration law. It severed an undesirable subject from the national body. In this case, the undesirable subject was a "deportable" population: Mexicans.

Through cybernetic ideas, INS officials continued treating the border as a rich communication and information landscape with its particular set of practices (i.e. sign cutting) and sign-producing subjects/objects. What shifted slowly was treating the border as an information *system*. During the 1960s and 1970s, officials at INS reflected on the place of information and communications in the Service's operations. They were insistent that they lacked the adequate tools to manage both immigration requests and the growing influx of unauthorized entries.[50] One constant in their articles for the *I and N Reporter* was the centrality

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[48] "The First Fifty Years," 12.
[49] Phil J. Deloria, *Playing Indian* (New Haven: Yale University Press, 1998).
[50] Edgar C. Niebuhr, "False Claims to United States Citizenship by Mexican Aliens," *I and N Reporter* 9, no. 1 (July 1960), 1-3; Harrison H. Merkel, "Mobile Operational Communications," *I and N Reporter* 9, no. 3 (January 1961), 35-37; David V. Vandersall, "Steps to a Better Records System," *I and N Reporter* 20, no. 4 (April 1972), 51-54; Clawson; Lawrence Meyer, "Aliens Hard to Count," *Washington Post*, February 2, 1975; "Immigration Head Voices Alarm over the Problem of Illegal Aliens," *New York*

given to communication. George F. Klemcke, Deputy Assistant Commissioner for Enforcement at INS, even argued that, "[e]ffective law enforcement requires a rapid, accurate, and smooth-flowing communications system for transmitting information and messages to the office responsible for taking action."[51] Though the term cybernetics was not used, the usage of some of its key concepts (e.g., communication, information, messages) make evident the influence the interdisciplinary science had at INS. "Modern" and "efficient" law enforcement was imagined to depend on neatly circulating data flows that would direct Service personnel and resources wherever they were needed. This was, after all, as Science Studies scholar Paul N. Edwards shows, a period marked by business schools "theorizing management as a problem of information processing" and Rand Corporation strategists "increasingly formulat[ing] command as information processing and war itself as a problem of communication."[52] Officials at INS were immersed in a discursive milieu marked by the language of cybernetics and systems thinking which permeated much business, policy, and military circles.

The border was construed as a system, as sets of interlocking and interacting entities held together through communication processes. It was an information system where control depended, among other things, on what Klemcke stressed ought to be "rapid, accurate, and smooth-flowing communications." Actors understood that the effective circulation of information would give Border Patrol and investigative agents the most accurate data whenever they engaged unauthorized border crossers in the field. Communications operators, for example,

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*Times*, December 21, 1975; Marjorie Hunter, "Immigration Agency Engulfed in Trouble," *New York Times*, May 13, 1977; Jack Jones "Border Patrol: More Fingers in the Dike," *Los Angeles Times,* August 9, 1978; Ronald J. Ostrow, "Bell Says Immigration Service Is 'Drowning' in Paper, Plans Effort to Systematize It," *Los Angeles Times,* January 31, 1979.

[51] George F. Klemcke, "Role of the Communications Operator," *I and N Reporter* 15, no. 4 (January 1967), 29.

[52] Paul N. Edwards, *The Closed World: Computers and the Politics of Discourse in Cold War America* (Cambridge: MIT Press, 1996), 131.

were tasked with offering assistance to officials by providing data from the INS Main Index. This contained different data from forms like the G-361 (used for "alien" files and visa petition files) and the I-94 (used for stowaways, excludable aliens, and "unable to locate persons").[53] The role of communications operators within the immigration system was, as Klemcke suggested, to facilitate all necessary information to agents in the field so that they could act. Using radio systems, they linked different border sectors and their actors to INS offices. By managing the flow and processing of information, communications operators and other INS agents controlled the border. Control of the border, similar to shooting down an airplane, meant agents had to make sure the "right" people were identified before they were removed from U.S. territory. Through technology, like radio communications, the chaotic flows of immigration and border enforcement were thought to be rendered manageable.

Government officials and the public insisted the country was under threat of a "silent" and "invisible invasion."[54] These two recurring tropes further exhibited an interest in treating the border as an information system. Actors believed that, in order to reveal surreptitious entries, they had to intervene in the field of the perceptible. Only then could they make the unknown knowable. In this sense, they participated in the development of what Donna Haraway argues is the history of science's entanglements with militarism, capitalism, patriarchy, and empire. "The eyes have been used to signify a perverse capacity"; technological vision was the "unregulated gluttony" of a knowing subject distanced "from everybody and everything in the interests of unfettered power."[55] The desire to "instrumentalize" the aural and visual fields conveyed an

[53] INS, "Records Administration and Information Branch" (February 4, 1969), included in "Authorization and Budget Request for the Congress" [for FY 1974] (1973), USCIS History Reference Library.
[54] Williams, "Illegal Aliens Win a Beachhead"; James Reston, "'The Silent Invasion'," *New York Times*, May 4, 1977.
[55] Donna Haraway, *Simians, Cyborgs, and Women: The Reinvention of Nature* (New York: Routledge, 1991), 188.

interest in building specific ways of perceiving, of gathering information. To look at and hear something meant that its existence was objectified. This existence was made into extractable matter. Techniques of sound and vision on the U.S.-Mexico border were meant to govern populations by extracting information: was there an "intruding" presence (i.e., human body or vehicle), when and where did they intrude, and where were they headed. These data were necessary for the capture of "intruders" and their subsequent removal. The tropes of a "silent" and "invisible invasion" made evident the strategic value given to the domains of sound and vision as ways for establishing order. Data on "intruders" were lacking without techniques of sound and vision. Unauthorized border crossers could, as a consequence of the Border Patrol's failure to capture and remove them, continue surreptitiously resisting the security infrastructure of the U.S. empire-nation.

Emphasis on data was a cornerstone in the articulation of what I call the cybernetic border. Actors thought that the structured and ordered logics of computers, built on what *Time* magazine called "reliable and cool" components, would produce the return of order to the border and to immigration enforcement.[56] The cybernetic border is this epistemological order of things and beings at the border. Returning to the diagram published by *INS Reporter* (see Figure 8), the cybernetic border was made up initially of ground sensors, transmitters, radio links, computers, Border Patrol agents, vehicles, and intruders, among others. This sociotechnical arrangement treated the borderlands as a data-filled environment to be ordered by differentiating between the movements of humans and non-humans. More importantly, the cybernetic border was a southern borderlands formation of what Edwards calls "the closed world." It was the kind of "chaotic and dangerous space rendered orderly and controllable by the powers of rationality and

[56] "Technology: The Cybernated Generation," *Time* 85, no. 14 (2 April 1965), 85.

technology."[57] The cybernetic border automated techniques of sound and vision in its attempts to encounter and sort the borderlands. It was invested in the mobilization of cybernetic theories and technologies to monitor, track and control Mexicans as a population. The cybernetic border was made up of tropes, practices, techniques and artifacts that were embedded in the matter of administering and managing racialized populations.[58] It was about both cybernetics in the nation and the nation in cybernetics.

## An Empire of Patterns of Order: Automating the Frontier

Unassisted human beings were no match to the control, communications, and information challenges presented to them by more than 2,000 miles of southern border environment. Intrusion detection systems integrated techniques of sound and vision as ways of tackling the "silent" and "invisible invasion" of "intruders." These techniques were automated in order to manage the recording and circulation of information from the vast landscape. Information was a tool leveraged against a specific population imagined as a threatening, invading force. U.S. government officials and the general public insisted on the racial contours of those imagined as "intruders." They were the "deportable aliens" and "illegal immigrants" against whom so much vitriol and institutional practices were levelled. This final section tackles the automation of control on the U.S.-Mexico border by exploring how intrusion detection systems were developed, who participated on their design and for what purposes. Examining the operations of the "electronic fence" reveals how political objectives were embedded in it while also

[57] Edwards, 72.
[58] For similar work on the links between cybernetics, computers, governmentality and biopolitics: Nikolas Rose, *The Politics of Life Itself: Biomedicine, Power, and Subjectivity in the Twenty-First Century* (Princeton: Princeton University Press, 2007); Orit Halpern, *Beautiful Data: A History of Vision and Reason since 1945* (Durham: Duke University Press Books, 2014).

uncovering its limitations.

The development of intrusion detection systems was one way that the boundaries of U.S. empire were redrawn during the Cold War. Writing about U.S. empire, Amy Kaplan argues that it "long followed a double impetus to construct boundaries and patrol all movement across them and to break down those borders through the desire of unfettered expansion."[59] Engaged since 1947 in a global geopolitical struggle with the Soviet Union, the U.S. government and its military sought to reinforce as well as expand the boundaries of their domains of influence. The Vietnam War (1955-1975) marked one of those critical Cold War moments when the U.S. aimed to "contain" the spread of communism. To do so, it intervened in the region through the deployment of financial and military resources like personnel, weaponry, training, and soldiers. Such an interventionist approach meant actors imagined U.S. territorial boundaries were negotiable whenever their interests were thought to be affected.[60]

During the Vietnam War, one of the main problems that the U.S. military confronted was the surreptitious movements of Viet Cong fighters within South Vietnam and of North Vietnamese forces across the country's borders.[61] As the war grew in intensity during the mid-1960s, Secretary of Defense Robert McNamara tasked a group of academic scientists, known as the JASON Committee, to propose a solution to the military's Southeast Asian problem. They recommended the creation of an information system which the Defense Communications

[59] Amy Kaplan, *The Anarchy of Empire in the Making of U.S. Culture* (Cambridge: Harvard University Press, 2002), 15.
[60] Interventionism, though contested, persists since the nineteenth century: Gilbert M. Joseph, Catherine LeGrand, and Ricardo Donato Salvatore (eds.), *Close Encounters of Empire: Writing the Cultural History of U.S.-Latin American Relations* (Durham: Duke University Press, 1998); Paul Kramer, *The Blood of Government: Race, Empire, the United States, and the Philippines* (Chapel Hill: University of North Carolina Press, 2006).
[61] "The Escalation," *New York Times*, December 5, 1965; Neil Sheehan, "Infiltration Rise Seen If Raids End," *New York Times*, May 16, 1968; Ralph Blumenthal, "'69 Infiltration to South Vietnam Is Put at 100,000," *New York Times*, January 7, 1970.

Planning Group (DCPG) was tasked with implementing. At its most basic, the system consisted of electronic sensors, signal processors and electronic transmitters placed along the demilitarized zone "to prevent infiltration and supply from North Vietnam across South Vietnam's 43-mile frontier."[62] The "McNamara Line" or "McNamara Wall," as it was known by the public, "detect[ed] enemy personnel and vehicles" as they attempted to infiltrate South Vietnam. Future iterations of the system integrated computers to accelerate the analysis and circulation of "intruder" data such as site of intrusion, rate of movement and direction while weapons were used "to counter the enemy incursions thus detected."[63] This system worked (see Figure 10) through a variety of sensors (i.e., seismic, magnetic, acoustic) dropped by parachute into or installed in a zone with enemy troop movements. Sensors were triggered by phenomena that a signal processor later interpreted as human- or machine-generated. A radio signal was then sent to a display terminal, where ground movement was mapped. Depending on the probable location of "intruders," attack coordinates were radioed to fortified troop positions, artillery or fighter jets to intercept the enemy force.

[62] Julian Hartt, "McNamara's Viet Wall Being Built in Arizona," *Los Angeles Times*, October 15, 1967.
[63] *Investigation into Electronic Battlefield Program: Hearings Before the Electronic Battlefield Subcomm. of the Comm. on Armed Services*, 91st Cong. (1971); Edwards, 3, 65; General Accounting Office, *Cost and Effectiveness of Electronic Sensor and Surveillance Systems* (B-163074; Washington, DC: Government Printing Office, 1971); Herbert Mitgang, "Sensors Don't Bleed," *New York Times*, December 20, 1971.

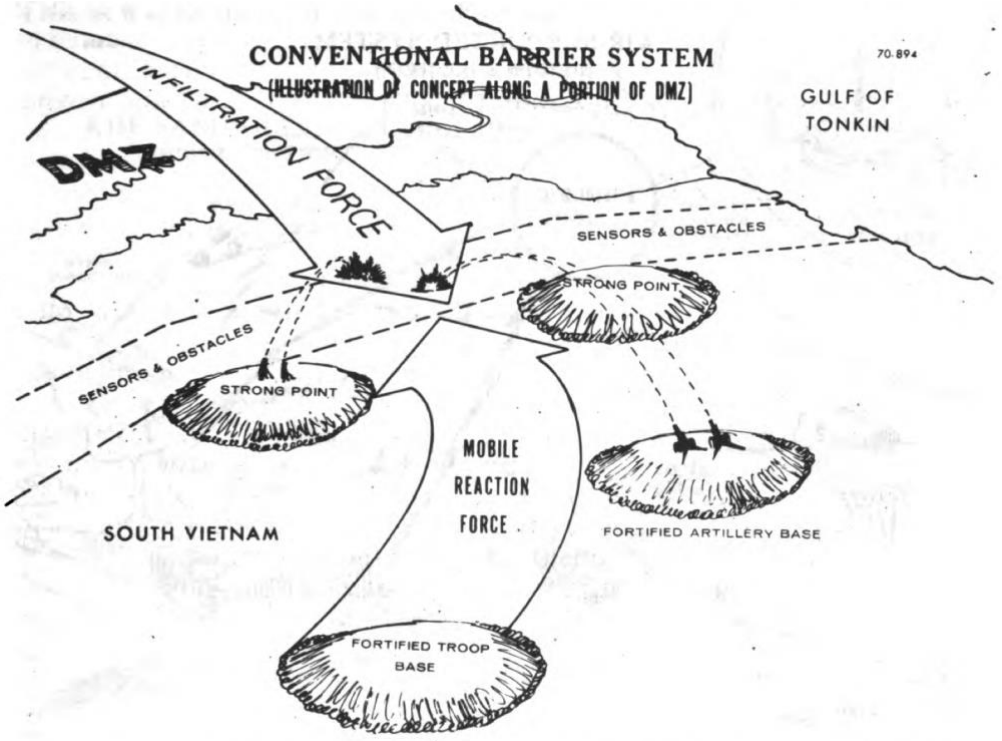


Figure 10. Diagram of "McNamara Line" as a conventional barrier system
(source: Investigation into Electronic Battlefield Program: Hearings Before the Electronic Battlefield Subcomm. of the Comm. on Armed Services, 91st Cong. (1971), 9)

The operation of the "McNamara Line" was embedded with cybernetic ideas that tested the boundaries of technopolitical imagination. The connection of sensors to communications links, usually radio, and processing devices transformed the Vietnamese borderlands into a system to be monitored and tracked through seismic, magnetic, and acoustic data generated by various entities.[64] For example, ground vibrations generated by troops or vehicles as well as any noise these produced were sensed by devices. "Silent" and "invisible" intrusions by Viet Cong and North Vietnamese forces were now perceptible and, consequently, knowable. Embracing the cybernetic vision of the world as an information system meant that actors, as Fred Turner contends, dissolved the boundaries of distinction "into an account in which all [entities] were

[64] *Investigation into Electronic Battlefield Program*, 5-8.

equally patterns of information."[65] As extractable matter, human bodies, machines and other entities were also target-able matter. Treating entities as data-producing subjects/objects to manage represented the cutting-edge of technopolitical imagination and empire making; the U.S. military automated information capture and communication for the purposes of managing people and space. More to the point, the "McNamara Line" was among the first attempts to bring forth the technological dream of an "electronic battlefield." Military officials hoped electronic and computer technologies like "sound and seismic devices" would substitute "visible and endangered human patrols that l[e]d to casualty lists."[66] The large numbers of dead U.S. soldiers had been a decisive factor for growing anti-war sentiment in the U.S. public throughout the 1960s. Automation, officials thought, would save the life of soldiers because "[a sensor] doesn't bleed, and if it dies out there in the jungle, you don't have to write a letter home to the wife or parents.'"[67] Military outposts near the demilitarized zone no longer relied on soldiers patrolling nearby areas to prevent intrusions. Their patrolling labor would be embedded in multiple, unmanned sensor devices that operated ceaselessly. Those watching and hearing were far removed from the sites and objects under scrutiny. Their remote location was part of a technopolitical drive to extend the reach of government and military actors by mastering distance and living beings. The automation of the battlefield offered military officials with a scenario in which the risk of death was minimized for their troops yet maximized for their enemy.

New military technologies such as the "McNamara Line" were a testament to how the U.S. southern borderlands continued to be implicated in the double impetus to enforce and undo the boundaries of the U.S. empire-nation. The "McNamara Line" was partially developed at Fort

[65] Turner, *From Counterculture to Cyberculture*, 256.
[66] Mitgang.
[67] Ibid.

Huachuca, Arizona, a former frontier outpost during the settlement of the southwest in the late-nineteenth century. One journalist described Ft. Huachuca as an "Army post originally established to chase down intransigent Indians."[68] Decades later in the popular imaginary, the post continued to be an instrument against the "enemies" of the settler colonial project. Since 1954, Ft. Huachuca tested and intended to set the boundaries of empire by hosting the Army Electronic Proving Ground (AEPG) whose chief concern was to experiment with electronic technology like intrusion detection devices and unmanned aerial systems.[69] Though not meant "to chase down intransigent Indians," the "McNamara Line" tracked another kind of "intransigent" force. Sensor operators for this system were trained by the AEPG's Combat Surveillance School to provide "security through vigilance."[70] Security from an "intransigent" Other was again, as the term "vigilance" betrays, intertwined with techniques of sound and vision. Sensor operators had to be in a state of alert watchfulness while they closely monitored the "McNamara Line." Trained in a settler outpost for operations in a foreign territory, U.S. soldiers in the Vietnamese borderlands embodied the role of a frontiersman enforcing, undoing, and expanding the boundaries of the U.S. empire-nation.

The racial violence that Ft. Huachuca once produced against Native Americans during the nineteenth century was reconfigured through the "McNamara Line." In this instance, military actors targeted "intransigent" Vietnamese bodies in the midst of the Cold War. Viet Cong and North Vietnamese, Figure 10 demonstrates, were imagined as an "infiltration force" that had to be monitored. Its movements, represented in the diagram by a thick arrow going from north to

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[68] Hartt.
[69] Cornelius C. Smith Jr., *Fort Huachuca: The Story of a Frontier Post* (Fort Huachuca, Arizona, 1977), 318-319; *Department of Defense Appropriations for 1961: Part 5 Procurement: Hearings Before the Subcomm. on Department of Defense Appropriations of the Comm. on Appropriations*, 86th Cong. 84 (1960) (statement of Major General Robert J. Wood, Office of Research and Development, U.S. Army).
[70] Hartt.

south, constituted a threat to South Vietnam (land) and U.S. soldiers (life). In public debate, Viet Cong and North Vietnamese forces were commonly referred to as enemies—a subject position that necessarily implied an existential threat. To soldiers, however, they were "gooks,"[71] a racial epithet that was previously used during the Haitian Revolution and Indian Wars of the nineteenth century as well as during the Philippine-U.S. War. Naming enemy fighters through a pan-racist term like "gooks," Sylvia Chong argues via David Roediger's work, linked U.S. empire to racial oppression and war in Vietnam.[72] In the specific case of the "McNamara Line," the system's targeting of an Other "intransigent" force entangled the past, frontier violence of settler colonialism to the present racial violence of U.S. imperial ventures in southeast Asia.

The "McNamara Line" was in this sense endemic of how the porous borders of the empire-nation allowed, as Kaplan argues, for the foreign and domestic to converge. What McNamara proposed, an anonymous Pentagon official told the *New York Times*, furnished the military with the "ability to monitor even the most rugged border anywhere in the world."[73] Remote control unfolded through automated techniques of sound and vision. When confronted with their very own "rugged border" with Mexico, the "McNamara Line" offered a way to automate some of the Border Patrol's gatekeeping function. This gatekeeping aimed to protect the national body from the "silent" and "invisible invasion" perpetrated by "intruding" Mexicans. In spring 1970, an engineer of the DCPG, the group responsible for the development of the "McNamara Line," made an on-site survey of the Chula Vista, El Centro and Yuma sectors. Though sensors had already been in use in some areas like Nogales, Arizona, it was not

[71] James P. Sterba, "Close-up of the Grunt," *New York Times*, February 8, 1970; Robert Jay Lifton, "The 'Gook Syndrome' and 'Numbed Warfare'," *Saturday Review* (December 1972), 66-72.
[72] Sylvia Chong, *The Oriental Obscene: Violence and Racial Fantasies in the Vietnam Era* (Durham: Duke University Press, 2011), 98.
[73] William Beecher, "Sensor 'Seal' Around Vietnam Studied," *New York Times*, February 13, 1970.

until the visit of the DCPG engineer that a concerted and systematic approach was pursued by INS. The Chula Vista sector in California, which consisted of sixty miles of international land border, was chosen as the experimental site for the Border Patrol's new intrusion detection system because it was the busiest crossing point for entries-without-inspection. Soon after DCPG's visit to the border, the Sandia Corporation, an Albuquerque company operated by Western Electric, assisted in the installation of 177 sensors. An agreement was reached for experimental data to be collected from Border Patrol operations so that DCPG could improve sensors and operational techniques.[74]

The early seeds of a domestic security military-academic-industrial complex were sown when INS was associated with the Department of Defense's vast technopolitical regime.[75] Research and development of the "McNamara Line," for example, recruited a network of academic partners among which were researchers at the MITRE Corporation and the Syracuse Research Corporation.[76] MITRE was founded in 1958 as a federally-funded research center and, initially, most of its workers were transferred from MIT's Lincoln Laboratory—the same laboratory that pursued foundational cybernetic and systems research under the leadership of Jay W. Forrester.[77] The Syracuse Research Corporation, on the other hand, was a non-profit research and development company founded in 1957 by Syracuse University. Sources examined show

[74] "Border Patrol"; *Investigation into Electronic Battlefield Program*, 3-14.
[75] Technopolitical regimes are "the tight relationship[s] among institutions, the people who run them, their guiding myths and ideologies, the artifacts they produce, and the technopolitics they pursue." Gabrielle Hecht, *The Radiance of France: Nuclear Power and National Identity after World War II* (1998; repr., Cambridge: MIT Press, 2009), 56.
[76] John L. McLucas, *Reflections of a Technocrat: Managing Defense, Air, and Space Programs during the Cold War*, with Kenneth J. Alnwick and Lawrence R. Benson (Maxwell Air Force Base: Air University Press, 2006), 55-56; E. K. Stodola, *Line Intrusion Detector*, Report No. LWL-CR-06P73 (Aberdeen Proving Ground, MD: U.S. Army Land Warfare Laboratory, 1974), Accession No. AD780719, National Technical Reports Library (NTRL).
[77] For more on Lincoln Laboratory: Eva C. Freeman, ed., *MIT Lincoln Laboratory: Technology in the National Interest* (Lexington, Massachusetts: MIT Lincoln Laboratory, 1995).

that, while INS did not fund directly the development of the "electronic fence," it did offer the military and its partners with experimental space to test and improve the system. In addition to obtaining access to detection techniques developed by the Pentagon's academic partners, INS was also involved with electronics manufacturers. From 1970 to 1976, Sandia Corporation, Magnavox, Teledyne Geotech, and AEC were four of the electronics manufacturers that supplied expert knowledge and ground sensors for the "electronic fence." INS spent $8,742,457 from fiscal years 1971 to 1976.[78] Though the amount spent in intrusion detection systems accounted for a minute fraction of the INS budget, it set the conditions of possibility for, on the one hand, future collaborations between the Pentagon and INS, and on the other, for continued reliance on electronic technology for border control.

The "electronic fence," once developed in the former frontier military post of Ft. Huachuca, returned from the imperial battlefields of Vietnam to the southwestern frontier to aid Border Patrol agents "chase down intransigent," racialized "intruders." Public debate, governmental policy, and Border Patrol practices shaped which populations were identified as "intruders" to be detected. "Illegal aliens," "deportable aliens," and "drug smugglers" were the official categories used by INS to talk about intruders. According to the INS, by 1973 Mexican nationals constituted 88% of all located "deportable aliens." Officials believed that the problem of intrusions beyond ports of entry, especially post-1965, was predominantly a Mexican one.[79] A similar sentiment was expressed by Border Patrol officers who explained the growth of the policing force after 1970 as a result of "the resurgence of the illegal Mexican alien problem."[80]

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[78] INS, "Authorization and Budget Request for the Congress" [for FY 1976] (1975), USCIS History Reference Library. The budget for INS in 1962 was around $62 million, in 1970 it was $104 million and by 1978 it was $275 million. Congressional Budget Office, "Trends in Federal Spending for the Administration of Justice" (Washington, D.C.: Congressional Budget Office, 1996), 9.
[79] INS, *Annual Report of the Immigration and Naturalization Service for 1973*, 8, 10.
[80] "The Fifty First Years," 17.

Heightened anti-immigrant and anti-Mexican sentiments coalesced to construct the "illegal alien" problem as a "Mexican" problem. This rationale justified the installation of intrusion detection systems on the southern border and, as a result, tracking Mexicans as "intruders." Expenditures for the "electronic fence" from 1970 to 1972 show that it was first budgeted for the Border Patrol sectors of Chula Vista, Del Río, El Paso and Swanton.[81] But the fact that three of the four sectors were along the U.S.-Mexico border signaled an investment in the management of Mexicans. Installation of intrusion detection systems on the southern border reproduced the logic that, as Hernández argues, "the legal/illegal divide" was "a problem of race." Heavier usage of the system along the southern border remained throughout the 1970s.

Defense and INS collaborations were also the result of the intersection between military engagements and law enforcement. When government officials announced that INS would test intrusion detection systems on the southern border, Attorney General John N. Mitchell was quoted as saying, "We are piggybacking [Department of Defense's] R&D to a greater and greater degree" particularly for "military gadgetry…to detect narcotics of all kinds."[82] Nixon's declaration of drug abuse as "public enemy number one" in 1971 coincided with growing public opposition to the Vietnam War. The program for de-escalation in Southeast Asia seemed to have made the war against narcotics in U.S. soil an attractive proposition for electronics manufacturers already invested heavily in defense. To manage the integration of INS as a node in the defense technopolitical regime, Chapman pushed for more clearly defined collaborations between the Service and the Pentagon. A new Research and Development (R&D) Branch within the P&E was created to that end.

[81] See addenda from March 2, 1972 in INS, "Authorization and Budget Request for the Congress" [for FY 1974], USCIS History Reference Library.
[82] Cited in Clawson.

R&D funded work on devices, techniques and systems that improved control between ports of entry by detecting and apprehending subjects.[83] In his reflection of paradigmatic INS R&D programs, Harry D. Frankel commented how, prior to the creation of this branch in 1974-1975, the Service had made minimal use of modern technology. Among the technologies previously used by the Border Patrol were airplanes, autogiros, cars, and radio communications.[84] The installation and use of the "electronic fence" since 1970 laid some of the institutional groundwork for relying on electronic and digital technologies. But what changed with the R&D Branch was that the Service could now play a role in the development of technology used "to cop[e] with such problems as illegal entries, apprehension of illegal entrants, case backlogs, and access to central files."[85] Frankel, who was the Programs Manager at R&D, documented the array of projects pursued at INS, such as the use of intrusion sensor systems, radars, and night vision devices. These projects were pursued in cooperation with various institutional partners, among them the Customs Service, Drug Enforcement Administration, Army, Navy, the Marine Corps, and the National Aeronautics and Space Administration. For example, "[t]est and evaluation of long-range, infrared imaging devices," Frankel argued, were thought to possibly "extend the Border Patrol Agent's capability to detect and apprehend undocumented aliens at or near the borders under virtually any weather or terrain conditions." Technically speaking, the use of infrared imaging devices meant that migrants were handled as heat-generating entities to be measured and statistically differentiated from the surrounding environment. Projects were, in other words, framed by a cybernetic vision that imagined the border environment as a system of interconnected entities, all producing data that could be

[83] INS, *Annual Report of the Immigration and Naturalization Service 1976*, 2.
[84] "The First Fifty Years," 1-20.
[85] Harry D. Frankel, "INS Research and Development Programs," *INS Reporter* 26, no. 3 (Winter 1977-1978), 33.

tracked, circulated, and registered. Electronic technologies like infrared imaging devices and intrusion detection systems were used to reveal the "intruder" body. Doing so would lead, Frankel and other INS officials thought, to more effectively controlling the flows of drug smuggling and unauthorized immigration.

Intrusion detection systems and other electronic technology later developed by R&D aimed to break down the circulation of things and beings along the border through the automation of perception. Sensors in the system were programmed to sign-cut. Just like Border Patrol agents sought racialized "intruders" by interpreting data on a discrete segment of the border, ground sensors recorded data from the border environment. Ground sensors registered different kinds of signals and the signal processor they were wired to deciphered if the signal was produced by a human being or not.[86] In the case of seismic sensors, signal processors known as variance frequency discriminators (VFD) were programmed through the use of "pattern recognition techniques" to discriminate between signals. This allowed "separating valid targets from false alarm sources with least errors."[87] VFD were meant to discriminate between the seismic data generated by different phenomena like vehicles, people, rain, and helicopters. In the context of the southern border, breaking border crosser movements into electrical outputs transformed human bodies into abstract data-producing entities. However, they were not any kind of entity. They were pre-inscribed as foreign entities, "intruders" to be removed from the U.S. nation.

The life stories of unauthorized border crossers were irrelevant to the kinds of data privileged by the "electronic fence." Ground sensors were used to make surreptitious bodies into

[86] "Border Patrol."
[87] A. Z. Steinbergs, H. D. Friedman, and D. R. Rothschild, *Wide Area Remote Surveillance*, Report No. RADC-TR-69-328 (Rome Air Development Center, December 1970), 4-2, Accession No. AD513692, NTRL.

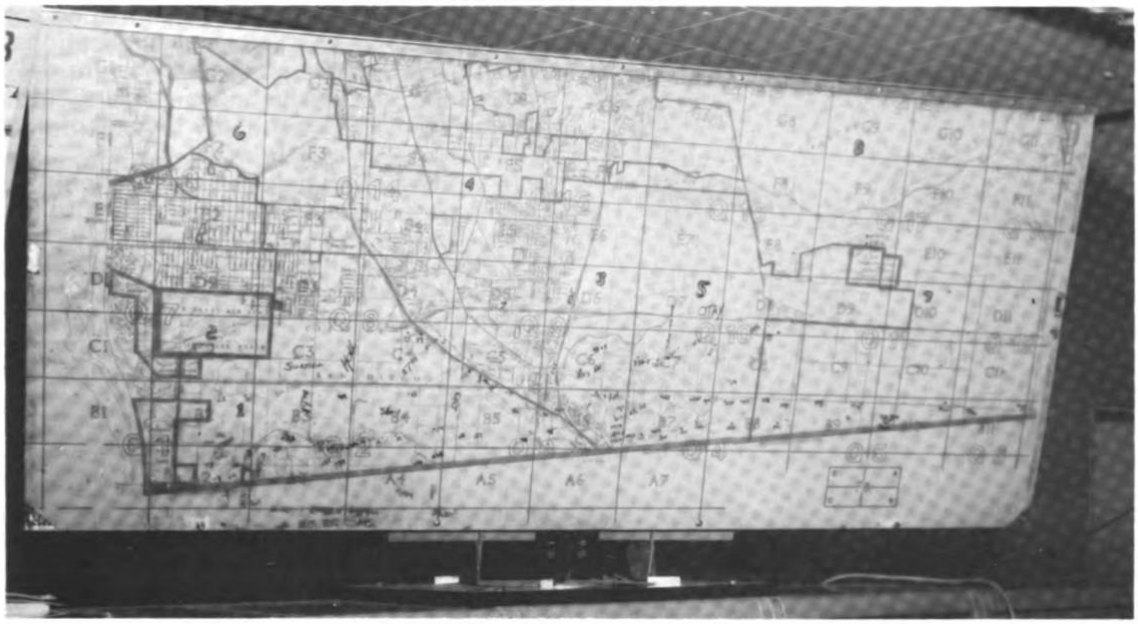
knowable quantities. Every moment these sensors were triggered by human movement, data was collected pertaining to the time of activation, date, sensor location, sector area, and probable direction. Once agents were dispatched, their name and the status of their actions were all entered into the system's memory.[88] Collected data were used in reports, INS electronics engineer Thomas C. Henneberger, Jr. explained, "as sources of intelligence on border crossing activities, or as analytical tools for evaluating the effectiveness of [the system's] sensors." Sensor data were analyzed to determine potential shifts in border crossings such as increase/decrease of activations in an area of a border sector. By analyzing these data and identifying "alien intrusion pattern[s]," sensors were relocated to higher transit zones or around them to broaden the system's monitoring capacity.[89] "Manpower" was equally reallocated and distributed as a result of data analysis. Agent positions grew by only 349 positions between the years of 1960 and 1974 while Border Patrol apprehensions increased over two thousand per cent in the same period (from 29,881 to 640,848).[90] Because INS constantly failed to obtain increases in funding and staffing, officials argued that sensors could help maximize their limited resources. They held that sensors allowed agents to identify high volume crossing areas which, in turn, let the Service make the most of the time and efforts of its Border Patrol force. Placing data recording and management as components of border enforcement meant that migrant bodies and the overall border environment were construed as patterns of order. "Intruder" data, like "intruder" bodies, awaited capture.

At INS, intruders were at the center of the cybernetic border. It was their behavior and their movements that were broken into discrete bits of data for careful study. Patterns of

[88] Thomas C. Henneberger, Jr., "The Electronics Support Program of INS," *INS Reporter* 26, no. 4 (Spring 1978), 55-59.
[89] INS, "Program Objectives and Budget FY 1976" (1974), USCIS History Reference Library, 15.
[90] Hunter; INS, "Program Objectives and Budget FY 1976," 14-15.

information were traced by a computer as it assessed the "nature" of the triggered sensor. Determining the presence of a person was key, officials and journalists held, in order to prevent "both illegal aliens and drug smugglers [from] moving across the border."[91] Preventing intrusions, similar to the efforts of Air Defense Command discussed in Chapter 1, was among the chief objectives of INS. Officials and journalists mobilized a Mexican "threat narrative" that stressed how the nation's survival was dependent of such an endeavor. As urban unrest rattled the country throughout the 1960s, newspapers like the *Los Angeles Times* argued that the way forward was for "America [to] bring its hard-core unemployed into the economic mainstream."[92] The presence of Mexicans in the labor market, however, was imagined to undermine this political objective. And so the *Los Angeles Times* insisted, not unlike other newspapers did later on in the U.S.,[93] that "it is wasteful and shortsighted to permit a system that virtually encourages employment of illegal aliens in hobs that should be filled by needy Americans." Targeting Mexicans as intruders was the political objective assigned to the cybernetic border.

[91] David A. Andelman, "U.S. Implanting an Electronic 'Fence' to Shut Mexican Border to Smuggling," *New York Times*, July 14, 1973.
[92] "Let's Put Local People to Work," *Los Angeles Times*, February 6, 1968.
[93] "'We've Lost Control of Our Borders'," *New York Times*, August 2, 1981.



The alarm display map, situated above the console, shows the border area and sensor locations. When a sensor is tripped, a light on the display map lights up to indicate the location of the sensor.

Figure 11. Alarm display map
(source: Thomas C. Henneberger, Jr., "The Electronics Support Program of INS," *INS Reporter* 26, no. 4 (Spring 1978), 59)

The "electronic fence," much like its southeast Asian counterpart, however, was part of an imperial control fantasy. This system attempted to actualize an imagined capacity to master the messiness of the borderlands. Returning to the opening *New York Times* story of the "electronic fence," it is evident that the system was not without its failures and limitations. Sterba's story began by mentioning that the alarm display map (see Figure 11) showed a sensor was steadily activated for two days. This was not supposed to happen. Lights on the display map should have only flashed whenever a sensor was activated and, in so doing, let operators know the specific sensor triggered and its location. But its constant activation was indicative, as Sterba stated, of "an obvious malfunction." Starting his story with the failing sensor no. 139, Sterba conveyed to his readers that failure was integral to the "electronic fence." Sometimes, "the electronic readout console becomes a Christmas tree, and stopping the swarm of illegal aliens crossing the border is an exercise in futility." Not only could sensors fail, the Border Patrol was

also restrained in its capacity to respond to accurate activations. It was hampered by a lack of sufficient agents that could react to every triggered sensor. The system was dependent on the kinds of resources the Border Patrol had available to respond to sensor alerts.

Stories abound in INS publications and official materials of other kinds of failures interfering with effective Border Patrol operations. Initially, sensors in the system were developed to operate for brief periods of time and, as a consequence, could not endure long-term, wide-area operations.[94] This led to sensors losing power or failing to keep up with the harsh southern desert environment. Meanwhile, cattle and helicopters triggered sensors leading sometimes to signals being processed by the system as human-generated.[95] Personnel were then dispatched to corroborate the source of such signals only to find no one there. This was indicative, Henneberger, Jr. concluded, of how "technological improvements invari[a]bly introduce[d] new and often unanticipated problems."[96] False positives, like cattle sensor activations processed as human ones, became a new problem for the immigration system at a moment when budgeting and personnel resources were hard to come by. Not only did the Border Patrol failed to achieve an operational goal of 90% response rate to sensor-detected intrusions, they also had to contend with the movements of non-human actors "confusing" ground sensors.[97] Failures did not keep INS from funding research and development of intrusion detection systems. On the contrary, failures renewed its commitment to testing, improving and deploying more information technology that sensed—monitored, tracked, and made knowable—the unceasing flows of migrant bodies across the southern border.[98]

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[94] Henneberger, 55.
[95] INS, Office of Planning & Evaluation, "Research and Development Plan"; Frankel.
[96] Henneberger, 59.
[97] INS, "Authorization and Budget Request for the Congress" [for FY 1975] (1974), USCIS History Reference Library.
[98] Henneberger, 59.

This chapter examined an unexplored moment in the history of the automation of border enforcement as a way to reconceptualize the entanglements between discourse, politics, and technology in nation-making. Throughout the 20th century, anti-Mexican discourse permeated public discussions and governmental debate about immigration and border enforcement. Unauthorized border crossings post-1965 were especially imagined as an "illegal Mexican alien problem." As a result, actors at INS and the Border Patrol prioritized intervening in the southern borderlands to create a semblance of control. An "electronic fence," originally developed to monitor enemies in the battlefields of Vietnam, was installed in 1970 along the border with Mexico. This system, officials hoped, would institute order on an "out of control" border by monitoring and tracking "intruders." The development and operations of this system revealed how racial imaginaries shaped the kinds of "intransigent" subjects it would target. INS focus on "illegal aliens," "deportable aliens," and "drug smugglers" further demarcated the boundaries of those imagined as inextricably foreign: Mexicans.

The "electronic fence" of the 1970s created the conditions of possibility for future entanglements between border enforcement, electronic technologies, and techniques of sound and vision. In the early 2000s, the U.S. government pursued the creation of a "system of systems" known as SBInet in an attempt to exert operational control over the border. The "system of systems," as Tamara Vukov and Mimi Sheller demonstrate, relied on "a logic of complete sensory mastery and information capture/integration. The guiding vision for SBInet [wa]s one of total, integrated sensing (integrating remote, mid-range, and close sensing) through the achievement of an omniscient sensory field of capture of all border movements."[99] Such a technopolitical arrangement—built on the convergence of drones, CCTV systems, ground

[99] Tamara Vukov and Mimi Sheller, "Border Work: Surveillant Assemblages, Virtual Fences, and Tactical Counter-Media," *Social Semiotics* 23, no. 2 (2013), 234.

sensors, computers, and databases—continued to treat the borderlands as a data-filled environment to be sensed, that is, to be managed and ordered. The "system of systems," addressed in the following chapter, is an intensification of the cybernetic border.

The history of the "electronic fence" is also a story about the productivity of failure and (un)expected results. The "McNamara Line" did not succeed in preventing enemy incursions into South Vietnam. After their transfer into the U.S.-Mexico border, sensors periodically failed to deliver relevant data on intrusions to Border Patrol agents as demonstrated by the cases of sensor No. 139 near San Ysidro and of sensors triggered by cattle. Their intermittent failure, however, did not dissuade actors from continuing to invest in their development and use. The promise of technological mastery over lands and people was much more powerful than technical breakdown. The "electronic fence," similar to Donald Trump's fascination with the "border wall" today, was emblematic of the chimera of control.

Officials in the 1960s and 1970s were informed by cybernetic ideas around communication, control and information when they began treating the border as an information system. Such an approach led them to program sign cutting, a core practice of the Border Patrol, in a variety of detection sensors. Sign cutting passed from being an exclusively human endeavor to one executed by electronic machines. Because sensors were installed across different areas of border sectors, they extended the reach of Border Patrol agents by monitoring and tracking activities in multiple sites at once. The entanglement between cybernetic ideas, electronic technology and border making produced two effects. It projected an electronic line on land and on human bodies as a way to govern them. It also treated vulnerable migrant populations as abstract data inputs and outputs. Through the usage of intrusion detection systems and the subsequent development of other electronic technology, border enforcement work was delegated

to an assortment of sign cutting devices.

The delegation of this work through automation was undergirded by the U.S. empire-nation's technopolitical regime and its goal of governing racialized populations. The "electronic fence" was once the product of a military-academic-industrial complex invested in governing the battlefields of Vietnam. Known as the "McNamara Line," it was designed and developed to control "infiltration forces" from operating within South Vietnam. The system, partly produced in the same military fort that had once disciplined "intransigent Indians," targeted racialized Vietnamese bodies. As military efforts in Southeast Asia were slowly decreased, actors of the military-academic-industrial-complex saw an opportunity to use the U.S.-Mexico border as an experimental space for further technological development. Through the transfer of military technologies like intrusion detection systems, the Border Patrol began *relying on* and *contributing to* the work done by a larger network of technicians, electronics manufacturers, military officials, and technological artifacts programmed to eradicate "intruders." All the while, Ft. Huachuca continued to offer actors with necessary infrastructure to develop these new artifacts and, in doing so, brought together the settler colonial project with the expansion/policing of the racial and territorial boundaries of the U.S. empire-nation.

The chapter moves historical studies of science and technology beyond export and import models. Where historians have sought to show how ideas or technologies move in one direction, from empire's centers to its peripheries, I drew imperial practices and technologies together across space and time. Frontier making shaped the material infrastructure upon which the U.S. military could rely in developing intrusion detection systems. Ft. Huachuca, once a frontier outpost meant to manage "intransigent Indians," provided soldiers with the technical know-how to be vigilant against another kind of "intransigent" subject in the Vietnamese borderlands.

There, "infiltration forces" were racially marked through the epithet of "gooks." In this sense, the "McNamara Line" represented an articulation of frontier politics, racial oppression and war. When it was transformed into the "electronic fence," the system became an instrument of a technopolitical regime designed to target Mexicans in the management of the boundaries of exclusion from the U.S. empire-nation. "Imperial encounters," Fernando Coronil writes, "entail the transcultural interaction of the domestic and the foreign under changing historical conditions. This process does not involve the movement of discrete entities from one bounded body into another across fixed borders, but rather their reciprocal transformation."[100] What both export and import models miss is that technologies such as the "electronic fence" were developed and articulated locally and internationally through the sociotechnical coproduction of genres of rule.

The "electronic fence" helped translate the condition and position of "intruders" from target drones to migrant bodies. Chapter 1 showed how, during military exercises like Project William Tell, remotely piloted aircraft were imagined as "intruders" of the U.S. empire-nation. These "intruders" were already imbued with geopolitical and racial tones due to the military's engagement with Cold War politics and frontier discourses. "Intruders," in other words, were subjects who did not wish to belong to the nation but, instead, aimed to damage it by attacking its infrastructure or by subverting the rule of law. "Intruders" were commonly associated with both Soviet air power as well as with Native Americans and lawless bandits. When U.S. military officials designed the "McNamara Line" and later transferred it to the southern U.S. border, they articulated this frontier desire to control the kinds of subjects allowed to exist within the nation. Once installed along the border with Mexico, intrusion detection systems were an expression of a

[100] Fernando Coronil, "Foreword," in *Close Encounters of Empire: Writing the Cultural History of U.S.-Latin American Relations*, eds. Gilbert M. Joseph, Catherine LeGrand and Ricardo Donato Salvatore (Durham: Duke University Press, 1998), xii.

drive to police and undo the boundaries of the U.S. empire-nation by sensing who and what could traverse its borders. They targeted Mexicans as "intruder" threats.

Intrusion detection systems were the material articulations of an infrastructure programmed to target a racialized subject. The border was and remains a contested space where the boundaries of belonging are policed through the efforts of both military and non-military actors. In short, to make the border and the nation has been to draw a racial line through investments in systems of enmity.

## CHAPTER III

### Systems of Enmity: Drones and the Border Technopolitical Regime, Post-9/11

Three men, dressed in dark-colored clothing, were surrounded by tree shrubs and darkness. Previously "invisible," their presence was revealed by the beaming lights of an automobile. Their bodies, once subject to the dangers of the desert environment, were now exposed to a technopolitical regime assembled to target them. Who were these men? What were they trying to achieve? Where were they? All these questions were immediately answered by the headline accompanying the photograph by Scott Goldsmith: the three men were among the "targets" of the ongoing "Border Wars" in the U.S. southwest.[1] The photograph (see Figure 12), published by *U.S. News & World Report* in the fall of 2005, was included with others in Angie C. Marek's in-depth special report on border and immigration enforcement. The men were unauthorized border crossers apprehended during enforcement operations by the Border Patrol. The report stressed that the United States-Mexico borderlands was considered a site of struggle were a "multifront war" was being waged between unauthorized border crossers (migrants, smugglers, drug cartels), Border Patrol agents and nativist, paramilitary groups. Back in 1976, the Immigration and Naturalization Service Commissioner Leonard F. Chapman described "illegal immigrants" as a "vast and silent invasion."[2] To public officials like Chapman, "illegal

[1] Angie C. Marek, "Border Wars," *U.S. News & World Report* 139, no. 20 (Nov 28, 2005), 46.
[2] Leonard F. Chapman, Jr., "Illegal Aliens: Time to Call a Halt!," *The Reader's Digest* (October 1976), 188.

aliens" and "drug smugglers" were invaders, an enemy force. Though Marek did not state explicitly who were the enemies nor who were the friendlies, the language of war (i.e., "targets," "front lines," "war wagons," "blitzkrieg" meetings) continued to shape how actors in the borderlands were imagined.

Figure 12. Photograph of Three "Illegal Aliens" by Scott Goldsmith (2005)
(source: www.scottgoldsmith.com)

The language of war that permeated discussions of the U.S.-Mexico border and of enforcement efforts was also traversed with the tropes of a predator/prey relationship. The over 1,900 miles of border between the U.S. and Mexico, Marek held, were "the setting for a never-ending cat and mouse game pitting illegal immigrants and smugglers against American law enforcement officials."[3] In another article for the same publication, Marek called it "desert cat

[3] Marek, "Border Wars," 54.

and mouse."[4] Following this formulation, the U.S. government was construed as a cat-predator instinctively bound to track, pursue, and hunt after "illegal migrants and smugglers" as mice-prey.[5] In a *New York Times* article in 1974, Richard Severo also described the relationship between the U.S. Border Patrol and border crossers as "hunters and hunted."[6] The persistence of this imaginary in the U.S. public underscores how some of the actors in the borderlands were envisioned. U.S. government actors would not literally prey on border crossers and consume their flesh. What the predator/prey, hunter/hunted imaginaries helped describe was a relationship of dominance and dependence between two entities. This metaphorical language attempted to naturalize what were political decisions in the targeting of some populations over others. The purported natural relationship also obfuscated the adjudication of social worth assigned to the predators/hunters over the preys/hunted. Their symbolic qualities notwithstanding, this chapter makes explicit how these imaginaries had very real repercussions on the lives of border crossers and, more broadly, on the lives of those thought to not belong to the U.S. nation. More to the point, the enduring mobilization of the language of war and of the predator/prey dyad in public debates about the border was a testament to the fact that the U.S. empire-nation required the existence of some target against whom to build its imagined community.

"Systems of Enmity: Drones and the Border Technopolitical Regime, Post-9/11" examines the moment after the end of the Cold War when actors in the U.S. struggled to produce and find an enemy. In order to achieve this, government officials, technicians, and the broader U.S. public identified drones as ideal systems for revealing and governing the hidden enemies of

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[4] Angie C. Marek, "Desert Cat and Mouse; Border Effort Aims to Shut Down Arizona's Deadly Smuggling Corridor," *U.S. News & World Report* 136, no. 19 (May 31, 2004), 32.
[5] In *Where We Stand: Class Matters*, bell hooks offers a different reading of the figure of the predator by analyzing how the poor have often been imagined in those terms. Of particular interest is hooks' discussion in Chapter 3: *Where We Stand: Class Matters* (London: Routledge, 2000).
[6] Richard Severo, "The Flight of the Wetbacks," *New York Times*, March 10, 1974.

the U.S. empire-nation. These machines and the interlocking institutional, social, and technical arrangements that brought them forth were at their core systems of enmity. The chapter is organized into three thematic sections. The story begins by examining how discourses about risks, prior to and after 9/11, informed research and development efforts into their management. As a result of certain populations being marked as risks and threats to the U.S. nation, they also became the targets of the newly developed technologies. The chapter argues that ideas about the place of U.S. power, Latinx migration, and the attacks of September 11, 2001 helped shape the kinds of subjects that would be targeted by an ever-shifting network of actors. One of the spaces where the struggle to target an enemy unfolded was in the southern borderlands, the same place Marek called the site of a "multifront war." There the military concept of operations known as network-centric warfare (NCW) and drones became the experimental means through which the post-Cold War enemy was meant to be known and managed. In this sense, actors built on the conditions of possibility originally set by the electronic battlefield and cybernetic border of the 1960s-1970s, which had come to treat contested spaces as data-rich environments made up of informational inputs and outputs to govern.

The last two sections of "Systems of Enmity" interrogate the formation of the homeland security-industrial complex, the rearticulation of NCW for border enforcement and the operations of drones. Section two is devoted to the emergence of the Department of Homeland Security (DHS) and the Arizona Border Control initiative (ABCi, 2004-2006). Arizona is studied because it was among the first experimental sites for drones used in border enforcement.[7] Assumed to be neutral, these systems were in fact pre-inscribed to track, monitor, and apprehend a select group of racialized subjects. The DHS's categories of "Mexican," "Other than Mexican,"

[7] UASs were also used in Operation Safeguard in Arizona during the fall of 2003. Department of Defense, *Unmanned Systems Roadmap (2007-2032)* (Washington, D.C.: Department of Defense, 2007), 37.

and "person from special interest country" prioritized the targeting of Latinxs—mostly Mexican—, Arabs and Muslims. Through ABCi, DHS thought it would keep true to its "anti-terrorism mission—preventing terrorists and terrorist weapons from entering the U.S.—by reducing the flow of illegal aliens and disrupting smuggling operations."[8] "Illegal aliens," smuggling, and terrorism were entangled in the ways actors at DHS imagined the borderlands. These entanglements were, the third section argues, inscribed into various surveillance technologies among which were Predator B unmanned aerial systems (UASs). At the center of the final section, then, is the operationalization of enmity in the actual usage of Predator UASs along the border line.

At its core, this chapter asks how enemies-as-subjects were constructed and felt as well as how these thoughts and affects were embedded in drone operations on the southern border. This question is addressed by focusing on the formation of a border technopolitical regime. Building on the work of Gabrielle Hecht, this regime comprised sets of linked peoples, discourses, institutions, practices, technological artifacts, and political objectives that govern technological development in the establishment and administration of boundaries of belonging.[9] The border technopolitical regime was *invested in* and *dependent on* the targeting of Latinxs, Arabs, and Muslims as "enemies" of the U.S. empire-nation. As a regime, it was both *the product of* and *producing a* structure of feeling towards those identified as "enemies."[10] And it was through

[8] Department of Homeland Security, Office of the Press Secretary, "Department of Homeland Security Begins Second Phase of Arizona Border Effort" (March 30, 2005), Homeland Security Digital Library, https://www.hsdl.org/?view&did=477302.
[9] Gabrielle Hecht, *The Radiance of France: Nuclear Power and National Identity after World War II* (1998; repr., Cambridge: MIT Press, 2009), 334.
[10] I am mobilizing "structure of feeling" here as articulated by Raymond Williams who defines it as a set of social experiences through which meanings and values were actively felt as they were simultaneously related to systematic beliefs and forms of meaning making. "Structures of Feeling," in *Marxism and Literature* (Oxford: Oxford University Press, 1977), 128-135.

drones that this structure of feeling was made sensible because UAS operations required the production of and hunt for a target.

To trace the ideas shaping the relations of actors on the borderlands, I work with an archive of materials produced by the U.S. government and its military, by the popular and trade press, and by engineers and technicians. The purpose of bringing together the thoughts of these actors is to garner a sense of how drones were imagined and mobilized across communities involved, in different degrees, with their design and use. These disparate materials help us retrieve the scripts that assign entities their different roles in the borderlands. More to the point, prescriptions were inscribed in drones, which framed and beckoned how entities had to relate to one another on the border. Prescriptions, Bruno Latour holds, are the behaviors imposed upon humans by other nonhuman entities; these prescriptions are traversed by moral, ethical, and political valuations.[11] Prescriptions can be retrieved by studying user manuals, training or instruction situations, actual operations, and the designer's workshop, among other things. The retrieval of prescriptions reveals how actors were defined and what kind of competences they were given.[12] But more importantly, prescriptions expose the actions they validate, their intended goals. The materials examined in this chapter, hence, allow me to draw the political objectives of drones—their technopolitics. In the case of drones on the border, prescriptions revolved around ideas about who ought to be excluded from the U.S. empire-nation and the types of people imagined to cross beyond ports of entry. Treated as enemies, unauthorized migrants were pushed towards a mode of social existence that made them into expendable lives. They mattered only to the extent that they justified the construction and operations of the border technopolitical regime.

[11] Bruno Latour, "Mixing Humans and Nonhumans Together: The Sociology of a Door-Closer," *Social Problems* 35 (1988), 301.
[12] Ibid., 305.

Their lives, on the other hand, did not matter and, as a result, they were driven towards the lethal border landscape.

Attention is given to drone operations by the U.S. Customs and Border Protection (CBP) because they were emblematic of a sociotechnical arrangement at DHS. UAS operations signaled an intensification of the cybernetic border, which had, since the 1970s, organized and executed border enforcement through information technologies that purport to order and govern entities in the borderlands. Drones were another of these technologies but they added a new dimension to the cybernetic border: verticality. Whereas the U.S. government already used aviation to deport migrants and to patrol the borderlands, as discussed in Chapter 1, UASs intensified such operation through their purported capacity for "increased endurance" and "persistent stare."[13] Their "increased endurance" stemmed from the fact that: they could be flown continuously for extended periods of time because of their low fuel consumption and because they were remotely piloted from the ground where multiple human pilots rotated shifts. "The longer flight times of [UASs] mean[t] that," a Congressional Research Service report stated, "sustained coverage over a previously exposed area may improve border security."[14] Therefore, the "increased endurance" of drones was imagined to allow CBP Office of Air and Marine pilots to keep a "persistent stare" over the borderlands from their "eye in the sky."[15]

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[13] Lt. Col. Hector L. Cruz, "Role of DoD Unmanned Aerial Vehicles for Homeland Security" (M.A. thesis, U.S. Army War College, 2010), 10.

[14] Christopher Bolkcom, *Homeland Security: Unmanned Aerial Vehicles and Border Surveillance*, CRS Report No. RS21698 (Washington, D.C.: Congressional Research Service, 2004), 3.

[15] Drones also amplified the kinds of data collected from the border environment through their use of different sensor devices. Captured data were meant to be fed through a variety of modes of analysis that would produce an increased understanding of what was happening in the borderlands. One such mode of analysis was what Kirk Evans, of the DHS's Science and Technology Directorate, called automated detection algorithms. *Strengthening Border Security between the Ports of Entry: The Use of Technology to Protect the Borders: Joint Hearing Before the Subcomm. on Immigration, Border Security and Citizenship and the Subcomm. on Terrorism, Technology and Homeland Security of the Comm. on the Judiciary*, 109th Cong. 70 (2005) (statement of Kirk Evans, Director, Mission Support Office, Homeland Security Advanced Research Projects Agency).

## War on Terror: Risk and Retracing the Boundaries of Enmity

Boundaries have shifted across time, space and objects in the history of the United States. This has been especially the case for those boundaries that demarcated the territorial domain within which U.S. actors were, some believed, legitimized to intervene. This section explores how the attacks on September 11, 2001 honed the boundaries of enmity. By this I mean the demarcated contours of those identified as enemies of the U.S. empire-nation. These boundaries were drawn through the concepts of "risk" and "uncertainty," which were then associated with populations marked as "terrorist" or "illegal alien." Risks required that new techniques be developed to ameliorate or eliminate their danger. The U.S. military proposed network-centric warfare as a sociotechnical solution to the problems of risk society. Drones were one among a suite of other network-centric warfare technologies. Before delving into the operations of UASs on the border, all these issues are studied to understand how and why these systems were chosen as strategic technologies for the political project of border enforcement. Ideas proposed and debated in the post-Cold War and post-9/11 moments are examined because they shaped what drones were tasked to do. The acquisition of drones by the U.S. military, after all, grew exponentially following the attacks of 9/11. Early in 2001, the military owned 82 UASs of three different types (Predator, Hunter, Pioneer), but by 2010 it owned nearly 8,000 UASs of fourteen different types.[16] This section also demonstrates that treating groups of people as risks and enemies had serious repercussions for their well-being. Border enforcement efforts like Operation Hold the Line and Operation Gatekeeper, among other policy decisions, were responsible for driving unauthorized border crossers to their deaths.

[16] Richard Whittle, *Predator: The Secret Origins of the Drone Revolution* (New York: Henry Holt and Company, 2014), 299.

Risk became a central issue for U.S. military and government officials in the context of growing uncertainty during the 1990s, but especially after the attacks of 9/11. Michael Welch argues that, "[r]ather than concentrating solely on the problem of terrorism," the focus of these actors turned "to a distinct societal condition exacerbated by 9/11 in which risk—and danger—play[ed] a vital role in influencing how politicians and the public construe[d] the world around them."[17] Welch and others contend that it was not only terrorism but also "illegal" migration that were read through the framework of risk society, which saw risk as a byproduct of modernity itself.[18] Risks were hazards, losses, injuries or the degree of probability for these to happen. Technologies were designed, developed and mobilized to calculate, manage and control the undesirable, unexpected and probable effects of modern life. Some of the effects of modern life included nuclear waste and proliferation, crime, illegal migration, and environmental degradation, among others. According to Rita Raley, theorists of risk contended that risks were "no longer limited to region, territory, or [the] nation-state," they exceeded the possibilities of control.[19] In its public report investigating the facts and circumstances related to the attacks of September 11, 2001, the 9/11 Commission echoed such theorization when it stated that threats were "defined more by the fault lines within societies than by the territorial boundaries between them. From terrorism to global disease or environmental degradation, the challenges have become transnational rather than international."[20] Though risks, read as threats, were understood

[17] Michael Welch, *Scapegoats of September 11th: Hate Crimes & State Crimes in the War on Terror* (New Brunswick: Rutgers University Press, 2006), 14.
[18] Welch; Jason Ackleson, "Border Security in Risk Society," *Journal of Borderland Studies* 20, no. 1 (2005): 1-22; Josiah Heyman, "The State and Mobile People at the US-Mexico Border," in *Class, Contention, and a World in Motion*, eds. Winnie Lem and Pauline Gardiner Barber (New York: Berghahn Books, 2010), 58-78.
[19] Rita Raley, *Tactical Media* (Minneapolis: University of Minnesota Press, 2009), 35.
[20] National Commission on Terrorist Attacks upon the United States, *The 9/11 Commission Report* (Washington, D.C.: U.S. Government Printing Office, 2004), 361-362.

to be the products of societies themselves, this did not constrain them from ever growing outwards and affecting other societies. Risks-as-threats represented a challenge that traversed the boundaries of the nation-state. This is why the 9/11 Commission insisted that threats were "transnational rather than international." What remained to be seen was who shall act, how, and against whom or what.

In the context of the U.S. "War on Terror," the threat would be prevented through a global political and military strategy "focus[ed] clearly on the Arab and Muslim world, in all its variety."[21] The "Arab and Muslim world" were targeted because they were read as the preeminent sources of terrorism. A global threat, then, demanded a global response. In the announcement of his administration's *National Homeland Security Strategy* (summer 2002), President George W. Bush stated that, "We are today *a Nation at risk* to a new and changing threat. The terrorist threat to America *takes many forms, has many places to hide,* and *is often invisible*" (my emphases).[22] Even though the new threat was not a particular nation, it was thought to target specific collective imaginaries: the U.S. nation and Western civilization. Because terrorism did not distinguish between U.S. targets abroad ("over there") or at home ("over here"), the 9/11 Commission concluded that "the American homeland [wa]s the planet."[23] The Commission proposed through this formulation a security framework that redrew the boundaries of the empire-nation as it imagined the foreign in the domestic and the domestic in the foreign. Talk of national security—defense from foreign adversaries—would not unfold at the expense of homeland security. In effect, to prevent, monitor and curtail the spread of risks—

[21] National Commission on Terrorist Attacks upon the United States, 364.
[22] Office of the President of the United States, Office of Homeland Security, *National Strategy for Homeland Security* (Washington, D.C.: Executive Office of the President, 2002).
[23] National Commission on Terrorist Attacks upon the United States, 362.

in many instances thought to be specific populations—was a global strategic objective of the U.S. empire-nation and of its political rationale.

If the U.S. "homeland [wa]s the planet," then why did government officials insist on policing the physical border line between the U.S. and Mexico? Empire scholars have shown that imperial formations constantly did and undid boundaries, they expanded territorially while integrating and displacing populations. Through boundary making, imperial sovereignty attempted to regulate the flows of goods and people, and their presence.[24] In the U.S., imperial sovereignty did not shed its entanglements with nation making and its heightened proclivity to bound citizenship through sorting practices and constructs like race, gender, and sexuality, among others.[25] It was through citizenship that belonging to and participation in an imagined community was granted, recognized, and legitimated. Citizenship was a boundary technology that regulated the terms of inclusion or exclusion of individuals and of communities in the nation. Consequently, the border was made to work as a "front line" in the defense of citizenship, of its rights and responsibilities, from ever-shifting threats and risks.

The early 1990s, for example, were marked by long-lasting anxieties about the southern border and from ongoing Latin American migrations to the U.S. These anxieties materialized in debates about the establishment of multilateral trade treaties like the North American Free Trade Agreement (NAFTA) in 1994. Through his "clash of civilizations" thesis, Samuel P. Huntington thought that regional economic blocs would help enforce an ethnic, racial, and cultural commons

[24] Amy Kaplan, *The Anarchy of Empire in the Making of U.S. Culture* (Cambridge: Harvard University Press, 2002); Ann Laura Stoler, *Duress: Imperial Durabilities in Our Times* (Durham: Duke University Press, 2016).
[25] Margot Canaday, *The Straight State: Sexuality and Citizenship in Twentieth-Century America* (Princeton: Princeton University Press, 2011); Mae M. Ngai, *Impossible Subjects: Illegal Aliens and the Making of Modern America* (2004; repr., Princeton: Princeton University Press, 2005); Nayan Shah, *Contagious Divides: Epidemics and Race in San Francisco's Chinatown* (Berkeley: University of California Press, 2001).

which he called a "civilization-consciousness."[26] NAFTA, however, unsettled this formation because it brought together what he identified as clashing civilizations: "Western" (U.S. and Canada) and "Latin American" (Mexico). Critics of NAFTA were found across the political spectrum as they levied arguments considering the treaty's negative impacts on labor rights, the environment, and the undoing of national sovereignty.[27] Among the treaty's opponents were political conservatives and self-proclaimed members of the "Populist Right" like Pat Buchanan. They saw in their opposition to NAFTA the articulation of "a new patriotism" that fought for "our way of life."[28] "Contemptuous of states' rights, regional differences and national distinctions," Buchanan argued, "NAFTA would supersede state laws and diminish U.S. sovereignty."[29] The multilateral trade treaty was seen by the "Populist Right" as an affront to the nation. In political terms, NAFTA was thought to undo the state's right to govern by, among other things, transferring some of its responsibilities to newly created multilateral institutions.

The U.S. nation was felt to be under threat in cultural terms as well because Buchanan and like-minded folks imagined that closer collaboration and interaction with Mexicans would eviscerate "national distinctions." Buchanan made this point forcefully when he stated, "[n]o matter the cash benefits, we don't want to merge our economy with Mexico, and we don't want to merge our country with Mexico." The "Populist Right" opposition to NAFTA was a prescient articulation of Huntington's clash of civilizations thesis whereby economic rivalries supposedly did not materialize along "ideological" lines—as was the case during the Cold War—but

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[26] Samuel P. Huntington, "The Clash of Civilizations?," *Foreign Affairs* 72, no. 3 (1993), 22-49.
[27] See for example: Peter Behr, "Opposition to NAFTA Unites Activist Groups," *Chicago Sun-Times*, September 5, 1993; Harry Bernstein, "Clinton Faces Hurdles on NAFTA," *Los Angeles Times*, February 16, 1993; Juanita Darling, "NAFTA Worries," *Los Angeles Times*, October 17, 1993; Carlos Fuentes, "Mexicans Fear 'Giant Crunching Sound' of NAFTA," *Chicago Sun-Times*, November 14, 1993; James Rusk, "Dump NAFTA, Coalition Urges," *Globe and Mail*, May 6, 1993.
[28] Patrick Buchanan, "America First, NAFTA Never," *Washington Post*, November 7, 1993.
[29] Ibid.

between the fault lines of civilizations. Such "fault line" was made manifest, to quote Gloria Anzaldúa, "where the Third World grates against the first and bleeds," on the border between the U.S. and Mexico.[30] There the "fault line" was already reimagined as a "front line."

"Illegal" immigration and border enforcement were identified as key dynamics in the exercise of what Buchanan called "national distinctions." During the early 1990s the state of California underwent a recession as its administration confronted a deficit of around $12 billion. According to California Governor Pete Wilson, whose dubious facts were repeatedly contested, "unchecked immigration" was to blame for the state's economic and budget crisis.[31] In 1994, as Wilson stood for re-election, he became the champion of a draconian ballot initiative (Proposition 187) meant to establish a citizenship-based screening system that would prevent unauthorized immigrants ("illegal aliens") from accessing basic public services such as health and education. As he stated in an op-ed published in the *Wall Street Journal*, "[t]he fundamental and very serious flaw of current federal immigration policy is that the U.S., a nation built on the rule of law, now rewards people who have broken the law by illegally crossing our borders."[32] Governor Wilson's criticism was, in part, an allusion to the Immigration Reform and Control Act of 1986 which had legalized large numbers of unauthorized immigrants and seasonal agricultural laborers. It was also an emphatic espousal to deny those imagined to be unauthorized immigrants access to basic human rights.[33] "Illegal aliens" were pushed to live a bare life, outside the law;

[30] Gloria Anzaldúa, *Borderlands/La Frontera: The New Mestiza* (San Francisco: Spinsters/Aunt Lute, 1987), 25.
[31] Sharon Spivak, "Wilson Blames Budget Woes on Unchecked Immigration," *San Diego Tribune*, April 12, 1991.
[32] Pete Wilson, "California Won't Reward Lawbreakers," *Wall Street Journal*, November 7, 1994.
[33] The *Universal Declaration of Human Rights* (1948), approved by the United Nations General Assembly, declares that access to a standard of living adequate for the health and well-being of a person, which includes food, housing, medical care and necessary social services, and access to a free education are basic human rights. See Articles 25 and 26 of the declaration.

they were exposed to the machinations of a regime bent on their physical and symbolic elimination.[34] Underscoring the importance of "the rule of law," Wilson made use of a long-standing tradition of criminalizing non-White migrants by portraying them as disorderly "lawbreakers." The California governor, through his public interventions and policy measures, legitimized the xenophobic and racist sentiments that nurtured the anti-immigrant movement not just in California but all across the U.S.[35] Control of the border and of "illegal" immigration persisted as sites for the ever-anxious defense of the empire-nation.

Such defense affected the lives of people engaged as intruding "illegal aliens." Throughout the 1990s, the Border Patrol implemented a series of operations, among them Operations Hold the Line and Gatekeeper, to exert control on non-authorized border crossing. The immigration and border enforcement agency combined fence structures, high-intensity lighting, large amounts of mobilized agents near the international U.S.-Mexico boundary line and different sensing technologies (i.e., ground sensors, cameras) in their efforts to prevent and deter unauthorized migrants and smugglers. These operations were soon reframed through the strategic concept of "prevention through deterrence," which meant that a "proper balance" of personnel, equipment, technology, and border infrastructure was needed to dissuade people from attempting to cross the border without authorization.[36] However, border anthropologist Jason De León has shown that the strategy "made migration less visible and created a scenario in which

[34] Giorgio Agamben, *Homo Sacer: Sovereign Power and Bare Life* (Stanford: Stanford University Press, 1998).
[35] For more on anti-immigrant sentiments in the 1990s see, for example: Peter Andreas, *Border Games: Policing the U.S.-Mexico Divide* (2nd ed., Ithaca: Cornell University Press, 2009); Nevins, *Operation Gatekeeper and Beyond*; Mark Purcell and Joe Nevins, "Pushing the Boundary: State Restructuring, State Theory, and the Case of U.S.– Mexico Border Enforcement in the 1990s," *Political Geography* 24, no. 2 (2005), 211-235.
[36] Department of Homeland Security, Office of Border Patrol and Office of Policy and Planning, *National Border Patrol Strategy* (Washington, D.C.: U.S. Customs and Border Protection, September 2004), 3.

the policing of undocumented people occurred in areas with few witnesses"; worse yet, it conscripted the desert environment "to act as an enforcer while simultaneously providing [the Border Patrol] with plausible deniability regarding blame for any victims the desert may claim."[37] "Prevention through deterrence" disregarded the lives of "illegal aliens" by placing them into more vulnerable, life-threatening positions. Operations Hold the Line and Gatekeeper were re-instantiations of the intrusion detection systems of the 1970s, socio-technical arrangements designed to exclude, remove and endanger so-called intruder threats.

In endeavoring to secure the border, the U.S. government made the lives of migrants more insecure. Its operations were invested in the production of "social death." According to American studies scholar Lisa Marie Cacho, social death is a condition of ineligible personhood that defines who does not matter—people such as "undocumented immigrants, the racialized poor of the global South, and criminalized U.S. residents of color in both inner cities and rural areas." The corollary of such a condition is that mattering is made meaningful—as meaningful as having one's right to live recognized.[38] And in the context of Operations Hold the Line and Gatekeeper, an assemblage of people, institutions, devices, practices and discourses were mobilized to "deter" unauthorized border crossers and, as a result, to leave them exposed to the ravages of the desert environment. Technologies were sold, jobs were paid for and profits were made in determining who mattered and who did not. To classify a population as a threat and a

[37] Jason De León, *The Land of Open Graves: Living and Dying on the Migrant Trail* (Berkeley: University of California Press, 2015), 31, 29-30.
[38] Lisa Marie Cacho, *Social Death: Racialized Rightlessness and the Criminalization of the Unprotected* (New York: New York University Press, 2012), 6-7.

risk, in other words, eviscerated their human and constitutional rights, thereby leaving them vulnerable to the violence of the empire-nation and endangering their lives.[39]

During this period when "illegal aliens" were made into living dead, two other concepts helped define the new post-Cold War moment: asymmetry and uncertainty. The U.S. military saw itself in the 1990s, Steven Metz and Douglas Johnson argue, as dominating the conventional military arena; no other political entity had recourse to counterbalance the force superiority of the U.S. Given the magnitude of such a global reordering, the U.S. government and military placed themselves in the complicated position to anticipate who could be a future adversary and from where they might emerge. This led to growing discussions around the enemy's resort to asymmetric strategies as well as to the proliferation of asymmetric threats themselves.[40] Through asymmetry, enemies would maximize their own advantages by exploiting U.S. weaknesses and thereby attain the initiative or gain greater freedom of action.[41] With no single dominant threat, smaller, discrete and less visible dangers were believed to lurk across an uncertain world.

Such enemies, the Joint Chiefs of Staff concluded in *Joint Vision 2020*—published one year prior to 9/11—, would seek to create or exploit conditions favorable to their operations.[42] In an op-ed published a few days after the attacks of September 11th, historian David M. Kennedy argued that "whoever our adversaries are, their objectives are not measured in terms of

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[39] Chapter 2 examines the history of how Mexican migrants were imagined as "intruders" and "threats" to the nation. This was made manifest in anti-narcotics (the "war on drugs"), and border and immigration enforcement operations that grew in intensity since the Cold War.

[40] Department of Defense, Office of the Secretary of Defense, *Defense Strategy for the 1990s: The Regional Defense Strategy* (Washington, D.C.: Department of Defense, 1993); Office of the President of the United States, *A National Security Strategy for a Global Age* (Washington, D.C.: Office of the President of the United States, 2000), 5-6; Kristin S. Kolet, "Asymmetric Threats to the United States," *Comparative Strategy* 20 (2001), 277-292.

[41] Steven Metz and Douglas V. Johnson, II, *Asymmetry and U.S. Military Strategy: Definition, Background, and Strategic Concepts* (Carlisle, PA: Strategic Studies Institute, U.S. Army War College, January 2001), 4.

[42] Department of Defense, Joint Chiefs of Staff, *Joint Vision 2020* (Washington, D.C.: Joint Chiefs of Staff, 2000), 5.

geography, trade, or any of the usual markers of political rivalry…[they are] an elusive foe impervious to the military might we have spent decades building."[43] The seeming elusiveness of the enemy made it harder for U.S. actors to know who, how and when to engage them. Paranoia, a familiar disposition throughout the Cold War, gripped the public. As *New York Times* columnist Maureen Dowd asserted, the "faceless enemy…could live among us as a fifth column."[44] Security vulnerabilities were exploited during the 9/11 attacks. Among the exploits found was, for example, the lack of information collaboration across the various U.S. military and civilian intelligence agencies. Intelligence, security, and travel officials missed relevant and precise data at various moments before and on September 11; they operated in an environment of heightened uncertainty.[45] Data precision and, whenever possible, inter-agency data integration were identified as antidotes to a "faceless enemy" and the uncertainty of "an elusive foe."

One of the socio-technical solutions to the proliferation of uncertainty, risks, and threats in the post-Cold War era was network-centric warfare (NCW). The U.S. military concept of operations proposed at the end of the twentieth-century was at its core a data-centered approach to manage the contemporary battlespace. NCW aimed to rearrange human and organizational behavior in the U.S. military, and increase "combat power by networking sensors, decision makers, and shooters to achieve shared awareness, increased speed of command, higher tempo of operations, greater lethality, increased survivability, and a degree of self-synchronization."[46] Data flowing from linked sensors were pulled together to create a "shared awareness" across the military hierarchy, from deployed soldiers all the way to the branch's Chief. Shared awareness

[43] David M. Kennedy, "…S.: Fighting an Elusive Enemy," *New York Times*, September 16, 2001.
[44] Maureen Dowd, "The Modernity of Evil," *New York Times*, September 16, 2001.
[45] National Commission on Terrorist Attacks upon the United States, 416-419.
[46] David S. Alberts, John J. Garstka and Frederick P. Stein, *Network Centric Warfare: Developing and Leveraging Information Superiority* (Second edition, 1999; repr., Washington, D.C.: CCRP, 2000), 2, 88.

was possible through data integration into what military officials called a common operating picture. That was, the resulting awareness of sharing the same information of key battlespace components with all or with a subset of actors.[47] Increase in speed became a factor as information was shared more quickly, in "near real-time," through the chain of command. More importantly, well-informed actors in the frontlines and in lower levels of command were afforded the ability "to organize and synchronize complex warfare activities from the bottom up."[48] Like the organizational and behavioral effects of the cybernetic border discussed in Chapter 2, network-centric warfare did not rely on any given device or technology. Instead, it sought to rearrange information flows through a varied assortment of nodes and links—hence its reliance on the network metaphor.

NCW was a socio-technical assemblage comprising human and nonhuman entities that attempted to order encounters on the battlespace. It struggled to remediate uncertainty by linking nodes that would deliver precise and actionable data. Its objective was information superiority vis-à-vis the enemy. NCW aimed to understand both the characteristics of battlespace entities, such as who and what they were, their location, and their actions, and how these entities were to be engaged.[49] The emphasis, hence, on the common operating picture at the center of network-centric warfare was not necessarily on the image and what it represented. Its underlying rationale was that it indicated, made known, and pointed towards what was to be done. It beckoned a way of relating between subjects and objects. The significance of the common operating picture was in its hardwiring of entities within an environment now reconfigured as a battlespace.

[47] Ibid., 240.
[48] Arthur K. Cebrowski and John Garstka, "Network-Centric Warfare: Its Origins and Future," *United States Naval Institute Proceedings* 124, no. 1 (January 1998), 35.
[49] Alberts, Garstka, and Stein, 93.

In the aftermath of 9/11, questions around risks and threats permeated much governmental and public debate. Actors struggled to come to grips with the attack and with why the U.S. had been targeted.[50] A generalized sense of anxiety and panic overwhelmed a variety of actors as a result of the surreptitious movements of the attackers and the failures of the U.S. national security apparatus. In the face of fear, pessimism, and loss of control, Welch argues that the "war on terror" became the clearest expression of a need—I would also add a desire—for security.[51] Government, military and public actors embarked on a war against those they imagined to be a "threat" to the nation. As a consequence, the boundaries of enmity were redrawn around Arabs and Muslims.

A hegemonic field of meaning was traced by government and media discourses that, Evelyn Alsultany demonstrates, targeted Arabs and Muslims for their identities, not their purported criminality.[52] Passage of the PATRIOT Act in 2001, as well as its subsequent renewals in 2005, 2006, 2010, and 2011, legalized previously illegal acts that, in turn, enabled anti-Arab and anti-Muslim racism such as

> monitoring Arab and Muslim groups; granting the U.S. Attorney General the right to indefinitely detain noncitizens whom he suspects might have ties to terrorism; searching and wiretapping secretly, without probable cause; arresting and holding a person as a 'material witness' whose testimony might assist in a case; using secret evidence, without granting the accused access to that evidence; trying those designated as 'enemy combatants' in military tribunals (as opposed to civilian courts); and deportation based on guilt by association (not on what someone has done).[53]

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[50] Journalists and academics alike paid particular attention to the idea that the United States was hated, and that hatred was at the root of the 9/11 attacks. See for example: Michael Kamber, "Why They Hate Us: Voices from Pakistan," *Village Voice*, October 16, 2001; Karina Rollins, Hillel Fradkin, and David Wurmser, "Why They Hate Us," *American Enterprise* 12, no. 8 (December 2001); Cass R. Sunstein, "Why They Hate Us: The Role of Social Dynamics," *Harvard Journal of Law and Public Policy* 25, no. 2 (Spring 2002), 429-440; Philip Caputo, "Why They Hate Us: A Journalist's Travels through the Muslim World," *New York Times*, July 17, 2005.
[51] Welch, 4.
[52] Evelyn Alsultany, *Arabs and Muslims in the Media: Race and Representation after 9/11* (New York: New York University Press, 2012), 6-7.
[53] Ibid., 5.

A legal framework to manage and administer the lives of Arabs and Muslims legitimized and generalized a sense of suspicion towards these populations. The legal framework was part and parcel of the political and military strategy demanded by *The 9/11 Commission Report*—that its target be "the Arab and Muslim world, in all its variety." These communities were envisioned as terrorist or potentially terrorist. The "terrorist," in this instance, was a "composite figure, and like previous menaces, this figure drew upon and 'reassembled' the body of existing dangers to bring into being a 'new enemy'."[54] Arabs and Muslims, entangled with the figure of the "terrorist," were now critically marked for monitoring as enemies of the U.S. empire-nation.

And yet, despite their distinctive characteristics, when it came to unauthorized border crossings, Latinxs, Arabs and Muslims were all imagined as potential "threats." Latinxs were already suspect in the public and governmental imaginary as "illegal aliens" who were by definition on the border of the law. Their existence was pre-inscripted as a transgression of the law for they undid the boundaries of what was codified as lawful.[55] While Arabs and Muslims were engaged through the subject position of "terrorist," boundaries between "illegal alien" and "terrorist" were blurred in the porosity of the border zone.[56] In a controversial statement before Congress in early 2005, then DHS Deputy Secretary James Loy said that, "[i]nformation from ongoing investigations, detentions, and emerging-threat streams strongly suggest that Al Qaeda has considered using the southwest border to infiltrate the United States."[57] This kind of

[54] Cacho, 98.
[55] For more on transgressions and the law see: Michel Foucault, "A Preface to Transgression," in *Language, Counter-Memory, Practice: Select Essays and Interviews*, ed. Donald F. Bouchard, trans. Donald F. Bouchard and Sherry Simon (Ithaca, NY: Cornell University Press, 1977), 29-52.
[56] Later in the chapter I address the formal categories used by the Border Patrol to classify apprehended subjects: "Mexican," "Other than Mexican" (OTM), and "Person from Special Interest Country." The first two are associated with the idea of "illegal aliens" and the latter with "terrorists."
[57] Chris Strohm, "The Wild, Wild Southwest," *National Journal* 37, no. 40 (October 1, 2005).

unsubstantiated formulation came to imagine the border as a site of terrorist futurity, a space through which "terrorists" might materialize. Even though "illegal aliens" were not necessarily "terrorists," they were thought to be so in potential. And that potential was a risk to the security of the nation. As a result, "terrorists" and "illegal aliens" were entangled in post-9/11 U.S. with being enemies and embodiments of risk.

After 9/11, the border was approached as a battlespace, a zone that "frontline [Border Patrol] agents" struggled to "secure" from the risks and threats of "illegal aliens" and "terrorism."[58] These were not abstract nor neutral concepts but were the U.S. historical constructs of an imperial and anti-migrant politics.[59] Latinxs, Arabs, and Muslims were three of the targeted populations of such politics. Their condition as targets, risks and threats eviscerated their humanity. In his oral history interview for the Mexican Migration Project, Francisco Villa commented on the ways that the U.S. ("el Norte") was "like a battle" where only Mexican solidarity could help ameliorate its hardships.[60] Defining the struggle to survive as "a battle" brought to the fore how the language of war even permeated the imaginary of some migrants. Those treated as targets were made into moribund bodies, exposed to the violent apparatus of the U.S. empire-nation.

Even though the priority mission of the U.S. Customs and Border Protection (CBP) was "prevent[ing] terrorists and terrorist weapons from entering the United States," they could not

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[58] Amy Yarnall, "New Predator on the Prowl along the U.S.-Mexican Border in Arizona," *San Diego Business Journal* 27, no. 49 (December 4, 2006); Department of Homeland Security (DHS), Customs and Border Protection (CBP), *Protecting America: U.S. Customs and Border Protection 2005-2010 Strategic Plan* (Washington, D.C.: U.S. Customs and Border Protection, 2005), 4, 13.
[59] Mahmood Mamdani, *Good Muslim, Bad Muslim: America, The Cold War, and the Roots of Terror* (New York: Three Leaves Press, 2005); and Alfonso Gonzales, *Reform without Justice: Latino Migrant Politics and the Homeland Security State* (Oxford: Oxford University Press, 2014).
[60] Francisco Villa, interview by Victor Espinosa, August 1991, http://mmp.opr.princeton.edu/expressions/life_histories/hdvda11-en.aspx

keep true to it without the "traditional mission" of one of its law enforcement arms, the Border Patrol. The border force was organized to interdict illegal aliens and drugs and those who attempted to smuggle them across U.S. borders.[61] One of the enduring legacies of the border technopolitical regime can be found in how actors attempted to comply with these missions: the translation of network-centric warfare to border enforcement operations through a "system of systems" approach. This is the focus of the following section. It begins by tracing the creation of the Department of Homeland Security and what some call the homeland security-industrial complex.[62] It then moves to examine the technopolitics coded in the Arizona Border Control initiative's (2004-2006) "system of systems."

## The Border Technopolitical Regime

In the evening of June 6, 2002, President George W. Bush publicly announced his administration's intent to create, with support of the Congress, a permanent department dedicated to "securing the homeland of America, and protecting the American people."[63] Emphasis was placed on securing the nation and its citizens from some of the asymmetric threats that unsettled many during the post-Cold War debates, though especially after 9/11. The Homeland Security Act of 2002 stipulated that the new department's primary mission was, among other things, to "prevent terrorist attacks within the United States; reduce the vulnerability of the United States to terrorism; minimize the damage, and assist in the recovery, from terrorist attacks that do occur

[61] DHS, CBP, *Protecting America*, 2; DHS, CBP, Office of Border Patrol, *National Border Patrol Strategy*, 2.
[62] Louis Uchitelle and John Markoff, "Terrorbusters, Inc.," *New York Times*, October 17, 2004; Josiah Heyman, "Capitalism and U.S. Policy at the Mexican Border," *Dialectical Anthropology* 36, no. 3-4 (December 2012), 268-269 and "Constructing a Virtual Wall: Race and Citizenship in U.S.-Mexico Border Policing," *Journal of the Southwest* 50, no. 3 (Autumn 2008), 305-333.
[63] George W. Bush, "Remarks by the President in Address to the Nation," June 6, 2002, https://georgewbush-whitehouse.archives.gov/news/releases/2002/06/20020606-8.html

within the United States."[64] DHS consolidated twenty-two agencies with disparate federal responsibilities and functions: from the collection of import duties and the enforcement of immigration law to the inspection of animal and plant health, and agricultural goods, among many more. What some called the "largest reorganization of the federal government since the 1940s" combined such agencies like the U.S. Customs Service, originally a part of the Treasury Department, and the Immigration and Naturalization Service, formerly a part of the Department of Justice.[65] The first task for DHS, President Bush told his audience, was to "control our borders" and this became the purview of the newly created Customs and Border Protection. It was not only a strategic objective but rather it was what CBP Commissioner Robert C. Bonner called in 2004 "[an] existential objective."[66] To control the border was vital to protect the nation and, therefore, in their minds, to guarantee its survival.

At the turn of the twenty-first century, control of the border was again thought to be lost as unauthorized border crossing activity in Arizona rose partly due to the implementation of Operations Hold the Line and Gatekeeper. With about 90% of all Border Patrol agents deployed along the southwest border, elected officials and CBP agents began to brainstorm ways to achieve their "existential objective."[67] U.S. Congressmen from Arizona thought their state would be a "good site" to run a pilot program dedicated to testing the use of UASs to patrol the area and offer support to CBP agents on the ground. In early May 2003, a group of Republican Congressmen wrote a letter to DHS Secretary Tom Ridge in which they called for the use of

[64] Homeland Security Act of 2002 (Public Law 107-296).
[65] "Department of Homeland Security Will Have Big S&T Component," *Issues in Science and Technology* 19, no. 2 (Winter 2002/2003), 18-19.
[66] DHS, CBP, Office of Border Patrol, *National Border Patrol Strategy*.
[67] Lisa M. Seghetti et al., *Border Security and the Southwest Border: Background, Legislation, and Issues*, CRS Report No. RL33106 (Washington, D.C.: Congressional Research Service, 2005), 24.

drones or UASs "to help secure our nation's borders."[68] They believed Arizona was a "good site" partly due to the existence of Fort Huachuca, the same military base that had contributed to the settler colonial project of the southwest in the nineteenth century and the development of the "McNamara Wall" for Vietnam in the 1960s. As the "McNamara Wall" was slowly transformed into the "electronic fence," Ft. Huachuca became a test range for unmanned aerial surveillance systems. This made Arizona and the base into a common place for actors who, like the Congressmen, were invested in "researching aerial threats, examining the use of technologies, and addressing potential safety and privacy concerns."[69] Ft. Huachuca, in other words, carried on the tradition of the U.S. southwest as a technopolitical frontier for imperial technologies of rule, just as Chapter 1 showed in the case of manned and unmanned aviation in San Diego, California.

Control of the border in the early 2000s was to be actualized through a "system of systems" and its signature technology, the Predator B UAS. Intensifying the informational focus of the cybernetic border, the border technopolitical regime translated network-centric warfare as a way to manage "intruders." This time around, however, the regime would do so through populations marked as "risks" and "threats." To test their sprawling systems of enmity, U.S. elected and government officials chose the state of Arizona as their experimental zone.

### *The Arizona Border Control initiative (ABCi)*

[68] John M. Doyle, "Arizona Pushing for UAV Patrols along U.S.-Mexico Border," *Aviation Week's Homeland Security & Defense* 2, no. 21 (May 21, 2003), 10.
[69] *Department of Defense Appropriations for 1961: Part 5 Procurement: Hearings Before the Subcomm. on Department of Defense Appropriations of the Comm. on Appropriations*, 86th Cong. 84 (1960) (statement of Major General Robert J. Wood, Office of Research and Development, U.S. Army); "DHS Planning UAV Border Patrol Pilot Program, Ridge Says," *Aerospace Daily* 206, no. 40 (May 27, 2003), 1.

On March 16, 2004, the DHS launched a multi-agency effort on the southern border called the ABCi. Executed on the Tucson sector of the border,[70] the ABCi turned this sector into the testing ground for a sprawling assemblage of massive agent mobilization, digital and aerial technologies, and detention centers. At a cost of more than $10 million, the initiative comprised the additional deployment of two hundred Border Patrol agents, two unmanned aerial systems, four helicopters, additional ground sensors, and new holding facilities (seven air-conditioned tents at a cost of $2 million) in Florence, Arizona, which were meant to house about five hundred unauthorized entrants. Sixty rescue agents were also mobilized to treat "illegal entrants" when found in the desert during the summer.[71]

The ABCi endeavored to comply with the goal of the *National Border Patrol Strategy*: "to achieve operational control" of the border.[72] This meant, among other things, "the ability to detect, respond, and interdict border penetrations in areas deemed as high priority for threat potential or other national security objectives."[73] The organization sought ways to make sensible or be aware of the hidden presence of those who were or might represent a threat to the U.S. Operational control should not be confused with shutting close the border, as if turning off a faucet. Even though "sealing the border fully can never happen," DHS Under Secretary Asa Hutchinson told the *Arizona Daily Star*, "the plan is to bring in some semblance of control."[74] The idea of "semblance of control" brings to mind the argument by border studies scholar Peter

[70] The Tucson sector spans 262 miles of linear border with Mexico from the Yuma County line to the Arizona/New Mexico state line.
[71] Marizco, "U.S. Beefing Up Border Force."
[72] DHS, "Fact Sheet: Arizona Border Control Initiative," March 16, 2004, https://www.hsdl.org/?view&did=478450. Operational control was generally limited to a smuggling corridor or another geographically defined location. These were found within what CBP calls sectors, an organizational structure linked to specific areas of territory along coastal or land borders.
[73] DHS, CBP, Office of Border Patrol, *National Border Patrol Strategy*, 3.
[74] Michael Marizco, "U.S. Beefing Up Border Force," *Arizona Daily Star*, March 17, 2004.

Andreas that effective control of the border has not been the only goal of the border security apparatus. This instrumental goal was also paired with the expressive role of law enforcement, the communication of the state's authority to mark and maintain the borderline.[75] In 2004, the Bush administration was invested in such communicative role when it sought to institute a "semblance of control" on the border. They wanted to appear *as if* having command over the borderlands. Control was also staged to dissuade targeted populations from attempting to migrate or become a part of the U.S.

The veneer of control was performed for a domestic audience moved by a border technopolitical regime predicated on the animosity towards and the exclusion of certain categories of racialized people. The Border Patrol's ABCi aimed to use drones, the *Tucson Citizen* told its readers, as "[n]ew sets of eyes…over the Arizona Mexico border, watching for terrorists, drug smugglers and illegal immigrants."[76] UASs flown over the border environment helped intensify the sensory regime or the techniques of sound and vision pursued through the cybernetic border of the 1970s. These "new sets of eyes" casted their gaze on what Chapter 2 and this chapter have shown were historically racialized targets. "[T]errorists, drug smugglers and illegal immigrants" were bound in public and governmental discourse to the bodies of Latinxs, Arabs, and Muslims. Consequently, the ABCi's sensory regime, epitomized by the Border Patrol's "new sets of eyes," was imbricated with the production of subject categories that delimited the kinds of bodies and populations to be technologically controlled.

The ABCi also repurposed the failed strategy of "prevention through deterrence," previously articulated in the 1990s in Operations Gatekeeper and Hold the Line.[77] It called "to

[75] Andreas, 10-11.
[76] Luke Turf, "2 Drones on Patrol as Part of Bold Effort to Seal Border," *Tucson Citizen*, June 26, 2004.
[77] Jim Turner, *Transforming the Southern Border: Providing Security and Prosperity in the Post-9/11 World* (Washington, D.C.: House Select Committee on Homeland Security, 2004), 114-115.

raise the risk of being apprehended for illegal aliens to a point where they would consider it futile to try to enter the United States illegally. The strategy was to involve concentrating new resources on the front lines at the most active points of illegal activity along the southwest border."[78] Yet this strategy's results were deemed inconclusive by the General Accounting Office who stated in 1997 that data available to them: 1) did not show a clear picture on whether or not unauthorized border crossers were deterred from pursuing "illegal" entry into the U.S., 2) could not demonstrate that a decrease in attempted (illegal) reentries was achieved, nor that 3) the strategy had reduced border violence.[79] Despite the fact that the results of the strategy were considered inconclusive by the late 1990s, DHS moved forward with it through the ABCi.

The success of the ABCi has been a site of contention for advocates of the securitization of the border and those opposed to it. The multi-agency initiative led and coordinated by the CBP went through three phases: Phase I began on March 2004 continuing through January 2005, while Phase II followed a similar timeline from March 2005 to early 2006, and Phase III was executed from April 2006 to September 2006.[80] In its first year, DHS celebrated how the ABCi and, especially, its use of UASs led to the apprehension of 1,315 unauthorized border crossers, while 697 people were rescued during Phase I—an increase of 252 when compared to 2003.[81]

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[78] General Accounting Office, *Illegal Immigration: Southwest Border Strategy Results Inconclusive* (Report no. GAO/GGD-98-21), 11.
[79] Ibid., 4.
[80] DHS, *Performance and Annual Report: Fiscal Year 2004* (Washington, D.C.: U.S. Department of Homeland Security, Customs and Border Protection, 2004), 30-31; DHS, *Performance and Accountability Report: Fiscal Year 2005* (Washington, D.C.: U.S. Department of Homeland Security, Customs and Border Protection, 2005), 11; DHS, *Performance and Accountability Report: Fiscal Year 2006* (Washington, D.C.: U.S. Department of Homeland Security, Customs and Border Protection, 2006), 8.
[81] Michael Marizco, "Government to Pull Unmanned Aerial Vehicles from Arizona Border Patrol," *Arizona Daily Star*, 25 January 2005. Total apprehensions for the Tucson Sector were: 491,771 (FY 2004), 439,090 (FY 2005), and 392,104 (FY 2006); Luke Turf, "Summer Border Control Touted," *Tucson Citizen*, September 22, 2004; DHS, *Yearbook of Immigration Statistics: 2008* (Washington, D.C.: U.S. Department of Homeland Security, Office of Immigration Statistics, 2009), 93.

Michael Chertoff, DHS Secretary from 2005 to 2009, argued that the use of "top-notch technology," such as the sensors and drones of the ABCi, was a boon to CBP agents. These kinds of technologies identified "where people are penetrating the border" and that told agents where to "deploy our forces effectively."[82] But when it came down to the "effectiveness" of initiatives such as the ABCi, studies commissioned by CBP concluded that "the number of apprehensions bears little relationship to effectiveness because agency officials do not compare these numbers with the amount of cross-border illegal activity."[83] Among its lasting impacts, however, was the drastic increase of assigned CBP agents to the Tucson sector, which grew from 1,916 in early 2004 to around 2,600 in 2006.[84] Another significant impact of the ABCi was the fact that, because it was integrated into America's Shield Initiative in 2005, "an effort to enhance electronic surveillance along the northern and southern borders of the U.S.," it continued to strengthen the reliance on electronic, computing, and UAS technologies as solutions for border enforcement. ABCi made use of at least three UAS models, in chronological order: the Hermes 450 manufactured by Elbit Systems (June-September 2004), the RQ-5 Hunter by Northrop Grumman (November 2004-January 2005) and the Predator B by General Atomics (October 2005-April 2006, September 2006-2007).[85]

Even though intrusion detection systems, stadium-lighting, aerial surveillance, and massive force mobilizations did not achieve their intended goal to institute enduring "operational

[82] Rich Tuttle, "DHS' Program for Border Surveillance Soon Moving into Procurement Stage," *Aviation Week's Homeland Security & Defense* 4, no. 19 (May 11, 2005), 1.
[83] *What Does a Secure Border Look Like? Hearing Before the Subcomm. on Border and Maritime Security of the Comm. on Homeland Security*, 113th Cong. 38 (2013) (statement of Rebecca Gambler, Acting Director, Homeland Security and Justice, Government Accountability Office).
[84] Turk; Government Accountability Office, *Border Patrol: Key Elements of New Strategic Plan Not Yet in Place to Inform Border Security Status and Resource Needs* (GAO Report no. 13-25; Washington, D.C.: U.S. Government Accountability Office, 2012), 13.
[85] Jefferson Morris, "Southern Border Patrol Flights under Way with Predator B UAV," *Aerospace Daily & Defense Report* 216, no. 19 (October 27, 2005), 1.

control" of the border, they continued to be trusted as sociotechnical arrangements that communicated state authority. Congressional representatives like Jim Turner (a Democrat from Texas) saw prevention through deterrence as a largely "discredited" strategy and yet they still supported many of its underlying approaches to border enforcement.[86] Turner argued that transforming the southern border was imperative in the war against "terror." To do so, the U.S. government had to commit to "a $1 billion infrastructure investment fund, deployment of technology to monitor the entire border 24 hours a day, seven days a week, and a doubling of border patrols and inspectors, as well as increasing the detention space and the judicial and prosecutorial services needed to support these law enforcement efforts."[87] Rather than transforming the border, what Turner called for was nothing but the intensification of the border technopolitical regime and the targeting of the enemy.

The U.S. government, electronics and defense manufacturers, think tanks and academics carried on as a result of the border technopolitical regime's infrastructural inertia. By this I mean the perpetuating friction generated by long-term investments in ways of knowing and doing. Infrastructural inertia blocked off new possibilities from emerging, it impeded actors from taking different paths because they became accustomed to acting in a particular way and with a given set of instruments. As Paul Edwards suggests, infrastructures are marked by temporal commitments that bind entities together across time.[88] And in this case, the practices of producing and targeting an enemy were the binding agents that kept the border technopolitical regime together while foreclosing other possibilities. Despite the mixed results of "prevention through deterrence" and its associated technologies, DHS budgets for research and development

[86] Turner, 114.
[87] Ibid., ii.
[88] Paul N. Edwards, "Time Crimes: The 20th Century's Long Now" (lecture, Eisenberg Institute of Historical Studies, University of Michigan, Ann Arbor, MI, March 24, 2016).

in science and technology grew exponentially by the time ABCi started. They went from $90 million in 2002 (actual) to $561 million in 2003 (estimate) and $803 million (requested).[89] Towards the end of ABCi's Phase II in early 2006, DHS requested Congress to allocate around $635 million exclusively to secure the border. Funds were to be used predominantly in the U.S. southwest through the growth of Border Patrol personnel, and the acquisition of intrusion detection technology and tactical infrastructures like UASs.[90] Infrastructural inertia kept the wheels of the border machine spinning.

Detractors of the ABCi insisted on the fact that its underlying enforcement strategy merely drove unauthorized border crossers, especially migrants and *coyotes* (human smugglers), to seek entry through more remote, risky, and lethal areas.[91] "Prevention through deterrence," in other words, played a part in the production of social death. Unauthorized border crossers were made not to matter by driving them further into the life-threatening geography of the border zone. This did not stop migration or unauthorized border crossing, it merely made them more dangerous.[92] As José Matus, director of Coalición de Derechos Humanos, told the press, "poor, harmless immigrants" would make the difficult and life-threatening trip regardless of border enforcement efforts. By making migration more difficult, "we're shoving them to their deaths."[93] Contrary to claims made by DHS officials that the ABCi aimed to reduce the number of border crossing deaths, according to one American Civil Liberties Union report, there was no

[89] DHS, "Budget-in-Brief Fiscal Year 2004" (n.d.), 16.
[90] DHS, "Budget-in-Brief Fiscal Year 2007" (February 6, 2006), 27.
[91] Marizco, "U.S. Beefing Up Border Force."
[92] Maria Jimenez, *Humanitarian Crisis: Migrant Deaths at the U.S.-Mexico Border* (New York: American Civil Liberties Union of San Diego & Imperial Counties and Mexico's National Commission of Human Rights, 2009).
[93] Marek, "Desert Cat and Mouse," 34.

substantive change in migrant deaths on the border since the implementation of the initiative. A total of 1,391 deaths or an average of 347.75 per year took place from 2003 to 2006.[94]

The effects of ABCI's strategy had, consequently, less to do with saving lives and more to do with making unauthorized border crossers into expendable subjects. In the process, the lives of unauthorized migrants were exposed to enduring precarity and insecurity at the hands of *coyotes* and their associates, the perils of the desert environment, and an existence on the margins/outside of the law.[95] They were made to inhabit a space of social death, "a desperate space" that, as Cacho argues, was "overwrought with and overdetermined by the ideological contradictions of ineligible personhood."[96] Recognized only as subjects outside the protections of the law and despite their social, political, economic, and cultural contributions to the U.S., "illegal aliens" were and continue to be submitted to unfair labor practices, poor access to social services (i.e., health, education), and discrimination, among other modes of systemic and interpersonal violence.[97] The security of some (citizens) came at the expense of the Other (unauthorized border crosser).

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[94] Jimenez, 17.

[95] For the precarity and insecurity of border crossing and of life on the borderlands see: Guillermo Alonso Meneses, *El desierto de los sueños rotos: detenciones y muertes de migrantes en la frontera México-Estados Unidos 1993-2013* (Tijuana, México: Colegio de la Frontera Norte, 2013); Cacho; Nicholas De Genova, "Migrant 'Illegality' and Deportability in Everyday Life," *Annual Review of Anthropology* 31 (2002), 419-447; De León; Alejandro Lugo, *Fragmented Lives, Assembled Parts: Culture, Capitalism, and Conquest at the U.S.-Mexico Border* (Austin: University of Texas Press, 2008); Alicia Gaspar de Alba and Georgina Guzmán, *Making a Killing: Femicide, Free Trade, and la Frontera* (Austin: University of Texas, 2010); Douglas S. Massey, Jorge Durand and Karen A. Pren, "Why Border Enforcement Backfired," *American Journal of Sociology* 121, no. 5 (March 2016), 1557-1600; Gilberto Rosas, *Barrio Libre: Criminalizing States and Delinquent Refusals of the New Frontier* (Durham: Duke University Press, 2012) and "The Managed Violences of the Borderlands: Treacherous Geographies, Policeability, and the Politics of Race," *Latino Studies* 4, no. 4 (2006), 401-419; David Spener, *Clandestine Crossings: Migrants and Coyotes on the Texas-Mexico Border* (Ithaca: Cornell University, 2009).

[96] Cacho, 145.

[97] Denise Brennan, *Life Interrupted: Trafficking into Forced Labor in the United States* (Durham: Duke University Press, 2014); Julie A. Dowling and Jonathan Xavier Inda, eds., *Governing Immigration through Crime: A Reader* (Stanford: Stanford University Press, 2014); Raymond Rocco, "Disposable

Having discussed the strategy at the heart of the ABCi and some of its effects on the lives of migrants, what follows is an analysis of ABCi operations through its "system of systems" approach.

### *The ABCi's "System of Systems"*

The ABCi was reliant on an assemblage of technologies that created a sensory regime through which the borderlands environment was supposed to be ordered and managed. The approach pursued by DHS was framed by the concept of a "system of systems." At a congressional hearing, Kirk Evans, a Science & Technology Directorate official, defined the system of systems as "an architecture and a set of technology programs that will gather, process and distribute real-time knowledge of the border and transportation situation. The systems should also provide decision support tools and labor saving devices for our [homeland] security forces."[98] What Evans described was, not unlike network-centric warfare, an integrated surveillance network of platforms, sensors and humans processing data and disseminating information to assist law enforcement activities focused on border and transportation security.

Subjects: The Racial Normativity of Neoliberalism and Latino Immigrants," *Latina/o Studies* 14, no. 1 (Spring 2016), 99-117.

[98] *Strengthening Border Security between the Ports of Entry: The Use of Technology to Protect the Borders: Joint Hearing Before the Subcomm. on Immigration, Border Security and Citizenship and the Subcomm. on Terrorism, Technology and Homeland Security of the Comm. on the Judiciary*, 109th Cong. 70 (2005) (statement of Kirk Evans, Director, Mission Support Office, HSARPA, S&T Directorate, DHS).

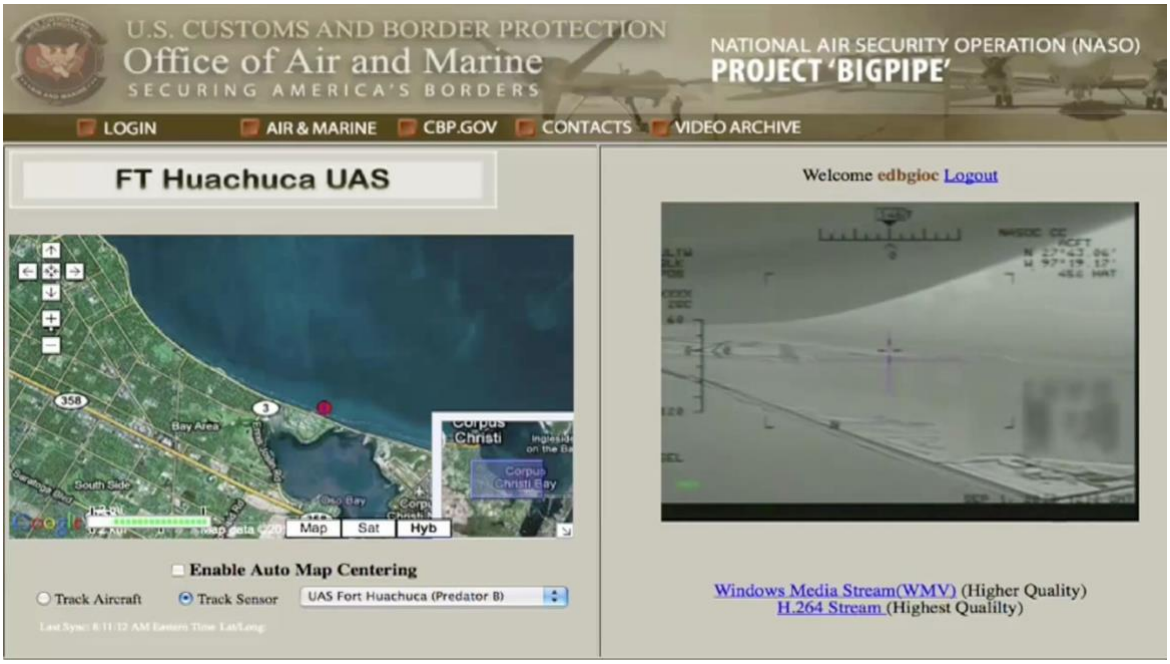


Figure 13. Interface of DHS's BigPipe platform
(source: DHS, CBP, Office of Public Affairs, Visual Communications Division, "CBP UAS B-Roll" (2012), *Defense Visual Information Distribution Service*, https://www.dvidshub.net/video/142871/cbp-uas-b-roll)

By entangling autonomous platforms to humans, a socio-technical arrangement was established which aimed to create what Evans called an "overall view"—a sensory regime that strove to encompass the vastness of the border. The "overall view" was a translation to DHS operations of what were U.S. military concerns over "shared awareness"—a signature goal of network-centric warfare's common operating picture. The objective was to allow CBP agents to quickly learn about "intrusions" on the border and to disseminate this information expediently to those in a better position to intervene. BigPipe (see Figure 13), created in 2005 and described by a DHS official as "a robust information sharing environment," was one way to construct a common operating picture. The platform linked CBP aviation assets with "federal, state, local, and tribal law enforcement and public safety agencies to provide near-real time and sensor data—enhancing situational awareness for officers and rescue personnel across the public safety

community."[99] Figure 12 shows what the actual operator/sensor screen of a Predator B UAS looked like. In this sense, BigPipe users were allowed to participate in what the "eye in the sky" saw. The Predator B used during this specific operation took off from Ft. Huachuca yet its reach went well beyond Arizona. It flew over the coast of Corpus Christi, Texas as its geolocation was mapped on the left of the image via Google Maps' API. Sensors mounted on the Predator interpreted a variety of signals (i.e., infrared and electromagnetic) while offering "near-real time" video feeds. Data flows from these various sensors were aggregated into "an operational picture" that hailed CBP agents, imagined as "user[s]," and sent them towards "areas of likely activity and interest."[100] Tracts of land, objects, and people were imagined to be enclosed by and within the sensory regime's "overall view." Data generated within these enclosures were interpreted by an assemblage of machines and human actors that determined the nature of a target (who or what they were) and of its placement in the border zone. There agents were supposed to execute the apprehension of targets set to be excluded from entering the U.S. empire-nation.

A few facts might prove useful to understand the Predator B as an object and system. The Predator B weighs 10,500 lbs., measures 36 ft. in length and 66 ft. of wingspan. It operates between 19,000-28,000 feet, though the operational floor for its electro-optics infrared (EO/IR) ball is 19,000 feet. In a *Privacy Impact Assessment for the Aircraft Systems*, the DHS Inspector General explained that the EO/IR ball was a camera containing a fixed-focus lens capable of providing video to operators. The video was sent via an encrypted feed relayed through satellite to the UAS ground control station. Data were decrypted and sent behind the DHS firewall from

[99] *Testimony of Director, Northern Region Office of Air and Marine, John S. Beutlich, Before Subcomm. on Emergency Preparedness, Response, and Communications of the Comm. on Homeland Security*, 112th Cong. 7 (2011) (statement of John S. Beutlich, Director, Northern Region, Office of Air and Marine, CBP, DHS).
[100] *Strengthening Border Security between the Ports of Entry* (statement of Kirk Evans), 70.

where the video would be streamed through its BigPipe image and video distribution network to relevant parties.[101] Digital zooming capabilities allowed the EO/IR "to take small-scale aerial video images of buildings, vehicles, and people." As of 2013, however, "video, still images, signals information, and/or radar images [from Predator Bs] do not clearly identify individuals. The only information about individuals that is collected and/or retained is the indication of a human form."[102] This human form, the Inspector General contended, supposedly lacked an identity. But, as this chapter shows, it was the silhouette of a body pre-inscripted for exclusion along racial lines by public discussions and governmental policies.

When it came to the ABCi, drones and their sensors where positioned as strategic technologies of the system of systems. They offered what Evans called "the advantage of height of eye," an advantage that hinged on the hovering capacity of unmanned aircraft equipped with sensors to "look out over a long range." For example, in a 21-mile stretch of the border in Papago Farms, Arizona, two Border Patrol agents were tasked with covering the large and complicated terrain at night.

> [T]hey were often forced to drive slowly to avoid 'moon dust,' a thick substance covering back roads. His vision obscured by tall shrubs, [Border Patrol agent Nicholas] Greenig had to spend much of his time climbing the hills on the perimeter of the land, among the few places from which he could spot heads bobbing above the brush. He was thrilled to have his patrol area used as a test for the reconnaissance planes [UASs].[103]

These systems saved Border Patrol agents from wasting "much of [their] time" avoiding the environmental obstacles of the borderlands—from "moon dust" to the thick brush hiding unauthorized border crossers. UASs hovered over "the land," gathering data that was then shared with interested entities and archived in DHS databases for future reference. Sensors (mounted on

[101] DHS, *Privacy Impact Assessment for the Aircraft Systems* (DHS/CBP/PIA-018; September 9, 2013), 4-8.
[102] Ibid., 7, 12.
[103] Marek, "Desert Cat and Mouse," 34.

a drone or installed on the ground) "br[ought] the signal out of the noise."[104] In other words, they were designed to detect and process signals emitted by targets in the border environment. It can be said that human sensory capacity was thought to expand through the ABCi's conglomeration of video feeds, mapping platforms, and electromagnetic and infrared sensors. The labor of CBP agents looking over the borderlands was supplemented and multiplied by machines that did not tire and that were imagined to "monitor the entire border," as Representative Turner had proposed, "24 hours a day, seven days a week."

The sense of advantage ascribed to "height of eye" is what Donna Haraway calls the "unregulated gluttony" of technical vision. This is a vision historically marked by science's linkages to empire, a vision committed to shielding the technological user from the messiness of his actions.[105] In doing this, drones enacted asymmetric relations between those gazed through their "eyes" and those who were seen. In such distancing, nevertheless, there was a paradoxical intimacy that, like the enemy distinction, kept the knowing subject sensibly bound to the Other—to that which it must monitor, probe, and record. Drones were, then, the embodiment of an "infinitely mobile vision, which no longer seem[ed] just mythically about the god-trick of seeing everything from nowhere, but to have put the myth into ordinary practice."[106] The prosthetic "eyes" of UASs were not passive. They proactively worked to capture those who were within their sights. These "eyes" simultaneously produced and engaged targets as heat signatures (infrared) and as "human form[s]," among other things. In other words, the "height of eye" associated with drones allowed CBP officials to act upon others. It also promised to solve the

[104] *Strengthening Border Security between the Ports of Entry* (statement of Kirk Evans), 9-10, 33.
[105] In the context of "Western" imperial formations, I use a male pronoun to underscore the masculinist inclinations of the technological user. Haraway describes the shielding quality of technical vision as its "perverse capacity."
[106] Donna Haraway, *Simians, Cyborgs, and Women: The Reinvention of Nature* (New York: Routledge, 1990), 189.

ongoing problem of making unauthorized border crossing into a perceptible process—a signal instead of a noise.


Figure 14. Predator B UAS operator/sensor screen showing targeting functions (source: DHS, CBP, Office of Public Affairs, Visual Communications Division, "CBP UAS B-Roll" (2012), *Defense Video Imagery Distribution System*, https://www.dvidshub.net/video/142871/cbp-uas-b-roll)

The system of systems was also understood to have the advantage of "height of eye" because it sought to make perceptible all the objects within the enclosure of its operational layers. Ground sensors worked hard to record the ever inconspicuous, unauthorized border crosser. Whenever a sensor was triggered, a signal was sent to sector headquarters alerting the Border Patrol agent that someone was in the vicinity of that specific sensor. Similar to the "electronic fence" of the 1970s, signal data included sensor location, time, and classification of trigger as human. The CBP agent then requested visual identification of the trigger by calling for a drone to fly over the area. The UAS sensor operator would use one or various of the sensors equipped on the drone to get a sense of who might be in the area, how many and where they were headed. Figure 14, taken from a video produced by the CBP's Office of Public Affairs,

shows the targeting function displayed on the operator screen of a Predator B. It consisted of an outer square marking the center of the image while an inner square marked and followed the target. The targeting function literally "centered" the object of technical vision. It narrowed who or what had to be engaged by Border Patrol agents. With this information, the agent at sector headquarters would determine the kind of force needed and where it should be dispatched to apprehend targets. The crosshairs of the Predator B operator screen operationalized the "crossing off" of unauthorized border crossers—their removal from the borderlands.

What the system of systems produced, then, was what Harun Farocki calls an "operative image." These images "do not represent an object, but rather are part of an operation."[107] They are meant to be "seen" by a machine, like the targeting square that helps keep a drone locked-in to its target (Figure 14) even while both are in constant movement. The value of operative images on the border resided not in their representative quality but in their capacity to shape the behaviors of entities in the homeland security apparatus. The sensory regime of the cybernetic border produced an image of sorts so that those objects contained within it could be acted upon.[108] The operative image established asymmetric relations between entities to make them governable.

The possibilities of such a socio-technical arrangement were limited by the political rationalities of the border technopolitical regime. The border environment, with its remote, complicated terrain and its ever-shifting populations, was already imagined as the natural habitat of a predator hunting enemy-prey. As discussed in this chapter's introduction, Angie Marek

[107] Harun Farocki, "Phantom Images," *Public* 29 (2004), 17.
[108] Grégoire Chamayou makes a similar argument regarding operative images and drones, yet he limits his point to linking vision to sighting, or the function of the eye to that of a weapon. My claim here is to broaden such understanding to the ways that (digital) technology, in this case drones, sensors, and algorithms, create sensory regimes that rely on operative images that are not limited to sight. *A Theory of the Drone*, trans. Janet Lloyd (New York: New Press, 2015), 114.

described the government's effort "to shut down Arizona's deadly smuggling corridor" as "desert cat and mouse."[109] Drug smugglers, human smugglers, and "illegal aliens" were the mice hunted by the feline Border Patrol. When the Predator B drone was finally introduced in 2005, it seemed like an appropriate fit. The brown body-targets (Latinxs, Arabs and Muslims marked as "risks" and "threats") were coded as adversaries to be captured. Their presence in the borderlands was inscribed, regardless of their citizenship status, as inherently suspect. The operative image in this case oriented the constitutive elements of the border security assemblage—CBP agents, drones, ground sensors, CCTV cameras, and ground vehicles, among others—to execute its exclusion/inclusion function in the management of otherness.

One such way that otherness on the border was managed was in field processing, which prioritized certain types of subjects. DHS's classificatory schema gives insight into the ways that the sensory regime of the system of systems and its associated operative image were pre-scripted to police the presence of racialized populations imagined as "enemies" and "risks" to the nation. Whenever "an alien attempting to enter the country illegally" was apprehended by agents of the U.S. Border Patrol, one of CBP's law enforcement arms, a file (Form I-826) was created where information such as name, date and place of birth, and country of citizenship was recorded.[110] An integral part of processing was identifying the apprehended border crossers within the Border Patrol's classificatory schema: Mexican, OTM (Other than Mexican) and person from special

[109] Marek, "Desert Cat and Mouse," 32.

[110] Blas Nuñez-Neto, Alison Siskin and Stephen Viña, *Border Security: Apprehensions of 'Other Than Mexican' Unauthorized Aliens*, CRS Report No. RL33097 (Washington, D.C.: Congressional Research Service, 2005), 1-2. For more on the practice of field processing see pages 1-4 of this report. Processing apprehended people was an essential practice of the border security assemblage because it allowed the activation of its different components and their attendant procedures. For example, Mexican aliens without a "criminal history" were allowed to "voluntarily return" to Mexico after processing. Meanwhile, people classified as OTMs and also lacking a "criminal history" were sent, whenever possible, to a detention facility administered by Immigration and Customs Enforcement (ICE) from where they would be deported.

interest country. Because the vast majority of people apprehended by the Border Patrol were Mexican nationals, a Congressional Research Service report stated, "the agency categorizes the aliens it apprehends as Mexican or 'Other Than Mexican'."[111] The expansive type OTM identified "people who come up through the Southern border of Mexico from Central America, maybe South America," but could also be used for people from countries elsewhere in the world.[112] "Person from special interest country" was used for people from countries designated by the U.S. intelligence community as places "that could export individuals that could bring harm to our country in the way of terrorism."[113] This last subject type, a legacy of post-9/11 security efforts, was for the most part a euphemism for Arabs or Muslims. Field processing, in the end, was designed to be hyper-focused on particular subject types meant for removal.

The subject types mentioned here were the product of the U.S. state's classification systems. They were categories that, as the work of Geoffrey Bowker and Susan Leigh Star shows, segment the world into contingently defined spatial, temporal or spatiotemporal unities.[114] Subject types redeployed a political imaginary built through scripts of enmity. Those populations identified by subject types were marked as enemy by anti-immigration and nationalist discourses. "Mexican," "Other than Mexican," and "person from special interest country" helped narrow the field of operations for Border Patrol agents. These subject types sorted who would be the target of oversight (a direct translation of the French *surveillance*) and who, by omission, would not. These categories were a telling sign of who DHS imagined to be

[111] Ibid., 1.
[112] Senator John Cornyn in *Strengthening Border Security between the Ports of Entry* (statement of David Aguilar, Chief, Office of Border Patrol, Customs and Border Protection, Department of Homeland Security), 12.
[113] Ibid., 13.
[114] Geoffrey C. Bowker and Susan Leigh Star, *Sorting Things Out: Classification and Its Consequences* (Cambridge: MIT Press, 1999), 10.

excludable from the U.S. nation. Their exclusion was part and parcel of CBP's "existential objective" to control the border as a racial line.

## Predator on the Line: Racial Scripts of Enmity

Policing the boundary between the U.S. and Mexico has taken many shapes across time and included a multiplicity of entities. So far the chapter has dealt with how, prior to and after the attacks of 9/11, Latinxs were pre-inscribed in public debate as "illegal aliens" while Arabs and Muslims became "terrorists." Engaged through theories of risk, they were slowly associated as risks themselves and as threats to the U.S. nation. Their imagined danger was epitomized by the fact that the border technopolitical regime targeted them through the classificatory schemas of "Mexican," "Other than Mexican," and "person from special interest country." The conceptual focus on these subject types and these populations revealed a racializing logic operating at the center of this regime, which sought to control the territorial and citizenship boundaries of the U.S. Failure to execute control over the border and its inhabitants did not lead to a reformulation of border enforcement itself. On the contrary, commitments were renewed because much was imagined to be on the line. "[C]alls for more border enforcement continue," Douglas S. Massey, Jorge Durand, and Karen A. Pren contend, "because the Mexico-U.S. border has become the preeminent symbolic line separating Americans from any and all external threats."[115] As a result of the invisible threats of "terrorists" and "illegal aliens," the border has been continuously imagined to be a site of vulnerability for the nation. Remediating such vulnerability was, as CBP Commissioner Bonner held, "an existential objective." The Predator B UAS deployed in the ABCi has been one among a multitude of media objects *through* and *in* which the border was

[115] Massey, Durand, and Pren, 1563.

enacted. It was a media object inscribed with ideas about the U.S. nation.

This final section explores the operation of drones in the southern borderlands as enacting racial scripts of enmity. Drones were media infrastructures of a racializing regime that imagined itself as clashing with enemy civilizations. They executed what digital studies scholar Simone Browne calls racializing surveillance—a technology of social control that reifies "boundaries, borders, and bodies along racial lines" and whose outcome is the discriminatory treatment of racialized subjects and populations.[116] Though UASs are now used in both the northern and southern borders of the continental U.S., their experimental testing in the ABCi and their larger presence along the Mexican border exposed how the brown bodies of Latinxs, Arabs, and Muslims were among the political priorities of the border technopolitical regime.[117] The Predator's technical vision did not hunt for White migrants from Western Europe but for those brown bodies marked as risks and threats. The operative image prescribed how subjects within its frame related to each other. In such framing, Latinxs, Arabs, and Muslims were inscribed as the targeted enemies of the border technopolitical regime.

The concept of racial scripts, a variation of what Chapter 1 calls biopolitical scripts, brings together critical race theory and Science, Technology, and Society (STS). It builds on the work of Natalia Molina who defines racial scripts as "how racialized groups are acted upon by a range of principals, from institutional actors to ordinary citizens." These scripts, built on historical experience and stereotypes of past groups, "circumscribe the place and role of future

[116] Simone Browne, *Dark Matters: On the Surveillance of Blackness* (Durham: Duke University Press, 2015), 16.
[117] By 2013, there were a total of 8 UASs used on the southern border (counting 2 drones flown from Florida over the region of the Caribbean), while 2 were operated along the northern border area close to Canada. DHS, *Privacy Impact Assessment for the Aircraft Systems*, 4.

members of U.S. society."[118] Racial scripts delimit the parts certain populations are allowed to play in public life. Following Latour's conceptualization of scripts, I understand racial scripts as the scenes or scenarios, either figurative or non-figurative, played by human or nonhuman actors in the administration of racialized groups.[119] An example of a racial script was the dyad of predator/prey that described the relationship between Border Patrol agents and unauthorized border crossers. This script marked the bodies of unauthorized border crossers, predominantly imagined as Latinxs, Arabs or Muslims, as subjected to the actions of the Border Patrol. Border crossers were preyed upon by agents who were responsible for their apprehension and removal. This script positioned Border Patrol agents on the higher-worth function of a predator that protected the U.S. nation and its citizens from the supposed threat of unauthorized border crossers. Racial scripts, however, were not limited to human actors. They could also be embedded in nonhuman entities. This section sheds light on how drones were inscribed to enact racial scripts.

[118] Natalia Molina, *How Race Is Made in America: Immigration, Citizenship, and Historical Power of Racial Scripts* (Berkeley: University of California Press, 2014), 21, 30.
[119] Latour, 304-305.


Figure 15. The Predator Systems: A New Dimension in Worldwide Awareness
(source: General Atomics Aeronautical Systems, "Predator B: The Multi-Role UAV," June 2002, http://www.dtic.mil/cgi-bin/GetTRDoc?Location=U2&doc=GetTRDoc.pdf&AD=ADA427459)

The Predator B was a product of the U.S.'s technopolitical frontier. Though it was originally envisioned by Abraham Karem, the Predator was finalized and manufactured in the 1990s by the San Diego-based company, General Atomics (GA). The first version of the Predator, known as the GNAT 750, flew intelligence, reconnaissance, and surveillance operations from 1993 to 1994 for the Central Intelligence Agency over Bosnia.[120] One Department of Defense official saw it as an "eye in the sky," a platform that could deliver near-real time information of battlespaces to U.S. forces.[121] In a 2002 informational packet (see Figure 15), GA described the Predator UAS as an aircraft for "Anywhere, Anyplace, Anytime." The packet contained a map of the globe showing only the continents of Europe, Africa, and some

[120] Whittle, 82.
[121] Ibid., 83.

parts of Asia. A Predator B hovered over the globe, marking "a new dimension in worldwide awareness." This UAS was imagined for launch, recovery and control from anywhere across the globe. Its sensing systems expanded the reach and influence of U.S. actors as they collected data from foreign territories now transformed into battlespaces. Data collected by Predator B UASs would then be potentially circulated across the U.S. global network of bases and sites of operations. They underscored how, just as the 9/11 Commission had envisioned, "the American homeland [wa]s the planet." Like the frontiersmen in U.S. popular imaginary, Predators sought out "empty" lands for future settlement. In so doing, these UASs helped blur the boundaries of the domestic and the foreign.

On the U.S. border, Predator B data were integrated into CBP's information analysis efforts with the aim of granting situational awareness to participants of the security apparatus. In a scenario included in a CBP public relations video, a Predator B flown from Arizona encountered a group of 12 people crossing an area of the southern border without authorization.[122] Surveillance footage of the group taken by the drone showed how "shadowy figures wait[ed] in the cover of the underbrush," the narrator explained, "for a quick sprint and a promise of illegal entry." The "shadowy figures" were not unlike those in Figure 16 or those previously described by the DHS Inspector General as "a human form." The Predator B crew attempted to communicate directly with a nearby Black Hawk helicopter unit but it was out of radio contact. So, the crew reached out to CBP's Air and Marine Operations Center (AMOC) in Riverside, California. This center was responsible for helping coordinate field activities by supplying officers and agents with relevant data on their border sector areas. In this case, data were supplied by the video feed of the Predator B. AMOC alerted the Black Hawk unit of the

[122] "24 Hours on the Line," YouTube video, 8:45, published by U.S. CBP, Office of Public Affairs, Visual Communications Division, May 21, 2014, https://www.youtube.com/watch?v=OkZABNL3tP0

presence of the 12 unauthorized individuals, their location and direction. As a result, they were quickly apprehended by the air interdiction crew and by field agents.

What this scenario described was the role of drones in producing an operative image of the U.S.-Mexico border in which different entities were prescribed certain roles. The unauthorized border crossers played the role of the prey hunted by a predatory assemblage. This assemblage comprised the Predator B UAS, the Black Hawk helicopter, agents at the AMOC, and Border Patrol agents. Together they were predators seeking to capture those that DHS had named as "risks" and "threats": those populations identified by the classification schema of "Mexicans," "Other than Mexicans," or "person from special interest country" (i.e., Arabs and Muslims).

The operative image was not merely a technical construction. Instead it was also a technical inscription of how border security operations would unfold. Like other media, drones were inscription systems that produced, registered, integrated, and allocated discourses, as well as human and nonhuman entities across surfaces. UASs discerned and inscribed, as the *Privacy Impact Assessment* stated, "a human form" into the operator's screen. These forms were not actually interpreted as unidentified subjects. Instead, they were read within an institutional discourse that targeted some subjects for exclusion from U.S. national territory. UASs aided in managing the uncertainty and risk bound to populations branded as "illegal alien" and "terrorist." As previously discussed, the CBP classified apprehended unauthorized border crossers into three subject types. The "shadowy figures" tracked by an UAS's sensors (see Figure 16) were pre-inscribed through these types. The operative image was constructed through the combined use of air power and information technologies which allowed actors of the CBP to execute the exclusion of target types. In Figure 16, a still image from surveillance footage produced by a

CBP drone, the entities of air power and information technology are the Predator B UAS and the Office of Air and Marine helicopter (center-right of image) that hovered over what seemed to be panicking and running unauthorized border crossers (the dark dots next to trees/bushes in the center of the image). After their apprehension, deployed Border Patrol agents on the ground eventually identified and processed the "human form" on the screen by using CBP's subject types. The Predator B, therefore, did not hunt blindly. Instead, it preyed over subjects designated for exclusion. The operative image resulting from Predator B operations scripted how "enemies" were engaged by the border technopolitical regime.

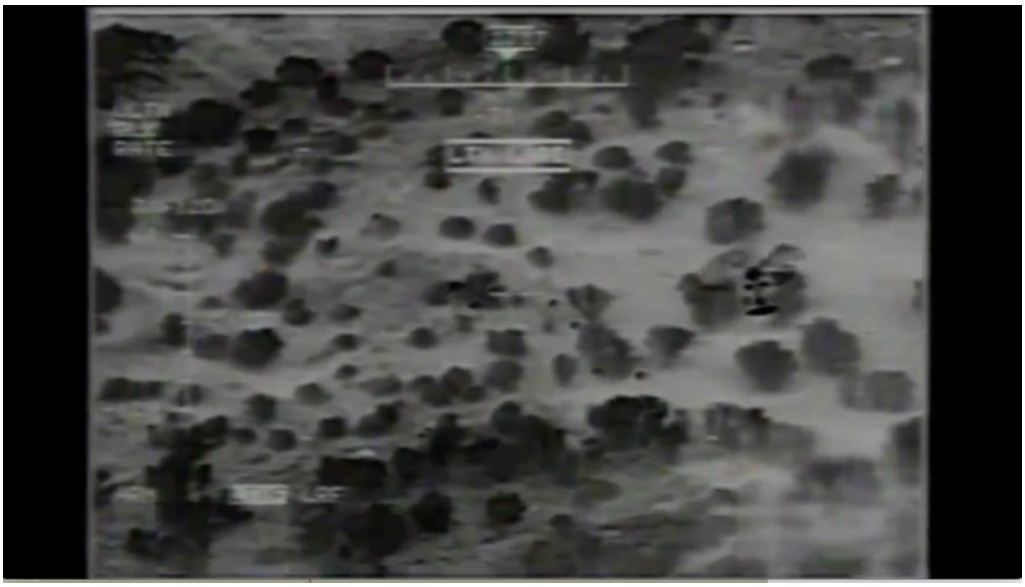

Figure 16. Predator B UAS operator/sensor screen during CBP operations
(source: DHS, CBP, Office of Public Affairs, Visual Communications Division, "CBP UAS B-Roll" (2012), *Defense Visual Information Distribution Service*, https://www.dvidshub.net/video/142871/cbp-uas-b-roll)

CBP's UASs and its BigPipe platform created a plane of perception within which unauthorized border crossers were made perceptible and knowable—which meant they were trackable and manageable. The sensors mounted on the UAS monitored the target's movements as the UAS operator screen mapped out the territory for state action. The assemblage of these systems allowed for the material demarcation of the racial/territorial border lines and the exercise

of imperial sovereignty. As categories, subject types informed which bodies became visible to an UAS's sensors even if their supposed personal identity markers were "unknown." In the case of the U.S.-Mexico border, that which appeared on the screen was predetermined suspect, a threat and risk to be controlled.

Subject types were associated to the category of "intruder" used by sensor technology researchers.[123] The notion of intruder calibrated the shifting borders of empire, the techniques through which inclusion and exclusion were performed. Thinking through how Browne understands the operations of surveillance technologies, the supposedly "disembodied gaze" of drones "d[id] the sorting work of nationalizing, and by extension racializing" the bodies displayed on the screen.[124] The experimental usage of drones on the southern border as well as the heavier presence of Border Patrol agents there, when compared to the U.S.-Canada border, demonstrated a structural over-commitment to policing the southern borderlands.[125] UASs were designed to target "a single cluster of racialized information [i.e., the threat] that is used for remote-controlled processes of control and harm. Bodies below become things to track, monitor, apprehend, and kill, while the pilot and other allies on the network remain differentiated and proximate."[126] Similar to other surveillance technologies, the UAS combined with federal policy in the intimate stratification of space and objects into discernible, categorized matter to control. Control, hence, was pursued through the proliferation of racially codified "intruder" types

[123] *Strengthening Border Security between the Ports of Entry*, (statement of Henry F. Taylor, Distinguished Professor of Electrical Engineering, Texas A & M University, College Station), 90-93.
[124] Simone Browne, "Digital Epidermalization: Race, Identity, and Biometrics," *Critical Sociology* 36, no. 1 (2010), 142.
[125] As an example, in 2003, 1,000 Border Patrol agents worked in enforcement operations in the U.S.-Canada border which is over 4,000 miles long. Meanwhile, 10,408 Border Patrol were stationed on the southern border to secure the over 2,000-mile-long border between U.S.-Mexico. Data from: Bolkcom, 1.
[126] Tyler Wall and Torin Monahan, "Surveillance and Violence from Afar: The Politics of Drones and Liminal Security-Scapes," *Theoretical Criminology* 15, no. 3 (August 2011), 246.

inscribed into the operations of drones on the border, which led to the targeting and removal of vulnerable populations from the body politic.

Furthermore, drones were mobilized in the production of social death for those who had to endure life beneath their shadow. Michael Nicley, Chief of the Border Patrol's Tucson Sector, told the *Arizona Daily Star* that he wanted drones in the ABCi to fly low. "I want everybody out there to see them. And when we started doing that, by the time we were done with it, they would see that [UAS] at night from miles away, turn around and go south. There's the success, to keep them from coming in to begin with."[127] What Nicley made plain was how drones were an instrument in the production of a "semblance of control" over the border. Their mere presence, he hoped, would instill a sense of dread on border crossers, a sense that they would be caught by being (on the borderlands). "People subjected to laws based on their (il)legal status—'illegal aliens,' 'gang members,' 'terrorist suspects'—are," Cacho argues, "unable to comply with the 'rule of law' because U.S. law targets their being and their bodies, not their behavior."[128] Drones were executing such formulation by targeting the bodies of those the border technopolitical regime deemed as ineligible for personhood, those who were categorically expulsed from the body politic (i.e., "Mexicans," "Other than Mexican," and "person from special interest country"). Social death was made more gruesome by the fact that, as an analyst of the Washington, D.C. think tank Migration Policy Institute stated, the new increase in border security would not stop illegal entrants. "The tighter the controls, the more extreme risks the smugglers will take, the more they will put immigrants at risk…We've become inured to death at the border."[129] It can certainly be said that ABCi and other similar initiatives were designed to

[127] "'We Can Secure the Border': Technology, Infrastructure Key," *Arizona Daily Star*, March 13, 2005.
[128] Cacho, 6.
[129] Marizco, "U.S. Beefing Up Border Force."

transfer risks from the U.S. body politic to migrant populations. Rather than having the U.S. government address the fact that its foreign and domestic policies were responsible for the proliferation of unauthorized migration, "illegal immigrants" paid the costs of these policies with their lives.

In reorganizing border enforcement operations through a network-centric warfare approach, articulated by such systems as the Predator B and BigPipe, the homeland security-industrial complex demonstrated what was emblematic of drone technopolitics: the combination of air power with information technology. Drone technopolitics were defined by the struggle to use the aerial environment as a domain from which to exercise sovereignty on the earth's crust. When it came to the U.S.-Mexico border, drone technopolitics aimed to make the border and unauthorized border crossing into perceptible and actionable data. Just as with the cybernetic border of the 1970s, they sought to compute and execute patterns of order. Even though drone sensor data could not "clearly identify individuals," as made evident in Figure 16 and the statement of the DHS Inspector General, they do indicate "a human form." Data points sensed and computed by the UAS were mapped out as patterns of a human body "rendered into mere spatial or tactical coordinates."[130] The system of systems, in other words, produced a signal—an operative image—that stood out over the noise of the borderlands. It was a signal that demarcated the U.S. empire-nation's territorial boundaries and which activated sovereign entities (i.e., Border Patrol agents, helicopters) to execute order by eliminating the presence of "foreign" bodies. In targeting the enemies of the empire-nation, the Predator found its prey.

"Systems of Enmity" began with the story of three men who attempted to cross into the United States through a remote area. They were, instead, apprehended by Border Patrol agents

[130] Wall and Monahan, 247.

using a variety of technologies that revealed their inconspicuous crossing. Drones, stadium lighting, patrol vehicles, ground sensors, and Border Patrol agents, among others, comprised a technopolitical assemblage inscribed to target subject types. While the men waited to be taken to a detention facility, they told the *U.S. News & World Report* that they came to the U.S. with the hope of finding a job picking lettuce. "A guest worker bill," Marek concluded, "might let them do it legally."[131] Marek's statement suggested how migration was a political issue that no amount of technological fixes would solve. Intensified security operations have, on the contrary, "backfired" by cutting off long-standing traditions of migratory circulation and promoting the large-scale settlement of unauthorized migrants.[132] These operations did succeed in pushing unauthorized border crossers into more treacherous and remote areas where their lives were subjected to the violence of smugglers and the violence of the border landscape. The three migrant workers that were picked up would, in all likelihood, try to cross in a surreptitious manner again at a later date.

This chapter focused on the U.S.-Mexico border as a technopolitical regime. In doing so, it addressed how U.S. actors relied on an assemblage of technological artifacts, political rationalities, institutions, practices, and human bodies to execute operational control of the border. Attempts to control the border, just as the border technopolitical regime itself, were justified as solutions to an imagined threat. In its first section, the chapter identified how questions around the security of the nation, shaped in part by post-Cold War and post-9/11 anxieties about the global standing of the U.S., led to the identification of Latinxs, Arabs, and Muslims as its chief threats. These populations were imagined as the embodiments of risk. Managing and administering them became, then, strategic and "existential objectives." One such

[131] Marek, "Border Wars," 50.
[132] Massey, Duran and Pren, 1590.

way of doing this was through what military theorists called network-centric warfare, an approach that attempted to govern contemporary battlespaces through data, and electronic and digital technologies.

Here was where the chapter pivoted to an analysis of the Arizona Border Control initiative because of its investments in a "system of systems" approach and the strategic role given to drones in it. Department of Homeland Security border enforcement efforts such as the ABCi brought together the entangled network of flesh, wires, and circuit boards that government officials came to know as a "system of systems," a translation of network-centric warfare. Both the "system of systems" and NCW materialized at a moment when sovereignty was reconfigured through international trade agreements like NAFTA and conflict was read through the lens of a clash of civilizations (i.e., War on Terror). In a period of imagined, heightened uncertainty, government and military officials, and the U.S. public writ large, sought stability and certitude. A "system of systems" became one such way for DHS and the Border Patrol to address unexpected risks and threats by creating links between nodes across the borderlands, links that were made manifest via media devices. Data would flow from point to point, from actor to actor and, thereupon, contribute to the production of a shared awareness. This approach reimagined the borderlands as an informational battlespace, a site of struggle over information dominance. Striving to make inconspicuous threats into perceptible targets was the aim of DHS projects like the ABCi, its "system of systems" and Predator B UASs. Together they produced an epistemological order whereby the enemies of the U.S. were hunted and eliminated.

The process of engaging threats to the nation was routinely performed through a predatory imaginary. Security approaches to immigration and border enforcement contributed to treating the borderlands as a predatory environment where multiple actors preyed on migrants.

Rising apprehension dangers, resulting from efforts like Operation Gatekeeper and ABCi, caused *coyotes* to augment their prices for smuggling migrants across the border. In a sense, *coyotes* preyed on the precarious conditions of would be migrants from whom they extracted resources (i.e., cheap labor, money). This predatory relationship was and continues to be the product of intensified security efforts in border making. Elected and government officials, and defense manufacturers, on the other hand, insisted on the mobilization of technologies such as drones to enact a semblance of control over the boundaries of the U.S. empire-nation. But such "border games," as Peter Andreas calls them, were based in deep investments in enmity. The production of an enemy or multiple enemies was equally a predatory relationship that capitalized on the management of racialized populations. It was in this context that the Predator B UAS was chosen to enforce the boundaries of the U.S. over the Arizona desert. This drone hunted for its border crossing prey.

This chapter argued that drones and the ABCi enacted racial scripts of enmity on the southern borderlands. Racialized imaginaries of populations identified as risks and threats to the U.S. empire-nation were pre-inscripted in border enforcement and drone operations. These target populations were marked through the classification schema of "Mexicans," "Other than Mexicans," and "person from special interest country." More to the point, these categories shaped the behavior of CBP agents and officers because they established a priority of engagement. Such prioritization was evident by the massive border force amassed along the southern border and through the use of the area as an experimental zone. Subject types were the threats against which resources had to be mobilized; the border technopolitical regime (re)produced itself in executing the enemy distinction. The behavior of targeted subjects was equally shaped by the sociotechnical arrangement put forth by the border technopolitical regime.

The survival of the U.S. empire-nation was articulated at the expense of unauthorized border crossers who were pushed into more remote areas of the border, leaving them vulnerable to the viciousness of the desert environment and the violence of smuggling operations. It can be said then, that the fixation on producing and marking borders was symptomatic of a machinic orientation. This was the emergence of a border machine.

## CHAPTER IV

### Techniques of Dissent in the Age of the Border Machine

On December 4, 2012, the relatively unknown domestic drone warfare reared its head when an UAS crashed in the middle of University of California's San Diego campus. An image of the incident (see Figure 17) circulated across various media outlets. It showed a crashed drone and a person in a hazmat suit in front of UCSD's Geisel Library. The drone, which looked like the Predator B UAS, created a sense of proximity for spectators. The model was the product of San Diego company General Atomics, whose headquarters were next to the UCSD campus. The local NBC affiliate covered the news of the crash and press inquiries began reaching the university administration. The recently created University of California Center for Drone Policy and Ethics (CDPE) took the lead in responding to the public commotion over what became known as the "Drone Crash Incident." Guerne N. Ka, a principal investigator at the CDPE, declared that even though "drone crashes [we]re rare and another malfunction [would be] extremely unlikely," the Center wanted to take the opportunity to "teach basic drone safety techniques that c[ould] be practiced on a daily basis to keep ourselves and others safe."[1] Ka did not address why the malfunctioning drone was initially flying over the university's campus, but rather normalized the fact that the public needed to learn ways to be safe in a "dronified" environment. And, in keeping with their role as public educators, the Center announced it would

[1] UC Center for Drone Policy and Ethics (CDPE), "Statement Regarding Campus Drone Incident," December 4, 2012, https://uccenterfordrones.wordpress.com/regarding-recent-drone-malfunction/

host a town hall to discuss the incident with students, faculty, and staff at Calit2's Gallery. University of California officials quickly sought to disavow any drone crash as well as the existence of the UC Center for Drone Policy and Ethics. The Center repudiated the denials. Confusion and disorientation reigned. A few days later, people finally figured out that the crash was an "art hoax" created by a trio of performance artists—Ricardo Dominguez, Ian Alan Paul and Jane Stevens.[2]

Figure 17. Dominguez, Paul and Stevens, "Drone Crash Incident" (2012)
(source: UC Center for Drone Policy and Ethics, https://uccenterfordrones.wordpress.com)

[2] This sequence of events was reconstructed from my interviews with Ricardo Dominguez and Ian Alan Paul, and from materials published by the CDPE. It was later revealed that Jane Stevens was a pseudonym for drone scholar Katherine Chandler, currently an assistant professor at Georgetown University.

A statement announcing the appointment of Dominguez as the lead researcher for the CDPE, described him as a recognized artist "in the field of social code disassembly."[3] The announcement was, in fact, a statement of intent and method. Dominguez and his fellow conspirators would disassemble/critique the different social codes/discourses that made drones into political entities. To do this, the "Drone Crash Incident" was a performance that imagined the social as an assemblage comprising a variety of entities that themselves were made out of heterogeneous components, which were material and/or symbolic.[4] For those interested in assemblages, there were no stable wholes but rather ever-changing, interacting and autonomous components. Assemblages, as Kevin Haggerty and Richard Ericson propose, "comprise discrete flows of an essentially limitless range of other phenomena such as people, signs, chemicals, knowledge and institutions. To dig beneath the surface stability of any entity was to encounter a host of different phenomena and processes working in concert."[5] These entities or components were the expressive matter of historical processes. Situating drones as a privileged technology allowed Dominguez, Paul, and Stevens to trace the different entities assembled to produce them—the military, the university, industry, engineering, and computer programming, among others.

Designed and developed in San Diego, a technopolitical frontier of the U.S. empire-nation, drones were the point of contact of various relations and political objectives of the border machine. They were coded to hover over as well as to produce their targets. Drones were, in other words, among the emblematic technologies of modern biopolitical governmentality for

[3] UC CDPE.
[4] Manuel De Landa, *A New Philosophy of Society: Assemblage Theory and Social Complexity* (2006; repr., London: Continuum, 2007).
[5] Kevin D. Haggerty and Richard D. Ericson, "The Surveillant Assemblage," *British Journal of Sociology* 51, no. 4 (2000), 608.

they were involved in the fabrication of individuals, populations, and territories. One example of this was the way that Predator B UASs produced an operative image that oriented how Border Patrol agents on the southern border engaged border crossers. These were pre-inscribed as "intruders" and "enemy" targets. The work of Dominguez, Paul, and Stevens was to disassemble the entities and codes involved in drone production. This might have been why they chose an image of a crashed drone that resembled the "homegrown" Predator B shown in Figure 15. The Predator B was an information machine that operated by collecting data on subjects and objects in the borderlands.

Segmentations of land into territory and of people into populations through data-driven techniques and technologies are some of the objectives of what I have called the border technopolitical regime. "Drone Technopolitics: A History of Race and Intrusion on the U.S.-Mexico Border, 1948-2016" so far has explored the place of drones and electronic technology in the emergence of this regime designed to manage, administer, and police "intruders" to the U.S. empire-nation. Studying the thoughts of government and military officials, technicians, and journalists, the project has shown how the border technopolitical regime was invested in mobilizing sets of rules, methods, and devices that prescribed what belonged and what did not, between what was internal and external to the U.S. The regime studied here has been devoted to, among other things, managing the existence of racialized populations: from the usage of drones performing the role of an intruding, border crossing force during the Cold War to the translation of the subject category of "intruder" onto the bodies of Mexicans and, later on, the bodies of Latinxs, Arabs and Muslims. These were first thought of as threats and, after the end of the Cold War, they were also repositioned as "risks." Drones flown over the Gulf of Mexico since the 1950s were scripted using frontier imaginaries that assigned them the role of lawless "intruders."

They were the perfect targets of a political project predicated on governing and "chas[ing] down intransigent" threats.[6] The language of war, which shaped drones and intrusion detection systems used on the southern border, was cut through by racial and national imaginaries that positioned non-White populations as existential threats to the nation.

"Techniques of Dissent in the Age of the Border Machine" engages a different kind of voice in understanding the place of drones in the U.S. border technopolitical regime. Rather than continuing to explore the ideas of technicians, and military and government officials, the chapter centers voices of dissent in the fields of art, performance, and activism. It explores works by Dominguez, Paul, and Stevens as well as by Humane Borders and Josh Begley. This group of activists and artists was chosen because their work interrogated the entanglements between life, death, data, and the border technopolitical regime. Centering the ways that this regime relied on processes of fabrication—of subjects and objects—led these artists and activists to identify the machine, in its literal and metaphorical dimensions, as a critical artifact. Throughout the chapter, then, databases and drones are two of the machines actors thought with and against. Databases and drones actualized the conditions of possibility initially conjured during the 1970s in the southern U.S. border. These technologies were the embodiment of what Chapter 2 calls the cybernetic border, a sociotechnical arrangement that treated the borderlands as a data-filled environment to be ordered and governed by electronic and digital technologies such as intrusion detection systems.

Through the aesthetic and critical efforts of activists and artists in the U.S., this chapter reframes the border technopolitical regime as a border machine, an assemblage that aimed to fabricate and regulate relations of difference and affinity between entities—i.e., people and

[6] Julian Hartt, "McNamara's Viet Wall Being Built in Arizona," *Los Angeles Times*, October 15, 1967.

consumable goods. One such way this was pursued was through careful monitoring of imagined "intruders." But as with any machine, its actual functioning was at times smooth and at others messy. And this is what intrigued the activists and artists written about here. They were compelled by the fact that at the center of the border machine was a propensity to fail. I argue then that these actors found in failure a political opportunity to bring forth a different way of relating in the borderlands. Through the usage of different techniques, actors reoriented the historical narrative of "intrusion" that had shaped the border technopolitical regime throughout the second half of the twentieth century. For them, the actual "intruder" was the technopolitical project of the border machine itself and its investment in the fabrication of death.

"Techniques of Dissent" is organized into four sections that index contemporary political practices. The first one is dedicated to theorizing the border machine. The concept is elaborated through a grounded approach that sticks close to the ideas of border artists like Dominguez and Paul, government officials, and border studies scholars like José David Saldívar and Sergio González Rodríguez. Each subsequent section is devoted to one technique of dissent: data haunts, simulation of glitches, and seeing machines. The second section dives into the works of Humane Borders and Paul for the ways they centered border crossing deaths. The "Arizona OpenGIS Initiative for Deceased Migrants" (c.2004-Present) and "Border Haunt" (2011), respectively, showcase how data haunts reoriented conversations about "intrusions" by publicizing the ways that the border machine was, for all intents and purposes, a killing machine. The third section addresses the "Drone Crash Incident" (2012) by Dominguez, Paul, and Stevens. The performance is studied for how, by simulating the failure of a drone in the middle of the University of California San Diego campus, it triggered a brief, community-wide reflection on people's acquiescence to the border machine. The final section is devoted to Begley's "Best of

Luck with the Wall" (2016) and its attempt to mobilize seeing machines to understand the vastly complicated southern border.

Border art since the 1990s and, with particular intensity after 9/11, has employed or at least simulated digital technology to explore questions around border making and immigration enforcement. Continuing the artistic commitments of the Border Art Workshop/Taller de arte fronterizo (BAW/TAF) to treat the border region as their own laboratory,[7] border artists at the turn of twenty-first century have shown interest in interrogating the technological conditions of the southern border. Their aesthetic practice generally performs a self-reflexive move that allows them to inhabit the same mediums they contest. From satellites, webmapping platforms, databases, blogs, and drones, the artists I write about do not shy away from engaging the same technologies they treat with suspect. Though I am skeptical of producing some sort of taxonomical organization of artistic work, it could be said that the works discussed in this chapter are border digital/net art.[8] But more importantly, the artists written about here speculated

[7] Amy Sara Carroll, *REMEX: Toward an Art History of the NAFTA Era* (Austin: University of Texas Press, 2017), 222.

[8] A robust survey of this border digital/net art as an artistic "genre," however, falls outside the purview of the chapter and this dissertation. Some of the first border digital/net art produced since the 1990s but not discussed here include installations commissioned by inSite as well as works by Dominguez, Alex Rivera, and Julio M. Romero, to name a few. Since 1992, inSite has been a network of contemporary art programs and commissioned projects in San Diego-Tijuana. It was and continues to be an important yet controversial force in fostering space to explore the border zone's channeling of permeability and its production of obstruction. For more on inSite see Carroll's *REMEX*. Dominguez's work was at the forefront of border digital/net art as part of the Electronic Disturbance Theater (EDT) and their articulation of digital Zapatismo (1997). To protest the Mexican government's response to the indigenous uprisings in Chiapas, EDT executed a series of electronic "sit-ins" whereby Internet users helped bring down the servers of the Mexican government's website. Rivera has also contributed to aesthetic investigations about border making through digital technology in "Why Cybraceros?" (1997), "The Borders Trilogy" (2003), and the feature film *Sleep Dealer* (2008). Romero is a visual and conceptual artist whose work is in tenuous and, at times, in tense conversation with digital media, surveillance, and border making. Examples of this include "Playas" (2010-2014), "How to Dismantle an International Border" (2012), "Surveillance" (2013), and "Puerta México" (2015-2016).

with failing databases, drones, and seeing machines to propose ways to disturb the border machine and its entanglements with "intrusion."

## The U.S.-Mexico Border: Of Regimes and/as Machines of Governance

The U.S.-Mexico border is a machine of governance. It is a machine of steel and flesh, of thoughts and wires, of ways of being and acting. The "electronic fence" installed since 1970, for instance, embedded the border with techniques of sound and vision that treated the border as an information system. Said treatment imagined so-called "intruders" as data producers while Border Patrol agents and ground sensors were assigned the roles of data processors. They were tasked with the responsibility of capturing both data bodies and actual bodies. More contemporaneously, a combination of artifacts that include drones, electronic ground sensors, video cameras, and computerized networks on the United States' side of the U.S.-Mexico border have been designed and deployed to manage and control commodity, bodily, population, and environmental flows. The border, in other words, has never been self-evident. Instead, it has hinged on an ensemble of relations that are simultaneously social and technical.

This much was evident in my interviews with Dominguez and Paul for whom the southern border was an articulation of performative gestures as well as technological assemblages. I interviewed both of them because their artistic work is important to grasp the contemporary operations of border making. Dominguez (b. 1959) has been at the forefront of performance and conceptual art since the 1980s, when he co-founded the Critical Art Ensemble (CAE) in Tallahassee, Florida. CAE was interested, Dominguez told me, in reconsidering the trajectories of the Situationists and the avant-garde in the context of "new regimes" of

governance particularly around "data bodies."[9] Later on, CAE and he would establish critical "territories of investigation and practices" centered on what they termed "electronic civil disobedience," an iteration of what people today call hacktivism. Dominguez's practice of electronic civil disobedience was at the heart of the creation in 1997 of a new artistic collective called Electronic Disturbance Theater (EDT). EDT's work has engaged digital platforms as a way to question militarism, border and immigration enforcement, and capital. Paul (b. 1984), on the other hand, began his formal artistic practice as a result of his graduate education at the San Francisco Art Institute, from where he obtained a master of arts and a master of fine arts in 2011. His MA thesis at the Institute was devoted to studying artists whose work engaged borders, which led him to Dominguez's practice. Paul's work mobilizes practices of de-familiarization by which he takes things that appear to be normal—things that are taken for granted—and he creates "situations…in which [things] can appear very strange, or very unnatural, or very artificial."[10] It was this approach to performance, as a practice of de-familiarization, that was at play in the collaboration between Dominguez and Paul (more on this later).

When asked what came to their mind whenever they heard the word "border," these artists referenced how it was a stage and a technique. According to Paul, it was a stage in the sense that it marked distinctions at a political level, such as between nation states, but also at the level of the presentation of the self.[11] Just as Erving Goffman understood that identity was the result of a continual performance in which individuals tailored their self-presentation while

[9] Ricardo Dominguez, interview by Iván Chaar-López, June 20, 2016, interview 1 – part 1.
[10] Ian Alan Paul, interview by Iván Chaar-López, July 20, 2016, interview 8.
[11] Erving Goffman, *The Presentation of Self in Everyday Life* (Edinburgh: University of Edinburgh Social Sciences Research Centre, 1956). Border studies scholar Peter Andreas has also argued that the border is a stage through which the self is actualized and to do so he mobilizes the work of Goffman. Peter Andreas, *Border Games: Policing the U.S.-Mexico Divide* (2nd ed.; Ithaca: Cornell University Press, 2009).

constantly interacting with others, the border was both the literal and metaphorical ground where constructions of the U.S. empire-nation were performed. The border, as Paul told me,

> is a technology or a technique for simultaneously producing a sense of national unity, this idea that we are something, because we are on a particular side of the border. And, of course, every time you do that, every time you generate this 'we,' that are on the other side of the border, you're simultaneously conjuring, or figuring that 'they,' that are on the other side.[12]

Imaginary distinctions between "you" and "I" or "us" and "them" were thought to be executed in the demarcation of territory through a national boundary line. Josh Begley (b. 1984), a digital artist whose work is devoted to data visualizations, echoed this formulation in his short statement for his short film "Best of Luck with the Wall" when he said that borders were "spaces that bend and break and make exceptions for certain kinds of bodies."[13] In other words, "the border"—simultaneously abstract and specific, as in "southern border"—was a method by which some populations were separated from others. "Certain kinds of bodies," generally White and White-passing ones, were imagined to belong while others were not and "the border" was a way to mark the threshold of inclusion/exclusion. Returning to the idea of the stage, the border "[wa]s a technology or a technique," in the words of Paul, by which subjects were scripted to play certain roles on opposite sides of an imaginary line.

[12] Paul, interview 8.
[13] Josh Begley, "Video: Best of Luck with the Wall," *The Intercept*, October 26, 2016, https://theintercept.com/2016/10/26/best-of-luck-with-the-wall/.


Figure 18. Elements of change detection capability
(source: Department of Homeland Security (DHS), Customs and Border Protection, Office of the Border Patrol, *2012-2016 Border Patrol Strategic Plan* (n.d.), 14)

In the ways that "the border" produced subjects, objects and territories, we begin to see traces of its machinic qualities. The effort to construct and maintain the southern border, Figure 18 shows, has depended on a network of processes that were simultaneously social and technical. In this diagram, a variety of ground and imaging sensors monitor sectors of the border zone while Border Patrol agents roam in their vehicles. They cut for sign and a drone flies above to help create an operational picture of the border-battlespace. Sign-cutting and UASs are used here, the Office of the Border Patrol states, "to determine any increase in threat." The "threat" of border enforcement, Chapters 2 and 3 demonstrated, relied on the construction of subject categories with which to order encounters beyond ports of entry. Among these categories were: intruder, illegal alien, Mexican, Other-than-Mexican. These subjects were represented in Figure 18 as groups of people walking away from said ports of entry but also away from many of the

sensor technologies placed in close proximity to the boundary line. Their movements were scripted as those of a "threat." In an interview with the *Arizona Daily Star* in 2005, Michael Nicley, chief of Border Patrol's Tucson Sector, concluded that if agents were to "secure the border" they needed "the appropriate mix of personnel, technology, and infrastructure."[14] He later elaborated that, through this mix of mechanisms and practices, he hoped to "impose on the people, the would-be illegal crossers, that if you cross in this area, you're going to get arrested." The language of an "appropriate mix" betrayed the sense that officials believed there was some correct combination of entities that could "secure the border." But even when such propriety was an ever-elusive conundrum, it was clear to them that "the appropriate mix" was meant to convey a message to those marked as "threats." And this message ("you're going to get arrested") highlighted how the border was a stage where distinctions were performed but, more substantially, they were made. People who performed the role of the "illegal" were marked for capture and removal.

"The border" was not merely the physical boundary line of the U.S. empire-nation but the technique through which it also extended its global reach. Writing in response to the attacks of September 11, 2001, the National Commission on Terrorist Attacks upon the United States or the 9/11 Commission, as it was popularly known, stated that these attacks had taught the U.S. government "that terrorism against American interests 'over there' should be regarded just as we regard terrorism against America 'over here.'"[15] U.S. interests—an abstract idea that could be understood in economic, cultural, and/or political terms—were imagined to circulate "over there," well beyond the confines of the national territory. But that did not keep them from being

[14] "'We Can Secure the Border': Technology, Infrastructure Key," *Arizona Daily Star*, March 13, 2005.
[15] National Commission on Terrorist Attacks upon the United States, *The 9/11 Commission Report* (Washington, D.C.: U.S. Government Printing Office, 2004), 362.

as important as the bounded sense of an imagined community or an "America 'over here.'" With threats and interests imagined to proliferate across the globe, the 9/11 Commission concluded that "the American homeland [wa]s the planet." For this imperial and national imaginary, the process of borderization or of actualizing distinctions among entities was not limited to the U.S. national territory. Instead, it was a technique for fabricating the expansion and enclosure of territories as well as the inclusion and exclusion of subjects/objects. The border, thus, was a double-jointed machine of governance that materialized at the epidermal level of the empire-nation but also within its entrails.

The artists and the artistic interventions considered in this chapter engaged the machine as both a material object and a metaphor for sociotechnical assemblages. Attuning my work to their aesthetic vocabulary led me to focus on the idea of "the machine" as the articulation of interrelated parts with distinct roles and functions organized, as Lewis Mumford suggested, "to perform standardized motions and repetitive work."[16] As a result, their interventions shone a light on the border as a machinic ensemble reliant on re-combinatory elements inscribed to produce/filter subjects and objects from entry into the U.S. In the case of Figure 18, people imagined as "threats" were monitored by fixed imaging and ground sensors, and by mobile surveillance systems that transmitted data to sector stations. Information was then shared with Border Patrol agents who went after the identified "threats." The coordinated operation of all these physical human and non-human elements is encapsulated in the metaphor of the machine.

By drawing on the machine as metaphor, I am also building on the work of border studies scholars who have already suggested the machinic qualities of the U.S.-Mexico border. José David Saldívar first proposed the concept of "border machine" to trace how *la frontera* (the

[16] Lewis Mumford, *The Myth of the Machine: Technics and Human Development* (New York: Harcourt Brace Jovanovich, 1967), 191.

borderlands) was a combination of desiring machines—economic, legal, bureaucratic, military, and cultural.[17] Desire was understood as a constitutive quality of entities, the circulating energy that produces connections; its relation to machines is not about a yearning or lust for an object, instead it is "the impulsion driving all levels of natural and artificial connections, production and reproduction."[18] The machine in this sense is, as Félix Guattari suggests, an assemblage of a full body that engineers, and of humans and tools engineered on it.[19] What was important of the border machine for Saldívar was the fact that it engineered southern migrant border crossers as subjects disempowered from having access to cultural and legal citizenship. Though a critique of technology was not at the center of his work, it was certainly implicit in his study of border enforcement as an apparatus. At any rate, what he hoped to achieve was to document how U.S.-Mexico border writers recoded the border machine, how their focus on the process of liminality destabilized the machine's goal of neatly separating territories and peoples. Writers contested the operations of the border machine by playing around with its failed attempts at drawing neatly defined boundaries.

On a different vein, Sergio González Rodríguez examined machines on the southern border by focusing on the relations between capitalism and misogyny. He goes on to show how the neo-Fordist economy, building on historic transformations along the southern borderlands, reorganized border cities into *maquilas*. Since the 1960s, the U.S. and Mexican governments embarked on a joint venture to industrialize the border zone. Advocates sought to transform the

[17] José David Saldívar, "On the Bad Edge of *La Frontera*," in *Decolonial Voices: Chicana/Chicano Cultural Studies in the 21st Century*, eds. Arturo J. Aldama and Naomi H. Quiñonez (Bloomington: Indiana University Press, 2002), 262-263.
[18] Graham Livesy, "Assemblage," in *The Deleuze Dictionary: Revised Edition*, ed. Adrian Parr (2005; repr., Edinburgh: Edinburgh University Press, 2010), 18; Félix Guattari, "Balance Program for Desiring-Machines," in *The New Media and Technocultures Reader*, eds. Seth Giddings and Martin Lister (New York: Routledge, 2011), 130.
[19] Guattari, 136.

region into an economic magnet that would compete with the cheaper consumer goods imported to the U.S. market from Taiwan, Hong Kong, and Japan.[20] This process laid the foundations for future *maquilas* or factories on Mexican territory run by foreign companies which exported their products back to their country of origin. With particular intensity after the implementation of the North American Free Trade Agreement in 1994, cities such as Tijuana and Ciudad Juárez became machinic in the sense that they were fabricators of commodities, of exploitative modes of production, and of misogynistic, patriarchal relations of power. "The population," González Rodríguez argues, "incarnates a human terrarium for the *maquiladoras* that congregate in the city. Bio-political territory *par excellence*: the body as the objective of power."[21] Due to the fact that the vast majority of *maquila* workers were women, it was reasonable to understand that their bodies constituted *the* critical target of a different kind of machine: the femicide machine.[22] *Maquiladoras*, cities, corporations, and state and federal governments, in other words, were all integral components of a machine that fabricated women as vectors of its violence.

Drawing on the work of Saldívar and González Rodríguez, I understand the border machine as an assemblage at the heart of the U.S. empire-nation. It comprises sets of institutions, devices, discourses, practices, and people working in concert to demarcate boundaries of inclusion and exclusion. Different to the ways Saldívar and González Rodríguez approached "the machine," the activists and artists I engage focused on physical machines, like drones or

[20] Anna-Stina Ericson, "An Analysis of Mexico's Border Industrialization Program," *Monthly Labor Review* 93, no. 5 (May 1970), 34; Lawrence Herzog, *Where North Meets South: Cities, Space, and Politics on the U.S.-Mexico Border* (Austin: Center for Mexican American Studies, University of Texas at Austin, 1990), 54.
[21] Sergio González Rodríguez, *The Femicide Machine*, trans. Michael Parker-Stainback (Los Angeles: Semiotext(e), 2012), 29.
[22] There is debate over the use of the concept of "femicide" for its failure to address the systemic qualities underpinning violence against women. For more see: Rosa Linda Fregoso and Cynthia L. Bejarano, eds., *Terrorizing Women: Feminicide in the* Américas (Durham: Duke University Press, 2010).

satellites. They also stuck close the actual operations of machines as a critical move designed to interrogate their imagined neutrality as technical objects. I frame their design and use as part of a broader history of border making to underscore the fact that technologies "embody social, political, psychological, economic, and professional commitments, skills, prejudices, possibilities, and constraints."[23] The border machine with its constitutive parts was, in short, a bio- and necropolitical formation invested in the construction of entities to police and enemies to eradicate.

## Death and Data Haunts in the Border Machine

"*Only when the horror of annihilation is raised fully into consciousness are we placed in the proper relationship to the dead: that of unity with them, since we, like them, are victims of the same conditions and of the same disappointed hope*."
- Max Horkheimer and Theodor W. Adorno, *Dialectic of Enlightenment*

Since the mid-1990s the border machine has played a critical role in the production of migrant deaths.[24] In their efforts to institute a semblance of control on unauthorized border crossing, U.S. government officials have implemented a border enforcement strategy predicated on the idea of "prevention through deterrence." Its goal was to dissuade unauthorized border crossers from attempting to enter the United States beyond ports of entry. To achieve this, and not unlike the *National Border Patrol Strategy* from 2004, "prevention through deterrence" called for a "proper balance" of personnel, technology, and infrastructure.[25] Such "proper balance", this strategy reasoned, would make it harder to cross without authorization. Larger

[23] Wiebe E. Bijker and John Law, "General Introduction," in *Shaping Technology/Building Society: Studies in Sociotechnical Change*, eds. Wiebe E. Bijker and John Law (Cambridge: MIT Press, 1992), 7.
[24] Jason De León, *The Land of Open Graves: Living and Dying on the Migrant Trail* (Berkeley: University of California Press, 2015).
[25] Department of Homeland Security (DHS), Office of Border Patrol and Office of Policy and Planning, *National Border Patrol Strategy* (Washington, D.C.: U.S. Customs and Border Protection, September 2004), 3.

agent mobilizations were combined with sensing technologies with the aim of transforming the unauthorized border crossing process into a sensible one. Flood lights, infrared and seismic sensors, and computers, to mention a few technologies, were all used during enforcement efforts like Operation Hold the Line in El Paso and Operation Gatekeeper in San Diego to make unauthorized border crossers into perceptible and recordable matter. Officials hoped this sociotechnical assemblage would lead to fewer attempts beyond ports of entry because of a higher potential of getting caught. But as Maria Jimenez's report for the American Civil Liberties Union (ACLU) stated, "since 1995, increased border enforcement measures have not had an impact on the ability of unauthorized migrants to enter despite increased staffing, deployment of troops, or building virtual, physical or natural barriers."[26] Worse still, "[i]mmigration policies have severely restricted legal entry, and border security policies have forced unauthorized entry through dangerous routes in perilous conditions."[27] This resulted in an estimated death toll ranging from 3,861 to 5,607 from 1994 to 2009, the year the ACLU published its report.

The accuracy of migrant death data has been a point of debate between human rights organizations, activists, and local, state, and federal government officials. Whenever local authorities were the first to respond to the presence of a human remain on the border, then that statistic was not included in the Border Patrol's database of border deaths. This made the Border

[26] Maria Jimenez, *Humanitarian Crisis: Migrant Deaths at the U.S.-Mexico Border* (New York: American Civil Liberties Union of San Diego & Imperial Counties and Mexico's National Commission of Human Rights, 2009), 13-14. This is also the conclusion of Douglas S. Massey, Jorge Durand and Karen A. Pren. Though they also show that, by cutting the circular flow of labor migration, enforcement policies have had the unintended consequence of increasing the rate of undocumented population growth and of turning labor migrants into a settled population. "Why Border Enforcement Backfired," *American Journal of Sociology* 121, no. 5 (March 2016): 1557-1600.
[27] Jimenez, *Humanitarian Crisis*, 12.

Patrol database, according to the ACLU, the least complete.[28] In their report on the *Humanitarian Crisis* on the border, the ACLU concluded that the Pima County Medical Examiner's Office (PCMEO) in Arizona generally had a significant discrepancy with the Border Patrol's statistics on the total number of unauthorized border crosser bodies recovered—from 2002 to 2004, for example, it was of more than 30% per year. Neither the PCMEO nor the Border Patrol accounted for those migrants who, in their attempt to cross the border, may have been injured and returned to Mexico or, as the report continues, "who may have drowned in a river, canal, or ocean but whose corpses were deposited by currents on the Mexican side or who are classified as locals by Mexican authorities." In this sense, accurate data on migrant deaths were difficult to access.

Motivated to break the silence about border crossing deaths, various groups organized projects to document the missing and the dead. One such group was Humane Borders (Fronteras Compasivas), an organization founded in 2000 with the mission "to save desperate people from a horrible death by dehydration and exposure and to create a just and humane environment in the borderlands."[29] This led Humane Borders to maintain 80 water stations in southern Arizona and northern Mexico, each consisting of one to three 60 gallon tanks with a blue flag mounted on a thirty foot steel pole that alerted migrants of its location.[30] The organization was also interested in educating the public and government officials about the hardships migrants endured during the border crossing process. To that end, in 2002 they began mapping the location of their water stations and of migrant deaths using a combination of Global Positioning System (GPS)

[28] Ibid., 15-16; John F. Chamblee et al., "Mapping Migrant Deaths in Southern Arizona: The Humane Borders GIS" (Paper presented at the ESRI International User Conference, San Diego, CA, 2006), 10, https://www.aaas.org/sites/default/files/migrate/uploads/migrant-report.pdf
[29] "Our Mission," *Humane Borders*, https://humaneborders.org/our-mission/.
[30] Chamblee et al., 6.

navigation software like Google Maps and Adobe Photoshop, among others. By 2004, Humane Borders, spearheaded by then-University of Arizona doctoral student John F. Chamblee, began using specialized Geographic Information System (GIS) software to visualize water station and migrant death data. Initially, the project aimed to establish "simple relationships between migrant deaths and the natural and human environment along the Arizona border." These relationships were statistically defined through spatial analysis and statistical modeling as volunteers at Humane Borders attempted to measure the impact of their water stations in preventing border crossing deaths.

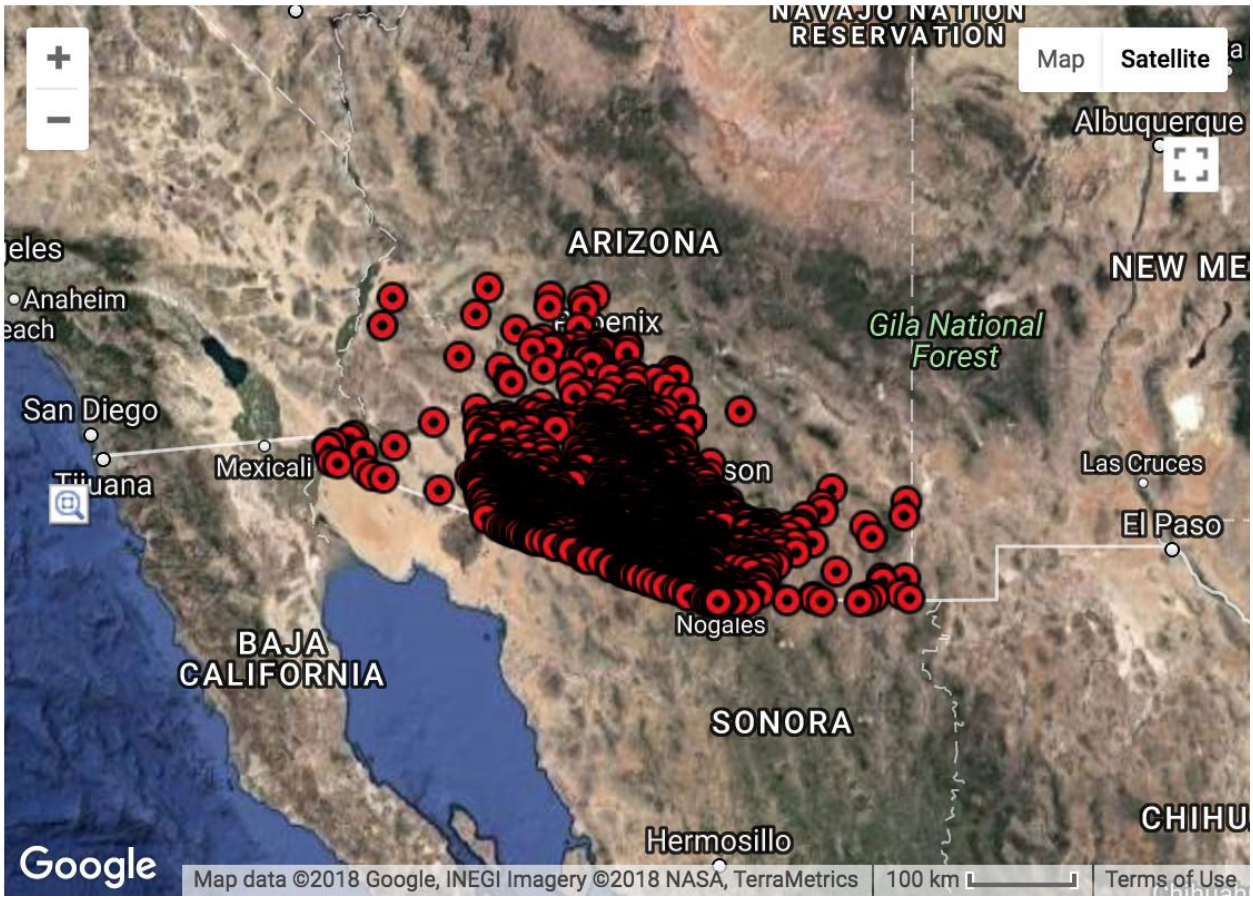


Figure 19. Screen capture of the "Arizona OpenGIS Initiative for Deceased Migrants" (source: http://www.humaneborders.info/app/map.asp)

Through this GIS effort, a separate Migrant Death Mapping project (see Figure 19) was started, formally called Arizona OpenGIS Initiative for Deceased Migrants, and its stated purpose was to remember those who lost their lives attempting to cross the border desert. The project, pursued by volunteers at Humane Borders, Inc. and the PCMEO in Arizona, was grounded on the "common vision of raising awareness about migrant deaths and lessening the suffering of families by helping to provide closure through the identification of the deceased and the return of remains."[31] In other words, actors hoped that their migrant death map would play a dual role in the public sphere. First, that it could be employed as an instrument to "rais[e] awareness" while actors pushed for policy changes—especially that "continuing increases in death rates call into question the long-term sustainability of a deterrence-based approach."[32] And second, that families could come to terms with their loss by having access to information on their deceased loved ones. Focusing on the migrant dead centered the precariousness of the migrant experience in the U.S. Treated as "risks" and "threats," migrants on the southern border were made to bear the force of a regime committed to their elimination. These were not the supposed "intruders" of the border machine, they were instead its victims. These were lives that mattered and were worthy of remembrance.

An examination of how the migrant death map was accessed and how data were presented reveals its power. The county medical examiner and the non-governmental organization collaborated in producing a dynamic webmap using Google Maps' interface. The webmap was shared through the Humane Borders website where visitors could query the map's database using different data points such as name of the deceased migrant, their gender, the year or cause of death, county of discovery, land corridor used to migrate, and which sovereign entity

[31] Arizona OpenGIS Initiative for Deceased Migrants, http://www.humaneborders.info/.
[32] Chamblee et al., 29.

managed the land in said corridor. If no data was entered in the search, like in Figure 19, the query pulled all entries in the database and the webmap displayed all documented cases. Visitors would also see a table below the map with all pertinent data for each visualized case. In addition to the searchable data points, the table also included a case report number from the PCMEO, geospatial data on the location of the body, and comments on location precision. The migrant death map not only visualized data for other Internet users, it also gave them access to the actual database used to create the map itself. These gestures multiplied the ways these named or anonymous bodies could circulate in public debate. "Our records," as Chamblee and the other volunteers in Humane Borders stated, "stand as a virtual monument to those who have died."[33] The mapping efforts of Humane Borders became a means to name and remember those who had lost their lives attempting to evade the machinations of the border machine, those who dreamt of another kind of life. They were no longer remains left to the ravages of the desert, they now took on a new ghostly mode of existence.

The map by Humane Borders (Figure 19) sought to create a series of associations between the Sonora desert, border enforcement, and migrant deaths. The screenshot attached above includes 2,884 red circles with a black dot in the center, each representing the place of death of a border crossing migrant between 1981 to 2016. The geographical area can be seen from high above, like a kind of "eye in the sky." But instead of emulating the Predator B UAS's techniques of vision, which hunted for enemy intruders, the area is visualized here as a killing field. It is filled with so many red circles that almost the whole border between Arizona and Sonora is transformed into a blood line. This is a line made by draining the life of thousands of non-White migrants. Additionally, the black center in the red dots create a visual effect through

[33] Ibid., 10.

which sections of the map turn completely black, as if the geographical data beneath disappeared. There is no Arizona. There is no map. There is only a void. Perhaps presciently visualizing Gloria Anzaldúa's description of *la frontera*, the interplay between black and red summons an image of the border as an open wound. Here lies a different kind of "intrusion" on the border. This is the haunting trace of the border machine. These red circles are its remainders.

The practices of remembering and honoring those no longer present relate to the idea of haunting. The "virtual monument" of Humane Borders was, as Jacques Derrida once said of specters, an act of being-with a ghostly presence. "And this being-with specters would also be, not only but also, a *politics* of memory, of inheritance, and of generations."[34] In being-with them, the ghosts of the migrant dead summoned others to transform the conditions of life in the borderlands. The gesture of recording, of locating, and of circulating the names of migrants who died was a political act. By mobilizing death data generated by the Border Patrol, the PCMEO and the Mexican consulates in Arizona, Humane Borders operated within a regime of truth[35] predicated on the value of empirical evidence and, especially, of governing the border through the sense-making value of data. But it did so attempting to redress the forgetfulness that arose from the border machine's efforts to drive migrants further into the crevices of the border environment and into the bellies of wild animals.[36] This map worked as an ethical imperative against the operations of a machine that, as Roxanne Doty holds, reduced unauthorized migrants

[34] Jacques Derrida, *Specters of Marx: The State of the Debt, The Work of Mourning, and the New International*, trans. Peggy Kamuf (New York: Routledge, 1994), xix.
[35] With regime of truth I am drawing on Michel Foucault's understanding of that moment "marked by the articulation of a particular type of discourse and a set of practices, a discourse that, on the one hand, constitutes these practices as a set bound together by an intelligible connection and, on the other hand, legislates and can legislate on these practices in terms of true and false." *The Birth of Biopolitics: Lectures at the Collège de France, 1978-79*, ed. Michel Senellart, trans. Graham Burchell (2004; repr., New York: Palgrave Macmillan, 2008), 18.
[36] For evidence of the processes of "the Sonoran Desert hybrid collectif" see Chapter 3 in De León, *The Land of Open Graves*.

to *bare life*, or "life that can be taken without apology, classified as neither homicide nor sacrifice."[37] In its careful documentation of migrants who lost their lives crossing the border, the mapping project refused to let them go unnoticed, to remain. More starkly, the project conjured the traces of those now gone as a gesture of refusing to turn a blind eye to the violence of the border machine.

The map by Humane Borders punctured the anonymity of the border machine by creating a relation between the deaths of migrants and the machine's territorial sovereignty—that is, the terrain upon which it was dictated to act by law. To name the dead and be with them—or more accurately, to be with their traces—sought to trigger a public debate about responsibility. The question of "how and where they died?"—which the data in the migrant death map attempted to answer—opened the conversation about "why they died?" and "who was at fault?" After all, "the land of open graves," as Jason De León calls the vast stretches of the Sonora Desert in Arizona, did not come about as a random result but rather it was the product of "a killing machine that simultaneously uses and hides behind the viciousness" of the desert. It is there where "the Border Patrol disguises the impact of its current enforcement policy by mobilizing a combination of sterilized discourse, redirected blame, and 'natural' environmental processes that erase evidence of what happens in the most remote parts of southern Arizona."[38] While the red circles in the map (see Figure 19) represented the location of where the bodies of migrants were found, these circles also marked the places where the oppressive nature of the border machine could be felt as a haunting presence. Such haunting, as sociologist Avery Gordon contends, called attention to

[37] The original concept of *bare life* was proposed by Giorgio Agamben but it was Doty who applied it to unauthorized immigrants on the U.S.-Mexico Border. Roxanne Doty, "Bare Life: Border-Crossing Deaths and Spaces of Moral Alibi," *Environment and Planning D: Society and Space* 29 (2011), 601. See also Roxanne Doty, "Fronteras Compasivas and the Ethics of Unconditional Hospitality," *Millenium: Journal of International Studies* 35, no. 1 (2006), 53-74.
[38] De León, 3-4.

those moments "when the over-and-done-with comes alive."[39] The "over-and-done-with" violence of a "killing machine," whose bodies were left to rot, was exposed and indexed in the bits of data mapped out by Humane Borders. The red circles were the ghostly figures pointing towards the sites of haunting, the sites where "the people who [wer]e meant to be invisible show[ed] up without any sign of leaving."[40] In the case of a border machine that rested on the production of bare life and social death, these haunting traces were not inert, they came alive as "something-to-be-done." They were what I call data haunts.

Data haunts were the excesses that creeped and plagued the process of sorting—that is of dividing, classifying, and naming phenomena.[41] The Border Patrol's process of accounting for the migrant dead, for example, prioritized where bodies were found and not the fact that life was extinguished through the migratory process. Migrants who died crossing the border but whose bodies were displaced from U.S. into Mexican territory were made statistically irrelevant. As such they were not just a statistical excess, they were also the lingering detritus of a machine programmed to disregard them. Thinking data haunts through the work of Ezequiel Dixon-Román, the ghosts in data were "the myriad forces that make up the composite multiplicities of data," the forces "that produce an excess and a beyond the purported referent."[42] In this sense, data haunts evaded capture yet hovered in the vicinity of the production of data, marking its limit and beckoning actors in the public sphere to contend with the forces that fabricated them.

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[39] Avery Gordon, *Ghostly Matters: Haunting and the Sociological Imagination* (1997; repr., Minneapolis: University of Minnesota Press, 2008), xvi.
[40] Ibid.
[41] For an approximation of what is data see: Lisa Gitelman and Virginia Jackson, "Introduction," in *"Raw Data" Is an Oxymoron*, ed. Lisa Gitelman (Cambridge: MIT Press, 2013), 1-14.
[42] Ezequiel Dixon-Román, "Toward a Hauntology on Data: On the Sociopolitical Forces of Data Assemblage," *Research in Education* 98, no. 1 (2017), 46.

To think about data haunts today has been to tackle the U.S.-Mexico border as a problem of governmentality—by which I mean, the techniques and methods structuring and channeling the conducts of humans.[43] Contemporary governmentality on the border, as demonstrated in Department of Homeland Security (DHS) approaches like a "system of systems," has rendered subjects and objects as data producing entities, as knowable and measurable quantities. But if what Gordon tells us in *Ghostly Matters* is true—and I think it is—, that "[h]aunting is a constituent element of modern social life," then what happens when data is the point of inflection for haunting?[44] By this I mean, that data are the figure, the trope, and the technique through which governmentality is operationalized.[45] In such ordering of subjects and objects through data the stage is set for a ghostly presence—the simultaneous manifestation of being and not being there.

This haunting interplay of being and not being there was one of the dynamics explored by Ian Alan Paul in his online performance "Border Haunt" (2011). Developed in the context of thousands of migrants who had lost their lives due to border enforcement efforts, "Border Haunt" echoed the critical impulse of activist organizations who, like Humane Borders, wanted to bring attention to what was and remains a human rights crisis. Paul's performance took place on July 15, 2011 and it consisted of bringing "two different databases associated with the U.S.-Mexico border into contact with one another." He called this contact a "border database collision" because it consisted of entering data from a map of migrant deaths, managed by the *Arizona*

[43] Foucault, 186.
[44] Gordon, 7.
[45] Geoffrey C. Bowker and Susan Leigh Star, *Sorting Things Out: Classification and Its Consequences* (Cambridge: MIT Press, 1999); Nikolas Rose, *The Politics of Life Itself: Biomedicine, Power, and Subjectivity in the Twenty-First Century* (Princeton: Princeton University Press, 2007); Orit Halpern, *Beautiful Data: A History of Vision and Reason since 1945* (Durham: Duke University Press Books, 2014).

*Daily Star* and somewhat similar to the one produced by Humane Borders, into the crowd-source surveillance system of live-streaming cameras and sensors known as the Virtual Community Watch (VCW). The policing system, created and administered by the private social network company BlueServo, allowed Internet users to sign-up for free as "Virtual Texas Deputies" and "proactively participate in fighting border crime."[46] VCW, now branded the Virtual Border Watch, gave users access to camera feeds from various regions along the Texan border with Mexico and asked them to report any suspect activity via email. Echoing the operation of intrusion detection systems from the 1970s, the local county sheriffs were then tasked with responding to reports, conducting investigations, and taking any other necessary actions as a result of sensor activations and user inputs. Examples of what BlueServo users were told to consider as suspect activities were people carrying backpacks or bundles.

In "Border Haunt" (see Figure 20), Paul's objective was to have participants "purposefully direct flows of information and collectively migrate the data from the border death database into the border policing database, haunting the servers of the border security structure."[47] The performance made BlueServo, the electronic vigilante social network, responsible for leading local county Sheriffs to search for the bodies of dead migrants "as if the deceased were making attempted crossings."[48] Occupied with searching for the deceased or for the zombie-like, Sheriffs could not hunt for border crossers. For a day, over 600 participants reoriented the operations of a regional assemblage of the border machine by rewriting the kinds of actionable data at their disposal. The names of the bodies of dead migrants found in Arizona

[46] Virtual Community Watch, n.d., http://blueservo.com/vcw.php.
[47] Ian Alan Paul, "Border Haunt: Index" (2011), http://www.ianalanpaul.com/projectbackups/borderhaunt/index2.html.
[48] Ian Alan Paul, "Border Haunt: Live" (2011), http://www.ianalanpaul.com/projectbackups/borderhaunt/live.html.

were resituated and made to haunt the Texan borderlands. Police officers looked for the ghostly trace of what was there and not there.

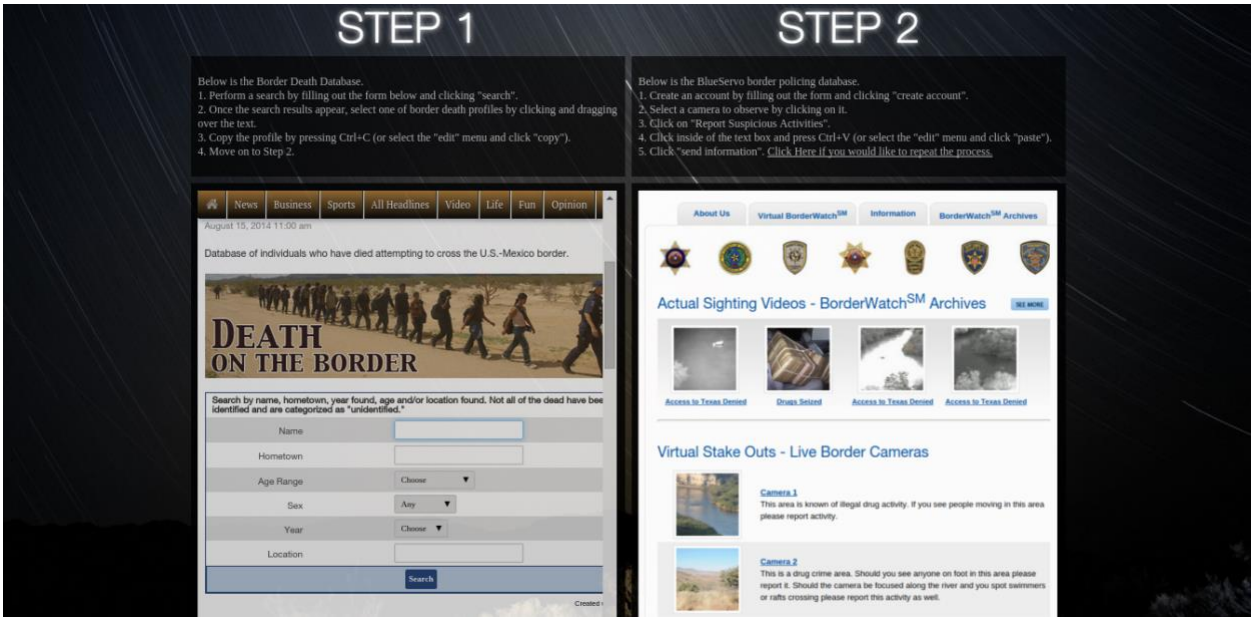


Figure 20. Screenshot of a user's interface in Ian Alan Paul's "Border Haunt" (2011) (source: Image courtesy of the artist)

In Paul's work, the symbolic reanimation of dead migrant bodies[49] was something more than the passive, anonymous detritus of the border machine; death data haunted the machine. By entering migrant death data into the policing database, actors visibly and physically implicated the border security regime with its fleshy debris. Local policing agents hit the road in search of people involved in so-called suspicious activity, but found no one instead. Unknowingly, police agents searched for the dead, they looked for the ghostly traces of those lives lost to the security regime. By having the border machine search for ghosts, Paul and his collaborators reprogrammed it to recognize its orientation to push border crossers to their deaths. The absence of bodies to apprehend symbolized the failure of the border security regime's investment in data

[49] During his oral history interview, Ian Alan Paul suggested the idea that his online performance was a "symbolic gesture" that "animat[ed]…deceased migrants."

and data sensing technologies as technopolitical solutions for its so-called immigration and border control problems. Ghostly data led border enforcers astray. The ghost in the machine, thought through the work of John Cheney-Lippold, pulled actors "in one direction or another…almost always unknowing of if, and how, [they were] exactly being pulled."[50] The moment in which actors saw data haunts was the moment when, as Gordon states it tended to happen with ghostly matters more broadly, they were shaken by the tangle between "lost beloveds and the force[s] that made them disposable."[51] These data haunts challenged the reduction of populations on the border to bare life. Data haunts confronted the desire for quantitative, categorical, and governmental capture with evasion, with fugitivity. These data were finally counted but, in the process, they plagued the political project to exert control over bodies and populations as its debris and excess.

"Border Haunt" engaged data as vectors of modern governmentality but did so to disorient the border machine. Their evasive maneuvers brought them to the orbit of what Finn Brunton and Helen Nissenbaum call obfuscation. As a practice, "obfuscation is the deliberate addition of ambiguous, confusing, or misleading information to interfere with surveillance and data collection…[it] is a lexicon of ways to put some sand in the gears, to buy time, and to hide in the crowd of signals."[52] Participants in "Border Haunt" used real data of dead migrants as a way to "confuse, or mislead" the border machine to search for what was not there. In so doing, data haunts helped "buy time" for others attempting to cross the border, they were able "to hide in the crowd of signals." The obfuscating quality of data haunts contested the ways that the U.S.

[50] John Cheney-Lippold, *We Are Data: Algorithms and the Making of Our Digital Selves* (New York: New York University Press, 2016), 259.
[51] Gordon, 205.
[52] Finn Brunton and Helen Nissenbaum, *Obfuscation: A User's Guide for Privacy and Protest* (Cambridge: MIT Press, 2015), 1-2.

empire-nation treated individuals and populations as trace-producing entities for subjectification, objectification and commodification. These data did not improve the functioning of the border apparatus nor any of its technological artifacts. They did not lead to apprehended subjects to be processed and held in the growing network of private detention centers that extracted value in the captivity of otherness. "Bare life" on the border, as De León concludes, "has been reduced to shoes, shards of bone, and the 'Unknown.'"[53] "Border Haunt" recalibrated the technical field of vision so that the only subjects that had to be accounted for—that had to be both counted and looked at—were those who were made into "bare life," the deceased migrants fabricated by the border machine.

Engaging data haunts was a way to refocus debates about the border and the operations of the border machine. Humane Borders's migrant death map and Paul's "Border Haunt" mobilized data to challenge the ghastly inhumanity of the border machine because it conscripted the desert environment to threaten the lives of migrants. "Intrusion" again was not the problem. It was the strategy of "prevention through deterrence" which tried to make border crossing migrants into the lifeless matter of remote border areas. "Routine in their occurrence," the ACLU report concluded, "these [migrant] deaths have passed unnoticed and have become invisible in the public consciousness. Both the U.S. and Mexican governments have failed to acknowledge their responsibility in contributing to deaths of hundreds of migrants every year."[54] The migrant death map and the obfuscating tactics of Paul intervened in public debate by transforming the non-matter into ghostly matters which I have called data haunts. Different kinds of data—such as names, ages, places of birth, location where bodies were found—indexed the violence of a

[53] De León, 29.
[54] Jimenez, *Humanitarian Crisis*, 13.

machine implicated in the production of human suffering. Data haunts helped map out the terrain and vectors of a border technopolitical regime now understood as "a killing machine."

Perhaps in our contemporary moment there is no other killing data machine as widely known and feared than drones. UASs today are instrumental in the collection of vast arrays of data using different sensing technologies like infrared and electromagnetic sensors. What made drones into a strategic entity for the U.S. military and for the border machine was the fact that they provided actors with an operative image to orient their actions in space. The operative image treated entities as trackable and recordable data points in relationship to one another. In the context of U.S. military engagements across the world and along the U.S.-Mexico border, the operative image combined with biopolitical scripts to shape the behaviors of actors through friend/enemy distinctions. The following section tackles drones as killing data machines that, rather than being deployed in faraway lands, artists turned lose at "home." Just as was the case during Project William Tell, drones were once again "intruders" in U.S. territory.

## "Drone Crash Incident": Disassembling the Border Machine

When Dominguez, Paul, and Stevens simulated the crash of a drone in the San Diego campus of the University of California, they echoed those who approached the social as a machine. The "Drone Crash Incident" paid special attention to the assembling of social codes embedded in the machine's operation. The university, for example, was programmed or coded to play a given role in the production of technical knowledge to be leveraged by industry and the military. The crash of a drone in front of the campus library symbolized these entanglements between university research or knowledge making and the manufacture of killing machines. In other words, the social for these artists followed certain codes that governed how entities and

their components came into contact with one another. Social codes were, in a way, sets of modulating instructions, rules, protocols, instruments, and bodies executing given roles. The social in the "Drone Crash Incident" was not a given whole but a programmable machine that had to be reassembled by tracing the often messy relations and associations between "phenomena and processes." And as a machine, the social functioned through the force of desire which generated connections and channeled flows. Desire, said differently, was important in governing how the social machine manufactured its subjects, objects, and relations between these.

The social in the "Drone Crash Incident" is traced by situating the Center for Drone Policy and Ethics through its purported relationships to other entities and phenomena. The "creation" of the Center within the University of California San Diego highlighted this site as a critical domain in the production of knowledge and in the constitution of a regime of truth. It identified academics as managers in the administration of said regime but also as managers of normative desire (i.e., how the public ought to feel about military technologies operating above them). The crash of a drone in the UCSD campus, a campus founded in part through the investments of defense contractors like General Dynamics,[55] exposed the assembling of knowledges for empire and border making. After all, this was an empire that, since the early twentieth century, identified San Diego as its gateway for territorial expansion and overreach into the Pacific frontier. Such an identification led to the growth of an expansive network of military settlements in the region of San Diego that cast their glance both within and beyond U.S. territory. More concretely, drones researched and manufactured in and around the UCSD campus

[55] Stuart W. Leslie, "Spaces for the Space Age: William Pereira's Aerospace Modernism," in *Blue Sky Metropolis: The Aerospace Century in Southern California*, ed. Peter J. Westwick (Berkeley: Huntington-USC Institute on California and the West, 2012), 139.

were implicated in the territorial expansion of U.S. power through their usage in wars in Vietnam, Iraq, Afghanistan, Pakistan and in the southern borderlands, to mention a few. By conjuring the CDPE, Dominguez, Paul, and Stevens simulated the relationship between the university and the military. They were collaborators in the creation and production of drones as machines of governance—machines designed to monitor, target, and subject entities to U.S. imperial sovereignty. What Dominguez proposed through his expertise in "social code disassembly" was to simultaneously reassemble the social by resembling it or, as he described the performance, to simulate it. Only then could the social be taken apart, could be dismantled.

Interrogating this assemblage required the mobilization of a disassembling practice that would operate through "minor simulations." For Dominguez, minor simulations were those events that were "difficult to understand as either real or not real."[56] Minor simulations triggered disorientation or confusion by blurring the boundaries of the real. To perform minor simulations such as the "Drone Crash Incident" involved playing with the ways that regimes of truth fabricated subjects and objects. This simulation began through the mundane circulation of an email announcing the appointment of Dominguez as the lead researcher of the CDPE, it continued through press releases posted on the Center's blog online, and it ended with a town hall meeting so that community members could meet, learn, and discuss why a drone had "crashed" on the UCSD campus.[57] Aside from the supposed drone crash, there were no oddities in this sequence of events that would have been fairly quotidian in a university setting. The performance weaved together different stages so as to produce an aura of verisimilitude around

[56] Lauren Steussy, "Source of Mystery Drone Crash Revealed," *NBC San Diego*, December 6, 2012, https://www.nbcsandiego.com/news/local/-Source-of-Mystery-Drone-Crash-Revealed-182407811.html.
[57] Paul, interview 8.

the disorienting notion that drones were operating overhead. There was no need for an actual drone to be piloted and crashed on campus or from some other technically proficient endeavor.

Just as it happened during the military exercises of Project William Tell, the minor simulation assigned drones the role of "intruder." The generalized anxiety at the juncture of air power and nuclear power returned in a different guise to frighten members of the UCSD community. To imagine life beneath the shadow of drones that could fail and crash was the truly disturbing notion that haunted them. Drones were made to interrupt the safe environs of university life. The power of minor simulations like the "Drone Crash Incident" was, Dominguez argued, in the gesture's "symbolic efficacy" and not in its "technological efficiency."[58] There was no need to actually fly a drone over the UCSD campus. It was enough to imagine them. This simulation sought to generalize the feeling of dread that surveilled populations experienced when drones flew overhead and delivered mortal payloads. After all, just one year before the drone "crashed" in UCSD, the U.S. military used a drone for the first time to kill U.S. citizens in Yemen.[59] When Dominguez, Paul and Stevens embarked on their performance, the U.S. public was growing anxious to the idea of drones flying above them. By simulating such dread, these artists hoped to trigger spectators to reflect on their relationship to and, perhaps, oppose these kinds of operations.[60]

To speak about a performance with a drone through the language of simulations and codes emphasizes its engagement with digital culture. Contemporary digital computing and signal processing machines today set most of the conditions of possibility for the production of

[58] Dominguez, interview 1 – part 1.
[59] Anwar al-Awlaki, Samir Khan and Abdulrahman al-Awlaki were executed without being granted due process required by the U.S. constitution and afforded by their U.S. citizenship. For more see: "Al-Aulaqi v. Panetta – Constitutional Challenge to Killing of Three U.S. Citizens," *ACLU*, June 4, 2014, https://www.aclu.org/cases/al-aulaqi-v-panetta-constitutional-challenge-killing-three-us-citizens.
[60] Paul, interview 8.

meaning. Drones were and continue to be among such machines for they used a variety of sensing technologies—i.e., infrared and electromagnetic sensors—to record and circulate data, the same data through which targets were fabricated. Military drones, such as the Predator B UAS designed and developed next to the UCSD campus, were cornerstones of the contemporary border machine and, like any other machines, failure was an inherent condition to their existence. At the center of the "Drone Crash Incident" was the glitch, the machinic failure that caused the imaginary drone to fall from the sky in the middle of a university campus.

Glitches are an intrinsic part of the internal logic of computational systems. Olga Goriunova and Alexei Shulgin define glitch as the short-term deviation of a correct value in a program, which usually, though not necessarily, produces a visible failure for the user.[61] Glitches do not reproduce themselves because programs and systems tend to find the sources of failure and solve them, restoring computational order. The emergence of a glitch occurs unexpectedly and it is the product of the program or system itself. Whenever glitches produce a sensible failure it is generally experienced as messy or confusing by the user. Goriunova and Shulgin further state that, "[a] glitch is a mess that is a moment, a possibility to glance at software's inner structure…Although a glitch does not reveal the true functionality of the computer, it shows the ghostly conventionality of the forms by which digital spaces are organized."[62] Glitches are sensorial manifestations of the computational structuring of contemporary experience. They are the ghostly reminder that much of what we see, hear, and touch today is organized and felt through digital platforms. And, consequently, we are chained to their propensity to fail.

[61] Olga Goriunova and Alexei Shulgin, "Glitch," in *Software Studies: A Lexicon*, ed. Matthew Fuller (Cambridge: MIT Press, 2008), 110.
[62] Ibid., 114.

The ubiquity of computational systems led artists at the turn of twenty-first century to experiment with glitches as a way to dwell on the inexorability of machinic failure. "The dominant, continuing search for a noiseless channel has been, and will always be no more than a regrettable, ill-fated dogma." So began Rosa Menkman's *Glitch Studies Manifesto* (2010). The allure of seamless technology, always working as expected and as designed, was troubled by the ever-haunting presence of the glitch. Glitch art was about the catharsis experienced in "disintegration, ruptures and cracks." As an aesthetic practice, glitch art sough to "manipulate, bend and break any medium towards the point where it bec[ame] something new."[63] Menkman suggests that, in the production of glitches, artists experimented with intimately relating to machines by having these show their inner workings and flaws. The machine was, thus, no longer a fearful source of dread but a vulnerable, affective entity bound to the apparition of glitches. In this manner, glitch art aestheticized technical failure through technical mastery. The artist positioned themselves as capable of "manipulat[ing], bend[ing], and break[ing] any medium" as they pleased.

In the context of a border space imagined as an information system, glitches offered a generative opportunity to consider the trappings and deadly repercussions of said imaginary. Quite different than glitch art's treatment of failure as a desirable aesthetic and affective experience, the "Drone Crash Incident" simulated a glitch in a drone to invite spectators to reflect on their intimate entanglements with the border machine. Dominguez argued that efforts to solve the so-called border and immigration problem through technological means, which permeated much public debate and policy making, were a dead end. As a result, "the solution to holes, or gaps, ruptures, glitches, [wa]s another machine. 'The sensors on the ground can't tell

[63] Rosa Menkman, *Glitch Studies Manifesto* (Amsterdam/Cologne, 2010), http://rosa-menkman.blogspot.com/2010/02/glitch-studies-manifesto.html.

the difference between a cow, a human and a rabbit, and rolling bushes…Well, let's try to add another layer by flying automated elements.'"[64] Machines were the solutions for the problems left unaddressed by other machines and UCSD was one of the many institutions involved in developing new technologies but also of working on improving already existing machines. In simulating the failure of the drone and its eventual crash on campus, Dominguez, Paul and Stevens opened up room for a dissident politics that could challenge the status quo. Drone algorithm and defense research at UCSD could no longer continue in relative anonymity. Members of the university community were confronted with their quiet acquiescence and began questioning that UCSD would pursue this kind of research. The glitch, or at least its simulation, was a technique to have an open, intimate, and critical debate about a machine at the heart of contemporary governmentality.

A glitch in a system can have serious repercussions yet government officials, technicians and the public at large decided that the benefits outweighed the risks. Just when the DHS was in the midst of implementing its Arizona Border Control initiative, for which drones played an important role, the Congress held hearings about how to best strengthen border security. In his 2005 statement to the Congress, Senator Cornyn commented on the fact that technology "by itself [was] no panacea. There will inevitably be glitches in deployment and use of technology, and clearly, technology is only as good as the men and women we have on the ground who we must teach to utilize it and take advantage of it to the maximum degree."[65] Cornyn argued that even though border enforcement technology was inexorably bound to the emergence of glitches,

[64] Ricardo Dominguez, interview by Iván Chaar-López, August 11, 2016, interview 1 – part 2.
[65] *Strengthening Border Security between the Ports of Entry: The Use of Technology to Protect the Borders: Joint Hearing Before the Subcomm. on Immigration, Border Security and Citizenship and the Subcomm. on Terrorism, Technology and Homeland Security of the Comm. on the Judiciary*, 109th Cong. 70 (2005) (statement by Senator John Cornyn), 3.

these should not dissuade the public or government officials from supporting the use of technology. To remediate the inevitability of glitches, Border Patrol agents needed the appropriate training so as to master technology. They were imagined to use technology and not the other way around. But if there is one thing that glitches trouble is the illusion of mastery over the tool. Responding a question about the potential drawbacks of using drones on the border, Dominguez echoed this understanding. "We always have this tenacious belief that because it's a machine, it's going to function to a degree that is basically impossible."[66] But as discussed so far, glitches are to be understood as unexpected moments of breakdown in technical operations expected to be smooth and seamless. They are the spontaneous and autonomous manifestation of the machine. The crash of a drone, hence, was a limit example of the impossibility of mastering the tool and of executing control.

More worryingly of all, however, was that the biggest ethical flaw or glitch of the border machine and of drones within it was its programmed political objective of driving migrants into treacherous and life threatening areas of the border. And this flaw was never considered as such. On the contrary, government officials like Asa Hutchinson, DHS Under Secretary in 2004, argued that enforcement efforts on the border were meant "to save lives but also to enforce the law."[67] But whose lives were being "saved?" The large numbers of border crossing deaths were evidence that these enforcement efforts were not saving the lives of migrants but making them into disposable subjects, into data haunts of a killing machine.

The "Drone Crash Incident" triggered the possibility to resist the dominant political paradigm—a paradigm built on the technopolitics of air power. That is, the mobilization of aerial technologies for the control and management of life on the ground. The association between

[66] Dominguez, interview 1 – part 2.
[67] Michael Marizco, "U.S. Beefing Up Border Force," *Arizona Daily Star*, March 17, 2004, A1.

drones and air power was among the many issues troubled by the group of artists. The name of one of the principal investigators at the faux Center for Drone Policy and Ethics, Guerne N. Ka, was a clear allusion to Pablo Picasso's representation of the destruction of air power during the Spanish Civil War, "Guernica." Dominguez, Paul, and Stevens generalized the sense of dread that resulted from the effects of air power—the fear and panic of when the next bomb would drop—by simulating a glitch on drones. What happened if a bomb hit the wrong target? Who determined who was the target? Who or what pushed the button for the bomb to drop? The calamity that was air power was imagined to no longer apply exclusively to the lives of targeted subjects and populations outside of the U.S. Drones as destructive, glitch-prone entities of air power were placed on central display as a potential menace to "home." As a result, these artists repurposed the codes of the border machine—i.e., "flying" drones, aerial control of populations, the mobilization of university resources in the fabrication of death—to produce an aesthetic confusion around the ethical failures of the university community. The crash-as-a-glitch offered a way to disassemble the entanglements between the military, industry, and the academy by stressing their manufacture of death closer to "home." The boundary between "us" and "them" or the friend-enemy distinction suddenly collapsed and the border machine was reimagined as a threat to all not just some, but more worryingly as a system they all maintained and no one questioned.

## Of Seeing Machines and "Living Elsewhere"

"*We need to know where we live in order to imagine living elsewhere. We need to imagine living elsewhere before we can live there*."
- Avery Gordon, *Ghostly Matters*

Imagine you could watch the entirety of the United States-Mexico border without having to leave where you are. What would capturing and reproducing the almost 2,000 miles of international boundary look like? "Best of Luck with the Wall" (2016) was created to insist on the geography and materiality of the southern border, to convey to viewers "a sense of the enormity of it all."[68] Digital artist Josh Begley's 6-minute short film was produced in collaboration with Laura Poitras and her team at Field of Vision, a filmmaker-driven documentary unit that commissions short-form nonfiction films about ongoing world issues. His film, shared through *The Intercept*'s website, was meant as a critical response to then-presidential candidate Donald Trump's anti-immigrant rhetoric and his drive to build a border wall. "Best of Luck with the Wall" operated within the speculative framework so brilliantly articulated by Gordon who stated that, "we need to know where we live in order to imagine living elsewhere."[69] Begley hoped the short film would allow viewers to "imagine what it would mean to be a political subject of that [border] terrain" and, through this process perhaps, to imagine a different way of relating to/in the borderlands. In the end, the political subject that emerged from this work was one overwhelmed by the breathtaking flows of geography and the speed of machinic vision, a vision that sutured and condensed time and space. In a sense, the film succeeded in showcasing the sublime immensity of the southern border.

An empty, black space appeared before me when the sound of the sea grew in its presence. I felt the ebbs and flows of the waves reaching the shore when suddenly the noise echoed as if bouncing off the walls of a gorge. The sound of the sea now felt like gasps for air. Big, block letters in the middle of the screen read: "The U.S.-Mexico border is 1,954 miles long." Behind the film's opening statement I now saw a sequence of satellite images of the

[68] Begley, "Video."
[69] Gordon, 5.

Pacific Ocean. Playas de Tijuana appeared in the frame and with it the border wall/fence separating southern California from northern Baja California. What was initially the sound of waves crashing on the shore now turned into a clanking noise accompanied with chirping birds and the slow plucking of guitar strings. The border was at the center of each image while "the camera" panned over the boundary line between the United States and Mexico. Each muted guitar strum hung over the aural plane. Together with the sound of a howling wind, they filled the visual landscape with an hurried pace. Sonic lethargy countered the quick tempo of the satellite images. Starting on the southwestern section of the border and moving east, the images followed each other at greater speeds (see Figure 21). Shifts on the geography were displayed in quick succession: border urban spaces gave way to deserts, to mountains, to valleys, to farm lands, to more urban spaces, to more deserts, and to the Rio Grande river until it reached the Gulf of Mexico. An eerie, haunting ambience emanated from the audiovisual experience. It felt as if the southern border was the scene of a terrifying crime.

"Best of Luck with the Wall" was created using a variety of digital technologies. First among them were about 200,000 geo-located satellite images of "the entire southern border." These were originally collected by a small computer script. Begley then employed a command-line tool called *ffmpeg* to "programmatically stitch the images together" like different threads of fabric. The result of this process was a collection of vertical images of the U.S.-Mexico border that flowed swiftly from one to the next. Even though the short film was in fact a kind of collage of images, Begley generated a sense of movement by sequencing them rather than leaving them on the screen. In summary, the short film was only possible through the entangled production of machines and technologies: the satellite camera and its information networks, the database storing the border images, the computer script that collected the images, the program that

stitched them together, Field of Vision's website server which stored the short film, and the viewer's computer which accessed it. The "enormity" of the border (see Figure 21), to put it another way, was imagined to be communicable by the power of an assemblage of machines that transformed natural and urban geography into visual data points.

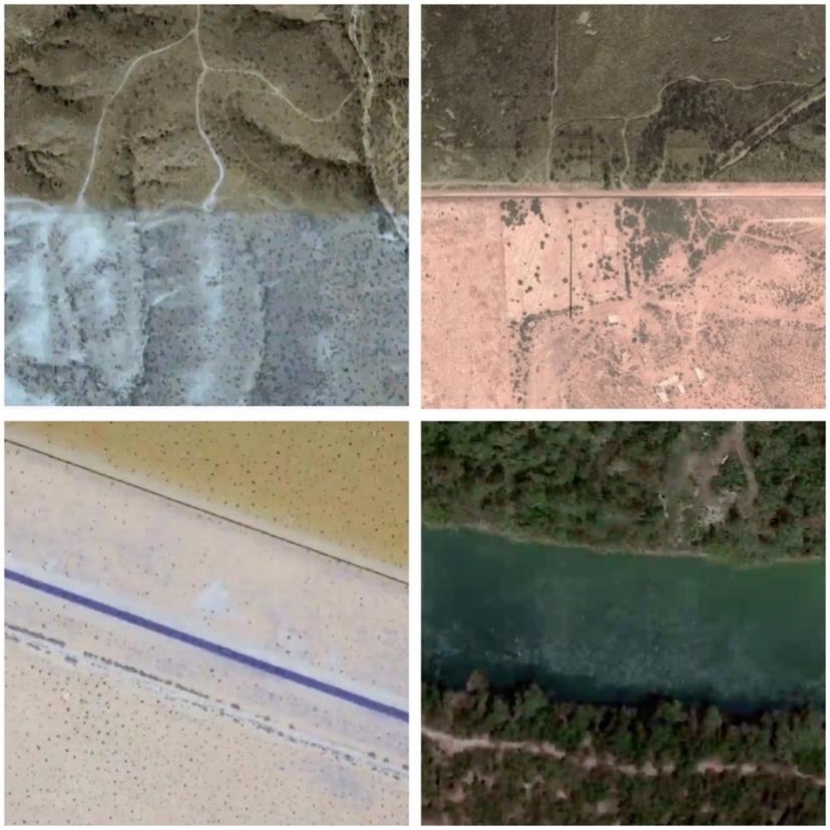

Figure 21. Collage of still images from Josh Begley, "Best of Luck with the Wall" (2016)

Begley's short film mimicked the operations of intrusion detection systems and of cybernetic ideas that, since the 1970s, had treated the borderlands as a data-filled environment to order. This is what Chapter 2 called the cybernetic border. Though not exclusively bound to the domain of vision, these technologies were premised on the idea that the border landscape could be translated into sensible patterns of order to be governed by what, in a different context, visual artist Trevor Paglen called "seeing machines." These are the ways humans use technology to "see" as well as "the ways machines see the world for other machines." Seeing machines are

imaging devices and systems such as photographic cameras, iPhones, airport security backscatter-imaging devices, electro-optical reconnaissance satellites, and drones, among others, that capture, circulate, and store data.[70] In the case of "Best of Luck with the Wall," the film was "an attempt to linger on that idea [of seeing machines] for a moment, and to explore ways of using those technologies—in this case satellites—to better visualize some of the spaces they are enforcing."[71] Begley's work mobilized seeing machines as a way to re-envision the boundary line, that is of improving general understandings of what was the border, what were its characteristics, and how it traversed diverse landscapes. This way of conceptualizing seeing machines echoed the discourse of technical efficacy espoused by officials at the DHS. Chapter 3 discussed how officials trusted combining humans with electronic and digital technologies like drones, ground sensors, and computers to produce a "system of systems" that would record and circulate data on border "intrusions." Officials craved, after all, for an "eye in the sky" to hover over the border. This mixture of technology, infrastructure, and humans comprised a sensory regime that, not unlike Begley's objective, were brought together "to better visualize" the border.

Aiming "to better visualize" sidelined that which was unseen and, consequently, out of control. Whereas Paul offered a critique of what remained hidden within seeing machines—their data haunts—, Begley's film reproduced the belief that seeing machines like drones and satellites could transparently reveal the inner truths of the border.[72] Without these machines, according to

[70] Trevor Paglen, "Seeing Machines," *Still Searching…*, March 13, 2014, https://www.fotomuseum.ch/en/explore/still-searching/articles/26978_seeing_machines.
[71] Begley, "Video."
[72] Josh Begley's "Fatal Migrations" (2016), produced for *The Intercept*, offers a different take on border making than his "Best of Luck with the Wall." An interactive array of circles contains different kinds of data relating to migrant deaths. When you click on some circles you can see the location (Begley used satellite images), name and date of death of migrants who lost their lives attempting to cross the border. Other circles, lacking the location of where that specific migrant lost their life, contain the word "UNKNOWN" in big block letters. This juxtaposition of what was there and not there, of what was known and not known differs from reproducing the belief of what Donna Haraway calls the "unregulated

this logic, the totality of the U.S.-Mexico border was not visible and, consequently, not comprehensible. These machines, however, were part of a culture of and desire for hypervisibility that sought to master subjects and objects. The drive for hypervisibility, Gordon contends, was "a kind of obscenity of accuracy that abolishe[d] the distinctions" it made between what it allowed to be seen and what it prohibited, between what it deemed as knowable and not.[73] In other words, seeing machines were blind to their obfuscations and to the ways that they governed the kinds of subjects/objects they produced. Seeing machines hid their political objectives within their purported neutrality of just recording what was in front of them. They were designed to record and capture certain kinds of beings, while ignoring or erasing others. Their political orientations were, in short, black boxed.

Rather than articulate a clear vision of the border, I argue that "Best of Luck with the Wall" operates in the realm of opacity. More succinctly, the border became incomprehensible and incoherent. At times the boundary line was clearly visible and at others it disappeared, as if blurred out of sight by the breakneck speed of the seeing machines that attempted to visualize the border. No image stayed on screen for longer than a few milliseconds. It was as Hito Steyerl suggests when writing about perception in "a sea of data." "Not seeing anything intelligible is the new normal. Information is passed on as a set of signals that cannot be picked up by human senses."[74] And as a result, the border seen in "Best of Luck with the Wall," though not fully grasped, was the product of a machinic perception. This was a perception which rendered sutured data points opaque, unrecognizable if not for the title of the film at the beginning. The film's

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gluttony" of technical vision. "Fatal Migrations," *The Intercept*, June 4, 2016, https://projects.theintercept.com/fatal-migrations/.

[73] Gordon, 16.

[74] Hito Steyerl, "A Sea of Data: Apophenia and Pattern (Mis-)Recognition," *e-flux* 72 (April 2016), http://www.e-flux.com/journal/72/60480/a-sea-of-data-apophenia-and-pattern-mis-recognition/.

seeing machines offered us a vision of the border as a disjointed imaginary line splintered by quick-moving images and sharp shifts in the terrain. Signals sent from machine to machine were devoid of any human bodies. Human presence in each satellite image was only visible epiphenomenally, through interventions in the natural landscape—in buildings, roads, parks, and so on. The absence of human bodies, similar to the "human forms" captured by Predator B UAS video feeds, haunted this visualization of the border. They were spectral figures that, in "not" being there, beckoned so many people and institutions to act. In this way, perhaps, Begley succeeded in imagining what it meant "to be a political subject of that [border] terrain." "Best of Luck with the Wall" offered viewers a glimpse into the arbitrariness and the opacity of national borders as well as of the technological foundations from which territory and populations were made. In knowing the boundary line as a capricious project in an expansive and overwhelming landscape, Begley generated Gordon's "elsewhere." He pushed viewers to relate beyond the construction of infrastructures of blockage.

This chapter approached the border technopolitical regime through the practice of aesthetics and activism. The interventions of Humane Borders, Ian Alan Paul, Ricardo Dominguez, Jane Stevens, and Josh Begley led me to reconceptualize said regime through the idea of a "border machine." While still including the sociotechnical assemblage of institutions, ideas, techniques, artifacts, and people invested in administering populations, the border machine as a concept helps center the role of technologies in the fabrication of boundaries of inclusion and exclusion, boundaries that help manage and administer a variety of flows (i.e., populations, labor, commodities). Much scholarship on the U.S.-Mexico border, such as the work of Saldívar and González Rodríguez, has tended to treat technology as mere instruments of the political and,

as a result, it has diminished technology's role in shaping the political. This does not mean that machines, in and of themselves, determined the political but they surely played a role.

The artists and activists written about in this chapter helped push conversations about border enforcement by critically examining what technologies did, how they came about, and what were their limits. To do this they mobilized a series of techniques that diverted the border machine's operations. Humane Borders and Paul interrogated the circulation and absence of migrant death data as endemic of the Border Patrol's institutional negligence towards migrant lives. Dominguez, Paul, and Stevens established a disassembling practice through which they simulated the failure of a drone flying over the UCSD campus. And Begley sought "to better visualize" the U.S.-Mexico border by using some of the same seeing machines used to police it.

In addition to theorizing the border machine, this chapter contributes to discussions on digital technology and art by mobilizing a conceptual apparatus produced by (or in collaboration with) actors themselves. This apparatus relied, similar to that of the border machine, on the language used by and the practices of the artists and activists written about here. To put it another way, the chapter's theoretical apparatus is grounded on the words and actions of people who critically reimagined the operations of the border machine. The terms they used and their practices "highlighted the limitations of many of our prevalent modes of inquiry and the assumptions they make about the social world."[75] The interventions by Humane Borders and by Paul, for example, suggested the importance of being-with those no longer there, the haunting presence of the border crossing dead. Data haunts became a means of reorienting the privileged position afforded to data in modern governmentality. But instead of gestures to effect control on populations, data haunts were a way to name, to place, and to remember the lost. There was no

[75] Gordon, 8.

way to quantify or document all the migrant dead, but activists and artists redeployed data to demand responsibility.

Dominguez, Paul, and Stevens identified in minor simulations and glitches the possibility of disturbing the border machine's production of subjects. The "Drone Crash Incident" delivered an aesthetic confusion that disturbed the smooth, invisible operation of the border machine. By simulating the failure of a drone in the middle of a college campus, the entanglements between the military, industry, and the academy were exposed. In performing as a university center devoted to the ethical use of drones, these artists were able to have members in the university community and in the public at large (thanks to local news coverage) reflect on their passive acquiescence to the fabrication of killing machines. These populations were also shaken by the realization or possibility that their lives could now be submitted to the persistent stare of the "eye in the sky." In this sense, drones at "home" embodied the democratization of the target "intruder" and its inexorable threat to the empire-nation—a terrifying and disturbing prospect.

The artists and activists discussed here called attention to the ways that the border machine relied on digital technologies and treated the borderlands as a data environment. Begley's work in particular repurposed seeing machines—satellite imagery and mapping platforms—as a way to have viewers imagine what might have meant "to be a political subject" of the southern border and "to better visualize" the entirety of the boundary line. His short film criticized the role of data in the management of populations and territory, especially because they targeted people who were already vulnerable. But with his intent "to better visualize" the southern border, Begley's statement also reproduced the faith deposited in the capacity of data and seeing machines to order the messy and expansive borderlands. Across its six minutes, however, the film offered spectators a view of the border line as a gigantic, dizzying, and

ungovernable area. From high above, the satellite "eye in the sky" saw everything and nothing. In coming to terms with the border's enormity and impossibility, another kind of life begins to open up. This is a life in which the sovereign project of borders becomes undesirable and in which humans relate to one another beyond the constructs of nations and the recurrence of enmity.

# CONCLUSION

## The Unbearable Endurance of Enmity

When I began preliminary research for this dissertation in 2014, Barack Obama was President of the United States. Donald J. Trump was not yet a candidate for the presidency and, if he was ever mentioned, it was to be widely ridiculed as a fringe, racist character who demanded President Obama's birth certificate.[1] I did not foresee then, nor did anyone else, where the country was collectively headed.

On June 16, 2015, Trump formally announced his candidacy to become the 45th President of the United States. He spoke to followers, campaign officials, and the press about what soon became the staples of Trump's candidacy. Chief among these was representing border and immigration enforcement as fraught sites of the U.S. nation. They were fraught because Trump imagined them as failing to "protect" the country. They failed to keep out and remove those he portrayed as constituting a threat. Though Trump expressed his animosity towards many other nationalities and regions, he reserved a particular vitriol against Mexicans in his announcement speech. He did not call them "enemies" outright but it was hard to imagine Trump saw them as something else if, as he told the U.S. public, "they are not our friend, believe me." Marked as the opposite of "friend," migrating Mexicans were quickly characterized as "bringing

[1] Adam Gopnik, "Trump and Obama: A Night to Remember," *New Yorker*, September 15, 2015, https://www.newyorker.com/news/daily-comment/trump-and-obama-a-night-to-remember.

drugs," "bringing crime" and being "rapists."[2] These familiar and racist tropes, among many others, have been historically mobilized to brand non-White populations in the U.S. as menaces to the nation.[3] During Trump's presidential bid announcement, Mexicans were quickly joined by people "coming from all over South and Latin America" as well as "from the Middle East." These varied populations were not only the targets of Trump's racist venom, they continued to be treated as "enemies" to be managed.

In the process of branding Latinxs, Arabs, and Muslims as "enemies," actors asked themselves why and how such a threat ought to be addressed. Trump's response in the campaign trail became an enduring and bonding leitmotif for conservative and White supremacists alike: "we are going to take our country back."[4] In his statement there was a sense of entitlement to a country that was slipping away from an imagined community. Control was lost to the unfriendly presence of an Other, implied here for its opposition to "us." "They" took away what belonged to "us." Such carefully vicious phrasing was coded language for how White "America" imagined itself losing their grip of the nation to non-White populations. To bring back control, Trump's administration would "build a great wall along the southern border," pursue a "total and complete shutdown of Muslims entering the United States," and deport millions of

[2] Washington Post Staff, "Full Text: Donald Trump Announces a Presidential Bid," *Washington Post*, June 16, 2015, https://www.washingtonpost.com/news/post-politics/wp/2015/06/16/full-text-donald-trump-announces-a-presidential-bid/.

[3] Kelly Lytle Hernández, *City of Inmates: Conquest, Rebellion, and the Rise of Human Caging in Los Angeles, 1771-1965* (Chapel Hill: University of North Carolina Press, 2017); Natalia Molina, *How Race Is Made in America: Immigration, Citizenship, and the Historical Power of Racial Scripts* (Berkeley: University of California Press, 2014); Jasbir K. Puar, *Terrorist Assemblages: Homonationalism in Queer Times* (Durham: Duke University Press, 2007); Gilberto Rosas, *Barrio Libre: Criminalizing States and Delinquent Refusals of the New Frontier* (Durham: Duke University Press, 2012); Nayan Shah, *Stranger Intimacy: Contesting Race, Sexuality and the Law in the North American West* (Berkeley: University of California Press, 2012).

[4] Rory Carroll, "'No Amnesty': Trump Vows to Deport Millions during 'First Hour in Office'," *Guardian*, September 1, 2016, https://www.theguardian.com/us-news/2016/sep/01/donald-trump-vows-to-deport-millions-during-first-hour-in-office-in-hardline-speech.

"undocumented immigrants."[5] Blockage, exclusion, and removal of the Other were the paradigms through which a Trump presidency would function. These were the promises Trump offered not just to his followers but to the wider U.S. electorate. They became the foundational premises of a political project invested in enmity.

My dissertation helps understand the Trump presidency's animosity towards Latinxs, Arabs, and Muslims as part of longer historical and political maneuvers in the construction of the U.S. empire-nation. The project traces how discourses of enmity, which were entangled with ideas about "intrusion," have intensified across time. These discourses, I show, have fueled as well as relied on the design, development, and use of technologies that were thought to bring "enemies" under control. For Trump, "the wall" was the chief infrastructural device that would protect the nation. When the obduracy of nearly 2,000 miles of southern border became evident to Trump's campaign, his advocates transformed the promise of blocking structures into a "digital wall"—a network of devices that would "track and…prevent illegal immigration."[6] This dissertation, on the other hand, examines the ways unmanned aerial systems (UASs) embodied the roles of enemy and intruder during the Cold War but later on became instruments for targeting enemies and intruders themselves. Drones have been among various electronic and digital systems mobilized since 1970 to detect and track "intruder" migrants while aiding Border Patrol agents with their apprehension. Intrusion detection systems were, I contend, at the center of the growth of the modern border technopolitical regime.

Because I approach border making as a technopolitical problem within the context of U.S. imperial formations, my dissertation has much to offer scholars in American studies, Latinx

[5] Nick Corasanti, "A Look at Trump's Immigration Plan, Then and Now," *New York Times*, August 31, 2016, https://www.nytimes.com/interactive/2016/08/31/us/politics/donald-trump-immigration-changes.html.
[6] Ibid.

studies, digital studies, and Science, Technology, and Society (STS). The history of the border technopolitical regime expands further than the confines of the U.S. Well, perhaps it would be more accurate to say that its history moves back and forth said boundaries. Due to the fact that the regime's main political objective was to demarcate the contours of the empire-nation, it intervened in spaces that were both within and beyond the territory of the U.S. In this sense, it can be said that its history has a global dimension. I was able to reveal this by paying close attention to the technological artifacts utilized to make the U.S.-Mexico border. Intrusion detection systems such as the "electronic fence" installed on the Chula Vista sector of southern California in 1970 were, for example, transferred military technology used in Vietnam. To operate such a system, known popularly as the "McNamara Line," soldiers were trained in Fort Huachuca—the same military installation that contributed to the violent "pacification" of Native Americans at the turn of nineteenth century. Predator B UASs were, more contemporaneously, instruments for a technopolitical project committed to segmenting the global space into territories to target and manage remotely, from the deserts of the Middle East to the deserts of Arizona. When the Border Patrol operated drones and other intrusion detection systems to demarcate the boundary between the U.S. and Mexico, they employed technologies that were associated with a range of spaces and political objectives. But more fundamentally, my project makes plain that drones were and continue to be a technology of the borderlands. They were made along the southern border and embedded with a frontier politics invested in the administration of territories and racialized populations.

To write about contemporary drones generally raises questions about vision—especially when engaging those UASs used by military and intelligence forces for combat and reconnaissance missions. The kinds of techniques of vision programmed into Predator B drones

were inexorably bound to the machine's design as an instrument of war. It was meant to segment space into manageable quantities while fixing the system's sights—it's "eyes" and it's crosshairs—on pre-inscribed targets. In the context of the U.S.-Mexico border, drone vision was fixated on particular types of subjects. "Mexicans," "Other-than-Mexicans," and "person from special interest country" had to be "seen" to be known so that they could be captured and removed from the U.S. More succinctly, drones sought to invert the plane of the visible. Those who were imagined to be hidden from the border technopolitical regime—"intruders"—were now supposed to be visible to Border Patrol actors who hid themselves in the work done by drones flying high-above the southern Arizona desert. The surveilled could not watch the watchers. With drone manufacturers promising a persistent stare over targets, this kind of vertical vision hinged on relations of domination from "nowhere."

Here is where I took stock of drone history: where and when drones were designed and developed, what actors were involved in the process, where they were used, by whom, and for what. In situating drones within specific sites of development and operations, I sought to interrogate the kinds of political valorizations embedded in their vision and the visual fields they produced. Reading Donna Haraway as if talking about the kind of vision produced by drones, "these prosthetic devices show us that all eyes, including our own organic ones, are active perceptual systems, building in translations and specific *ways* of seeing, that is, ways of life."[7] UASs were not unlike our own eyes in that they established relations between perceived entities. And these relations emerged in combination to how entities were imagined, how they were valued. The dissertation, then, troubled public understandings that thought U.S. military and intelligence drone operations were limited to northern Africa, the Middle East, and south Asia.

[7] Donna Haraway, *Simians, Cyborgs, and Women: The Reinvention of Nature* (New York: Routledge, 1991), 190.

The U.S.-Mexico border and the southern borderlands have figured prominently in the history of drone design, development, and use. It was there, within the bounds of the U.S. empire-nation, that they sought to institute a sensory regime anchored in relations of enmity.

Figure 22. Postcommodity, "Repellent Fence" (2015)
(source: image by artist)

And yet, not all drone vision is necessarily an imperial formation. Hobbyist and commercial UAS design, development and use is a growing sphere of interest for drone scholars inside and outside the U.S.[8] The art collective Postcommodity, for example, offered an intriguing instance during which drone vision (see Figure 22) was mobilized in ways that ran counter to the machinations of empire. The group, originally founded in 2007 in the U.S. southwest, has had a revolving cast of members devoted to exploring Indigenous representations. “While their

[8] Sven Braun, Michael Friedewald and Govert Valkenburg, “Civilizing Drones: Military Discourses Going Civil?,” *Science & Technology Studies* 28, no. 2 (2015), 73-87; Jeremy W. Crampton, “Assemblage of the Vertical: Commercial Drones and Algorithmic Life,” *Geographica Helvetica* 71 (2016), 137-146; Joanne McNeil and Ingrid Burrington, “Droneism,” *Dissent* 61, no. 2 (Spring 2014), 57-60.

largescale installations certainly involve the positionality and representation of Native peoples," Matthew Irwin's work documents, "they also tend to critique colonial structures—such as capitalism, globalism, and neoliberalism rather than lament the poor or sad Indian that has appeared in countless renderings."[9] In early October 2015, Postcommodity installed twenty-six helium-filled balloons on the desert grounds of Douglas, Arizona and Agua Prieta, Sonora. The balloons floated fifty-feet over the ground in a display that offered a different articulation to the domineering inclinations of air power. These balloons did not search for "intruders" as did the Predator B UAS. Instead, they helped link the lands south and north of the U.S.-Mexico border in visual and conceptual terms. As Postcommodity stated in their video of the land-art installation, their balloons were "a suture that stitches the peoples of the Americas together—symbolically demonstrating the interconnectedness of the Western Hemisphere by recognizing the land, indigenous peoples, history, relationships, movement and communication."[10] These balloons produced together a new imagined community that spanned across the national boundary line and its structural manifestation, the border fence.

"Repellent Fence" (2015), as the installation was called, played around with the construction and use of technologies that would contest the operations of the U.S.-Mexico border. The repellent fence was made from yellow, ten-foot diameter balloons that floated along a north/south axis for two miles. More importantly, they were anchored to the ground but were only connected to each other symbolically, by their similar designs. Only their uniformity and their relative proximity allowed spectators to symbolically connect the dots, or balloons. Each

[9] Matthew Irwin, "Suturing the Borderlands: Postcommodity and Indigenous Presence on the U.S.-Mexico Border," *InVisible Culture* 25-26 (May 2017), https://ivc.lib.rochester.edu/suturing-the-borderlands-postcommodity-and-indigenous-presence-on-the-u-s-mexico-border/.
[10] "Postcommodity: Repellent Fence / Valla Repelente – 2015," YouTube video, 6:41, published by Postcommodity Collective, February 13, 2016, https://www.youtube.com/watch?v=SZBNqwNMkQE.

had four sets of concentric circles that were red, blue, black, and gray with a black center. The balloon graphic design was inspired by "scare-eye" balloons used to repel birds from fruit trees, gardens or any area where they were not wanted. But what did this new repellent fence push away? The fact that the original "scare-eye" balloon was used to fend off birds and that Postcommodity's balloons floated fifty-feet over the desert, makes me think of "Repellent Fence" in relation to aerial surveillance. First, airplanes have been commonly called "birds" across history. Second, drone aircraft have been in use to patrol and surveil the border. But by enlarging the "scare-eye" in these inflatable devices, Postcommodity produced balloons that could be imagined to repel the "birds" of the Border Patrol. In this sense, "Repellent Fence" speculated with the possibility of scaring away those entities involved in making national borders that separate people from each other.

The association between "Repellent Fence" and UASs was strengthened more through the use of drones that filmed the installation itself. The kind of drone vision articulated by Postcommodity sought to break away from, or perhaps scare away, its entanglements with empire and air power. The images were not of targeted subjects. They were not produced in anticipation that a feared "intruder" might cross the national boundary without authorization. There was no "God trick" nor appetite for a prey down below. Instead, drone vision here helped visualize the connections between the balloons across the border. More symbolically, it visualized connections between groups of people kept apart by the operation of the border technopolitical regime. This iteration of drone vision coincided with the way Irwin interpreted the colors of the "scare eye" on the balloons. Relying on interviews with the members of Postcommodity, Irwin concludes that, even though the idea of an "eye" had an implied sense of surveillance in much "Western" culture, "a 'scare eye'…has been recognized by Indigenous

people all over the world as an ‘open eye’ or an eye of consciousness.” The four colors in Navajo culture represented the emergence of four worlds into the present world. They represented an encounter. The video of the installation was now a historical document which chronicled this conceptual encounter. Hence, the drone “eye” as well as the balloons’ “scare eye” were wide open. They produced a different past as they convened a turn towards another way of being and relating in the borderlands. Drone vision, in this particular instance, offered spectators a glance into the possibility of undoing the unbearable endurance of enmity.

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