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**STORMS, BOMBS, AND ECOLOGIES OF DESTRUCTION:
THE INTIMACIES OF WEATHER DISASTERS AND U.S.
MILITARIZATION IN ASIA AND THE PACIFIC**

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Abstract

Danielle Crawford

Storms, Bombs, and Ecologies of Destruction:
The Intimacies of Weather Disasters and U.S. Militarization in Asia and the Pacific

My dissertation focuses on the intersections between destructive storm systems, Hollywood war films, and U.S. military operations in Asia and the Pacific during the 20th century. Focusing on the periods of World War II and the Cold War, this dissertation explores the complex relationship between U.S. militarization, Hollywood productions, and weather disasters in sites ranging from the Philippines, Hawai‘i, California, and Vietnam to Guam and the Marshall Islands. By using a broad geographic framework, this interdisciplinary project analyzes the relationship between the U.S. military’s aerial operations and weather forecasting, the socio-environmental impact of reproducing this aerial warfare in war films, and the tactics the U.S. military has historically used to track and monitor tropical cyclones in the Asia and Pacific region.

In examining the relationship between the U.S. military and destructive storm systems, I posit three central claims that provide an overarching structure for the dissertation: 1) the U.S. military’s aerial operations in Asia and the Pacific, including both aerial warfare and nuclear bombings, act as weather disasters in and of themselves; 2) while these operations are immensely destructive, Hollywood war films exacerbate this destruction by reproducing aerial warfare, creating profound socio-environmental damage at shooting sites in Asia and the Pacific; 3) although U.S. military violence and Hollywood simulations can act as their own atmospheric

forces, both the U.S. military-industrial-complex and Hollywood are nonetheless quite vulnerable to extreme weather in the Pacific. Within this structural foundation, my dissertation draws from literary and filmic texts that come from two distinct strains: texts from above that are aligned with the dominance of the U.S. military, such as Los Angeles disaster fiction and blockbuster war films, and texts coming from below, such as novels and poetry collections, that productively challenge and resist U.S. military power. These texts from below, which are predominately written by authors of color, critique the racialized and environmental consequences of U.S. militarization in Asia and the Pacific, serving as important counter-narratives that illuminate the complex relationship between disasters, weather, and the U.S. military.

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Introduction

This dissertation investigates the relationship between the U.S. military, Hollywood war films, and weather disasters in Asia and the Pacific during the 20th century, and specifically during World War II and the Cold War.¹ I begin this investigation with three key questions. How have the U.S. military's nuclear bombing operations and aerial warfare campaigns both altered weather and coordinated with existing weather conditions in Asia and the Pacific? What is the socio-environmental impact of reproducing this destructive, aerial warfare in Hollywood war films? And, lastly, how has the U.S.-military-industrial complex historically responded to storm systems in the Pacific, and in what ways do these tactics reveal a vulnerability to extreme weather? These questions draw attention to the complex and often overlooked intimacies between destructive storm systems, U.S. military operations, Hollywood simulations of war, and weather monitoring. Drawing from the broader framework of Lisa Lowe's *The Intimacies of Four Continents* (2015), wherein "intimacies" are "implied by less visible forms of alliance, affinity, and society," this project seeks to expose both the readily visible and invisible connections between the U.S. military-industrial-complex, aerial warfare, popular culture, tropical cyclones, and the technologies of weather forecasting in sites ranging from the Philippines,

¹ I use the phrase "weather disaster" instead of "climate disaster" because weather is indicative of an immediate occurrence, or event, while climate is a long-range trend, or pattern, over time. While this dissertation is invested in an understanding of the long-range temporality of climate, which includes climate change, the term weather more appropriately describes discrete tropical cyclones. For further distinctions between weather and climate, see Mike Davis's *Late Victorian Holocausts* (2001).

Hawai‘i, California (as Pacific-facing site), and Vietnam, to the Marshall Islands and Guam (19).²

This dissertation uses an interdisciplinary framework that is rooted in the environmental humanities. It draws extensively from environmental studies, particularly environmental history and political ecology, critical race and ethnic studies, and literary and cultural studies. In using an interdisciplinary methodology, this project relies on a wide array of textual and filmic sources from different genres, such as novels, poetry, short stories, Vietnam War films, and archival documents from the 20th and 21st centuries. The literary and filmic narratives used come from two distinct strains: a strain coming from the top that is aligned with the hegemony of the U.S. military-industrial-complex, such as Los Angeles disaster fiction and blockbuster war films, and counter-narratives coming from below, such as Asian American and Pacific Islander literature, including novels and experimental poetry collections.

The layers of this archive are situated within a wide geographic scope in the Pacific, connecting histories of U.S. empire, military operations, Hollywood simulations, and weather disasters in the Philippines, Vietnam, Hawai‘i, California, the Marshall Islands, and Guam. Such geographic mobility is rooted in Epeli Hau‘ofa’s “sea of islands,” which entails viewing the Pacific from a “holistic perspective in which things are seen in the totality of their relationships,” a totality

² Hurricanes and typhoons are both tropical cyclones. The different terms simply indicate where on the planet the storms are formed. Tropical cyclones that develop over the Atlantic and Eastern Pacific are called hurricanes, while tropical cyclones that develop over the Western Pacific are called typhoons.

where land, ocean, and people are interconnected within a vast network (31).³

Identifying the Pacific as a “sea of islands” is a decolonial conceptualization of space, one that counters dominant imaginings of islands as small and disconnected.⁴

However, the U.S. military-industrial-complex utilizes an entirely different conceptualization of space in the Asia and Pacific region. More specifically, the U.S. military views the Pacific as an infrastructure of transpacific “security” with islands and coastal lands that must be forcibly occupied to launch an unending sequence of operations.⁵ This state of continuous warfare is predicated on a militarized logic of surrogacy, wherein different locales are used as substitute training and testing grounds on the basis of their supposed similarity to the original site of war. For instance, during the Vietnam War, both Hawai‘i and the Philippines were used as surrogate war zones because of their tropical, forested landscapes. Vernadette Vicuña Gonzalez notes that while the lush foliage of Kaua‘i was the target of Agent Orange testing, Luzon’s Subic Naval Base was home to a “jungle school” where Indigenous men from the Aeta group trained “American soldiers in the basics of jungle survival”

³ Hau‘ofa offers up the term “Oceania” as a more expansive geographic framework that includes not only island nations and territories, but the continental United States itself: “The world of Oceania may no longer include the heavens and the underworld, but it certainly encompasses the great cities of Australia, New Zealand, the United States, and Canada. It is within this expanded world that the extent of the people’s resources must be measured” (36).

⁴ This vision of unity and connection in the Pacific falls in line with Rob Wilson’s question, in *Reimagining the American Pacific* (2000), of what it “means to regionalize a space,” and specifically to regionalize Asia and the Pacific by “mak[ing] it more porous to the cross-border flows of information, labor, finance, media images, and global commodities; to shrink the distances of space, culture, and time” (28-9).

⁵ Erin Suzuki defines the “transpacific” as “the routes and infrastructures that enable the movement of peoples and goods across and around the Pacific,” which includes both “military-tourist infrastructures that span the region” as well as “the vast ecological networks that are shaped by yet also operate independently of human agency” (352).

(195), so they could “better [...] withstand the guerrilla war in Vietnam” (182).⁶ In using a transpacific geographic framework and an archive of texts that works both against and within hegemonic military power, this dissertation examines a decolonial and collective envisioning of space in the Pacific—one that aligns with the expansive vision of Hau‘ofa’s “sea of islands” and that notably opposes the U.S. military’s distinct logic of surrogacy, a logic that fuels an unending cycle of imperial warfare.

While this dissertation analyzes literary and filmic texts from both the 20th and 21st centuries within a wide geographic framework, the historical context of focus is World War II and the Cold War. More specifically, this dissertation examines the U.S. military’s nuclear testing program in the Marshall Islands, simulations of the Vietnam War in Francis Ford Coppola’s film, *Apocalypse Now* (1979), and the U.S. military’s development of a gendered storm-naming system and gendered bomb names. While a gendered storm-naming system was devised and adopted during World War II by U.S. military meteorologists operating in the Pacific—all while scientists from the Manhattan Project were applying their own gendered code names to nuclear bombs—both nuclear testing in the Marshall Islands, (which began in July 1946), and the filming of *Apocalypse Now*, (which began in March 1976), occurred during the Cold War. Jodi Kim notes that the timeline for the Cold War begins “officially with Churchill’s famous Iron Curtain speech in March 1946, and putatively end[s] with the fall of the Berlin Wall in November 1989” (3). Thus, both

⁶ Gonzalez writes that in Kaua‘i, the U.S. Army and University of Hawai‘i sent planes to drop “different combinations of chemical defoliant, among them Agent Orange” on the island’s soil (177).

the production of Coppola's film and the Vietnam War itself occurred during the Cold War. In *A Violent Peace: Race, U.S. Militarism, and Cultures of Democratization in Cold War Asia and the Pacific* (2020), Christine Hong asserts that in "Asia and the Pacific, [...] the Cold War immediately turned hot" (2). Indeed, the U.S. military's nuclear testing program in the Marshall Islands, the Vietnam War, and Coppola's simulations of this war in the Philippines during the U.S.-backed Marcos dictatorship, all speak to the violence wrought by the U.S. military in Asia and the Pacific during the Cold War, a violence that was anything but cold. This dissertation thus seeks to examine the intersections between U.S. militarization, aerial operations, and weather disasters in Asia and the Pacific spanning from the period of World War II, with the subsequent rise to U.S. military hegemony, through the so-called period of the Cold War.

Key Claims and Chapter Overviews

The analytical foundation of this dissertation is animated by three key claims, which create a guiding backdrop for each chapter: 1) the U.S. military's aerial operations in Asia and the Pacific, including both aerial warfare and nuclear bombings, act as weather disasters in and of themselves; 2) while these operations are immensely destructive, Hollywood war films exacerbate this destruction by reproducing aerial warfare, creating profound socio-environmental damage at shooting sites in Asia and the Pacific; 3) although U.S. military violence and Hollywood simulations can act as their own atmospheric forces, both the U.S. military-industrial-complex and Hollywood are nonetheless quite vulnerable to

extreme weather in the Pacific. These claims highlight the entangled intimacies between the U.S. military, Hollywood, and weather disasters within the contexts of nuclear testing, the Vietnam War, and the Pacific Theater of World War II.

The first claim expands on traditional conceptions of what counts as a disaster, as I argue that the U.S. military's aerial operations, and particularly nuclear bombings, act as weather disasters in and of themselves. In their introduction to the collection *Catastrophe & Culture: The Anthropology of Disaster* (2002), Anthony Oliver-Smith and Susanna M. Hoffman noticeably exclude acts of human intentionality from the realm of disaster:

Although human beings and groups clearly play major roles in the emergence and evolution of both hazards and disasters, we have excluded those processes that result from human intentionality. Things that humans do deliberately with a knowledge of and expectation of an effect are not disasters. Thus, the nuclear bombings of Hiroshima and Nagasaki [...] fall outside our purview here. However, the similarity of outcomes in these examples illustrates the definitional complexities that disasters present. (4)

Oliver-Smith and Hoffman exclude nuclear warfare, and by extension all acts of militarization, from their understanding of catastrophe. However, the authors still highlight an uneasy blurring between the two, as both create destruction and devastation on a wide scale—a point that draws attention to the sheer difficulty of defining disaster.⁷ Interestingly enough, this constraint of human intentionality can in

⁷ Oliver-Smith and Hoffman's introduction usefully differentiates between a hazard and a disaster. The authors write that hazards are "the forces, conditions, or technologies that carry a potential for social, infrastructural, or environmental damage" (4). On the other hand, they assert that a disaster is "a process/event combining a potentially destructive agent/force from the natural, modified, or built environment and a population in a socially and economically produced condition of vulnerability, resulting in a perceived disruption of the customary relative satisfactions of individual and social needs for physical survival, social order, and meaning" (4). In other words, while periodic storms in any

fact be used to expand our interpretation of disasters if we ask whose intentionality is being considered. In other words, although the U.S. military intentionally dropped nuclear bombs on Hiroshima and Nagasaki, this intentionality was not present for the actual victims of the bombs. For those on the ground, their control over a nuclear bomb dropping from the sky was akin to the control they would have over a typhoon hitting their city.

Aerial warfare thus operates at the level of weather disasters not only because it produces widespread social and ecological destruction from above, but because those on the receiving end of military violence have no control over whether a weapon of mass destruction destroys their home. Through this lens, storms and bombs travelling through the atmosphere become precarious and unpredictable forces of nature, with the eye of a storm becoming aligned with the eye of a bomber's target. This logic was readily apparent throughout the U.S. military's operations during the Vietnam War, such as the pointedly named Operation Rolling Thunder—a brutal aerial campaign that quite literally rained bombs over North Vietnam from 1965 to 1968. During this war, the weather itself was viewed as a potential weapon, as Pentagon Papers now reveal evidence of Cold War climate modification experiments “in Laos, Cambodia, and Vietnam, including a long and focused effort to waterlog the Ho Chi Minh trail” (Ross 203). Through this effort, U.S. military operations and

given typhoon or hurricane season are hazards, these storms become disasters when they cause death, social and environmental damage, and significant disruptions in daily life. In terms of aerial warfare, arsenals of bombs and weapons of mass destruction can be viewed as hazards, but they become disasters when they are dropped onto a target, which can include either a human population or a non-human ecosystem.

weather conditions were effectively merged with the weaponization of the weather itself.

However, unlike the neutral atmospheric forces that aerial warfare attempts to mimic, manipulate, or even weaponize, this warfare is structured by a racialized logic. In *The Age of the World Target: Self-Referentiality in War, Theory, and Comparative Work* (2006), Rey Chow argues that after the creation and deployment of the atomic bomb, the United States viewed the rest of the world, and particularly non-Western sites, as a potential target. Chow asserts that this reliance on aerial warfare during the Cold War transformed “skies into war zones,” making it “impossible for the enemies to fight back,” and likewise impossible to distinguish between “enemy” and civilian on the ground (32). Such conditions of asymmetrical warfare transform people of color, and the land they reside on, into targets.

The U.S. nuclear testing performed at the Marshall Islands, and specifically Bikini and Enewetak atolls, is a blatant example of this racialized target practice. From 1946 to 1958, the U.S. military detonated a staggering 67 nuclear bombs on the atolls. These detonations were tied to laboratory experiments on the Marshallese people, as in the case of the Castle Bravo bomb in 1954. On the day of the Castle Bravo explosion, wind carried fallout from this bomb to the populated atolls of Rongelap, Ailinginae, Rongerik, and Utrik (Johnston, ““more like us than mice”” 39). Barbara Rose Johnston notes that Rongelapese were not evacuated from the atoll until three days later, and were subsequently “enrolled in medical studies documenting the long-term effects of radiation on a human population” (““more like us than mice””

39). These medical studies, which were titled Project 4.1, were motivated by an explicitly racist logic that cast Rongelapese as “primitive ‘natives’ [who were] [...] biologically inferior to Western ‘civilized people’” (Johnston, “‘more like us than mice’” 26). Per this logic, both Marshallese and the atolls of the Marshall Islands were coded by the U.S. government as expendable targets of destruction.

The first chapter of this dissertation examines this history of U.S. nuclear testing in the Marshall Islands within the context of the first claim of the project, that U.S. aerial warfare, and specifically nuclear bombings, act as weather disasters in and of themselves. The U.S. government’s medical experiments in the wake of the Bravo bomb were closely tied to previously classified weather forecasts that accurately predicted the direction of the wind and the path of fallout exposure just hours prior to the bomb’s explosion. This chapter examines the official weather forecasting reports leading up to the Bravo detonation to support my argument that while this bomb functioned at the level of a weather disaster for Marshallese on the ground—who had no control over the deadly fallout raining from above—this disaster was indeed a carefully planned and structured event by the U.S. military, one that was specifically designed to coordinate with prevailing wind directions to produce as much fallout exposure as possible.

Alongside this archive of weather reports, the first chapter analyzes literary narratives that present distinct representations of U.S. nuclear testing in the Marshall Islands. The first narrative comes from California ground zero fiction, a subgenre, coined by Mike Davis in *Ecology of Fear: Los Angeles and the Imagination of*

Disaster (1998), that depicts imaginary nuclear bombings in California, and particularly, the city of Los Angeles. This chapter analyzes Robert Moore Williams's ground zero novel, *The Day They H-Bombed Los Angeles* (1961), a text that equates imaginary nuclear bombings in Los Angeles with destructive storm systems. By naturalizing these bombings, the text, which assumes and proceeds from an earlier history of Indigenous displacement and erasure in California, maps a logic of violent historical erasure onto the Pacific through a revisionist account of U.S. nuclear testing in the Marshall Islands.

This chapter compares the revisionist narrative in Williams's novel to two works of literature that bring the ties between the weather and U.S. nuclear testing back to the social and cultural context of the Marshall Islands: Robert Barclay's *Meḷaḷ: A Novel of the Pacific* (2002) and Kathy Jetñil-Kijiner's *Iep Jāltok: Poems from a Marshallese Daughter* (2017). While Williams's text portrays imagined nuclear bombings in California that are tied to the aftermath of U.S. nuclear testing in the Marshall Islands, Barclay's *Meḷaḷ* reveals a decidedly different connection between California and the Marshall Islands, as the novel depicts ballistic missiles launched from California's Vandenberg Air Force Base to Kwajalein Atoll. *Meḷaḷ* explores the connections between weather conditions, atmospheric forces, nuclear testing, and contemporary ballistic missile testing in the Marshall Islands. However, instead of naturalizing nuclear weaponry and ballistic missiles, the novel highlights how atmospheric forces and weather conditions intersect with the disastrous and destructive force of the U.S. military's aerial operations in the Marshall Islands.

Moving from the timeline of immediate weather conditions to the long-term temporality of the climate, this chapter ends with a reading of Jetñil-Kijiner's poetry collection, *Iep Jāltok*, the first poetry collection ever published by a Marshallese author.⁸ *Iep Jāltok* highlights the interconnected histories and futures of nuclear testing, its toxic aftermaths, and climate change for the Republic of the Marshall Islands—a country that will soon be underwater if sea levels continue to rise at their current rates. By examining the close relationship between nuclear exile and climate change refugeehood within the context of Marshallese culture and life, Jetñil-Kijiner provides a much-needed counter narrative to the U.S. military's weather reports and Williams's revisionist, ground zero novel.

While the first chapter highlights the destructive force of the U.S. military's aerial operations, the second chapter examines the second claim of the dissertation, as I argue that Hollywood war films, and specifically Vietnam War films, compound on U.S. military violence by reproducing aerial warfare at shooting sites in Asia and the Pacific. This chapter uses the production history of Francis Ford Coppola's well-known Vietnam War film, *Apocalypse Now*, as a representative case study that illustrates this claim. *Apocalypse Now*, which was shot on the Philippine island of Luzon, caused immense damage with its elaborate special effects explosions—explosions that were designed to simulate the U.S. military's napalm bombings during the Vietnam War. This chapter draws from two important works of cultural

⁸ This collection was published by the University of Arizona Press. On the University of Arizona Press website, it states that “*Iep Jāltok* will make history as the first published book of poetry written by a Marshallese author, and it ushers in an important new voice for justice” (“*Iep Jāltok*”).

studies scholarship: Rolando B. Tolentino's "Popular Discourses of Vietnam in the Philippines" (2002) and Vernadette Vicuña Gonzalez's *Securing Paradise: Tourism and Militarism in Hawai'i and the Philippines* (2013). Tolentino examines both the destructive explosions in the film—explosions that, he writes, were meant to “bear the stamp of authenticity”—and the close ties between the film's production history and the U.S.-backed Marcos dictatorship (234). Related to this history, Gonzalez analyzes the use of both the Philippines and Hawai'i as stand-ins for Vietnam, or what she terms a “surrogate tropic” (151). This use of the Philippines and Hawai'i as surrogate Vietnams is structured by a logic that reduces the archipelagos to homogenized spaces where U.S. military violence during the Vietnam War can be simulated and reenacted. Indeed, both the Philippines and Hawai'i have been repeatedly used by Hollywood as shootings sites for American re-imaginings of the Vietnam War. Like Coppola's *Apocalypse Now*, Oliver Stone's *Platoon* (1986) and John Irvin's *Hamburger Hill* (1987) were shot on the Philippine island of Luzon, while Ted Kotcheff's *Uncommon Valor* (1983) and John Milius's *Flight of the Intruder* (1991) were filmed on the Hawaiian island of Kaua'i.

Building from Tolentino's and Gonzalez's work, this chapter investigates the intimate relationship between Hollywood and the U.S. military, a connection that is most readily apparent in Hollywood productions of war films. Using the militarized, environmentally destructive, and exploitative production history of *Apocalypse Now* as a case study, I argue that Coppola and his production crew's use of the Philippines to reenact the Vietnam War was a direct product of environmental racism.

Environmental racism is a term that was first coined by civil rights activist Benjamin F. Chavis, Jr. in relation to a landmark study created by the Commission for Racial Justice under the United Church of Christ. This study, titled *Toxic Wastes and Race in the United States* (1987), was the first national study to provide formal data documenting the existence of environmental racism in the United States. Carl A. Zimring writes that the term environmental racism was used by Chavis “to discuss the results of *Toxic Wastes and Race in the United States*” (1). In the wake of this study, in a 1993 interview with the magazine *Ebony*, Zimring notes that Chavis went on to identify environmental racism as ““the deliberate targeting of people-of-color communities for hazardous waste facilities, such as landfills and incinerators”” (qtd. in Zimring 2). This chapter applies Chavis’s definition of environmental racism to the context of *Apocalypse Now* and its shooting history in the Philippines. While this film was not a hazardous facility per say, it did rely on extensive, harmful explosions that were permitted in the absence of Philippine environmental regulations during the Marcos regime. Coppola capitalized on this lack of regulations to shoot an explosive Vietnam War film that would not be possible on U.S. soil. By re-shooting the Vietnam War in the Philippines, I argue that Coppola and his production crew blurred the boundaries between real U.S. warfare and cinematic reproduction of warfare, all while this filming created its own socio-environmental damage in the Philippines.

The destructive production of *Apocalypse Now* was temporarily delayed when Typhoon Didang, internationally known as Olga, hit Luzon on May 21, 1976. The storm caused extensive damage to numerous sets and closed shooting down for two

months, demonstrating that Coppola and his crew were indeed vulnerable to weather disasters—even while the film’s production arguably exacerbated the impact of typhoons by contributing to deforestation, coral reef damage, and soil erosion. While the shooting of this film was disrupted by Didang, the remainder of this chapter analyzes literary adaptations of *Apocalypse Now* that figuratively disrupt uncritical celebrations of Coppola’s highly acclaimed film. Through a reading of Rodney Morales’s short story collection, *The Speed of Darkness* (1988), Barbara Jane Reyes book-length poem, *Poeta en San Francisco* (2005), Jessica Hagedorn’s novel, *Dream Jungle* (2003), and Viet Thanh Nguyen’s novel, *The Sympathizer* (2015), I argue that these literary adaptations, written by authors of color, counter the mythologization of *Apocalypse Now* by highlighting the racialized and environmental implications of the film’s blurring of cinematic warfare and real warfare.

Although the U.S. military’s aerial operations create their own types of disasters—disasters that mimic atmospheric forces and that are exacerbated by Hollywood simulations—the weather still poses a very real threat to the functioning of the U.S. military-industrial-complex. This brings me to the third and final claim of the dissertation, as I argue that the U.S. military is quite vulnerable to extreme weather in the Pacific, and particularly destructive typhoons. The last chapter explores this claim by analyzing the militarized history of weather forecasting and gendered storm naming within the context of the Pacific Theater of World War II. This history begins with a reading of Herman Wouk’s *The Caine Mutiny: A Novel of World War II* (1951), a novel that, while fictional, depicts the real occurrence of

Typhoon Cobra, a 1944 storm that intercepted the U.S. Pacific Fleet while it was operating in the Philippine Sea. This typhoon, which resulted in the deaths of numerous service members and the destruction of military vessels, was the catalyst behind the U.S. military's creation of a typhoon forecasting center, now known as the Joint Typhoon Warning Center—a center that was first based in Guam and then relocated to Pearl Harbor, Hawai'i. While stationed in Guam, this center was ironically incapacitated by the very same typhoons it was tasked with forecasting.

While Typhoon Cobra led to the creation of the military's Joint Typhoon Warning Center, I argue that this storm was also connected to the military's adoption of a gendered storm-naming system—a system developed the same year as Cobra that used exclusively female names to differentiate tropical cyclones. Drawing from Liz Skilton's *Tempest: Hurricane Naming and American Culture* (2019), which provides an extensive, historical account of gendered storm naming in the United States, this chapter analyzes the literary and historical emergence of a storm-naming system during World War II that used solely female names, and more specifically, “the names of meteorologists' and soldiers' girlfriends and wives” (Skilton 25). Through an analysis of Reid Bryson's oral history account, an Air Force meteorologist and later professor of meteorology who developed this storm-naming system, I argue that while gendered storm naming relied on a misogynist logic that equated women with death and destruction, this naming system was underpinned and structured by the U.S. military's vulnerability to weather disasters—a vulnerability that military

meteorologists tried to mitigate by naming, gendering, and meticulously tracking storms.

The history of this storm-naming system is inextricably tied to George Stewart's novel, *Storm* (1941). This narrative follows the trajectory of a fictional storm, named Maria, and features a character, known as the Junior Meteorologist, who develops his own secret storm-naming system, one that relies entirely on female names. The novel, which was exceedingly popular at the time of its publication, was the direct inspiration behind Bryson's own storm-naming system, a point that Bryson illustrates in a 1986 interview with Laura Smail for the University of Wisconsin Archives Oral History Project. This chapter performs a critical reading of Stewart's novel that analyzes both the storm-naming system in the text and the narrative's sexualized portrayal of gendered storms, (with Maria being the most notable example), to expose the misogynist framework structuring the storm-naming practice that was ultimately adopted by the U.S. military, and later, the World Meteorological Organization.

This final chapter ends by comparing the misogynist framework behind gendered storm naming, and specifically the feminization of storms, with the gendering of another force of disaster: nuclear bombs. While Bryson's storm-naming system was derived from a novel, the names of the nuclear bombs from the Manhattan Project, and subsequently, the first nuclear tests conducted in the Marshall Islands, were also based on popular literary and filmic narratives. However, unlike the consistent feminization of storms, the gendering of nuclear bombs shifted as the

development of these weapons progressed. While the bombs dropped on Hiroshima and Nagasaki in 1945 were given explicitly masculine names, one year later, the bombs dropped on Bikini Atoll during Operation Crossroads were coded as female and likened to femme fatale figures. This chapter explores the distinct gendering of these two forms of disaster, storm systems and nuclear bombs, and uses this analysis of gendered naming to highlight the vulnerability of the U.S. military-industrial-complex to extreme weather, a vulnerability that continues to escalate in our current era of climate change.

Texts from Above and Texts from Below

This introduction closes with an overview of the methodology and logic behind the selection and analyses of literary, filmic, and archival texts in this dissertation. The chapters in this dissertation examine disasters, both U.S. military bombings and destructive storms, from above and below. In other words, this project seeks to elucidate both the U.S. military's views on weather and its aerial operations, classified as a view from above, and the distinctly different views and experiences of those on the ground, or a view from below—a view that encompasses communities of color that are subjected to the forces of weather disasters, environmental racism, bombing operations, and the generational legacies of said operations.

This same analytical logic, comparing the view from above to the view from below, governs the selection and readings of texts in this dissertation. The chapters in this project feature texts from above, or texts that align with the dominance of the U.S. military-industrial-complex, and texts from below, or texts that critique and

resist the racialized and environmental consequences of U.S. military power. The texts from below, which are primarily written by authors of color residing in both the Global North and the Global South, highlight the crucial role that the U.S. military-industrial-complex plays in the continuation of U.S. empire.⁹ These texts position U.S. militarization in Asia and the Pacific as, in the words of Setsu Shigematsu and Keith L. Camacho, “an *extension of colonialism* and its gendered and racialized processes” (xv).

As such, this dissertation applies different reading methodologies to texts from above and texts from below. I read texts from above, (such as U.S. military archives, California ground zero novels, Coppola’s *Apocalypse Now*, Wouk’s *The Caine Mutiny*, and Stewart’s *Storm*), against the grain. Reading against the grain is a practice, defined by David Bartholomae, Anthony Petrosky, and Stacey Waite, that requires the reader to “read critically, to turn back, for example, *against*” the framework of the text, “to look for the limits of [...] [the author’s] vision,” and “to provide alternate readings” (10). Applying this reading methodology, (also known as resistant reading), to texts from above, works to expose the racialized, gendered, and ecological impacts of U.S. military operations and Hollywood simulations, as they take on the destructive force of disasters in and of themselves. This form of reading and historical analysis aligns with Walter Benjamin’s famous imperative “to brush history against the grain” (257).

⁹ All of the texts from below analyzed in this dissertation are written by authors of color, with the exception of Barclay’s *Me!a!l*. Although Barclay is not a person of color, he grew up on Kwajalein Atoll in the Marshall Islands, and this experience influences much of his novel.

In contrast to reading against the grain, this dissertation uses the methodology of reading with the grain for texts from below, such as Jetñil-Kijiner's *Iep Jāltok*, Morales's *The Speed of Darkness*, Reyes *Poeta en San Francisco*, Hagedorn's *Dream Jungle*, Barclay's *Me!a!*, and Nguyen's *The Sympathizer*. Unlike reading against the grain, reading texts with the grain is a practice that requires the reader to "read generously, to work inside someone else's system" and views as a means "of working with a writer's ideas" (Bartholomae et al. 10). By reading texts from below with the grain, this dissertation posits these texts as illuminating counter-narratives that challenge U.S. military dominance and its destructive force in Asia and the Pacific.

Chapter 1

Atmospheric Nuclear Testing and the Weather: Hydrogen Bombs, Winds, and Storms from the Marshall Islands to California

Not long after the light from Bravo, it began to snow in Rongelap. We had heard about snow from the missionaries and other westerners who had come to our islands, but this was the first time we saw white particles fall from the sky and cover our village. (25)

—Lijon Eknilang, International Court of Justice (1995)

The above epigraph was presented by Lijon Eknilang, an activist and former resident of Rongelap Atoll in the Marshall Islands, to the advisory proceedings on the Legality of the Threat or Use of Nuclear Weapons at the International Court of Justice in 1995.¹⁰ In her testimony, Eknilang described the explosion of the Castle Bravo bomb, a 15-megaton hydrogen bomb detonated on Bikini Atoll as part of the U.S. military's Cold War nuclear testing operations in the Marshall Islands. This bomb, detonated on March 1, 1954 during Operation Castle, remains the largest and dirtiest nuclear weapon ever used by the United States. After Bravo's explosion, wind carried its extensive fallout to the populated atolls of Rongelap, Ailinginae, Rongerik, and Utrik, directly exposing Marshallese living there to dangerous radioactive particles, which were mistaken for snow (Johnston, "'more like us than mice'" 39). Eknilang,

¹⁰ Lijon Eknilang passed away in August 2012. In "Nuclear Disaster" (2015), Barbara Rose Johnston examines Eknilang's International Court of Justice testimony and highlights the extraordinary legacy of her anti-nuclear activism. Johnston writes that Eknilang "traveled the world sharing her lived experience in various political arenas, giving voice to the human suffering resulting from nuclear militarism in the Marshall Islands" (143). In addition to her ICJ testimony, Johnston notes that Eknilang "spoke at the first World Uranium Hearing in Salzburg in 1992, and her testimony was so memorable that more than twenty years later her story of the Marshallese plight was recounted in a speech by Navajo Nation President Joe Shirley, Jr. at the opening of the second Indigenous World Uranium Summit" (143).

who was just eight years old at the time of the test, recounted in her testimony that, “in 1954, Marshallese children and their parents did not know that the snow was radioactive fall-out from the Bravo shot. The fall-out that our bodies were exposed to caused the blisters and other sores we experienced over the weeks that followed. Many of us lost our hair, too” (International Court of Justice 25).¹¹ This fallout was pervasive and unavoidable in the aftermath of the test, as Eknilang stated that it “was in the air we breathed, in the fresh water we drank, and in the food we ate during the days after Bravo” (International Court of Justice 25). Indeed, Eknilang and her fellow Rongelapese were left on the contaminated atoll for two and a half days after the explosion, during which time they were trapped in a nuclear disaster zone with no recourse to escape.¹²

Eknilang’s description of radioactive snow blanketing Rongelap, snow that was blown over by the wind, frames the Bravo bomb as a type of weather disaster. While this disaster was intentionally created by the U.S. military, for Marshallese on the ground of the contaminated atolls, their lack of control over the bomb and its radioactive fallout dropping from the sky was akin to the lack of control they would have over a typhoon or other weather disaster. In fact, nobody “informed the islanders of the impending test, and the massive fireball that appeared in the sky after the detonation was mistaken for a second sunrise by terrified witnesses” (Keown 936).

¹¹ As a result of her exposure, Eknilang suffered numerous health issues, such as severe miscarriages, infertility, and thyroid problems (International Court of Justice 26-7).

¹² In her article, “Children of Israel” (2017), Keown notes that while the inhabitants of Rongelap were not evacuated “until the morning of the third day after the detonation,” the inhabitants of Utrik “were not evacuated until the fourth day after the blast” (936-7).

This fireball “completely vaporized three islands on Bikini Atoll and left a mile-wide crater through the reef” (S. Davis 53). After the explosion, residents of the contaminated atolls were likewise not warned about the dangers of the fallout raining down on them, as children played in the toxic powder, much like how children might play in snow or rain puddles in the aftermath of a storm. This direct exposure resulted in radiation poisoning and serious health issues that have plagued Marshallese for generations. As such, the vast social devastation and environmental damage generated by the Bravo bomb is a crucial example of a U.S. military aerial operation functioning at the level of a weather disaster not only because this devastation came from the sky, literally raining down on the Marshall Islands, but because the Marshallese on the receiving end of this disaster had no control over this weapon of mass destruction and its deadly fallout, and were instead subjected to the whims, plans, and calculations of the U.S. government.

Unlike the neutral atmospheric forces of weather disasters, the U.S. military’s plans for nuclear testing in the Pacific hinged on a racialized logic that cast Marshallese as dehumanized, test subjects for scientific experimentation. In her foundational essay, “‘more like us than mice’: Radiation Experiments with Indigenous Peoples” (2007), Barbara Rose Johnston notes that after the delayed evacuations from their atolls, the people of Rongelap, Ailinginae, and Utrik were enrolled as test subjects in Project 4.1, a medical study “documenting the long-term effects of radiation on a human population” (39). Biological samples were collected, and three years after the Bravo explosion, in 1957, “the Rongelapese were returned to

their atoll to live in what was then known to US scientists to be a heavily contaminated environment” (Johnston, ““more like us than mice”” 39). Eknilang stated in her testimony that upon their return to Rongelap, many of the atoll’s staple foods either disappeared or made them extremely sick:

Some of our food crops, such as arrowroot, completely disappeared. Makmok, or tapioca plants, stopped bearing fruit. What we did eat gave us blisters on our lips and in our mouths and we suffered terrible stomach problems and nausea. Some of the fish we caught caused the same problems. (International Court of Justice 26)

Meanwhile, amid this unsustainable environment, U.S. medical survey teams continued to examine the population of Rongelap, visiting the atoll on an annual basis to collect data on how Rongelapese were responding to their toxic surroundings.

Project 4.1 blatantly treated Marshallese as subhuman test subjects, as these “medical survey visits prioritized documentation and further experimentation, not treatment,” while the people of Rongelap “were not informed of the dangers of living in a radioactive setting until 1982” (Johnston, ““more like us than mice”” 39). In fact, Johnston notes that Merril Eisenbud, former director of the Atomic Energy Commission (AEC) Health and Safety Laboratory, directly compared Marshallese to mice when discussing radiation experiments, relying on a racist hierarchy that dubbed Marshallese as “primitive ‘natives’” who were “biologically inferior to Western ‘civilized people’” (““more like us than mice”” 26). This hierarchy was used to “dampen any moral qualms about the planned use of a Marshallese population in human radiation experiments” (Johnston, ““more like us than mice”” 26).

These dehumanizing experiments were made possible by official weather forecasts that predicted the direction of the wind prior to the Bravo explosion. Christine Hong writes, “Tellingly, although weather reports before the Bravo blast indicated that Rongelap, Rongerik, and Utirik would be in the direction of radioactive fallout, the U.S. military did not evacuate the islanders for three days” (123). Indeed, the final report of the Advisory Committee on Human Radiation Experiments (ACHRE), which was released in 1995, indicates that representatives for Republic of the Marshall Islands presented to the advisory committee “to support their contention that by ignoring forecasts about the weather patterns at the time of the Bravo shot, [...] the U.S. government was using the Marshallese as guinea pigs in a deliberate human radiation experiment” (585). Michelle Keown asserts that these weather forecasting reports, which were declassified in the 1990s, “reveal that just six hours prior to the BRAVO test, the military was informed by government meteorologists that the wind was blowing in the direction of the inhabited islands of Rongelap and Rongerik” (937). Despite this knowledge, the U.S. military “chose to detonate the bomb without evacuating the islanders, even though evacuations had taken place for previous – and smaller – atomic bomb tests” (Keown 937). These previously classified weather reports thus highlight a key connection between weather forecasting and the U.S. government’s use of Marshallese as racialized test subjects in the aftermath of the Bravo explosion.

This chapter examines the intimate ties between weather forecasting and the U.S. military’s atmospheric nuclear testing in a transpacific context, tracing the real

and imaginary circulations of nuclear bombs, missiles, storms, and wind between the Marshall Islands and the Pacific-facing state of California. While the nuclear explosions detonated in the Marshall Islands became weather disasters in and of themselves, weather forecasting was integral to the operations of the U.S. military's nuclear testing program and the human radiation experiments that followed. Previously classified weather reports, which predicted the exposure of Marshallese to fallout long before the Bravo detonation, were linked to the U.S. government's scientific investment in understanding how this bomb affected the weather, as Operation Castle became an opportunity to study both the effects of radiation on a human population and the effects of hydrogen bombs on weather systems in the Pacific. This understanding of nuclear weapons as atmospheric forces with the potential to alter the weather became tied to a naturalization of nuclear bombs in the American imaginary, a naturalization that was deepened by U.S. Cold War narratives, and particularly California ground zero fiction—a subgenre coined by Mike Davis that depicts imagined nuclear bombings in California, with a special emphasis on the city of Los Angeles. Through a reading of Robert Moore Williams's *The Day They H-Bombed Los Angeles* (1961), a representative example of the ground zero subgenre that likens the explosion of hydrogen bombs to hurricanes and rainstorms, I argue that by merging nuclear explosions with weather disasters, this novel creates a revisionist narrative that problematically rewrites the racist history of U.S. nuclear testing in the Marshall Islands, all while reenacting the white supremacist violence of the frontier.

The last section of this chapter turns to two works of Pacific literature that bring the ties between the weather and U.S. nuclear testing back to the social and cultural context of the Marshall Islands: Robert Barclay's *Meḷaḷ: A Novel of the Pacific* (2002) and Kathy Jetñil-Kijiner's *Iep Jāltok: Poems from a Marshallese Daughter* (2017). While Williams's ground zero novel portrays imagined nuclear bombings in California, Barclay's *Meḷaḷ* reveals that California is in fact the site launching the bombs, as seen in the novel's depiction of ballistic missiles launched from California's Vandenberg Airforce Base to Kwajalein Atoll. *Meḷaḷ* describes the nuclear bombings of Bikini and Enewetak atolls as atmospheric forces that merge with storm clouds and thunder, while the ballistic missiles launched from California are monitored by weather rockets—rockets which verify if a storm will interrupt the trajectory of said missiles. However, instead of naturalizing missiles and nuclear weaponry, this novel demonstrates how atmospheric forces materially shape the disastrous outcomes of both the U.S. military's previous bombing operations and its contemporary missile testing in the Marshall Islands.

Building from this connection between immediate weather conditions and bombings, Jetñil-Kijiner's poetry collection, *Iep Jāltok*, applies a long-term perspective to this relationship by linking the prolonged aftermath of U.S. nuclear testing to ongoing climate change and its grim future for the Republic of the Marshall Islands. The poems in this collection highlight a direct relationship between nuclear exile and climate change refugeehood. As nuclear testing forced the people of Bikini, Rongelap, and Enewetak atolls into indefinite exile, the rising sea levels of climate

change now threaten to consume the nation entirely, creating a second round of exile and refugeehood for Marshallese. By exploring these linked forms of displacement, *Iep Jāltok* provides a critical counter-narrative to the U.S. military's weather reports and the revisionist accounts of California ground zero fiction, all while showcasing the devastating impact of the nexus between weather, climate, and nuclear testing for Marshallese—an impact that stretches well into the 21st century.

Weather Forecasting, Radioactive Winds, and Project 4.1

Between 1946 and 1958, the U.S. military conducted sixty-seven nuclear tests on Bikini Atoll and Enewetak Atoll. These atmospheric and underwater nuclear tests were sanctioned in the aftermath of World War II, when “the United States administered the Marshall Islands as part of a United Nations trust territory” (Shewry, *Hope at Sea* 167). In her visionary article, “bikinis and other s/pacific n/oceans” (1994), Teresia Teaiwa asserts that Bikini Atoll was chosen as the central site of the U.S. military's testing program because “the islands were in a climatic zone [relatively] free of storms and cold temperatures,” the population was considered “small enough to be relocated,” and the Marshall Islands “were at least five hundred miles from all sea and air routes” (89).¹³ While the geographical positioning of the Marshall Islands guaranteed that the U.S. mainland would not be directly contaminated by radioactive fallout, the islands' weather patterns ensured that intense, tropical cyclones would not frequently disrupt planned explosions. As such,

¹³ In this article, Teaiwa explores the hyper-visibility of the bikini bathing suit and the invisibility of nuclear testing at Bikini Atoll, which she argues is “render[ed] invisible” in the popular imaginary through the “excessive visibility” of the bikini bathing suit (87).

weather became a central factor in the U.S. government's decision to use Bikini Atoll for its nuclear experiments in the Pacific.

Starting with the first nuclear test in 1946, dubbed Operation Crossroads, which involved the above water and underwater detonations of two atomic bombs in Bikini Lagoon, the military showed a clear investment in understanding Bikini Atoll's weather patterns. In a final report on Operation Crossroads prepared by the Defense Nuclear Agency, the authors describe the cyclical rainfall of the region, stating that while "[s]torms are infrequent," those typhoons that do form are generally predictable, with "most tropical storms occur[ring] from September to December" (Berkhouse et al. 29). The report goes on to highlight the atoll's wind patterns, asserting that one of the "many advantages to testing at Bikini" was that it provides "normally steady directional winds to clear the airborne test debris" (Berkhouse et al. 31). These seemingly advantageous wind patterns became the subject of intensive scrutiny as the nuclear testing program continued.

As the U.S. military ramped up the destructive force of its tests, shifting from atomic to hydrogen bombs, government meteorologists conducted detailed reports on the seasonal wind patterns of the Marshall Islands. In preparation for Operation Castle in 1954, which consisted of six thermonuclear tests, the first being the Bravo bomb, a weather report on Bikini and Enewetak atolls was completed. This report described the planned period of Operation Castle, which spanned from March to April, as the "'trade' season" in the Marshall Islands, with "east-no[r]th-east to northeast winds prevail[ing] in the lower levels, the wind speeds ranging between 10

to 20 knots” (“Climatology of the Eniwetok” 1). However, the report notes that these wind directions often change at higher altitudes, stating that “as one goes aloft, one finds that the winds turn more westerly with elevation until at about 20,000 feet they lie between northwest and southwest” (“Climatology of the Eniwetok” 1). The report concludes by ominously warning that this changing wind direction at different altitudes could have a direct impact on Operation Castle, asserting that “easterly winds [...] becoming very strong westerlies” is the “situation [...] to be the most wary of during this period of operations” (“Climatology of the Eniwetok” 2).

As predicted by the climatology report, there were indeed prevalent westerly winds on the day of the Bravo explosion, which blew radioactive fallout to populated atolls. Keown notes that the “official US explanation” for the disastrous contamination of the Bravo bomb “was that wind direction had changed unexpectedly and that they had not anticipated that islanders would be exposed to fallout” (937). However, not only did the climatology report warn of a possible change in wind routes to a westerly direction, but detailed and extensive weather forecasts documented in the days and hours leading up to the Bravo explosion indicate that the U.S. military was well aware of what direction the wind was blowing and fully anticipated the exposure of populated atolls, particularly Rongelap and Rongerik, in the aftermath of the bomb’s detonation.

In an April 12, 1954 memorandum on the Bravo shot, completed by Alvin C. Graves and P.W. Clarkson, a scientific director and U.S. Army Commander respectively, the authors state that “[w]eather conditions during the five days prior to

BRAVO indicated a favorable trend for BRAVO day with easterly winds below 15,000 feet and winds of a southerly component above” (3). However, even during these initial forecasts, there were early indications that the wind direction was changing, as the period “18 hours after shot time was predicted to give an unfavorable trend as northwest winds were forecast for the 10,000 to 20,000 foot levels” (Graves and Clarkson 3). This “unfavorable trend” was readily apparent by the midnight before the 6:45 a.m. explosion, as “winds at about 20,000 feet were forecast in the direction of Rongelap and Rongerik” (House, “Tab B” 1). During the midnight briefing, a “hodograph plot was made using the 10 thousand foot westerly wind in order to present” a clearer picture of this wind’s direction and anticipated fallout exposure (House, “Command Briefing” 1).¹⁴ RadSafe officer Richard A. House writes in the memorandum for this briefing that the picture from the hodograph “gave resultant winds in the direction of Rongelap and Rongerik,” which included “a six hour fall-out line in the direction of the populated atolls in the southeast quadrant about 15 to 20 miles out from ground zero” (“Command Briefing” 1).

Despite this admission that fallout would indeed reach Rongelap and Rongerik within hours after the explosion, there is no discussion in the briefing report about evacuating Marshallese from these atolls, nor is there any recommendation to warn

¹⁴ Hodographs, which are used to display the “velocity profile of the winds aloft,” are essentially “plots of the path a weather balloon would take following its release” (Kunkle and Ristvet 40). In their report, titled *Castle Bravo* (2013), Thomas Kunkle and Byron Ristvet note that the “concern following the BRAVO detonation was, of course, not weather balloons floating upward, but small radioactive particles falling downward” (42).

residents about the impending fallout. Instead, it was recommended that the Task Force ships with U.S. personnel, which were positioned on “the outer edge of the six hour fall-out” zone, “be moved further out on a radial line to at least 50 miles” to afford them some protection from the blast (House, “Command Briefing” 2). By the time of the final weather check, completed at 4:30 a.m., just a little over two hours before the Bravo detonation, the U.S. military was fully aware of the wind direction and that populated atolls would be in the immediate path of radioactive fallout. The final memorandum is ominously brief, with just two listed items, the second providing a “general recommendation” for “minimizing the effects of the low level northerly and westerly winds” (House, “Final Weather and RadSafe Check” 1).

The U.S. government quickly capitalized on the effects of these winds by launching Project 4.1. This study was a strategic opportunity for the U.S. government to examine “the first instance in which a large group of people received a significant internal contamination from fission products with an accompanying external dose of less than lethal magnitude,” as noted in the addendum report to Project 4.1 (Cohn et al. 11). In this addendum report, S.H. Cohn and co-authors write that Project 4.1 was designed to examine both internal and external environmental exposure over the course of a long-term timeline, with the objectives of “evaluat[ing] the contribution of the internal contamination to the acute and long-term radiation syndrome” and “determin[ing] the amount and type of contamination sustained by exposed animals, food plants, soil, and water of the contaminated atolls” (11).

The long-term health effects of this exposure have indeed been borne out by Marshallese bodies and carried across generations. Johnston writes that Project 4.1 “documented significant burns, hair loss, depressed blood cell and leukocyte counts, flulike symptoms, fingernail discoloration, nausea, and radioisotope activity in the urine as a result of acute external exposure” (““more like us than mice”” 39-40). As time continued, and Rongelapese were subjected to further exposure through repatriation to their home atoll, they suffered an array of health issues, ranging from cancers, particularly thyroid cancer and leukemia, to miscarriages, birth defects, and infertility. Johnston asserts that “US scientists fully expected adverse health effects to not only occur in the first generation of people exposed to fallout, but in the subsequent generations of people who live in a contaminated setting” (“Nuclear Disaster” 146). Per the logic of scientific racism, Marshallese were unknowingly used in an intergenerational, nuclear laboratory and cast as subhuman test subjects within a racialized hierarchy—a hierarchy designed to sanction the abuse and deaths of Marshallese bodies in exchange for the acquisition of scientific data on the effects of nuclear weapons.¹⁵ The wind and weather on the day of the Bravo bomb became a means for the U.S. government to conduct this experiment.

¹⁵ In the *Encyclopedia of Critical Psychology*, Michele A. Paludi and Shelley Haley define scientific racism as the “ways researchers have justified inequalities between races by relying upon pseudoscience, i.e., methodologically flawed science” (1697). They note that “scientific racism creates a hierarchy among races to support ideologies about racial supremacy,” and this hierarchy was used to justify slavery and uphold white supremacy (1697). In the case of the Marshall Islands, the hierarchy of scientific racism was used to classify Marshallese as racially “inferior” and justify the use of a non-consenting population in a nuclear experiment.

During the fourth meeting of the Advisory Committee on Human Radiation Experiments (ACHRE), a committee established by President Bill Clinton in 1994 to investigate the use of human subjects in U.S. government funded radiation experiments and research, Tony deBrum, former senator and foreign minister for the Marshall Islands, argued that the U.S. narrative of an unexpected wind change was merely a guise designed to mask the planned implementation of Project 4.1. During this July 1994 meeting, DeBrum, who grew up on Likiep Atoll and witnessed the explosion of the Bravo bomb as a young boy, stated before the committee that it “was no accident that people were exposed. The weather changes that were used as the excuses before were really not the case. It was very clear from the beginning that blowing up some of these devices would result in human exposure” (ACHRE, Testimony). Through an examination of then recently declassified documents, deBrum revealed that Project 4.1 was in fact conceptualized long before the March 1954 Bravo explosion, as he stated that the “first memo [...] referring to the Project 4.1 is dated 10 November 1953” (ACHRE, Testimony). Despite deBrum’s detailed and compelling case, the ACHRE concluded in their final report that they “found no evidence to support the claim that the exposure of the Marshallese, either initially or after resettlement, were motivated by research purposes” (585).

To this day, the U.S. government has yet to issue a formal apology to the Republic of the Marshall Islands for the protracted aftermath of its nuclear testing program, while the Nuclear Claims Tribunal of the Marshall Islands, which was created in 1988 to compensate the victims of the nuclear tests, has yet to “recognize

the human-subject experimentation [of Project 4.1] as a harm related to the nuclear weapons testing program and therefore deserving judicial remedy” (Johnston, ““more like us than mice”” 44). This tribunal remains grossly underfunded, as the U.S. government refuses to pay the billions of dollars in claims that it owes. Meanwhile, Bikini Atoll is still uninhabitable, leaving Bikini Islanders in permanent exile, and Marshallese across generations continue to suffer a myriad of health issues as a result of nuclear testing, radioactive exposure, and the long-lasting contamination of their islands.

Nuclear Clouds and the Impact of Hydrogen Bombs on the Weather

While official weather reports and forecasts for the Bravo bomb provide a clear picture of the U.S. military’s intentional contamination of populated atolls, the U.S. government was invested in determining how this hydrogen bomb and the subsequent explosions of Operation Castle altered the weather itself. A cloud photography project, known as Project 9.1, was conducted during Operation Castle, which involved personnel in aircrafts photographing and recording the “cloud-rise phenomena” in the aftermaths of thermonuclear detonations (*Operation Castle* 7). The goal of this project was to document “the dimensions and altitude of each nuclear cloud” over time, with particular emphasis on the early stages of cloud formation (*Operation Castle* 11). The 1955 report for Project 9.1 identifies this nuclear cloud as a type of violent storm, stating that this experiment is “vital to strategists, who need assurance whether a delivering aircraft can or cannot safely avoid the uprushing maelstrom” (*Operation Castle* 11). The U.S. military was invested in not only

documenting these nuclear clouds as their own type of weather disasters, but intended to use this documentation to dictate the maneuvers of their aircrafts in future nuclear bombing operations.

The labeling of nuclear clouds as their own weather systems, or maelstroms, in the Project 9.1 report draws from an earlier weather report on the Marshall Islands, which highlighted the potential for thermonuclear explosions to create their own subsequent weather disasters. This study, which was released in June 1953 and co-authored by Elbert W. Pate, a commander of the U.S. Navy, and Clarence E. Palmer, a professor from UCLA, examines “the three classes of weather situations that commonly occur in the Marshall Island area” and the possible intersections of these weather patterns with the testing of nuclear weapons (Kunkle and Ristvet 43). In his respective sections of the Pate-Palmer report, Pate speculated “that high-yield detonations might cause large-scale weather disturbances, including self-sustaining circulation patterns” (Kunkle and Ristvet 43). Thomas Kunkle and Byron Ristvet write in their report on the legacy of the Bravo bomb that Pate’s discussion of these “self-sustaining circulation patterns” sparked assumptions that nuclear explosions could cause typhoons and that the detonation of the Bravo bomb created its own “nuclear typhoon” (42). However, although the Bravo explosion “injected a great mass of debris into the stratosphere,” the detonation did not cause its own typhoon (Kunkle and Ristvet 38). This “nuclear typhoon” theory was ultimately debunked and criticized by U.S. military authorities, leading to the formal withdrawal of the Pate-Palmer report in December 1953 (Kunkle and Ristvet 45).

In an effort to better understand the impacts of the Bravo bomb and the other explosions of Operation Castle on the weather, the U.S. military's Joint Task Force Seven released a special report in October 1954 titled *The Effects of Castle Detonations Upon the Weather*. This report, co-authored by two lieutenant colonels from the Air Force, Carlos D. Bonnot, a staff weather officer, and Hershel H. Slater, the commander of the Task Force Weather Central, begins by addressing the possible links between hydrogen bomb detonations and weather disasters:

The detonation of the most powerful explosive device produced by man—a thermonuclear bomb—rightly concerns many as to the effects produced on the earth and its atmosphere. Detonation of atomic devices has led to conjecture that all manner of weather phenomena have resulted—droughts, floods, tornadoes and typhoons. Operation CASTLE offered an opportunity to observe qualitatively, at least, some of the effects, if any, of high yield explosions upon weather. (Bonnot and Slater ii)

Kunkle and Ristvet note that this introduction by Bonnot and Slater addresses the “Pate-Palmer controversy” and the theory that the Bravo detonation led to the formation of a nuclear typhoon (46). While this introduction works to temper the findings of the Pate-Palmer report, it also highlights an important connection between the U.S. military-constructed disaster of thermonuclear explosions and natural disasters, such as droughts, floods, and typhoons, in the American popular imaginary. In other words, while the opening statement of this report makes it clear that the link between these recognizable weather disasters and hydrogen bomb detonations has not yet been scientifically established, it nonetheless demonstrates that a naturalization of nuclear weapons was already beginning to take hold in popular sentiment, a

naturalization that classified thermonuclear bombs as their own type of weather disturbance.

Using an array of data sources, ranging from weather stations to aircraft surveillance and aerial photography, Bonnot and Slater's report goes on to document the relationship between the weather and the Operation Castle explosions (viii-ix). The authors provide detailed weather reports on each of the six thermonuclear explosions of Operation Castle, starting with the Bravo bomb. In the immediate aftermath of the Bravo detonation, the report indicates that there was an increase in cloud formation (Bonnot and Slater 1). Although there were no rainstorms after the explosion, Bonnot and Slater note that a "great cirriform cloud formed from the mushroom and spread slowly," reaching Enewetak Atoll five hours after the detonation (1).

The large, cirriform cloud that formed in Bravo's aftermath became a reoccurring theme in reports on subsequent explosions, such as the Castle Romeo test. The Romeo bomb, which was detonated on March 27, 1954 "as a water surface shot from a barge in the BRAVO crater in approximately 110 feet of water," produced "a thick persistent deck of cirrostratus cloud" that "spread over the whole northern Marshalls" four hours after the detonation (Bonnot and Slater 8-9). This cirrostratus cloud, which remained intact throughout both the day of the test and the following day, was strikingly similar to the cirrostratus cloud that formed in the aftermath of the Bravo explosion, as it "varied in density and had the ribbed appearance seen in connection with BRAVO" (Bonnot and Slater 9). Cloud formation continued to be a

key point of discussion in the weather reports on the rest of the Operation Castle explosions, with no apparent links drawn between rain and thermonuclear tests. The report concludes by stating that while the nuclear explosions of Operation Castle “produced considerable amounts of high cloud at cirrus level” and moderate “amounts of middle cloud,” there “was no significant change in the shower activity following the first five detonations” (Bonnot and Slater 76).

Although the Operation Castle detonations did not appear to cause any storms, their impact on cloud formation indicates that these bombs do indeed alter atmospheric conditions. This change in atmospheric conditions is intensified by the phenomenon of “stratospheric trapping,” when debris from the troposphere, “the layer of Earth’s atmosphere closest to the surface,” is “injected into the stratosphere,” the atmospheric region above the troposphere (Kunkle and Ristvet 37). In the aftermath of a nuclear explosion, radioactive debris is injected into the troposphere and “tends to remain in the stratosphere,” potentially changing global temperatures (Kunkle and Ristvet 37).¹⁶ In the case of the Bravo explosion, “relatively large particles were swept up into the stratosphere within the rising fireball,” and “these particles fell rapidly back to earth” in a short-lived process of stratospheric trapping (Kunkle and Ristvet 52). While these concentrated, radioactive particles rained directly on the

¹⁶ The change in temperatures from a nuclear explosion led to the development of the nuclear winter theory in the 1980s. In the event of a nuclear war, scientists speculated that “the fires started by nuclear weapons, especially the black, sooty smoke from cities and industrial facilities, would be heated by the Sun, lofted into the upper stratosphere, and spread globally, lasting for years” (Robock 418). This would create a dramatic decrease in surface temperatures, and the “resulting cool, dark, dry conditions at Earth’s surface would prevent crop growth for at least one growing season, resulting in mass starvation over most of the world” (Robock 418).

Marshall Islands, the residual fallout dispersed and “eventually [covered] the planet’s atmosphere with radioactive strontium, cesium, and iodine” (DeLoughrey 244).

Consequently, the Bravo bomb and its toxic aftermath became part of the atmosphere on a global scale, as its “fallout was detected in rain over Japan, in lubricating oil of Indian aircraft, in winds over Australia, and in the sky over the United States and Europe” (DeLoughrey 244). From generating contaminated clouds that linger in the sky, to injecting radioactive particles into the stratosphere and the lower levels of the atmosphere, particles that are absorbed by winds and weather systems, hydrogen bombs are indeed an atmospheric force—a force that creates its own toxic, weather disaster, especially for those on the direct, receiving end of the fallout.

California’s Nuclear Ties to the Marshall Islands

While the U.S. military was invested in understanding how their bomb tests altered the weather, as this information could prove critical for future operations, nuclear weapons often became equated with the weather in American popular discourse. In “Heliotropes: Solar Ecologies and Pacific Radiations” (2011), Elizabeth DeLoughrey writes that in “American Cold War propaganda, these weapons of mass destruction were naturalized by likening them to harnessing the power of the sun, and their radioactive by-products were depicted as no less dangerous than our daily sunshine” (236). She notes that during this period these weapons “became so naturalized that the American public casually blamed any inclement weather on the atomic bomb” (236). California ground zero fiction published during the Cold War, a subgenre of disaster fiction coined by Mike Davis that imagines various scenarios of

nuclear bombings in California, and particularly Los Angeles, deepened this naturalization in the American imaginary by likening the detonation of nuclear bombs to weather disasters, such as hurricanes and intense rainstorms. This literary naturalization obscured the dangerous impact of these devices and created a revisionist account of U.S. nuclear testing in the Marshall Islands.

California ground zero fiction, and its revisionist narratives of nuclear testing, must be situated within the larger context of the relationship between California and the Marshall Islands. Although the state of California may, at first glance, seem removed from the Marshall Islands, it is in fact a key site for engaging with the history of U.S. nuclear testing in the Pacific. California is irrevocably tied to the birth of the atomic bomb, as the infamous Manhattan Project was directly supported by the University of California. After Ernest Lawrence's invention of a particle accelerator, (known as the cyclotron), at UC Berkeley's Radiation Laboratory, the "University of California regents secretly assumed management of a top-security campus in New Mexico, whose budget soon far exceeded that of the university at Berkeley" (Brecht 319). This research laboratory in Los Alamos, which was directed by UC Berkeley physicist J. Robert Oppenheimer, was the headquarters of the Manhattan Project and the site where the first atomic bombs were developed, including the Little Boy and Fat Man bombs that were dropped on Hiroshima and Nagasaki. In the aftermath of the bombings of Japan, the University of California continued its management of the Los Alamos lab, and in 1952 the "Atomic Energy Commission established yet another top-security campus just south of Berkeley," which became the "Livermore

branch of the University of California Radiation Laboratory” (Brechin 323). Gray Brechin notes that both of these University of California laboratories were directly tied to nuclear testing in the Marshall Islands and that the rivalry between these two sites fueled the production of “newer generations of weapons” that were more destructive than their predecessors (323). These weapons were in turn detonated on Bikini and Enewetak atolls, “where University of California regents and their Nobel laureates occasionally enjoyed the spectacle of thermonuclear fireballs,” fireballs that were developed in their very own research laboratories (Brechin 325).

While the University of California was materially tied to the bombs dropped on the Marshall Islands, California’s cultural empire, Hollywood, participated by documenting these nuclear operations. DeLoughrey writes that “hundreds of Hollywood photographers and film makers were hired by the U.S. military to produce the spectral aesthetics of violence,” and capture the nuclear detonations at Bikini and Enewetak atolls (240). The U.S. military used these photographs to create postcards that were given “as keepsakes for their soldiers”—all while Hollywood used the atolls as their own cinematic laboratories, accumulating an extensive “photographic and cinematic archive” that “was distributed worldwide and is now ubiquitous on the Internet” (DeLoughrey 240). Amid Hollywood’s extensive documentation of these nuclear tests, California once again became a site of material connection with the Marshall Islands when Hunter’s Point Naval Shipyard, located in San Francisco and formerly “the largest dry dock on the West Coast,” was used to decontaminate and dispose of warships that were irradiated during Operation Crossroads (Dillon 1215).

As such, different institutions and sites of California were at once a toxic dumping ground, a cinematic and photographic recorder, and a financial sponsor and research developer for the nuclear tests conducted at Bikini and Enewetak atolls, forging an intimate, nuclear tie between California and the Marshall Islands.

Revisionist History and the Racialized Frontier in Ground Zero Fiction

California ground zero novels, such as Robert Moore Williams's *The Day They H-Bombed Los Angeles* (1961), deepened this tie between California and the Marshall Islands by engaging with the history of U.S. nuclear testing at Bikini Atoll. Williams's novel rewrites the aftermaths of Operation Crossroads and Operation Castle by relocating them onto the California landscape, specifically focusing on white populations residing in the Los Angeles region. This displacement of U.S. nuclear testing to California's soil is tied to the merging of hydrogen bombs with weather disasters. By naturalizing nuclear bombings and positing white characters as the targets and survivors of nuclear violence, this ground zero narrative neutralizes the racist history of U.S. nuclear testing in the Marshall Islands, mapping a violent logic of erasure onto the Pacific that stems from the genocide of the frontier.

Before reading *The Day They H-Bombed Los Angeles*, it is necessary to understand the novel's ties to the ground zero and nuclear frontier subgenres. In *Ecology of Fear: Los Angeles and the Imagination of Disaster* (1998), Mike Davis situates Williams's novel within the larger genre of Los Angeles disaster fiction. Although California is often a site of focus for disaster narratives, he notes that Los Angeles, in particular, holds a special pull within disaster fiction. Through an

extensive survey of this genre, Mike Davis argues that the frequency of Los Angeles's fictional destruction is "rooted in racial anxiety" that evolved over the course of the genre's development (281). He writes that in "novels written before 1970, when Los Angeles was still the most WASPish of large American cities, racial hysteria was typically expressed as fear of" people of color invading the city, while in the years following "1970, with the rise of a non-Anglo majority in Los Angeles County, the city turns from an endangered home into the Alien itself; and its destruction affords an illicit pleasure not always visible in previous annihilations" (282). Within this larger landscape of racial anxiety, Mike Davis asserts that Los Angeles "disaster fiction can be categorized into coherent subgenres," one of which is what he terms the "ground zero" subgenre (280). Davis notes that this subgenre gained popularity between the 1940s and 1980s, a period that covers both the nuclear bombings of Japan in 1945 and the duration of the nuclear testing program in the Marshall Islands. As such, the development of the ground zero subgenre was tied to the emergence "of hypothetical narrative[s] where writers try to imagine a nuclear attack by transposing aspects of the Hiroshima and Nagasaki bombings and the Pacific tests onto the American scene," and Los Angeles was often the central locale for these imaginings (Seed 48-9).

This preoccupation with a nuclear attack on Los Angeles was reflected in newspaper articles that were published during the U.S. military's nuclear program in the Marshall Islands. These articles describe in detail what would happen to the city in the event of an underwater, atomic detonation or a hydrogen bomb explosion. In a

1949 article for the *Los Angeles Times*, journalist William S. Barton warns that “Los Angeles might have to be abandoned as a city temporarily if Russia should explode an atomic bomb beneath the ocean surface between Catalina Island and the mainland” (1). This article interviews Harrison Brown, a member of the Emergency Committee of the Atomic Scientists, on a recently completed report on Operation Crossroads at Bikini Atoll (Barton 1). Using the underwater detonation of the Baker bomb as a reference point, Dr. Brown asserts that coastal cities like Los Angeles ““need to know what the danger is in order to take any possible measures to minimize the damage. If borne by the wind, the spray from under-water explosions might cause considerable areas to be abandoned because of radiation contamination”” (Barton 1). Indeed, this fear of radiation contamination in the city intensified after the development of the hydrogen bomb. A 1956 article for the *Los Angeles Times*, titled “L.A. Mock Bomb ‘Deaths’ Put at 450,000,” describes the workings of Operation Alert, a test conducted by civil defense officials that simulated the scenario of four hydrogen bombs being dropped on the city—bombs that would presumably “spread flaming destruction from Los Angeles Harbor to San Fernando Valley and east to Ontario” (1). Operation Alert, which was conducted on July 20, 1956—just two years after the explosion of the Bravo bomb and during the time period of Operation Redwing, a series of advanced thermonuclear tests on Bikini and Enewetak atolls that spanned from May to July 1956—reflected a growing anxiety in the American public that the second generation of hydrogen bombs developed by the U.S. government and dropped in the Pacific would be brought back to the shores of Los Angeles (“Operation Redwing”).

In fact, Operation Alert was conducted the same day as the Tewa test of Operation Redwing. Operation Alert's simulation of "a 5-megaton surface blast [...] in San Pedro Bay" eerily paralleled the Tewa test ("LA Mock Bomb 'Deaths'" 1), which likewise involved the detonation of a 5 megaton hydrogen bomb exploded over a reef in the waters off of Bikini Atoll ("Operation Redwing"). While Los Angeles conducted bomb simulation tests, imagining the casualties and damage of a nuclear attack, the U.S. military was conducting actual nuclear tests in the Marshall Islands and creating palpable devastation.

California ground zero novels built from the imaginings of these popular newspaper articles, capitalizing on the American public's fear that Los Angeles would be the target of a major nuclear attack, as seen in Alistair MacLean's novel, *Goodbye California* (1977). In this text, members of the Moro National Liberation Front (MNLF), an Islamic separatist group based in the southern Philippine island of Mindanao, steal uranium and plutonium from a California nuclear power plant and kidnap a renowned nuclear physicist, forcing him to make an arsenal of hydrogen bombs. Mirroring the scenario of an underwater nuclear explosion discussed in Barton's *Los Angeles Times* article, the character Morro, the leader of the MNLF, detonates one of these hydrogen bombs on the floor of Santa Monica Bay, generating a massive tsunami:

Great torrents of water, perhaps thirty to forty feet high, seething, bubbling, white like giant maelstroms, bearing along on their tortured surfaces an infinity of indescribable—in that they were wholly unidentifiable—debris, rushed along the east-west canyons of the area, sweeping along in their paths. It seemed as if the city was to be inundated, drowned and remain no more than a memory, but,

surprisingly, this was not to be so, largely, perhaps, because of the rigid building controls that had been imposed after the Long Beach earthquake of 1933. Every building lining the front had been destroyed: the city itself remained intact. (MacLean 292)

This tsunami wave, likened to “giant maelstroms” filled with “indescribable,” and presumably nuclear, debris, seamlessly merges with the hydrogen explosion that created it. The explosion itself is embedded in a network of natural disasters, as the bomb becomes a type of underwater earthquake-turned-tsunami that can be survived because of stringent building codes designed to mitigate earthquake damage. The novel portrays a city that is prepared for a coastal nuclear attack precisely because of its planning and preparation for earthquakes. The residents of Los Angeles are likewise spared the ill effects of radiation exposure because of an unexpected change in wind direction. In describing the weather minutes before the bomb detonates, MacLean writes, “There was only one favorable aspect about the weather. Normally, at that time of the day and at that time of year the wind would have been westerly and onshore. Today, because of a heavy front pressing down from the northwest, the wind was slightly west of southerly and in that direction the nearest land mass of any size lay as far distant as the Antarctic” (287). In a strange reversal of the Bravo bomb, wherein wind blew fallout towards populated atolls in the Marshall Islands, the wind conveniently blows radioactive fallout away from Los Angeles and out into the open sea. While the novel, like the *Los Angeles Times* articles, uses U.S. nuclear testing in the Marshall Islands as a reference point, it deviates from the grim forecasts of these newspaper articles by depicting a Los Angeles that can triumphantly withstand a nuclear attack.

California ground zero novels often portray not only the survival of Los Angeles itself, but the survival of exclusively white characters, creating narratives that foreground social Darwinism, fueled by white supremacy, and racialized interpretations of nuclear bombs. Paul Williams argues that since its inception, nuclear weaponry has been inherently racialized and cast as either “the apex of Western civilization’s scientific achievement” and a symbol of “white superiority,” or as a technology “of genocidal racist violence” that was “first created by the white world [and that] imperils the whole Earth” (1-2). California ground zero fiction aligns with the first understanding of nuclear weapons, as these texts not only showcase the bomb as an emblem of white, scientific achievement, but highlight the aftermath of a nuclear attack as an opportunity for white characters to remake themselves and create a new world order.

In *Savage Perils: Racial Frontiers and Nuclear Apocalypse in American Culture* (2007), Patrick Sharp asserts that narratives of nuclear attacks that emerged during the late 1940s and 1950s often “drew on the imagery of the frontier—and its racist vision of a savagery that threatened to swallow civilization—to romanticize their accounts of life after a nuclear war” (6). He notes that “[w]ith their emphasis on civilized white protagonists who were reborn through their confrontation with savagery, nuclear frontier narratives repeated the white supremacist formulation of American civilization” (Sharp 6). These texts, which Sharp dubs “nuclear frontier fiction,” largely “repeated the racism of Darwin’s arguments [...] depict[ing] superior Europeans winning the struggle to establish a new and better civilization” by

portraying white survivors who have “to battle with manifestations of savagery in order to establish a new America” (171-2).

Although Sharp dates nuclear frontier fiction to the period between 1946 and 1959, Williams’s *The Day They H-Bombed Los Angeles*, published in 1961, fits the parameters of this subgenre and is closely tied to the racist tropes of nuclear frontier fiction. In *The Day They H-Bombed Los Angeles*, which is set in the then future of 1970, three consecutive hydrogen bombs are dropped over the city of Los Angeles by the U.S. government in order to destroy a mutated protein molecule. This protein molecule, which was generated from U.S. nuclear testing in the Marshall Islands, washes up on the shores of coastal Los Angeles and infects its population, turning them into flesh-eating zombies. The narrative follows a group of white, and mostly male, survivors who deal with the aftermath of the fallout, fighting off the zombies until a biochemist develops a vaccine to stop the infection. Upon witnessing the first hydrogen explosion, the leader of this group, an ex-Marine named Tom Watkins, identifies the nuclear attack as “the beginning of the last war the human race would ever fight. Those who survived—if any did—would have to go back to the swamps, the jungles, and the forlorn mountain ranges to begin the slow climb to civilization” (7). This “slow climb to civilization” becomes an opportunity for the white characters to reenact U.S. territorial expansion and settlement, creating a new social order in Los Angeles that violently erases the lives and livelihoods of Native Americans in Southern California and the history of nuclear testing in the Marshall Islands, tying

the conquest of Tongva land in the Los Angeles basin to the bombing of Marshallese land in the Pacific.¹⁷

The novel's engagement with a frontier narrative that obscures the presence and histories of Indigenous communities is dependent on the naturalization of nuclear weapons. Over the course of Williams's narrative, the three hydrogen bombs dropped on the city are directly likened to storm systems. Upon witnessing the first explosion, Tom feels a "pressure wave strike him from behind" and observes "a tall man fl[y] past him like leaves blown by the hurricane" (7). This hurricane metaphor continues with the third bomb explosion, as Tom and the other characters ride out the blast in a fallout shelter: "A wind of hurricane force howled down the steps. It banged both doors open. It caught the crowd gathered around the doors and blew them across the shelter like dry leaves in front of the wind" (27). While this comparison to hurricane winds naturalizes the explosions, making them more legible in the narrative, the detonations themselves cause a series of intense rain and thunderstorms. As thunder roars in the aftermath of the first explosion, Tom speculates that the bomb "'probably put a heavy electrical charge into the atmosphere. [...] It will probably discharge as lightning. We'll have thunder and rain, a lot of rain'" (10). This rain and thunder blurs with the bombs, to the point where the term "rain" itself becomes a slippage in the text, as Tom uses it to stand in for the aftermath of the bombings. When the character

¹⁷ The Tongva are the original people of the Los Angeles region, and their traditional territory "extends from the San Gabriel Mountains to the Santa Ana River and over the entire Los Angeles basin including the four southern Channel Islands (Santa Catalina, San Clemente, San Nicolas, and Santa Barbara)" (Deis and Alivitre). For more information on the Tongva community in Los Angeles, see David Deis and Cindi Alivitre's story map "Mapping Indigenous LA: Place-Making Through Digital Storytelling."

Eric Bloor, Tom's former high school classmate, wanders into the shelter, Tom tells him, "'We thought we'd all come down here to get out of the rain'" (15). Later on, Tom tells an unnamed elderly woman, who wants to pick up her grandson from school, that she must ride out the storm in the shelter: "'I know your grandson is in school and that you have to get home in time to prepare his supper and hear his lessons. [...] But it's still raining very hard outside. No, don't worry about him. The teachers will keep the children under cover until the storm stops'" (22). Here, the storm effectively merges with the bomb explosions, as it becomes difficult to discern if the children at school and the characters in the shelter are taking cover from the rain or from the radioactive fallout generated by the bombs.

This same rain conveniently removes fallout from the air. Shortly after the explosions, Tom and Eric find a Geiger counter to test radiation levels in the shelter. Eric states, "'The count's not bad down here in this shelter, not bad at all,' [...]. 'We're safe here. If the rain outside washes most of the fallout from the air [...] and if no more bombs go off, it may be safe tomorrow to leave our happy home'" (30). As predicted, the rain clears dangerous fallout from the air, making it safe for the characters to leave their shelter just one day after the three nuclear explosions. Williams writes, "The particles with their dangerous secondary radiations had been washed or blown away. There was lingering radioactivity but the area was far safer than Tom had thought it would be" (32).

This scenario of rain cleaning fallout from the air is starkly different from the aftermath of a real nuclear explosion. After the 1945 bombings of Hiroshima and

Nagasaki, the “mixing of enormous amounts of airborne irradiated materials combined with heat and thermal currents from the firestorms led to rainfall in both cities within 30-40 minutes of the bombings” (“Energy and Radioactivity”). The rain was composed of “fallout particles [that] were mixed with carbon residue from citywide fires,” creating a phenomenon known as “black rain” (“Energy and Radioactivity”). Instead of cleaning fallout from the air, this black rain exacerbated the deadly impact of the bombs, as it spread the fallout over a larger area, exposing people who were farther away from the epicenters to radioactive particles (“Damage from the Atomic Bombing”). The rain drops fell to the ground “as sticky, dark, dangerously radioactive water” that “not only stained skin, clothing, and buildings, but also was ingested by breathing and by consumption of contaminated food or water, causing radiation poisoning” (“Energy and Radioactivity”). Masuji Ibuse documents this toxic exposure in his well-known novel *Black Rain* (1965), which is based on interviews and first-hand accounts from survivors of the black rain in Hiroshima. However, unlike Ibuse’s novel, Williams’s novel depicts rain not as a source of contamination, but as a cleaning agent that quickly mitigates the risk of exposure. As such, the novel’s merging of hydrogen detonations with rainstorms both naturalizes nuclear bombs and dangerously obscures the long-lasting impact of their fallout.

The novel’s naturalization of nuclear weapons is tied to the naturalizing rhetoric of the frontier. While the bombings are aligned with rain and construed as part of the natural environment, these explosions become an opportunity for the

characters to reenact the ideology of manifest destiny, an ideology that naturalized the violence of U.S. westward expansion. In the aftermath of the detonations, the white characters are pit against flesh-eating zombies who have taken over the city. When Tom and his men raid a warehouse for food and supplies, they are ambushed by a group of these zombies, who are directly compared to Native Americans: “As fierce as a chorus of Indian war whoops, [...] the howling was a wild tumult of animal sound. The warehouse roared with it” (79). By identifying the zombies’ sounds as “Indian war whoops,” the narrative casts zombies as Native Americans and uses descriptions of animalistic, wild howling to connect them to a racialized savagery. Sharp notes that imaginings of “nonwhite savagery,” which in the novel are encompassed by the figure of the zombie, “served as a rallying point for white Americans as they pushed the frontier across the continent” (3-4). However, in this formulation of a nuclear frontier, the zombies, standing in for Native Americans, are a means for the white characters to reenact the violence of westward expansion and reconquer the city of Los Angeles. This is apparent when Tom and Eric fight the zombies at the warehouse: “Bloor had a pistol in each hand. Like the hero of a western movie, he was coming down the center of the alley, shooting at anything that moved. The fire from his pistols was accurate and deadly” (83). In this confrontation, Eric Bloor becomes a cowboy who indiscriminately shoots “at anything that move[s].” Sharp notes that these types of transformations are prevalent in nuclear frontier fiction, as the nuclear frontier is an opportunity for the white characters “to shed their civilization-induced weaknesses and be reborn” (171). In this case, Eric’s

transformation is dependent on an act of genocide, as the novel celebrates his “accurate and deadly” fire against the zombies. By identifying zombies as Native Americans and then going on to massacre them, the novel assumes and proceeds from the genocidal logic of the frontier and the white, settler occupation of Tongva land.¹⁸

This genocidal logic of the frontier is mapped onto the Pacific, as the narrative moves from the violent erasure of Indigenous bodies in Los Angeles to the erasure of Indigenous bodies and histories in the Marshall Islands. As the zombie virus spreads, the character Dr. Smith discovers that it was caused by a mutated protein molecule that is the byproduct of U.S. nuclear testing in the Marshall Islands. He states, “the old atom bomb tests far out over the Pacific provided the hard radiation that brought about this change in the core of this protein molecule” (89). This protein molecule traveled from the Marshall Islands to California, washing up on the shores of Los Angeles. Dr. Smith notes that the “gray film that was on the beaches months ago was made up of billions of these molecules. Some swimmer with a slight cut in his skin must have picked it up. Once it was in the human blood stream, it had found a far better breeding place than even the Pacific Ocean” (89). In the aftermath of nuclear testing, this mutated molecule essentially jumps from the irradiated waters of the Pacific to a host of human bodies in coastal California.

¹⁸ In their Story Map on indigenous communities in Los Angeles, created under UCLA’s Mapping Indigenous LA project, cartographer David Deis and essayist Cindi Alivtre note that following “the transition of California into American law in 1850, the takeover and settler occupation [of Tongva land] increased at an incredible rate.” They state that through the white, settler “technique of conquest by law,” “Native land ownership was dismissed out of hand and [...] Tongva rights were consistently thwarted.”

Although the novel never directly mentions Bikini Atoll, the concept of nuclear waste moving from a site ““far out over the Pacific”” to the shorelines of California is reminiscent of the aftermath of Operation Crossroads, when radioactive ships from the tests blasts at Bikini Atoll were moved to Hunter’s Point Naval Shipyard in California (Williams 89). Lindsey Dillon notes that from 1946 to 1969, this shipyard became the site of the Naval Radiological Defense Laboratory (NRDL), which “grew out of ad hoc experimentation in the effort to decontaminate the irradiated warships” from Operation Crossroads (1215). During this decontamination process, the “Navy worked to dispose of other nuclear by-products,” such as radioactive fuel oil and sandblast, creating landfills of nuclear waste (Dillon 1215). This toxic waste contaminated surrounding residential areas, and particularly Bayview-Hunters Point, leading to an array of health problems for this neighborhood’s predominately Black residents (Dillon 1206). Dillon notes that the Bayview-Hunters Point neighborhood has been “racially demarcated,” making the use of this site as a nuclear waste zone a clear example of environmental racism (1213). In Williams’s novel, the physical movement of nuclear byproducts to California geographically reflects the movement of irradiated ships and nuclear waste to Hunters Point Naval Shipyard in San Francisco. However, in the case of the novel, it is a largely white population that is exposed to the dangerous effects of these contaminants, a move that obscures the environmental racism experienced by the residents of Bayview-Hunters Point.

This racialized reversal, wherein white characters become the victims of U.S. nuclear violence, continues throughout the novel. After the U.S. government ironically attempts to eradicate the irradiated molecule with the very same weaponry that created it in the first place, those that survive the blasts are subjected to medical examinations if they wish to leave the quarantined city. After an unsuccessful attempt to leave Los Angeles, Tom and a group of characters from the fallout shelter listen to a radio broadcast declaring that the bombings were an accident and that “barricades have been established around the whole area” in order “to prevent the spread of radiation sickness” (51). The broadcast states that medical stations for examinations “have been established and are being manned twenty-four hours a day,” with nobody being “permitted to leave the stricken area who has not been properly examined” (51). These medical examinations of people “accidentally” exposed to fallout from hydrogen bombs, (an accident that was in fact carefully calculated by the U.S. government to eradicate the molecule and its associated virus), are evocative of Project 4.1 and the supposed “accidental” exposure of Marshallese to fallout from the Bravo bomb. However, the racialized politics of Project 4.1 are entirely erased here. By casting white Americans as the test subjects of medical examinations focused on radiation sickness, the novel erases the real experimentation and testing endured by Marshallese at the hands of U.S. scientists and medical researchers—an experimentation that was sanctioned precisely because of a racial hierarchy that cast Marshallese as subhuman.

While the novel attempts to neutralize, or whitewash, the racist underpinning of U.S. nuclear testing in the Marshall Islands by placing the burden of nuclear violence onto a white community, it goes on to absolve the U.S. government for its excessive use of nuclear bombs. When the character Cissie, Tom's love interest, is infected with the molecule and becomes a test subject for Dr. Smith's vaccine, she states, "'Whoever gave the order to drop the bombs on this city, he did the right thing,' [...] 'Everybody who died in the bomb blasts—if they knew that this molecule was the only other choice they had—would have blessed the men who dropped the bombs'" (117). Here, the bombs are framed as a justified means to eradicate the irradiated molecule, while the deaths caused by these explosions are dismissed as a necessary sacrifice for the greater good. This dialogue perversely justifies the very rhetoric used by the U.S. military to sanction the nuclear bombings of Bikini Atoll. Teaiwa writes that in order to gain the cooperation of Bikini Islanders in leaving their home, they "were told by the military governor that Bikini would be used for 'the good of mankind to end all world wars'" (89). By using this same rhetoric and upholding nuclear weapons as instruments designed for the good of humanity, the novel justifies both the fictional use of nuclear bombs in California and the real use of these bombs in the Marshall Islands.

In the end, Dr. Smith's vaccine eradicates the mutated molecule and virus, ultimately saving the day. As the U.S. military prepares to distribute the vaccine throughout the city, Tom and his newly formed family, consisting of Cissie, now cured from the vaccine, and a child they found, named Teeny, are rescued via

helicopter by the Marines. Upon boarding the helicopter, Tom looks out toward the Pacific Ocean, “sending its wave of life-forms against the ramparts of the land” (128). The novel concludes that this “wave, this mad molecule, had been defeated” (128). In this triumphant ending, *The Day They H-Bombed Los Angeles* presents radioactive fallout and nuclear waste, (in the form of the irradiated molecule), as forces that can be easily contained. By naturalizing nuclear explosions and likening them to rainstorms, fallout is quickly washed from the air, while Dr. Smith’s vaccine cures the residual effects of exposure and radiation sickness. Through these mechanisms, the narrative ultimately whitewashes the history of U.S. nuclear testing in the Marshall Islands, placing the physical burdens of radiation sickness and exposure onto the white characters of the novel, characters who reenact the genocide of the frontier by reconquering Los Angeles. By easily curing and containing fallout exposure, the narrative erases the long-lasting, intergenerational suffering experienced by Marshallese in the aftermath of U.S. nuclear testing.

Missiles and the Nuclear Future of Climate Change in the Marshall Islands

Robert Barclay’s *Meḷal: A Novel of the Pacific* (2002) and Kathy Jetñil-Kijiner’s *Iep Jāltok: Poems from a Marshallese Daughter* (2017) counter the violent erasures of California ground zero fiction by bringing the legacy of U.S. nuclear testing back to the social and cultural context of the Marshall Islands. Barclay’s novel explores the repercussions of the Bravo bomb, Project 4.1, and the launching of ballistic missiles from California to Kwajalein Atoll, creating, in the words of Anthony Carrigan, a “fictional reconstitution of real-world events from a Marshallese

perspective” (259). On the other hand, Jetñil-Kijiner’s *Iep Jāltok*, the first published poetry collection by a Marshallese author, examines the intertwined experiences of nuclear testing displacement and climate change refugeehood for the people of the Marshall Islands. Together, *Meḷaḷ* and *Iep Jāltok* highlight critical intersections between the weather, climate patterns, such as rising temperatures and sea levels, and the bombing operations of the U.S. military. Unlike California ground zero narratives, these texts highlight the intersections between atmospheric conditions, climate trends, nuclear bombs, and ballistic missiles not to naturalize aerial weaponry, but rather to draw attention to the interplay between material conditions, U.S. bomb tests, and the nuclear future of climate change in the Pacific.

Barclay’s *Meḷaḷ* depicts a day in the life of a Marshallese family living on Ebeye Island in Kwajalein Atoll. Taking place on Good Friday in 1981, the narrative follows Rujen Keju and his sons Jebro and Nuke as they navigate a series of events in the militarized land and seascape of Kwajalein Atoll. Much of the novel’s plot is centered around Rujen and his job at the sewage treatment plant on Kwajalein Island. Teresa Shewry notes that like the plight of “other Marshallese workers, Rujen travels to Kwajalein Island each day,” and at “6 p.m. he must return to Ebeye [...] or be fined for trespassing” (“Sea of secrets” 54). Rujen’s work commute highlights a sharp socioeconomic divide between Kwajalein Island, an affluent “enclave of U.S. military personnel and technicians” (S. Davis 36), and Ebeye Island, a site dubbed often dubbed “the slum of the Pacific” that hosts “over twelve thousand residents on its one-tenth of a square mile of land,” making it “one of the most densely populated

places on the planet” (S. Davis 40). This divide is a direct result of the U.S. military occupation of Kwajalein Atoll. Sasha Davis notes that starting in “the 1960s the atoll has been used as the target for testing ballistic missiles,” missiles which are “designed to be part of the U.S. nuclear arsenal [...] [and] launched from California to see how accurately they can strike targets on Kwajalein” (35). However, since Kwajalein Atoll is inhabited, the “military solution to this problem was not to test the missiles elsewhere, but rather to force the local Marshallese people off almost all the islands of the atoll and restrict most of the population to the small island of Ebeye” (S. Davis 35). These restrictions were amplified when the atoll became the site of the Ronald Reagan Ballistic Missile Defense Test Site, which to this day launches ballistic missiles from Vandenberg Air Force Base, located in Santa Barbara County, to Kwajalein as part of a “‘Strategic Defense Initiative’ program whose aim was to develop a system capable of shooting down enemy ballistic missiles” (S. Davis 35-6). Barclay himself is connected to this militarized history. The author moved from his home state of “Virginia to Kwajalein [Island] as a ten-year old in 1972, when his father became an engineer on the missile range at the American Army base there” (Delden 50). As such, the shooting of ballistic missiles and the barring of Marshallese from their own land serve as a critical backdrop in the novel that pervades the experiences of Rujen and his sons, as they deal with the repercussions of military occupation, enduring poverty and resource scarcity on Ebeye, and multigenerational displacement from their ancestral land.

Meḷal connects this contemporary launching of ballistic missiles and the conditions of life on Ebeye to the aftermath of U.S. nuclear testing—particularly the Bravo bomb and Project 4.1. In his analysis of the novel, Anthony Carrigan notes that Ebeye itself “is largely a U.S. creation,” as “many Marshallese citizens were relocated there as a result of nuclear testing in their native islands” (258). This was the case for Rujen’s late wife, Iia, who was exposed to fallout from the Bravo bomb as a child on Rongelap and came to Ebeye as a result of the nuclear contamination of her home. Over two days after the Bravo explosion, Iia and her family were evacuated from Rongelap to Kwajalein Atoll, and “were confined to a Navy ship in the Kwajalein lagoon, while doctors took their blood and samples of their skin and bone” (Barclay 81). Afterwards, Iia decided to stay on Ebeye, and became an unknowing subject in Project 4.1. Every year for the rest of her life “Brookhaven doctors came and took her to their ship to examine her and take her blood” and even “once [...] took a little piece of bone from her chest” (21). Although these doctors claimed “that Iia was one of the lucky ones, not like other radiated people they examined [...], many of them with cancer and some taken to America never to come back,” she suffered a series of devastating miscarriages as a result of her exposure, and was ultimately killed by a blood hemorrhage from one of these miscarriages (21). Iia’s death, which occurs before the present-day events of the novel, haunts Rujen’s thoughts throughout the narrative, as he asks himself, “who was he going confront and accuse, the U.S. Army, the Navy, the entire American country?” (21). Although Rujen is reluctant to believe it, he is aware that Iia’s exposure to fallout and the

subsequent medical examinations that were performed on her could have been planned by the U.S. government: “Because they were never warned or evacuated, and the Americans had to know which way the wind was blowing, some of the people of Rongelap complained that they had been poisoned on purpose, so that the Americans could test what happens to people as a result of their bombs” (82). The novel thus links this testing of the people of Rongelap, testing that was part of Project 4.1, to the direction of the winds on the day of the Bravo bomb, using this wind to reveal the U.S. government’s purposeful intent.

Indeed, by stating that “the Americans had to know which way the wind was blowing,” the narrative works to expose the U.S. military’s weather reports and their meticulous documentation of the wind direction in the hours leading up to the Bravo explosion (82). Moreover, by highlighting the wind direction on the day of the Bravo test, *Meḷaḷ* identifies U.S. nuclear testing as an atmospheric force in its own right—one that creates disasters from above. This is reinforced when Jebro, Rujen’s son, reflects on a story he heard about a man from Enewetak Atoll who witnessed one of the test explosions as a child:

The man said that at dawn, only one day out to sea after being taken from Elugelab island, his lamoran, he had seen appear a giant cloud and the morning sky had become ablaze with reds and pinks and shades of orange. He had thought it was the most beautiful sight he had ever seen, but in a minute came incredible thunder and it would not stop. When he was told that the cloud and the thunder and the colors were from a bomb, he began to be sad, and when he learned some months later that what had once been his rightful land, his inheritance, had become nothing more than part of a gaping crater in the reef, almost two hundred feet deep and one mile around, he knew right then that the bomb had destroyed part of his soul. (80)

In this story, the bomb's explosion is at first mistaken for a large cloud accompanied by the vibrant colors of the morning sky. The beauty of this sight quickly transforms into an ominous spectacle when the cloud reverberates with an incessant thunder. This thunder is an indicator that something in the sky is amiss, as the boy learns that what seems to be an impressive sunrise is in fact a bomb, a bomb that has destroyed his ancestral island. The "cloud and the thunder and the colors" from this bomb create a powerful, aerial disaster that transforms the land beneath it, turning a whole island into "a gaping crater in the reef," a gaping crater that is mapped onto the boy's soul, as the empty space of his land becomes an empty space within.

This merging of nuclear explosions with atmospheric forces is once again apparent in Iia's story of the Bravo bomb, a story that she has passed onto her son, Jebro. Jebro recalls that his mother was "sick that day, remaining inside, and a few hours later she watched a strange dark cloud, a yellowish cloud, blow over the atoll. An ashy powder began to fall. No one knew what that was, and the other children played in it while it formed a two-inch layer on the ground" (80-1). Iia's story is reminiscent of Lijon Eknilang's account, (discussed at the beginning of this chapter), of a snow-like powder blanketing Rongelap in the aftermath of the Bravo bomb. Like Eknilang, Iia witnesses the bomb become part of a weather system, as a toxic cloud, yellow with nuclear fallout, looms over Rongelap, similar to the looming presence of a rain cloud. This connection between fallout and the weather is magnified when rain itself pours down on the atoll: "Later, it rained, the powder coming down from the sky in the rain and washing into the cisterns. The drinking water turned yellow. It

tasted bitter” (80-1). In stark contrast to *The Day They H-Bombed Los Angeles*, wherein rain cleans fallout from the air, here rain exacerbates fallout contamination, as radioactive particles mix with rain drops and wash into the supply of drinking water. Like the black rain after the bombings of Hiroshima and Nagasaki, this nuclear rain intensifies fallout exposure for Iia and her community, poisoning the land and waterways of Rongelap.

As seen in Iia’s story of the Bravo bomb and the story of the man from Elugelab Island, *Me!a!* draws a clear connection between nuclear weapons and the weather. However, unlike California ground zero fiction, Barclay’s novel creates this connection not to naturalize nuclear bombs, but rather to highlight “the disastrous *material* consequences of Pacific nuclearization” (Carrigan 263). These material consequences, which range from the poisoning of Marshallese communities and the contamination of drinking water to the vaporization of entire islands, are tied to the material, atmospheric conditions that shaped and continue to shape the launching of ballistic missiles at Kwajalein Atoll.

The significance of these atmospheric conditions is especially apparent when Jebro and Nuke witness a weather rocket while fishing for tuna, a rocket which signals that ballistic missiles will be launched later that night. Jebro “had seen these kinds of rockets go up many times before when he was a boy on Ebeye, and knew they were called weather rockets, but he had no idea what they did to the weather” (145). Nuke and Jebro proceed to speculate on the relationship between weather rockets and the weather:

“I think it gets up there and takes a picture, and then ...” Nuke looked for a moment at the white trail left by the rocket. “They get a picture back, maybe like you get a television picture, and if the weather is going to be clear then they radio over to America and tell them to shoot the missiles at us.”

“Hey, that’s pretty good thinking.” [...]. “I never thought much about it but now that I remember, it’s true—they only shoot the missiles at us when the weather is good. I wonder what happens if the Communists decide to attack America during a storm—what will they do then?”

Nuke laughed, wiped the salt spray from his face, and said, “I don’t know if America can beat the Communists, but they’re getting good practice if they want to bomb the crap out of us!” (145)

In this exchange, Jebro and Nuke use the figure of the weather rocket to highlight a critical link between the launching of American bombs and the weather. The rocket reveals that the U.S. military’s ability to shoot missiles at the Marshall Islands is largely dependent on the existence of good weather, as the brothers joke that they would be unable to retaliate if the Soviet Union attacked in the midst of a storm. Just as the weather had to be free of storms for the nuclear tests conducted at Bikini and Enewetak atolls, the U.S. military must likewise wait for clear skies before launching their ballistic missiles at Kwajalein Atoll. Although these missiles do not necessarily help America to “beat the Communists,” Nuke comments that they are “good practice if they want to bomb the crap out of” the Marshall Islands. Nuke’s remark has an implicit irony behind it, as both he and his brother know that the U.S. military has in fact already “bomb[ed] the crap out of” them before, through the nuclear testing program. The brothers each bear the marks of these nuclear tests. Jebro “was born with six fingers on his left hand—a long extra pinkie without the nail,” while Nuke

was “named after the most powerful thing on Earth,” a nuclear bomb (4). As these brothers, who embody the traces of this nuclear history, watch a weather rocket fly through the sky, the novel forges a continuity between the launching of nuclear bombs and the launching of ballistic missiles. Within this continuity, the Marshall Islands are cast as a sacrificial battle ground in the Cold War nuclear arms race between the United States and the Soviet Union. As the U.S. military monitors weather conditions for the launching of its ballistic missiles, a monitoring that mirrors the extensive weather forecasts completed before their nuclear tests, one realizes that not only has the United States bombed the Marshall Islands before, but it has never actually stopped bombing them in the first place.

However, these bombs do not have the final say in the novel, as they are ultimately subverted towards the end of the text. Anthony Carrigan argues that “rather than presenting a capitulation to these destructive forces, *Me!a!* indigenizes this assault on local sovereignty through a process of mythopoiesis which reconfigures nuclearization as part of the historical battles staged in the richly textured spirit-world” (261). The Marshallese spirit-world is indeed seamlessly interwoven throughout the narrative, as deities like Etao, “the trickster hero,” and Noniep, “the dwarf who speaks in dreams,” become characters in their own right, directly influencing the actions of Jebro and Nuke while camping out on their ancestral island, Tar-Woj (13). Noniep summons Etao to Tar-Woj to devise a plan to defeat the demons living on Ebeye. In accordance with this plan, Etao catches a ballistic missile headed towards the lagoon and uses it to kill two demons on Ebeye. By averting this

missile from the lagoon and instead launching it towards the demons haunting Ebeye, the very same missile that was greenlighted by the earlier weather rocket, Noniep rids the island of its demons once and for all and frees the souls trapped on Ebeye. Among these trapped souls are “jellyfish babies,” a term used to describe a devastating birth defect among babies born to Marshallese women in the aftermath of nuclear testing and fallout exposure. These babies often lack eyes, bones, and limbs, and die shortly after birth. In the novel, Noniep takes the “helpless souls of jellyfish babies, still squalling, pained by the vulgarity of their short and tortured lives,” and loads them into his canoe (296). In the last line of the text, Noniep pairs the babies’ souls with the souls of whales, “so that over time, with love, they might stop their squalling and maybe even learn to sing” (300). By circumventing the missile and freeing the souls of jellyfish babies, a painful marker and legacy of nuclear testing, Carrigan notes that Etao and Noniep create a “spirit-world [that] functions as an analogue for island communities’ relationship with their local environments, remaining beyond the scope of military territorialization while resisting the master narratives of nuclear ‘progress’” (261). As *Meḷal* draws a line of continuity between nuclear bomb testing and missile testing in the Marshall Islands, a continuity that is cemented via the weather, the novel ultimately subverts these weapons by showing other possibilities for life, Indigenous sovereignty, and cultural endurance in the face of U.S. military occupation.

While Barclay’s novel highlights a key relationship between immediate weather conditions and the launching of bombs, Kathy Jetñil-Kijiner’s debut poetry

collection, *Iep Jāltok*, explores this relationship via a far-reaching temporality. This temporality at once stretches back to the history of U.S. nuclear testing and forward to the devastating future of climate change for the Marshall Islands. By shifting the discussion from the weather to the climate, *Iep Jāltok* ties disastrous climate patterns, such as rising temperatures, increasingly strong storms, and rising sea levels, to the disastrous legacy of nuclear testing.

Well-known for both her environmental activism and literary work, Jetñil-Kijiner is a poet of Marshallese descent who was born in the Marshall Islands and raised in Hawai‘i, where she received her master’s degree at the University of Hawai‘i at Mānoa. She is the daughter of Hilda Heine, “the first woman president of the Marshall Islands,” who held office from 2016 to 2020 (Kihleng 259). Emelihter Kihleng notes that Jetñil-Kijiner is a spoken word artist who is, in many ways, a “celebrity poet, a status that is rare for poets, let alone a Marshallese poet” (259). This celebrity status is partly attributed to Jetñil-Kijiner’s many performances of her poems on YouTube videos, which have gained immense popularity on the internet. However, she rose most prominently to international recognition when she performed her poem, “Dear Matafele Peinam,” at the 2014 Opening Ceremony of the United Nations Secretary-General’s Climate Summit. This poem, which is featured in the *Iep Jāltok* collection, is written as a letter to her seven-month-old daughter about the dangers of rising sea levels for the Marshall Islands, which could place the entire nation underwater if temperatures continue to accelerate at their current rates. In the poem, Jetñil-Kijiner writes that her daughter and her daughter’s future children and

grandchildren are faced with the fate of becoming “rootless / with only / a passport / to call home” (70). Throughout her poetry collection, Jetñil-Kijiner connects this specter of rootlessness, created by climate change, to the displacement and exile created by U.S. nuclear testing.

In the poem “History Project,” Jetñil-Kijiner describes a school project on nuclear testing that she completed when she was fifteen years old and living in Honolulu. The poem describes the extensive research she conducted at a young and formative age on the different operations and maneuvers of U.S. nuclear testing in the Marshall Islands, one of which was the staged agreement between the U.S. military and Bikini Islanders prior to Operation Crossroads:

and my islander ancestors, cross-legged
before a general listening
to his fairy tale
about how it’s
 for the good of mankind
to hand over our islands
let them blast
radioactive energy
into our sleepy coconut trees
our sagging breadfruit trees
our busy fishes that sparkle like new sun
into our coral reefs
brilliant as an aurora borealis woven
beneath a glassy sea (21)

Here, the speaker describes a photograph of Bikini Islanders sitting before a U.S. military general and listening to his narrative about why their home will be sacrificed “*for the good of mankind*,” a sacrifice that resulted in the destruction of thriving marine and terrestrial ecosystems and the poisoning of Bikini Islanders’ staple food sources, such as coconut, breadfruit, and fish. While this narrative of the greater good

was nothing more than a “fairy tale,” the encounter itself was nothing more than a staged performance, as Teaiwa notes that Bikini Islanders were “repeatedly reenacting for camera crews their ‘consultation’ with the military governor” (89). Amid these reenactments, the “U.S. military secured the cooperation of the Bikinians in vacating their island by appealing to their sense of Christian duty” (Teaiwa 89). This is reflected in the poem, as the line, “*God will thank you* they told us,” is a refrain that separates the next two stanzas (21).

However, the poem pushes back against the Christian rhetoric of this refrain by countering it with a powerful image of fallout exposure in the aftermath of the Bravo bomb:

yea
as if God Himself
ordained
those powdered flakes
to drift
onto our skin hair eyes
to seep into our bones (21)

The speaker challenges the use of religion to naturalize the bomb, asserting that the “powdered flakes” of radioactive fallout are not a natural element “ordained” by a divine power, but rather a disaster that was orchestrated by the U.S. government. Although these white flakes were mistaken for snow, as Jetñil-Kijiner writes, “We mistook radioactive fallout / for snow,” the poem is careful to distinguish between conceptions of this disaster for Marshallese on the ground, in the fallout zone, and for the U.S. military dropping the bombs from above (21). While the fallout was viewed as unusual weather by Marshallese, and particularly the people of Rongelap, who

were uninformed about the impending fallout, the U.S. military used a Christian narrative to naturalize bombings that they carefully planned—down to the final direction of the winds. In her analysis of “History Project,” Keown asserts that the “poem presents a material history of the drastic and often unseen (or unacknowledged) consequences of irradiation, and exposes the spurious nature of the Christian rhetoric that has been enlisted to euphemize the horrific consequences of nuclear testing” (942). Indeed, Jetñil-Kijiner ties together these material consequences for Marshallese bodies and land, as the language used to describe fallout drifting “onto our skin hair eyes / to seep into our bones” mirrors the language of the previous stanza, when “radioactive energy” shoots “into our sleepy coconut trees” and “into our coral reefs” (21). By countering the naturalizing, Christian rhetoric that was used to sanction nuclear testing, the poem highlights the embodied destruction of these tests, connecting the degradation of Marshallese bodies to the degradation of non-human species.

Embodied destruction becomes a theme throughout the *Iep Jāltok* collection, a theme that is tied to both the enduring aftermath of nuclear testing and the forecasted future of climate change in the Marshall Islands. In “Fishbone Hair,” Jetñil-Kijiner writes about her young niece, Bianca, who passed away from leukemia. In the poem, Bianca’s cancer is linked to the genetic, intergenerational legacy of nuclear testing, as Keown argues that Bianca’s body is “a metaphorical nuclear testing site, with the slow violence of radiation poisoning manifesting in her DNA generations after the

original detonations” (943). This is especially evident in the second section of the poem:

There had been a war
raging inside Bianca’s six year old bones
white cells had staked their flag
they conquered the territory of her tiny body
they saw it as their destiny
they said it was manifested (25)

Bianca embodies the violence of nuclear testing and manifest destiny, as the bones and “territory of her tiny body” become a site of war, a site to be conquered by “white cells.” In her analysis of this poem, Marlo Starr notes that these “white cells double for American invaders” in a clear reference to colonialism, as Bianca’s body becomes “the territory through which the ideology of Manifest Destiny reaches its culmination” (126). The Republic of the Marshall Islands has indeed been subjected to a long history of colonialism. The country was first colonized by Spain in the 1500s, and subsequently became a German colony in 1885. From World War I onwards, the islands were occupied by Japan until the U.S. military captured and occupied them in 1944, resulting in their placement under U.S. rule as a Trust Territory of the Pacific. In the poem, this layered history of colonialism culminates in U.S. nuclear colonialism, defined by Johnston as an ideology “based upon naïve notions that geographic and temporal distance buffers and protects the colonizing power from the mutagenic and potentially deadly forces birthed and unleashed upon host communities” (“Nuclear Disaster” 140). The “white cells” that “staked their flag” on Bianca’s body are thus part of a uniquely nuclear rendition of manifest

destiny, wherein the Marshall Islands are used to expand the reach and potency of nuclear weapons and U.S. military empire.

While Bianca embodies the deadly legacy of nuclear colonialism and its reach across generations, Jetñil-Kijiner uses a cultural object to embody the Marshallese people and their collective experience with climate change in the poem “Tell Them.” This cultural object comes in the form of handmade earrings that are “woven / into half-moons black pearls glinting / like an eye in a storm of tight spirals” (64). The speaker of the poem encases these earrings in a handwoven basket and sends the two items off as a package for her “friends in the states” (64). She instructs the recipient of this package to wear the earrings in public places, “to parties classes and meetings,” and when someone asks about their origin, she asks the recipient to “tell them” that “*They’re from the Marshall Islands*” (64). “Tell them” is a structuring refrain in the poem, as the earrings become an occasion for their wearer to tell others about the cultural identity of the Marshallese people—an identity that is often marginalized, or even unknown, to people in the United States, despite the history of U.S. nuclear testing. These earrings, which are shaped “like an eye in a storm,” alluding to the increasing frequency and intensity of storms on a warming planet, represent the rising tides of climate change in the Marshall Islands, as the speaker instructs their recipient to “tell them about the water—how we have seen it rising / flooding across our cemeteries / gushing over the sea walls” (66).

While rising sea levels may be a future threat to some countries, they are already a grim reality for the Republic of the Marshall Islands, a country whose

twenty-nine atolls are, on average, “less than six feet above sea level” (Davenport). Jetñil-Kijiner illustrates this reality in the lines “Tell them what it’s like / to see the entire ocean__level__with the land” (66). Here, underscores are used to visually mark the height of the ocean against the low-lying atolls. The poem ends by reflecting on the threat of displacement, as the speaker instructs the package recipient to “tell them / we don’t want to leave / we’ve never wanted to leave” (66). The verb tenses of these lines highlight two different temporalities of exile. The first, (“we don’t want to leave”), signifies the future threat of climate change refugeehood, while the second, (“we’ve never wanted to leave”), represents the forced exile created by nuclear testing, an exile that stretches from the past into the present moment.

In the poem “Two Degrees,” Jetñil-Kijiner weaves together these dual threats of climate change refugeehood and nuclear exile. The poem begins with her one-year-old daughter’s low-grade fever, which operates as a metaphor for the planetary fever of global warming. As the speaker observes her daughter’s “flushed face” and “listless” body, she reflects on “what a difference / a few degrees / can make” (76). The “few degrees” of her daughter’s fever are mapped onto climate change threshold debates, where even a half degree becomes a source of contention. Two degrees Celsius is often considered a general tipping point in climate change policy, as scientists argue that if temperatures rise above this threshold, “the impact becomes irreversible” and escalates to an uncontrollable level (Leber). Jetñil-Kijiner writes, “Imagine North American wildfires increasing by 400 percent / animal extinction rising by 30 percent / fresh water declining by 20 percent” (76). However, for the

Marshall Islands, a two degrees threshold is not enough, as the speaker states that at this temperature jump the country “will already be under water / this is why our leaders push / for 1.5” (77). While the small increase in her daughter’s temperature means the difference between an exuberant and lethargic toddler, a half degree change in policy thresholds means the difference between a nation that continues to exist and one that is underwater.

In a later section of this poem, Jetñil-Kijiner connects these rising temperatures to the legacy of nuclear testing, thereby “link[ing] two forms of slow violence: radiation poisoning and global warming” (Starr 127). The poet describes the impact of rising sea levels on Kili Island, where elders from Bikini Atoll have been permanently exiled because of nuclear testing:

On Kili island
the tides were underestimated
patients sleeping in a clinic with
a nuclear history threaded
into their bloodlines woke
to a wild water world
a rushing rapid of salt
a sewage of syringes and gauze (78)

Here, a medical clinic on Kili, one that treats nuclear exiles from Bikini, is flooded by the rising tides of climate change. The stanza merges the “nuclear history” of these patients with the “wild water world” of climate change, using alliteration with the letter “w” to highlight the all-consuming power of water amid rising temperatures in the Pacific. The “rushing rapid of salt” from this expanding ocean mixes with “syringes and gauze,” emblems of the ongoing health issues suffered by Marshallese in the protracted aftermath of nuclear testing. This sludge of salt water and medical

debris is a material reminder of the intersection between nuclear refugeehood and climate change refugeehood, as the Bikini Islanders on Kili face the prospect of yet another round of exile. The speaker reinforces this intersection by speculating that her people must be “creaking brackish from / salt spray and radiation blasts” (78). By identifying the spray from an encroaching ocean and the blasts from nuclear bombs as intertwined forces of destruction, the poem highlights a key relationship between long-term climate patterns, nuclear testing, and displacement for the Marshallese people.

Runit Dome and the Rising Tides of the Pacific

In closing this chapter, I am struck by the Runit Dome as a symbol of the enduring relationship between nuclear testing operations, weather disasters, and climate in the Pacific—a relationship that I have attempted to delineate through the U.S. military’s weather reports, California ground zero fiction, Jetñil-Kijiner’s poetry, and a novel based on the missile program between California and Kwajalein Atoll. The Runit Dome, referred to as “The Tomb” by local Marshallese, is a nuclear waste dump on Runit Island in Enewetak Atoll that houses the extensive radioactive debris left behind by the U.S. military when nuclear testing ended. Sealed up by concrete that is now cracking and leaking into the ocean, this dome is becoming submerged by the rising tides of climate change and could potentially break completely open if an extreme weather event, such as a typhoon or storm surge, hits it (Jose et al.).

The Runit Dome is the subject of Jetñil-Kijiner’s poem, “Anointed,” which was published on her website as both a written poem and video performance, filmed

by Dan Lin, in April of 2018. In the poem, Runit Island is personified and addressed by the speaker as “you.” Jetñil-Kijiner writes, “You were a whole island, once.” In her video performance, the poet travels to this island by canoe and walks to the top of the dome. There is no fence blocking off this tomb of lethal, nuclear waste. In the video, children slide down it on pieces of plastic and cardboard; the concrete, the only barrier separating them from radioactive debris, is cracked and split open, gaping beneath their makeshift sleds. The poem juxtaposes the former identity of the island with the tomb it has now become: “Then you became testing ground. Nine nuclear weapons consumed you, one by one by one, engulfed in an inferno of blazing heat. You became crater, an empty belly.” Jetñil-Kijiner tries to recover the crater of this tomb, attempting to find stories that would make it whole again. She writes, “There must be more to this than incinerated trees, a cracked dome, a rising sea, a leaking nuclear waste with no fence, there must be more than a concrete shell that houses / death.” This tomb of death, abandoned by the U.S. government and downwind from the populated islands of Enewetak Atoll, stands as a visual reminder of the devastating ties between the weather and U.S. nuclear testing. This tomb waits, silently leaking into the Pacific Ocean, ready to burst open with the next storm or weather disaster that comes its way.

Chapter 2

Re-shooting the Vietnam War in the Philippines: *Apocalypse Now*, Environmental Racism, and Literary Adaptations

Paz inhaled the stink of dying fish washed ashore, stunned by all the explosives the movie people were using. They were always blowing things up. Building elaborate sets only to blow them all up. (219)

—Jessica Hagedorn, *Dream Jungle* (2003)

Francis Ford Coppola's infamous Vietnam War film, *Apocalypse Now* (1979), has exerted a tremendous influence on U.S. popular culture. Since its first airing at the Cannes Film Festival, it has been lavished with a series of prestigious awards, ranging from the Palme d'Or to the Golden Globe and Oscar. This film, which was inducted into the Library of Congress in 2000, has been widely praised for its critical stance on U.S. involvement in the Vietnam War. In the original brochure for *Apocalypse Now*, Coppola stated that he intended “to create a film experience that would give its audience a sense of the horror, the madness, the sensuousness, and the moral dilemma of the Vietnam war” (qtd. in Kinder 13). It is this filmic experience that has both captivated and fascinated audiences for decades, to the point of being dubbed the “definitive film about America's role in Vietnam” (Hess). Such mythologization of *Apocalypse Now* is bolstered by its well-known scenes, lines, and images, which have become iconic symbols in their own right, (such as the “Ride of the Valkyries” helicopter assault or the phrase “I love the smell of napalm in the morning”), symbols that have been incorporated into countless television episodes, songs, and movies (0:49:34-0:49:35). Indeed, it is difficult to imagine a Vietnam War film with more cultural pull than *Apocalypse Now*.

While the narrative of *Apocalypse Now* is celebrated for its depiction of the madness of war, the history of the film's production reveals an entirely different narrative—one that is closely aligned with the violence of the U.S. military-industrial-complex. *Apocalypse Now* was shot on the Philippine island of Luzon, a location that has historically had an intimate relationship with both Hollywood and the Vietnam War. In addition to Coppola's film, Luzon has served as the shooting site for numerous Hollywood films on the U.S. war in Vietnam, such as Oliver Stone's *Platoon* (1986) and John Irvin's *Hamburger Hill* (1987), while the U.S. military has used the island as a strategic training ground for the war itself. Gonzalez writes that in the 1960s, the U.S. military created a "jungle school" on the forested land of Subic Naval Base, a school where Indigenous men from the Aeta group were recruited to train "American soldiers in the basics of jungle survival" (195), so they could "better [...] withstand the guerrilla war in Vietnam" (182). The so-called "jungles" of the Philippines have thus been key arenas for U.S. military and Hollywood imaginings of the Vietnam War, imaginings that have fashioned Philippine forests as sites that can be shot by the U.S. military and the lenses of Hollywood's cameras alike.¹⁹

By choosing Luzon as the shooting locale for his Vietnam War epic, Coppola created a film that stands as a testament to the intimacy between Hollywood and the U.S. military. During the early days of the film's production, Coppola sought assistance from the U.S. military in order to acquire the necessary equipment for a

¹⁹ "Jungle" is put in quotations throughout this chapter because the term does not correspond to an actual forest, but instead lumps together starkly different types of tropical forests.

war movie. When the military denied his requests, he turned to the U.S.-backed Marcos dictatorship for support, obtaining American-made military equipment and hardware from the Philippine government. In his illuminating essay, “Popular Discourses of Vietnam in the Philippines” (2002), which analyzes *Apocalypse Now*’s use and abuse of the Philippines as surrogate Vietnam, Rolando B. Tolentino writes that Coppola’s arrangement with Marcos directly aligned the film with the bloodshed of the dictatorship’s counterinsurgency campaign, including “the numerous civilians caught in the crossfire” (242). Although the storyline of *Apocalypse Now* may be considered anti-war, its production supported the violence of a militarized dictatorship backed by the U.S. military-industrial-complex—a dictatorship responsible for massacres, torture, and thousands of extrajudicial killings.

Apocalypse Now’s alliance with the Marcos regime and the U.S. military was bolstered by its elaborate explosions, which were meant to simulate warfare and “bear the stamp of authenticity” (Tolentino 234). While Coppola admonished the Vietnam War as a U.S. creation, stating to co-producer Fred Roos that ““we created that war,”” his film quite literally created its own war on Philippine soil through its extensive explosions of smoke bombs, cannisters, rockets, and dynamite (qtd. in Suid 336). By re-shooting the Vietnam War in the Philippines, Coppola and his production crew ultimately blurred the boundaries between real U.S. warfare and cinematic reproduction of warfare, just as they, on a representational level, attempted to blur the geographic boundaries between the Philippines and Vietnam.

By using the Philippines as a stand-in for Vietnam, *Apocalypse Now* reduced the diverse landscapes of both countries into a homogenized “jungle” backdrop, positing the Philippines, in the words of Vernadette Vicuña Gonzalez, as a “surrogate tropic,” a site where the violence of U.S. military operations in Vietnam could be reenacted (151). This logic of surrogacy is directly tied to environmental racism. The term environmental racism was first coined by Benjamin F. Chavis, Jr. in relation to a landmark study by the Commission for Racial Justice, titled *Toxic Wastes and Race in the United States* (1987). Four years later, at The First National People of Color Environmental Leadership Summit in 1991, Chavis provided a thorough definition of environmental racism:

Environmental racism is racial discrimination in environmental policy making and the enforcement of regulations and laws, the deliberate targeting of people of color communities for toxic waste facilities, the official sanctioning of the life threatening presence of poisons and pollutants in our communities, and the history of excluding people of color from the leadership of the environmental movement. (8)²⁰

It is important to note that Chavis’s definition of environmental racism can be applied to both domestic and international contexts. While communities of color in the United States are disproportionately exposed to environmental hazards, toxic waste and environmental damage generated by the Global North is also exported to countries in the Global South with less stringent environmental regulations.

In the case of *Apocalypse Now*, Coppola’s decision to shoot his Vietnam War film in Luzon was motivated by environmental racism, a motivation that was clearly

²⁰ This definition from Chavis, which is from the proceedings for The First National People of Color Environmental Leadership Summit in 1991, is also quoted in Zimring’s *Clean and White* (1-2).

exposed during the staging of an elaborate explosion at Colonel Kurtz's temple, an explosion that was ultimately cut from the final product of the film. In Eleanor Coppola's notes on the film, she writes that after witnessing this explosion, her spouse, Francis Ford Coppola himself, stated the following: "There aren't too many places in the world you could even do [...] [this]; they'd never let you in the United States. The environmentalists would kill you. But in a war, it's okay" (Coppola 189). Coppola was well-aware that the destructive explosions of his film would not be permitted on U.S. soil. Instead, this environmental damage was transferred to the Philippines, a country with more lax environmental regulations than the United States. This disparity in regulations—which was particularly glaring during the Marcos regime—was capitalized on by Coppola and his special effects crew, who knowingly damaged terrestrial and aquatic ecosystems in Luzon by detonating an extensive array of explosive devices, resulting in deforestation, coral reef depletion, and poor air quality. By envisioning the Philippines as a surrogate Vietnam, Coppola transformed his shooting locale into a surrogate site of war—a transformation that was profoundly shaped by environmental racism.

While *Apocalypse Now* blatantly damaged Philippine ecosystems through its simulation of U.S. warfare, the narrative itself is connected to a longer history of racism. As is well known, *Apocalypse Now* is an adaptation of Joseph Conrad's novella *Heart of Darkness* (1899). Like Conrad's Marlow, the protagonist, Captain Willard, is ordered to travel down a river—in this case, the fictional Nung River—in pursuit of the renegade Kurtz at his temple. Although celebrated as a literary classic

that critiques the atrocities of European imperialism, *Heart of Darkness* is a profoundly racist text. In his foundational essay, “An Image of Africa: Racism in Conrad’s *Heart of Darkness*” (1988), Chinua Achebe asserts that Conrad’s novella posits Africa as a mere “setting and backdrop which eliminates the African as human factor” (257). He asks, “Can nobody see the preposterous and perverse arrogance in thus reducing Africa to the role of props for the break-up of one petty European mind?” (257). Achebe’s critique of *Heart of Darkness* can be applied to *Apocalypse Now*, which likewise relegates both Vietnam and the Philippines to the status of backdrop, casting Filipinos and Vietnamese as props—all in the name of showcasing an American perspective of the Vietnam War. In other words, Luzon, as a surrogate Vietnam, is merely an expendable setting in the film’s production, one that can be destroyed and blown up, while Filipinos are an exploitable labor source for Coppola and his crew. Meanwhile, Vietnamese are cast as predominately silent extras with non-existent character development.²¹ *Apocalypse Now* may be praised for its critique of U.S. involvement in the Vietnam War, (just as *Heart of Darkness* is praised for its stance on imperialism), but this very critique is couched in a U.S.-centric narrative that silences Vietnamese voices and a production history that readily exploits the Philippines.

However, instead of letting this film dominate U.S. imaginings of the Vietnam War, authors of color have adapted *Apocalypse Now* back into their literary texts in

²¹ In *Apocalypse Now*, the “only Vietnamese speaking part belongs to a south Vietnamese army translator” (Dinh). This character just says three short sentences in the film.

order to challenge Coppola's take on the war and the film's problematic production history. As both a community of writers and critics, (connected to the world of academic letters), these authors—who are predominately Asian American—have created an intertextual literary network that productively resists Coppola's magnum opus. In his short story, "Maka's Lei Day," which is the last installment in the collection *The Speed of Darkness* (1988), Rodney Morales, a local Hawaiian author and professor of Puerto Rican descent, reinscribes the narrative of *Apocalypse Now* in order to counter its logic of surrogacy—an act that forges a shared solidarity between Indigenous lands impacted by U.S. military violence. Poet Barbara Jane Reyes, who was born in Manila and raised in the Bay Area of California, builds from this solidarity in her book-length poem, *Poeta en San Francisco* (2005), which creates an imagined epistolary correspondence between the Philippines and Vietnam, one that is based on both the brutal history of the Vietnam War and its filmic simulation in *Apocalypse Now*. Meanwhile, Jessica Hagedorn, an author who was born and raised in the Philippines and then moved to the United States as a teenager, was the first to encapsulate the production history of *Apocalypse Now* in fictional form. Hagedorn directly takes Coppola to task for his exploitation of Philippine land and labor in her novel *Dream Jungle* (2003). Building from Hagedorn's engagement with the film's production, author and professor Viet Thanh Nguyen, who was born in Vietnam and raised in the United States, created his own rendition of the film's making in his novel *The Sympathizer* (2015), a rendition that highlights Coppola's silencing and erasure of Vietnamese bodies. Ultimately, when read together, I argue that these four literary

adaptations challenge the uncritical mythologization of *Apocalypse Now* by imaginatively exposing the blurred boundaries between war and filmic simulation of war, and the racialized and environmental consequences of this blurring. While the filming of *Apocalypse Now* was physically disrupted by a typhoon, these texts figuratively disrupt celebratory viewings and interpretations of Coppola's highly acclaimed war epic.

Shooting Cameras and Weapons in a Stormy “Jungle”

Before delving into the literary adaptations generated in the wake of *Apocalypse Now*, it is first necessary to provide a history of the film's production, and more specifically, an account of its collaborations with the military, its creation of environmental damage, and its interactions with the storm Typhoon Didang, internationally known as Olga. This shooting history provides a foundation for the critical adaptations of the literary texts, while exposing the intimate connections between Hollywood and the U.S. military. Paul Virilio identifies these connections in his work, *War and Cinema: The Logistics of Perception* (1989), which highlights the intersections between film-making and warfare, as both rely on a “field of perception,” and technology readily moves from the battlefield to the film set (20). Virilio writes that after World War I, “Americans prepared future [military] operations in the Pacific by sending in film-makers who were supposed to look as though they were on a location-finding mission, taking aerial views for future film productions” (*The Vision Machine* 49). These preparations drew a hazy line between the shooting of cameras and the future shooting of weapons at a given site.

American cinema and the U.S. military are thus aligned through their shared uses of aerial perception and technologies of vision, and this alignment is especially magnified in the case of Hollywood's war films. In his extensive history of American war films, Lawrence H. Suid describes the dynamics of a unique and "symbiotic relationship" between the production of these films and the U.S. military (12):

Hollywood has always believed that for military movies to succeed [...] they must have an authentic ambience. To create such images of reality, filmmakers have regularly sought assistance from the armed forces in the form of technical advice, men, and hardware. The military has seen these films as a superb public relations medium. Consequently, the services have taken great care to assist only on movies that would provide benefit by informing the public and the Congress of their activities, [and] by aiding recruitment. (8)

In other words, directors of American war films must present the U.S. military in a positive light, one which bolsters recruitment, in return for the use of their expensive equipment and personnel. This assistance is contingent on an elaborate process of censoring, wherein copies of the script are submitted to the Pentagon and filmmakers must agree to make any "changes the Pentagon suggests; film the script exactly as approved by the Pentagon; and prescreen the finished product for Pentagon officials before it's shown to the public" (Robb 25). The script of *Apocalypse Now* was subjected to this process with the aim of obtaining U.S. military assistance, although the outcome of this exchange was different than what Coppola had initially imagined.

Coppola submitted the film's original script, which was written by John Milius, to the military in 1975, as the director planned "to work with the Pentagon as closely as possible to obtain background information, stock footage for study purposes, and [...] physical assistance during actual filming" (Suid 333). However,

the military was adamantly against the central plotline of the film, and specifically the U.S. Army's order that Willard assassinate Kurtz, claiming that it "'present[ed] the Army in an unrealistic and unacceptable bad light'" (qtd. in Suid 334). Coppola later revised the script, but these revisions did not cater to the U.S. military's objections, and he was ultimately denied any use of their equipment—despite his continued requests, including a telegram sent to Secretary of Defense Donald Rumsfeld asking to borrow a Chinook helicopter.²²

In order to get the equipment he needed, Coppola made an arrangement with the Marcos dictatorship, which helped to solidify his choice of the Philippines as the film's shooting location. When Milius wrote the original script for *Apocalypse Now*, he suggested that the film be shot in Vietnam while the war was still ongoing. However, Milius states that Warner Brothers "finally backed off on it" because they were aware that "most of us would probably be killed" if they shot in Vietnam, and the script was put on hold until Coppola picked it up in 1975 (*Hearts of Darkness* 0:07:41-0:07:45). As Vietnam was still reeling from the devastating impact of the war and the brutal aftermath of the U.S. military's operations, making it an unfeasible option for a shooting site, the Philippines was instead "chosen as the location because of the similarity of the terrain to Vietnam" and "the fact that the Philippine Government was willing to rent its American-made helicopters and military equipment to the production" (Coppola 17).

²² See page 35 of Eleanor Coppola's *Notes* (1995) for a description of the director's request for a Chinook helicopter.

Eleanor Coppola describes the terms of this agreement in her documentary on the making of the film, titled *Hearts of Darkness: A Filmmaker's Apocalypse* (1991), which she directed along with Fax Bahr and George Hickenlooper:

Since the U.S. Army has refused to cooperate with a movie about the Vietnam War, Francis has made a deal with Philippine president Ferdinand Marcos. The production will pay the [Philippine] military thousands of dollars per day as well as overtime for the Philippine pilots. In return, Francis can use Marcos's entire fleet of helicopters as long as they're not needed to fight the Communist insurgency in the south. (0:12:02-0:12:25)

According to the framework of this "deal," the helicopters used during the shooting of the film were simultaneously used by the Philippine military to target the New People's Army (NPA), the armed wing of the Communist Party of the Philippines, and the Moro National Liberation Front (MNLF), a Muslim separatist group based in the southern island of Mindanao. Tolentino asserts that this arrangement aligned the film's production with the violence of the Marcos dictatorship's brutal counterinsurgency campaign (242). Such ties with the U.S.-sponsored Marcos regime reveal the film's implicit ties to the U.S. military. The Philippine military "grew dramatically and became the regime's deadly instrument for repression and terror" precisely because of the U.S. government's funding, which was given as payment in return for Marcos's support of Subic Naval Base and Clark Air Base (Witeck 9). *Apocalypse Now* may not have received helicopters directly from the U.S. military, but the helicopters and equipment it did use were largely paid for and made by the United States.

While Coppola's film was tied to the U.S. military through its use of American helicopters and equipment, Tolentino notes that its numerous explosions physically "approximated the bombing and other military operations in Vietnam" (236). That is, in replicating the operations of the U.S. military in Vietnam, and particularly the dropping of napalm, the film reproduced this ecological ruin on the forests and ecosystems of the Philippines. This was particularly evident during an elaborate napalm explosion on the film's set, which was used for the scene when Lieutenant Kilgore orders the Air Force to bomb a tree line (*Apocalypse Now* 0:48:17-0:49:14). In his archival analysis of the film's production, Peter Cowie writes that in preparation for this explosion, special effects technicians A.D. Flowers and Joe Lombardi "dug a huge trench at the tree-line, and filled it with twelve hundred gallons of gasoline" (57). During the shooting of the scene, "a flight of F-5 jets screamed overhead, dropped canisters that looked like napalm, and Flowers and Lombardi, dug into bunkers on the beach, [and] ignited their huge furnace of gasoline" (Cowie 57). The ignition "set off a huge fire in the palm trees," after which Eleanor Coppola, who was "about a half mile away," "felt a strong flash of heat" (Coppola 55-6). This "strong flash of heat" could easily be used to describe the act of bombing in real warfare, as the production and cast ran for cover to get away from the blast of the explosion.

In *Apocalypse Now*, the scene's resulting image, wherein palm trees are consumed by a linear fire within an expanse of verdant forest, could likewise be confused for an image of an actual napalm bombing (0:49:09-0:49:13). The reactions

of both the crew and the fictional Kilgore to the explosion further this collapsing of boundaries. In her notes, Eleanor Coppola writes that the special effects crew were “pretty pleased” (56), and in the scene itself, Kilgore happily states, “I love the smell of napalm in the morning” (0:49:34-0:49:35). The film’s crew and its fictional character were motivated by a distinct pleasure in destroying the “jungle”—a pleasure that highlights the environmental racism undergirding both the Vietnam War and the film itself. The director and his special effects crew indiscriminately targeted the forests of Luzon, (a targeting that would not be permitted for films shot in the United States), in order to replicate the devastating, ecocidal operations of the U.S. military during the Vietnam War, as both people and the natural environment were indiscriminately targeted through the use of napalm, Agent Orange, and extensive bombing campaigns.²³ In each case, the U.S. military and Coppola’s production were able to essentially pack up and leave the sites of their destruction, trailing behind them a legacy of social and environmental ruin.

In the Philippines, this environmental ruin came in the form of deforestation. To build mock Vietnamese villages, the film’s crew “cleared the jungle, [and] brought logs down the river to build a bridge” (Coppola 21). Those trees that were not cut down to create sets were burned to ash by the film’s many explosions, such as “the ninety-second bombardment at the Do Lung Bridge,” which entailed “a daunting

²³ In *Body Counts* (2014), Yen Le Espiritu notes that the U.S. military used the high body counts of Vietnamese deaths, including both civilians and combatants, in order “to chart [their] [...] progress in the war” (2). On the relationship between ecocide and U.S. military operations in Vietnam, David Zierler writes that these operations were part of an “herbicidal warfare program” that “targeted not specific weeds but entire ecosystems” (2).

arsenal [...] [of] more than 500 smoke bombs; 100 phosphorous sticks; 1,200 gallons of gasoline; 50 water explosions consisting of 35 sticks of dynamite apiece; 2,000 rockets, flares, tracers; and 5,000 feet of detonating cord” (Cowie 69). Such clearings of the “jungle,” either from explosive special effects or for set constructions, resulted in deforestation, which has material consequences for climate change.²⁴ Deforestation interrupts terrestrial carbon sequestration, a “process by which atmospheric carbon dioxide is taken up by trees, grasses, and other plants through photosynthesis and stored as carbon” (“Carbon Sequestration”). When forests are cleared, this process of carbon absorption stops entirely, and the stored carbon “is released into the atmosphere as CO₂” (“Deforestation”). In turn, deforestation contributes to the accumulation of greenhouse gases and the rising of global temperatures under climate change.

The making of *Apocalypse Now* increased CO₂ emissions and depleted much-needed carbon sinks, (or Philippine forests), while simultaneously decimating natural barriers that have the potential to mitigate the impact of climate change. The film’s forest explosions and the crew’s removal of trees caused soil erosion, or the loosening of previously anchored soil, which can exacerbate flooding from extreme storm systems by reducing the absorbing capacity of the forest floor. This is especially true

²⁴ I use the term “climate change” instead of “global warming” primarily because the first term encompasses a wider breadth. In the article “What’s the difference between global warming and climate change?” (2015), Caitlyn Kennedy and Rebecca Lindsey note that global warming “refers only to the Earth’s rising surface temperature, while *climate change* includes warming **and** the ‘side effects’ of warming—like melting glaciers, heavier rainstorms, or more frequent drought.”

for the Philippines, a country that has suffered intense flash floods because of rapid deforestation, beginning from the American colonial period onward.²⁵

The destruction of natural barriers was not limited to land, as the film's underwater explosions damaged coral reefs—which likewise serve as a protective barrier against typhoons. In order to shoot the famous helicopter assault scene, where Kilgore's soldiers surf after launching a full-scale attack on a coastal village, the crew landed a helicopter on a reef located along the coast of Baler in the province of Aurora (*Apocalypse Now* 0:47:51). In preparation for the oceanic explosions of the scene, Eleanor Coppola writes that the “special effects men have set explosives out on the reef,” stating that “after a few go off, there will be some dead fish around, and the sharks will come in” (58). Coral reefs can be severely damaged from human touch alone, and so it stands to reason that these explosions killed fragile corals and the species that depend on them, as seen with the dead fish that proliferated in the wake of the detonations. The destruction of this coral reef entails the loss of a protective barrier, as these reefs “can help protect against rising sea levels and storm surges,” or the rapid rising of the sea due to atmospheric pressure from a storm (Carey). A 2014 scientific study reports “that coral reefs provide substantial protection against natural hazards by reducing wave energy by an average of 97%” (Ferrario et al. 1). According to this study, the Philippines is one of the countries “with the greatest number of at-risk people who may receive risk reduction benefits from reefs”

²⁵ For more information about the relationship between flooding and deforestation in the Philippines, see the 2005 *Philstar* article “Deforestation one of major causes of RP floods.”

(Ferrario et al. 3). As such, coral reef preservation in the Philippine archipelago is particularly urgent—especially with the increasing frequency and intensity of extreme storm systems under climate change.

While the coral reef depletion and deforestation generated by *Apocalypse Now* was undoubtedly destructive, it was by no means the only damaging force within the environment of the Philippines. It is important to remember that the Philippine landscape was not pristine or untouched before the arrival of Coppola and his crew. Rather, the film’s production was part of a longer history of environmental exploitation and capitalist destruction in the Philippines that stretched back to the American colonial period and gained momentum throughout the Marcos regime. Deforestation was especially rampant during the Marcos dictatorship, as “the Philippines became a major exporter of logs to the US and Japan” during this time, resulting in the loss of “over 8 million hectares of forest trees, 2 million of which had been severely damaged beyond the point of restoration” (“Green Devolution”). In the later years of the dictatorship and into the 1990s, dynamite fishing reached an all-time peak in the archipelago—a now illegal fishing method that uses homemade explosives to blast coral reefs and obtain a larger catch of fish, thereby destroying marine food chains and the corals that support them.²⁶ This fishing practice is directly tied to extreme poverty, as higher catch numbers bring in a more lucrative return for fishing folk who are struggling to make ends meet. As such, the *Apocalypse Now*

²⁶ For more information on dynamite fishing in the Philippines, see Aurora Almendral’s *New York Times* article “In the Philippines, Dynamite Fishing Decimates Entire Ocean Food Chains” (2018).

production, which likewise destroyed coral reefs and produced deforestation, should be situated within the historical context of the Marcos dictatorship, with its capitalistic exploitation of the environment and contribution to a growing socio-economic divide in the Philippines—a divide that led to unsustainable practices in the name of survival.²⁷

Although Coppola and his crew capitalized on the lax environmental regulations of the Marcos regime, the film's production was ironically susceptible to the very same natural forces that it exacerbated, and more specifically, tropical cyclones. Typhoon Didang hit on May 21, 1976, (in the middle of the film's shooting), and resulted in the deaths of 200 people in Luzon. In the documentary *Hearts of Darkness*, Eleanor Coppola states that the typhoon destroyed numerous sets and shut down the production for two months, during which time the cast and crew returned to their homes, while the director returned to his estate in Napa, California (0:33:08-0:33:27). When filming eventually resumed in Luzon, the destruction wrought by Didang was still palpable, as the director, actors, and crew returned to an array of destroyed sets, including equipment that “either vanished in the mud or suffered terminal damage” (Cowie X).

In the documentary's footage of the typhoon, Francis Ford Coppola gives a strangely vague interview that attempts to describe the storm and its impact:

²⁷ In the article “Ferdinand Marcos' economic disaster” (2016), Ronald U. Mendoza notes that “Philippine poverty [...] increased during the Marcos years, rising from 41% poverty incidence around the time Marcos took the Presidency in the 1960s to around 59% by the time he was kicked out by a popular people-power revolution in the 1980s.”

You know, it started out just as raining a lot, and after a while, we realized it was knocking out centers of civilizations, and rivers were overrunning, and people couldn't get to the places. They were all on the roofs of hotels and stuff. And then I just—we had to stop for a while. And I realized that certain sets had been destroyed. (*Hearts of Darkness* 0:32:24-0:32:41)

Here, Coppola's broken language reveals both his uninformed assumptions about the intensity of Philippine typhoon season and his complete lack of knowledge about his surroundings. He is unable to name any of the sites that surround his shooting locale, instead listing off a series of generic place markers, i.e. "centers of civilizations," "rivers," and "hotels." It becomes clear that Coppola's attention is solely geared towards his sets. In his realization that "certain sets had been destroyed," the term "sets" takes on a noted ambiguity—as it could at once signify the constructed sets of the film and the setting of Luzon itself. Both "sets" were demolished by the typhoon, a point that *Hearts of Darkness* reinforces by panning out to footage of the storm's damage immediately after Coppola's statement (0:32:41-0:33:06).

The documentary displays an image of metal poles and skeletons of former sets submerged in a flooded landscape of mud and water, demonstrating how both the "jungle" setting of the land and the sets of the film were mutually damaged. As the typhoon "knock[ed] out centers of civilizations," the film's production was ironically undone by the very same natural forces that it exacerbated. In other words, the crew and director destroyed natural barriers that could have possibly mitigated the extreme flooding that ruined and submerged their valued sets.

From Surrogacy to Solidarity in “Maka’s Lei Day” and *Poeta en San Francisco*

Typhoon Didang may have temporarily disrupted the physical shooting of *Apocalypse Now*, but the literary adaptations that gradually emerged in the aftermath of the film’s release continue to disrupt its celebratory mythologization. Both Morales’s short story, “Maka’s Lei Day,” and Reyes’s poem, *Poeta en San Francisco*, utilize the frameworks of surrogacy and solidarity to write back to Coppola, countering his uncritical homogenization of the Philippines and Vietnam and forging ties between communities of color suffering from U.S. military violence. The film’s logic of surrogacy is first critiqued in “Maka’s Lei Day,” which documents protagonist Maka’s trip to bring his daughter, Lehua, a lei for the Lei Day celebration at her school in Honolulu. During Maka’s drive, which is laced with a series of flashbacks, the narrative dissolves both spatial and geographic boundaries, as the militarized landscape engulfing Maka’s car prompts him to imagine the iconic opening scene of *Apocalypse Now*:

the car ran a bit smoother, and the helicopter sounds got louder again. Maka looked up and saw it flying over Punchbowl cemetery. This he had heard many times as he sped off to work in downtown. This time he thought not of Vietnam, but a movie based on that war: *Apocalypse Now!* In his mind he saw the opening scene, saw the ceiling fan become a helicopter blade. Nice trick, he thought. (166)

The helicopter flying over Punchbowl, or the National Memorial Cemetery of the Pacific, is a trigger that unmoors the spatial parameters of the story. This helicopter presumably belongs to the U.S. military, as its whipping rotors are a sound that Maka “had heard many times” before—a reference that highlights the active and ongoing militarization of O‘ahu. As the helicopter flies above a site specifically designed to

memorialize the U.S. military, it becomes incorporated into the first scene of *Apocalypse Now*, when helicopters drop napalm on a forest of palm trees. In this scene, viewers are transported from the fiery explosion to Willard's hotel room in Saigon via the whirring of helicopter rotors, which suddenly become the whirring of a rapidly moving ceiling fan (0:00:15-0:03:55).

In Maka's imagining, he uses this "trick" of transposition to draw his own geographic connections, superimposing the film's opening scene onto the helicopter-filled skies of O'ahu. Just as the film relies on the helicopter to move the audience from one site to another, Maka likewise uses the helicopter to move readers from the actively militarized terrain of Hawai'i to the film's simulation of U.S. military violence in the Philippines, and implicitly, to the war torn landscape of Vietnam itself. It is important to keep in mind that this dissolving of geographic borders is notably different from the logic of surrogacy employed by *Apocalypse Now* and the U.S. military. Both the U.S. military and Hollywood war films rely on the substitution of different locales to serve as training grounds or shooting sites based on their supposed similarity to the original site of war. Like the Philippines, the islands of Hawai'i have been subsumed into this surrogate logic. In the 1960s, the U.S. Army and the University of Hawai'i used Kaua'i for Agent Orange and herbicide testing precisely because its tropical foliage was envisioned as "an expendable surrogate for Vietnam" (Gonzalez 178). The Army also constructed a mock Vietnamese village, known as Kara Village, on the Schofield Barracks of O'ahu, "where soldiers received their advanced infantry training before going to war" in Vietnam (Man 1085). When

Hawai‘i was no longer a surrogate war zone for Vietnam, it was a shooting site for Hollywood films on the Vietnam War.²⁸ Within the context of Hawai‘i’s history as substitute for Vietnam, Morales’s story collapses geographical boundaries in order to forge a decolonial connection across militarized sites that directly counters the homogenizing logic of surrogacy.

Instead of imagining one place as a stand-in for another so that violence can also be enacted on it, Maka employs a critical re-imagining of space to draw attention to a wide-reaching history of U.S. militarization that transcends geographic borders and unites otherwise divided sites. This is apparent during Maka’s past trip to Kaho‘olawe with his cousin, Kaeo:

A mile west, along the rugged coast, was Shipwreck’s Cove, a debris laden area filled with everything from smoothed glass and tennis balls to beer cans and plastic jars and driftwood. And the further inland Maka hiked, the more he thought of himself as a Marlow (or a Captain Willard) being led into the heart of some undecipherable darkness. But it wasn’t Conrad or Coppola, or Africa or Vietnam that his mind was driven to as the branch of a kiawe that Kaeo had bent forward flung back and stung his cheek, but the Badlands. (167)

Maka imagines himself reenacting the journey narratives of *Heart of Darkness* and *Apocalypse Now* as he hikes inland on Kaho‘olawe, identifying as both Conrad’s Marlow and Coppola’s Willard. At first glance, it seems that Maka is merely perpetuating the imperial quest of finding “undecipherable darkness” in “jungles” that are central to the project of Western colonialism—only this time the setting is the bombed landscape of Kaho‘olawe, strewn with debris and tangled in the thorny

²⁸ Both Ted Kotcheff’s *Uncommon Valor* (1983) and John Milius’s *Flight of the Intruder* (1991) were filmed on the Hawaiian island of Kaua‘i.

branches of kiawe. However, upon closer examination, this passage draws a critical connection between Kaho‘olawe and the Badlands, a connection that is underpinned by a shared history of U.S. military violence.

Kaho‘olawe, a sacred site for Native Hawaiians, was taken over by the U.S. military during World War II, and served as a bombing range for the Navy.²⁹ In 1965, the U.S. Navy Bureau of Ships conducted Operation Sailor Hat, “an underwater and surface high-explosive test” meant to simulate the blast of a nuclear bomb, which resulted in a permanent “sailor hat” crater on the island (“Sailor Hat”). In 1967, the island was the official “testing and training range for the air war over Vietnam,” which “led to the construction of surface-to-air targets and target airfields on the island” (“Kaho‘olawe”). Like Kaho‘olawe, the Badlands National Park in South Dakota, which is the original land of the Oglala Lakota Tribe, was a live fire training site for the U.S. military. During World War II, parts of the Badlands, along with the nearby Pine Ridge Indian Reservation, were used by the U.S. Air Force as a bombing and gunnery range, known as the Badlands Bombing Range.³⁰ Despite the fact that 125 families were living in the region, the U.S. government forcibly seized 342,000 acres of land, ordered the Lakota to leave their homes, and proceeded to drop tons of

²⁹ In “Still in the Blood” (2015), Maile Arvin writes that while on the surface “the only difference between ‘native Hawaiians’ and ‘Native Hawaiians’ is a matter of capitalization,” state law mandates that the lower case “native Hawaiian” signifies “a person having at least 50 percent ‘blood’ [quantum]” (681). Because the lower-case term excludes those without the required blood quantum, I use the more inclusive “Native Hawaiian.”

³⁰ Pine Ridge Indian Reservation was the site of the Wounded Knee Massacre on December 29, 1890, where over 200 Lakota were killed by U.S. troops. For Native Americans, this massacre marked the “utter disregard of the U.S. toward its treaty responsibilities, its duplicity, and its cruelty toward Native people” (King).

bombs on the area (Wilkinson). During the Vietnam War, the Badlands was then transformed into an interior radar bomb scoring site. Both the Badlands and Kaho‘olawe are sites of Indigenous dispossession that were viewed by the U.S. military as expendable training grounds for war. Each place has been left with the long-lasting environmental damage and safety hazards of this target practice, as Kaho‘olawe and the former Badlands Bombing Range are strewn with unexploded ordnance to this day.³¹

By connecting the Badlands to Kaho‘olawe via the journey narrative of *Apocalypse Now*, a narrative that is precisely based on a logic of surrogacy, wherein Conrad’s Africa morphs into Coppola’s Vietnam, (with the Philippines as stand-in for the later), Morales’s story turns this logic on its head by fostering a critical solidarity between Indigenous lands that is based on a shared history of U.S. military violence rather than a homogenization of space. During Maka’s visit to the Badlands, he is struck by the land’s “eerie rock formations, said to have been caused by erosion. To him it seemed [...] like how the world would look after a hellish fire raged through and destroyed everything that lived. No one lived there [...]; nothing grew there” (168). This memory of his visit to the Badlands is immediately followed by a memory of his trip to Kaho‘olawe, the very same trip where he imagines himself hiking to the “heart of darkness” on the island: “‘Nobody live heah.’ Maka suddenly heard Kaeo’s

³¹ While the work of Native Hawaiian activists, and particularly the activist group Protect Kaho‘olawe ‘Ohana, resulted in the return of Kaho‘olawe to the state of Hawai‘i in 1994, the island is still permanently damaged. The majority of the Badlands Bombing Range was returned to the Oglala Lakota Tribe in 1978, except for a section of land known as the “‘retained area,’” which is littered with extensive debris and unexploded ordnance (O’Sullivan).

voice. ‘Not any moah, unless you considah da Navy guys stationed at Hakioawa. ‘An’ because a’ da erosion an’ da bombing, hahdly anyt’ing grow heah’” (168). The story draws a direct parallel between the harsh and barren landscape of the Badlands, which has been shaped by centuries of natural erosion from rivers and wind, and the barren and eroded land of Kaho‘olawe, which was transformed, in the words of Jon Kamakawiwo‘ole Osorio, by the U.S. military “from a once productive land with streams, springs, and native plants to a parched land with few trees and bushes and a perennial waistline of red mud around its shore” (11). Ironically enough, the U.S. military’s years of bombing, which caused severe soil erosion, turned Kaho‘olawe into a red and desolate landscape, where nothing grows, much like the landscape of the Badlands—a site that was designated a bombing range precisely because it was deemed “desolate” by the U.S. Air Force (Eliot).

It is not just that the U.S. military, and by extension Hollywood, imagines different sites as surrogates for target and shooting practice, but here we see that U.S. military violence itself attempts to physically transform these places into a slew of homogenized wastelands. Morales’s story intervenes in this logic of surrogacy by forging a decolonial link between the Badlands and Kaho‘olawe within the larger context of *Apocalypse Now*’s journey narrative. In Maka’s memories, both sites are interconnected, but are by no means interchangeable, as the Badlands and Kaho‘olawe each have distinct cultural histories and identities in the story. Instead, the narratives of *Apocalypse Now* and *Heart of Darkness* are themselves homogenized. As Maka travels inland on Kaho‘olawe, he imagines himself “as a

Marlow (or a Captain Willard),” as one character can easily take the place of another (167). While the different locales of Maka’s narrative are not interchangeable, Conrad’s and Coppola’s storylines indeed are.

Reyes’s *Poeta en San Francisco* builds from Morales’s critique of surrogacy and fostering of Indigenous solidarity through a sustained, poetic engagement with *Apocalypse Now*—one that forges its own connection of solidarity between the Philippines and Vietnam. This begins with the last section of the “[prologue],” which is composed as a dictionary entry with the phonetic spelling of “apocalypse” written on the page (13). The entry notably withholds the standard spelling of “apocalypse,” identifying the term only by its phonetic pronunciation and its part of speech. A definition is likewise withheld, as the speaker instead addresses a “dear love,” opening the entry with the line “dear love is it true there are no demons but the ones we’ve invented” (13). By purposely concealing the spelling and definition of “apocalypse,” Reyes defamiliarizes the term, and given the close parallels between “apocalypse” and the title *Apocalypse Now*, this defamiliarization can be extended to the film itself. In lieu of a definition, the speaker calls out the dangers of the “demons [...] we’ve invented,” demons that can presumably be applied to the film and the war it represents—yet these demons still go unnamed. Rather than allowing readers to recognize and perhaps perpetuate the mythologization of *Apocalypse Now*, the central word of the film’s title is rendered unfamiliar, just as the film attempts to render the Philippine landscape as unfamiliar by casting it as a surrogate Vietnam.

The “dear love” of Reyes’s prologue is carried throughout the poem, becoming the addressee of a series of epistolary correspondences with the speaker. According to Martin Joseph Ponce, we can read this addressee as a “Vietnamese person who has endured the ravages of the Vietnam/American War” (213). This is apparent in the first letter, which is written to “dear love” from an unnamed “yours”:

dear love,

remember the bamboo tiger cages in those goddamn movies. and napalm, sinister rain, deathly tangerine vapor veiling the islands, for simulation’s nothing like the real thing. the real thing. the real thing. military choppers of film script, steel demon birds, called away to quell real life dictatorship’s farthest outposts of rebellion. who among us could’ve told the difference? they have mistaken my home for a hollywood set of your home. even my language was a stand-in for yours. your country is not a war. my country is no longer mine. this i wished to tell you, because i was thinking of coming home to you.

yours. (23)

The letter, which creates an imagined exchange between a Vietnamese person and the Filipina speaker, (“yours”), engages with *Apocalypse Now* without directly naming the film. The “bamboo tiger cages” are a reference to South Vietnamese torture sites, reproduced at Kurtz’s temple, while the “napalm, sinister rain, [and] deathly tangerine vapor” highlight the environmental damage wrought by the film’s explosions. The repetition of “the real thing” references “the helicopters that Coppola had rented from the Philippine military and that were called away to fight in the ‘real life dictatorship’s’ counterinsurgency battles” (Ponce 214). As such, the letter exposes the murky and at times non-existent division between war and filmic simulation of war, as Reyes writes, “who among us could’ve told the difference?” Both forms of

shooting become “the real thing” via the shared and weaponized vehicle of the helicopter.

Ponce asserts that the last sentence in the letter is a surprise, “for if ‘your country’ that is not a war is Vietnam, and ‘my country’ that is ‘no longer mine’ is the Philippines, then where is ‘home’ in the phrase ‘coming home to you’?” (215). Building from this question, where Ponce suggests that “home” is perhaps “irreducible to a single material place,” it seems that “home” in the letter signifies a transnational connection of solidarity between the Philippines and Vietnam (215). The “home” the speaker wishes to come to is a space in-between, a thread of connection that collapses the borders separating “yours” and “dear love” so that they may reach out to each other in the wake of Hollywood and U.S. military violence. We can understand this “home” as the site where these letters are circulated, the undisclosed address on the imagined envelope, a space that exists outside the homogenizing gaze of Coppola and the U.S. military.

Like Morales’s story, this connection across geographic borders is facilitated through a shared history of violence, (a violence that is foregrounded through the poem’s reinscription of *Apocalypse Now*), rather than a homogenization of Vietnam and the Philippines. However, the connection between “dear love” and “yours” is not stable, as the solidarity of the first letter morphs into a rejection in the latter half of the poem.³² Ponce writes that even as the speaker “invokes these common histories as

³² In the second half of the poem, the speaker states, “i swore i loved you once. but now / i have grown w(e)ary. dear love, i too am culpable, perhaps i am even uncivil, but i can no longer honor you” (83).

the ground on which to communicate, she questions its grounding on war, suffering, and peripheralization” (217). Reyes thus attempts to create a decolonial connection between the speaker and addressee, one that rejects the violence of surrogacy, while simultaneously calling the foundation of this intimacy into question. More notably, the correspondence between “dear love” and “yours” is a unidirectional exchange, as all the letters are written to “dear love,” and “dear love” never actually writes anything of their own, a point which potentially motivates the poem’s refusal to claim a fully-fledged solidarity between the Philippines and Vietnam.

Re-writing Production History in *Dream Jungle* and *The Sympathizer*

While “Maka’s Lei Day” and *Poeta en San Francisco* resist the logic of surrogacy by forging key connections between communities of color—connections that are highlighted vis-à-vis a reinscription and defamiliarization of *Apocalypse Now*—Hagedorn’s *Dream Jungle* and Nguyen’s *The Sympathizer* instead turn to the production history of Coppola’s film to reveal its racialized and environmental exploitation of the Philippines and Vietnam. As such, both novels were heavily influenced by the shooting history of *Apocalypse Now*, drawing from its extensive documentation in order to write their own behind-the-scenes narratives. In an interview with Karin Aguilar-San Juan, Hagedorn describes her initial interest in the film’s production: “The filming went on for two long years. [...] The myth goes that it completely burned out Coppola. [...] Of course, it turned out to be a classic. But I take it another step: The Philippines will kick your ass if you’re not ready for it!” (6). Hagedorn was concerned with the “cultural myth-making” that surrounded and

continues to surround *Apocalypse Now* (Aguilar-San Juan 6). Her novel intervenes in this mythologization by grounding the film in the material reality of its shooting site in the Philippines, a grounding that encompasses the exploitation of Filipinos working on the set, the environmental damage incurred by the film's explosions, and the impact of typhoon season on the production. Nguyen, who read Hagedorn's *Dream Jungle* before composing his own novel (T. Hong), first watched *Apocalypse Now* when he was ten years old and was devastated by the scene when Willard and his crew search a Vietnamese family's sampan and indiscriminately slaughter everyone on board (Streitfeld). His novel was in many ways a response to that moment of horror, or, as he stated in an *NPR* interview, "It's my revenge on Francis Ford Coppola" (Gross). While Hagedorn's *Dream Jungle* uses the fictional proxy, *Napalm Sunset*, to expose Coppola's abuse of Philippine land and labor, Nguyen's *The Sympathizer* uses the fictional proxy, *The Hamlet*, to seek vengeance on Coppola's silencing and erasure of Vietnamese bodies.

Hagedorn's *Napalm Sunset*, which is directed by Tony Pierce, (a stand-in for Coppola), is shot in the fictional town of Sultan Ramayyah in Mindanao. From the beginning of Pierce's arrival on the set, he views both the people and land of his shooting site as nothing more than a convenient setting for his film. The character Billy Hernandez, who is modelled after actor Albert Hall, states, "'You see the way the cast and crew walk around here like they own the place? Pierce is the worst. Thinks this country's nothing but a backdrop for his movie. The people don't matter, except when they service him and his family'" (179). Labor exploitation was indeed a

key component in the making of *Apocalypse Now*, as the production paid Filipinos merely one to three dollars per day to do physically intensive work, such as building Kurtz's temple out of dried adobe blocks that weighed 300 pounds each (*Hearts of Darkness* 0:14:30-0:15:09). In the novel, these exploitative labor conditions are part of the backdrop that makes Pierce's film possible.

The connection between labor and land exploitation is made forcibly apparent during Pierce's interview with the character Paz Marlowe. Pierce states, "'The beauty of a location like this is that it offers you everything you need. Beach, ocean, jungle, lake, mountains, waterfalls, cheap labor—'" (247). By hastily listing off different habitats, landforms, and bodies of water alongside "cheap labor," Pierce makes it clear that his abuse of Philippine land is inextricably connected to his abuse of Filipino labor. Pierce reduces the unique and diverse environmental features of the Philippines into generic categories, (beach, lake, mountain, etc.), while reducing the people and culture of his shooting site to a readily available labor source.

This view of the Philippines as homogenized backdrop has material ramifications for the environment health of Sultan Ramayyah. Lake Ramayyah is continually bombarded with explosive devices, and Paz witnesses the aftermath of these detonations:

The rain had stopped temporarily; it was dreary and humid outside. Paz inhaled the stink of dying fish washed ashore, stunned by all the explosives the movie people were using. They were always blowing things up. Building elaborate sets only to blow them all up. Paz had observed two days straight of a simulated Vietcong hamlet's being bombed, coconut trees on the shoreline of Lake Ramayyah ablaze with fire and smoke. The noise had been deafening. (219)

The damaged ecosystems of Lake Ramayyah, replete with “dying fish washed ashore,” call to mind Eleanor Coppola’s description of the coral reef explosions that were used to stage Kilgore’s helicopter assault scene, which also resulted in a plethora of dead fish. Likewise, the trees “ablaze with fire and smoke” are reminiscent of the many forest fires and deforestation generated by the making of *Apocalypse Now*. In this passage, the crew’s “elaborate sets” are situated alongside the lake, the dying fish, and the blazing coconut trees; and, more notably, both these sets and the natural ecosystems surrounding them are blown up. This parallel between set and environment highlights the environmental racism of *Napalm Sunset*, and by extension, *Apocalypse Now*. Because Pierce views the landscape of Sultan Ramayyah as a backdrop, set, or even prop, it can be destroyed, much like any other building or set constructed by the crew.

The novel’s showcasing of environmental racism is linked to Hagedorn’s rendition of Typhoon Didang, as a storm also interrupts the shooting of *Napalm Sunset*. Through the voice of Aling Belén, a respected elder of Sultan Ramayyah, the narrative ties this typhoon to the uneven burden of climate change in the Philippines and larger Global South: “My Yeye’s sick. The weather is at fault. So much rain, you catch a chill. Aling Belén blames it on the movie people. ‘They bring typhoon and sickness with them,’ she says” (250). Belén’s claim that the American “movie people” bring typhoon with them is reflective of the contemporary politics of climate change. Historically and per capita, the United States emits more greenhouse gases than any other country in the world and consumes the highest number of natural

resources (Gillis and Popovich; “Use It and Lose It”). Meanwhile, countries in the Global South, including the Philippines, which have contributed the least to greenhouse gas emissions and consume the least amount of resources, suffer the overwhelming brunt of climate change, ranging from the disappearance of islands due to rising sea levels, to the projected increasing frequency and intensity of extreme storm systems due to warming global temperatures.

Both Hollywood and the U.S. military are an integral part of this unjust disparity of climate change impacts, as Hollywood productions generate excessive air pollution (Hampton), while the U.S. military “is the largest institutional user of petroleum products and energy” (Hynes, “The Military Assault”). *Apocalypse Now*’s extensive reliance on helicopters brings together these emissions of Hollywood and the U.S. military. The film’s military helicopters were propelled by jet fuel, which generates up to triple the amount of CO₂ emissions than diesel and oil (Hynes, “The Military Assault”). The CO₂ from this jet fuel exhaust, exhaust which was released during both the staging of the film’s helicopter scenes and the operations of Marcos’s U.S.-backed military, contributed to climate change by trapping heat in the atmosphere, in a mechanism known as the “greenhouse effect,” thereby raising the planet’s temperature and escalating the frequency and intensity of tropical cyclones—which disproportionately impact countries like the Philippines.³³ Thus, Belén’s statement that Pierce and his crew are bringing typhoon with them can be read on a

³³ While watching preparations for the first napalm explosion on the set, Eleanor Coppola writes, in her notes on the making of the film, that the “wind is blowing the jet fuel exhaust from the helicopters toward us. It is nauseating” (55).

literal level, as the character rightly assigns culpability, even without directly mentioning climate change.

While Hagedorn's novel ultimately resists Coppola's erasure of Philippine ecology, an erasure that renders the Philippines as a surrogate Vietnam, Nguyen's *The Sympathizer* resists Coppola's erasure of Vietnamese people and culture by exposing the film's intimate connection with the U.S. military. In an interview, Nguyen stated that although *Apocalypse Now* is "an important work of art," that "doesn't mean I'm going to bow down before it. I'm going to fight with it because it fought with me" (Streitfeld). It seems only fitting that Nguyen's highly acclaimed debut novel, which received the Pulitzer Prize for Fiction in 2016, should fight with Coppola's heavily awarded Vietnam War film.

This fight is largely centered on the terrain of memory. In *Nothing Ever Dies: Vietnam and the Memory of War* (2016), which Nguyen wrote as a critical companion to *The Sympathizer*, he states that "all wars are fought twice, the first time on the battlefield, the second time in memory" (4). This second battle is intertwined with the work of cultural production, as narratives of the war in Vietnam, whether fiction or non-fiction, definitively shape understandings and remembrances of the war. This can be dangerous in the case of iconic U.S. narratives, which often dominate imaginings of the war in Vietnam, so much so that "Americans, and people the world over, assume they know something of Vietnam from watching movies like *Apocalypse Now*" (Nguyen 104). As such, in his critical work, Nguyen asserts that *Apocalypse Now* is part of the "industrialization of memory," as "the actual firepower exercised in

a war is matched by the firepower of memory that defines and refines that war's identity" (13). By adapting the production of Coppola's film, *The Sympathizer* enters into this battle over war memory, releasing its own critical firepower to interrupt *Apocalypse Now*'s "celluloid campaign to refight the Vietnam War on global movie screens" (Nguyen, *Nothing Ever Dies* 13-4).

The Sympathizer is framed as the written confession of an unnamed narrator, a Communist sleeper agent who has been assigned the task of infiltrating the ranks of the South Vietnamese Army. The narrator leaves Vietnam with other refugees, and eventually ends up in Los Angeles. It is here that he encounters the Auteur, standing in for Coppola, and his script for *The Hamlet*. Upon first reading the script, the narrator is struck by the glaring absence of Vietnamese characters in the film, stating that he "was flummoxed by having read a screenplay whose greatest special effect was neither the blowing up of various things nor the evisceration of various bodies, but the achievement of narrating a movie about our country where not a single one of our countrymen had an intelligible word to say" (127-8). Here, the violence of special effects explosions is situated alongside the silencing of Vietnamese people, an erasure that constitutes its own type of violence, one that is paralleled with bodily evisceration. The narrator is eventually hired as a cultural consultant on "Vietnamese matters" for the film (139). He is subsequently flown out to the Philippines to work

on the production in Luzon, where he recruits and works with Vietnamese refugees from a camp in Bataan who are cast as extras.³⁴

Unlike the real *Apocalypse Now*, which has no developed Vietnamese characters, Nguyen's narrator successfully negotiates for the inclusion of three Vietnamese characters in *The Hamlet*, who are each given names and speaking parts. Not surprisingly, this alteration of the script is not enough to change the cultural politics of the film; the characters are not played by Vietnamese actors, and are instead played by a Filipino boy, a Korean American man, and a mixed-race woman of Chinese and British descent. It becomes clear that the film's logic of surrogacy runs deeper than the homogenization of the Philippine and Vietnamese landscapes, as people of color, and specifically people of Asian descent, are themselves cast as surrogates.³⁵ In the production of the real *Apocalypse Now*, this surrogacy of bodies was taken to an ominous level when Filipino corpses were "purchased from hospitals and medical schools" and strewn on the sets as "props" for dead Vietnamese bodies (McKay and Perez), a shocking detail that Nguyen's narrator points out later on in the novel. By adding imagined Vietnamese characters to *The Hamlet*, Nguyen's novel demonstrates that representation, in and of itself, is not enough, as racialized homogenization still dictates the core of the film, resulting in the use of non-

³⁴ This parallels the real *Apocalypse Now*, as the extras that were cast as Vietnamese villagers "were actual South Vietnamese refugees from placement camps around the Philippines" (Ziesmer 148).

³⁵ Indigenous peoples were likewise rendered as surrogates in *Apocalypse Now*, as the Ifugao people, an Indigenous group who live in the Ifugao Province of Luzon, were hired as extras to play the Montagnard army at Kurtz's temple. The extras were instructed by Coppola to simply "be themselves"—as he worked under "the assumption that, by being Ifugao they would pass as 'Vietnamese'" (McKay and Perez).

Vietnamese actors to play Vietnamese parts and the use of deceased Filipino bodies to stand in for Vietnamese bodies.

The Hamlet's abuse and erasure of Filipino and Vietnamese bodies can be traced back to the film's alignment with the U.S. military. Like Hollywood, the U.S. military relies on a logic of racialized and environmental surrogacy, where people and land are used as stand-ins, often for the purpose of training exercises.³⁶ As Nguyen's narrator continues to work on the production of *The Hamlet*, such intimate ties between the U.S. military and Hollywood become more forcefully apparent. Namely, the novel's narrator comes to understand Hollywood as a form of propaganda that aids the operations of the U.S. military:

Movies were America's way of softening up the rest of the world, Hollywood relentlessly assaulting the mental defenses of audiences with the hit, the smash, the spectacle, the blockbuster, and, yes, even the box office bomb. It mattered not what story these audiences watched. The point was that it was the American story they watched and loved, up until the day that they themselves might be bombed by the planes they had seen in American movies. (166)

In this account of soft power, Hollywood is described as an organism that violently indoctrinates audiences outside of the United States through a force that is equivalent to military weaponry. The "blockbuster" and "box office bomb" are identified as weaponized technologies in their own right—technologies that work through the medium of memory and narrative. Instead of physically bombing viewers, the "box office bomb" figuratively bombs the "mental defenses of audiences" with narratives

³⁶ For example, in Kara Village, the mock Vietnamese village constructed in O'ahu during the Vietnam War, Simeon Man notes that Asian American and Pacific Islander soldiers were used to play the part of Vietnamese "natives" during "racialized training practices" (1098).

of the “American story,” narratives that explosively dominate both the movie screen and the memories of those who watch. In turn, this mental bombing paves the way for the U.S. military to enact its own bombing campaigns. The movie screen becomes a porous medium through which weaponized technology can enter and exit, as movie planes readily morph into active military planes—a morphing that occurred on the very set of *Apocalypse Now*.

This realization about the mutually constitutive roles of Hollywood and the U.S. military leads the narrator to describe *The Hamlet* as its own weaponized entity, one that pummels “victims in its path,” “roll[ing] with the momentum of a Panzer division toward the climatic firefight at King Cong’s lair” (174-5). In the novel, “King Cong’s lair” is extensively bombed in a scene that is directly based on the final napalm explosion of Kurtz’s temple in the *Apocalypse Now* production.³⁷ Nguyen writes that the scene used an extensive array of explosive devices, including “two thousand gallons of gasoline” and a “thousand smoke bombs,” all of which is detonated in the finale of *The Hamlet* “to cleanse the land of the dead, to do a victory dance on King Cong’s corpse, to wipe the hippie smile from Mother Earth’s face” (178).³⁸ Nguyen’s adaptation of this scene’s production not only draws attention to its extravagant destruction of the environment, wherein the “hippie smile [is wiped] from

³⁷ Although the explosion of Kurtz’s temple was a possible ending for the film, Coppola ultimately chose not to use the scene. During the initial release, this explosion was part of the end credits, but was later removed from the credits, as it was causing confusion about the film’s storyline (Hutchinson).

³⁸ In the real *Apocalypse Now*, this is the same explosion that caused Coppola to remark that “‘they’d never let you [do this] in the United States. The environmentalists would kill you. But in a war, it’s okay’” (Coppola 189).

Mother Earth's face," but highlights the mechanisms through which Coppola envisions his film as the Vietnam War itself.

In the novel, the Auteur exclaims to his crew that this explosion marks "the moment [...] when we show that making this movie was going to war itself" (178). On one level, these blurred lines between war and war film can be linked to the sheer immensity of the simulated bombing, a spectacle that had never been "staged in the world before, outside a real war," according to the special effects crew of the actual production (Coppola 188-9). But, on a deeper level, the Auteur's claiming of the war is an act of forceful substitution that seeks to replace real memories of the war in Vietnam: "Long after this war is forgotten, when its existence is a paragraph in a schoolbook students won't even bother to read, and everyone who survived it is dead, their bodies dust, their memories atoms, [...] this work of art will still shine so brightly it will not just be about the war but it will be the war" (178). Here, the Auteur quite literally imagines his film usurping the memories and bodies of the war's survivors, becoming the only narrative of the Vietnam War, or the only one that is viewed and accepted, unlike the "paragraph in a schoolbook" that nobody reads. After witnessing this speech, the narrator states, "I had no doubt that in the Auteur's egomaniacal imagination he meant that his work of art, now, was more important than the three or four or six million dead who composed the real meaning of the war" (179). Indeed, the Auteur seeks to complete the ultimate act of surrogacy by using his film as a surrogate for the Vietnam War itself. This mirrors the words of the real Coppola at the 1979 Cannes Film Festival, where *Apocalypse Now* first aired: "My

film is not a movie. My film is not about Vietnam. It is Vietnam” (*Hearts of Darkness* 0:00:05-0:00:15). By claiming the film as a surrogate for the Vietnam War, both the Auteur and Coppola enact yet another erasure of Vietnamese people, one that attempts to dismiss the “three or four or six million” lives lost in the war.

The Sympathizer literalizes this violent erasure of Vietnamese bodies when the narrator himself is caught in the crossfires of an explosion on the set. The narrator’s body is “salted, broiled, and tenderized” from the force of the special effects bombing, and he narrowly escapes with his life, realizing that the Auteur had planned this so-called accident all along (181-2). Although the Auteur is not able to erase the narrator’s physical body, he does successfully erase the memory of his work, as the narrator’s name is removed from the credits of the film: “Failing to do away with me in real life, he had succeeded in murdering me in fiction, obliterating me utterly” (289). Through this series of erasures, which operate at the level of the body and the level of memory, Nguyen’s adaptation of the *Apocalypse Now* production exposes the deeply embedded violence of the film’s surrogate logic, while demonstrating the inherent dangers of upholding *Apocalypse Now* as a classic and reliable representation of the Vietnam War.

A Literary Network of Disruptive Adaptations

The texts “Maka’s Lei Day,” *Poeta en San Francisco*, *Dream Jungle*, and *The Sympathizer* form a literary network that is bonded by their respective adaptations of *Apocalypse Now*. Through a reclamation and reinscription of the film’s storyline, iconic scenes, and production history, authors Morales, Reyes, Hagedorn, and

Nguyen disrupt the celebratory legacy of *Apocalypse Now*. By using three distinct genres—the short story, a book-length poem, and the novel—these authors of color come together as a community of writers and cultural critics in order to challenge Coppola’s portrayal of the Vietnam War and the problematic conditions of his film’s production.

Through the succinct space of the short story, “Maka’s Lei Day” starkly juxtaposes different memories and geographic sites, creating a textual collage that reinscribes the journey narrative and opening scene of *Apocalypse Now*. The story’s present-day narrative arc is relatively straightforward and contained, which allows Morales to delve into flashbacks that dissolve spatial boundaries, transporting the reader from Kaho‘olawe to the Badlands and back again—a movement that forges solidarity between sites with a history of U.S. military violence. However, this act of forging solidarity through a shared history of violence is questioned in Reyes’s poem. Through the experimental context of dictionary entries and unsigned letter correspondences, *Poeta en San Francisco* defamiliarizes *Apocalypse Now* and constructs an imagined conversation that travels between the Philippines and Vietnam. The poetic form of the text allows Reyes to build in layers of ambiguity, layers that refuse to disclose the title of Coppola’s film and that refuse to celebrate a transnational relationship founded on the violent logic of surrogacy.

Hagedorn’s *Dream Jungle*, which was published two years before *Poeta en San Francisco* and twelve years before *The Sympathizer*, was the first novel to rewrite the history of the *Apocalypse Now* production, making it a key mediating influence

for Reyes and Nguyen in their respective engagements with the film. Both Hagedorn and Nguyen utilize the form of the novel to recreate the *Apocalypse Now* production from distinctive lenses. Hagedorn's narrative focuses on the film's use of Philippine land as a surrogate Vietnam, while Nguyen's narrative highlights the mechanisms through which the film is fashioned as a surrogate for the Vietnam War itself. The spacious genre of the novel allows Hagedorn and Nguyen to fully dive into the detailed and convoluted history of *Apocalypse Now*'s production, giving readers a behind-the-scenes adaptation that reveals the film's ties to environmental racism, its abuse of Philippine labor, its erasure of Vietnamese bodies and memories, and its alignment with the U.S. military.

Ultimately, the discrete genres of these texts work to dismantle different components of the film's monolithic narrative from a variety of angles and contexts. While the making of *Apocalypse Now* was contingent on the racist exploitation of Philippine land, an exploitation that created palpable damage in Luzon, this troubling history is often rendered invisible by the film's mythologization in U.S. popular culture. However, the texts of Morales, Reyes, Hagedorn, and Nguyen disrupt this uncritical mythologization, providing much-needed counter-narratives that stand against the looming cultural force of *Apocalypse Now* and its threat to consume and overshadow other stories, memories, and narratives of the war in Vietnam.

Chapter 3

A Storm Named Maria and a Bomb Named Helen of Bikini: Tracking, Naming, and Gendering Disaster in a Militarized Pacific

The typhoons that I had worked on as a forecaster with the 20th Air Force had convinced me of how significant they were to all sorts of operations. The typhoon that I had encountered as my first real-life forecasting experience, where the result was destruction of aircraft and lives; the storm that simply held up the progress of operations; and the others that were threats but did not materialize made it very clear that we had to watch typhoons very carefully. (2395)

—Reid Bryson, “Typhoon Forecasting, 1944, or, The Making of a Cynic” (2000)

In the above statement, Reid Bryson, a key figure in the development of modern climatology and the founder of the Meteorology Department at the University of Wisconsin-Madison, reflects on the destructive impact of typhoons and extreme storm systems on U.S. military operations. As a meteorologist for the Air Force during World War II, tasked with making weather forecasts in the Asia and Pacific region, Bryson witnessed this vulnerability firsthand, as he watched typhoons wreak havoc on the U.S. military’s planned maneuvers in the Pacific Theater. The outcome of an operation, especially a bombing operation or air raid, was often entirely dependent on an accurate weather forecast.

This relationship between forecasting and military operations was most apparent during a particularly strong typhoon in December of 1944. The typhoon, which was later code-named Cobra, intercepted the U.S. Pacific Fleet in the Philippine Sea when it was conducting air raids on Japanese airfields in the Philippines, and specifically the Philippine island of Luzon. The storm caused the deaths of 790 military service members and injured an additional 80 people (Nimitz 1). Alongside these casualties, U.S military vessels and planes were either lost or

damaged beyond repair. Three destroyers were capsized, nine vessels were severely incapacitated, 19 other vessels were damaged, and 146 planes were lost to the throes of the storm (Nimitz 1). In a letter written to the Pacific Fleet shortly after the incident, Fleet Admiral Chester W. Nimitz, then Commander in Chief of the U.S. Pacific Fleet, writes that the storm “was the greatest loss that we have taken in the Pacific without compensatory return since the First Battle of Savo” (1). Indeed, this disaster was a clear example of both the U.S. military’s vulnerability to tropical cyclones and its reliance on weather forecasting to navigate the tumultuous waters of the Pacific.

However, despite the difficulties of accurately tracking storms during this time, there were clear warnings signs before Typhoon Cobra wreaked its havoc. In his capacity as a meteorologist for the Air Force, Bryson identified the formation of this typhoon and accurately forecasted its path well before its interception with the Pacific Fleet. He sent an urgent forecast to the Fleet Weather Central, located in Pearl Harbor, Hawai’i, which was subsequently ignored by the Naval aerologists there. Later, when aerologists aboard the fleet realized they were headed towards the eye of a typhoon, Admiral William Halsey ordered the Third Fleet to continue its route into the storm, allegedly stating, ““I don’t believe any aerologist. Maintain present course”” (Bryson, “Typhoon Forecasting” 2396). Bryson notes, “Somehow we could not get across that the presence of the typhoon was not a guess. It was not some vague anticipation of the future. It was a scientific observation on the spot. Ignoring science cost a lot of American lives and money” (“Typhoon Forecasting” 2397). The

controversies of this incident and the havoc wreaked by Cobra became a cautionary tale for Naval officers. Nimitz's letter to the Pacific Fleet, which describes the damage caused by the typhoon and the ways this could have been avoided, was reprinted in February of 1945 as required reading for new Naval officers who were preparing for another typhoon and hurricane season in the Pacific (Nimitz 1).

While this storm became a well-known disaster in U.S. military records and training, it later became the basis for Herman Wouk's novel, *The Caine Mutiny: A Novel of World War II* (1951). This fictional adaptation follows the crew of the *U.S.S. Caine*, a Naval destroyer-minesweeper operating in the Pacific during World War II. The *Caine* gets caught in Typhoon Cobra while refueling the Third Fleet off Luzon, and its eccentric and inexperienced captain, Philip Francis Queeg, orders the warship to travel further into the eye of the storm—despite the noticeable conditions of the typhoon. However, instead of following the captain's orders, Lieutenant Stephen Maryk creates a non-violent mutiny—declaring Queeg unfit to command the ship. In a deviation from the historical incident, Maryk takes control of the *Caine*, steers it into safety, and is later tried and acquitted for his actions. Wouk's novel was immensely popular and awarded the Pulitzer Prize in 1952. Two years later, in 1954, the novel was adapted into a two-act play and a film, which instantly became a box office hit.³⁹ The different circulations of this text and its adaptations cemented in

³⁹ The play adaptation of the novel is titled *The Caine Mutiny Court-Martial* (1954). This two-act drama focuses exclusively on Maryk's trial by court-martial. That same year, the novel was adapted once more into a film, *The Caine Mutiny* (1954), directed by Edward Dmytryk and starring Humphrey Bogart as Captain Queeg. The film, which depicts the crew's time aboard the *Caine*, Typhoon Cobra, and the court-martial, grossed approximately 21.8 million dollars in U.S. box offices and was nominated for seven Oscars ("The Caine Mutiny (1954)").

American audiences a narrative about the chaos of weather disasters amid war—a narrative that at once celebrated the power of the U.S. military and revealed its underlining vulnerability.

To address this vulnerability, U.S. military meteorologists adopted a new storm-naming system to better track and differentiate storms in the Pacific. In 1944, the same year as Typhoon Cobra, female code names were assigned to typhoons in the Pacific, names which were “chosen from among the names of meteorologists’ and soldiers’ girlfriends and wives” (Skilton 25). In *Tempest: Hurricane Naming and American Culture* (2019), Liz Skilton asserts that this gendered, storm-naming system was devised “as a way to discuss storms of the Pacific Theater during the expansion of US war efforts” (25). Reid Bryson, the very same meteorologist who accurately forecasted Typhoon Cobra, was the person responsible for the creation of this system. In a 1986 interview with Laura Smail for the University of Wisconsin Archives Oral History Project, Bryson claimed responsibility for the wartime naming system and identified the literary inspiration behind it:

We started calling the typhoons in the Pacific--there are many more in the Pacific than hurricanes in the Atlantic, and year around. [...]. You got a lot of typhoons to deal with—sometimes we'd have more than one on the map, [...]. So to keep them straight, since all of us at one time or another read John [sic-actually George] Stewart's book called Storm—maybe you read it, too; it was published back in the '40s or something like that. Very nice book about a storm. He named the storm Maria, that developed off Taiwan and came across, and all things that happened in California and so on as a result of this storm named Maria. So, remembering that, we started naming the typhoons after women. (“Interview #320” 6-7)

Indeed, this storm-naming system, as described in Bryson's interview, was directly taken from George Stewart's novel *Storm* (1941), which follows the trajectory of a fictional storm in the Pacific, dubbed Maria by a Junior Meteorologist. Although Maria is the protagonist of the novel, as the narrative gives a detailed account of the storm's movement across the Pacific and the havoc it wreaks in California, the Junior Meteorologist holds a central role in the text for his use of a secret storm-naming system that exclusively uses the names of women—a system that Bryson and his colleagues put into practice amid the operations of war.

Like Bryson and the other military meteorologists, the Junior Meteorologist in the novel names storms after women he had known. The character's practice of gendered storm naming is inherently tied to a misogynist framework that uncritically associates women with destruction and devastation. This deeply problematic system, rendered first in fiction and then used by Bryson and his colleagues, had a profound and lasting influence on the future of storming-naming on both a national and international level. Skilton notes that although the female code names used by meteorologists were "not released to the general public, nor intended for use past wartime" (25), this gendered naming-system carried on well past the war, as it was officially adopted by the U.S. Weather Bureau in 1953 (33). The practice of using exclusively female names for storms, a practice that was eventually utilized by the World Meteorological Organization, lasted until 1979—when male names were eventually added to the list.

While U.S. military meteorologists implemented a naming system that feminized and anthropomorphized storms in an effort to keep track of them during World War II, a tracking that emerged in the aftermath of Typhoon Cobra, this gendered logic was in turn mapped onto a disastrous technology of war that was newly emerging at the time: nuclear bombs. However, unlike storms, which were given exclusively female names for decades, the gendering of nuclear bombs has vasculated. The first bombs devised by the Manhattan Project were given overtly masculine names. The code name Thin Man was used for a plutonium bomb that was eventually abandoned due to issues with its gun-type design. In his memoir, *Peace & War: Reminiscences of a Life on the Frontiers of Science* (1998), Robert Serber, an American physicist who played a key role in the Manhattan Project, notes that the code name Thin Man was “taken from the title of the Dashiell Hammett detective novel,” *The Thin Man* (1933), which was adapted into a noir film, also titled *The Thin Man* (1934) and directed by W.S. Van Dyke (Serber and Crease 104). While the Thin Man bomb did not come into fruition, its design issues were reworked and addressed, resulting in the creation of Little Boy, an atomic bomb derived from the nuclear fission of uranium, that was dropped on the Japanese city of Hiroshima on August 6, 1945. Three days later, on August 9, a bomb with a plutonium core, code-named Fat Man, was dropped on Nagasaki. Like its predecessor, this bomb was named Fat Man “after Sidney Greenstreet’s role in *The Maltese Falcon*,” another noir film released in 1941 and directed by John Huston (Serber and Crease 104). These masculinized weapons of mass destruction, weapons which were named after male detective figures

in popular films at the time, created immense devastation in Hiroshima and Nagasaki, as Japanese civilians were subjected to the disastrous force of the U.S. military's latest technology of warfare.

While this disastrous technology continued to escalate into the Cold War, with scientists developing newer and more powerful generations of nuclear weapons, the gendering of these weapons distinctly shifted. One year after the bombings of Hiroshima and Nagasaki, the U.S. military began its nuclear testing program in the Marshall Islands. The first of these tests was Operation Crossroads at Bikini Atoll, and the bombs dropped for these operations were code-named Helen of Bikini, after the infamous Helen of Troy, and Gilda, after Rita Hayworth's femme fatale character in the 1946 film, *Gilda*. Like the code names Fat Man and Thin Man, the name Gilda was derived from a noir film. However, unlike their predecessors, the Helen of Troy and Gilda bombs were distinctly sexualized and designated as femme fatale icons, a sexualization that can be compared to the sexualization of storms, which were likewise portrayed as femme fatale figures by the media.

This chapter investigates the literary and historical formation of gendered storm naming and bomb naming during World War II and the beginning of the Cold War. Beginning with Typhoon Cobra and its fictional adaptation in Wouk's novel, *The Caine Mutiny*, I argue that this incident both highlights the vulnerability of the U.S. military to weather disasters and was a precursor to the military's adoption of a detailed storm-tracking system—one that relied exclusively on female names. This chapter then moves on to analyze the literary inspiration behind the military's use of

female storm names via a reading of Stewart's novel, *Storm*. By overtly sexualizing the storm Maria, the protagonist of the text, and celebrating the heroic ventures of the male characters who fight against it, this novel is immersed in a misogynist framework that laid the foundation for a misogynist storm-naming system—one that equated women with the death, destruction, and devastation of storms.

In turn, this gendered destruction and devastation got mapped onto the naming of nuclear bombs. Just as gendered storm names were inspired by a novel, the bomb names that emerged during the Manhattan Project and Operation Crossroads, (the first operation of the U.S. military's nuclear testing program in the Marshall Islands), were likewise inspired by popular literature and film of the time. However, unlike their storm counterparts, which were consistently feminized, these bombs were at times named after male detective figures and villains, and other times sexualized as femme fatale figures. This chapter examines the parallels and divergences between the gendered naming of two types of disasters, storms and bombs, and the ways in which these tracking systems were tied to both the vulnerability of the U.S. military and a misogynist rhetoric—one that shapes the American public's response to storms to this day.

Typhoon Cobra, Vulnerability, and the Joint Typhoon Warning Center

Admiral Chester W. Nimitz's letter to the Pacific Fleet on Typhoon Cobra, which was later dubbed a "Classic Letter" by the Navy, is written in an extensive list format. While the beginning of the list documents the numerous casualties and damage incurred by the storm, it quickly moves on to speculate how the incident

could have been avoided. Nimitz attributed much of the disaster to inaccurate weather forecasting. He writes, “Possibly, too much reliance was placed on the analysis broadcast from the Fleet Weather Central, Pearl Harbor. Weather data were lacking from an area some 240 to 300 miles in diameter (where the storm was actually centered)” (1). Indeed, although Bryson accurately forecasted Cobra, this forecast was promptly rejected at the Fleet Weather Central. In his reflection on the incident, Bryson notes that after writing an urgent message about the location and strength of the typhoon to the Fleet Weather Central, an “unknown navy aerologist typed back, ‘We don’t believe you’” (“Typhoon Forecasting” 2396). As a result of this disbelief, the Fleet Weather Central communicated an incorrect forecast to the Pacific Fleet that did not account for the path of the typhoon.

Bryson and Nimitz each had distinct reactions to the Fleet Weather Central’s inaccurate forecast. In his reflection on Cobra, Bryson used the disaster to highlight the importance of heeding weather forecasts based on sound science and clear data (“Typhoon Forecasting” 2395). He notes, “That disaster could have been avoided. It was not something that just popped up without any observations. I had followed it for 10 days. We had sent a reconnaissance aircraft out to look at it” (“Typhoon Forecasting” 2396). While Bryson emphasized the importance of thorough and well-researched weather forecasting in the wake of Cobra, Nimitz took a notably different lesson from the storm, which he imparted to Naval officers in his cautionary letter. Instead of advocating for more accurate forecasting and data analysis from military meteorologists and aerologists, Nimitz asserts that Naval officers should rely on their

own survival skills and assessment of the weather while out at sea. He states, “the best that science can devise and that naval organization can provide must be regarded only as an aid, and never as a substitute for the good seamanship, self-reliance and sense of ultimate responsibility which are the first requisites in a seaman and naval officer” (2). Nimitz describes how ships survived one hundred years ago, during a time when there “was no radio by which weather data could be collected from over all the oceans” and for the person commanding the ship, their “own barometer, the force and direction of the wind, and the appearance of sea and sky were all that he [they] had for information” (3). Nimitz ultimately argues that Naval officers should rely on their own, personal readings of the weather, rather than official weather forecasts, and tap into the navigating skills that were used in the last century.

Despite Nimitz’s and Bryson’s different responses to Cobra, they both agreed on one key lesson revealed by the storm: the vulnerability of the U.S. military to weather disasters. During his time as a meteorologist for the Air Force, including his work forecasting Cobra, Bryson soon realized that typhoons presented a real threat to the operations of the U.S. military, noting that “any little indication in the data that there might be a typhoon had to be analyzed and carefully watched to see whether anything really would materialize” (“Typhoon Forecasting” 2395). In a similar vein, at the end of his cautionary letter on Cobra, Nimitz highlights the precarious relationship between military maneuvers and extreme weather: “The most difficult part of the whole heavy-weather problem is of course the conflict between the military necessity for carrying out an operation as scheduled, and the possibility of

damage or loss to our ships in doing so. For this no possible rule can be laid down. The decision must be a matter of ‘calculated risk’ either way” (3). Nimitz’s notes that the weather will always be a factor of vulnerability for the U.S. military, and it is simply a matter of assessing the degree of risk to operations.

Nimitz’s understanding of calculated risk reflects Karl E. Weick and Kathleen M. Sutcliffe’s concept of managing the unexpected, which entails “treat[ing] the unknown *as knowable*” (2). Weick and Sutcliffe state that “*managing* the unexpected is an ongoing effort to define and monitor weak signals of potentially more serious threats and to take adaptive action as those signals begin to crystallize into more complex chains of unintended consequences” (3). Indeed, the concept of managing the unexpected became the cornerstone of the U.S. military’s approach to destructive storms in the wake of Typhoon Cobra. In 1945, in the aftermath of Cobra’s damage, the Navy and Air Force established new forecasting centers in the Pacific, including the Navy’s Fleet Weather Center/Typhoon Tracking Center on Guam (Freeman). Fourteen years later, these smaller forecasting centers were consolidated into the Joint Typhoon Warning Center, often known as the JTWC. This center, which was established on Guam in 1959, was responsible for distributing tropical cyclone warnings to the different branches of the Department of Defense operating in the Pacific (Freeman).

While the JTWC was created to avoid another Typhoon Cobra disaster, the center was ironically damaged by the very typhoons that it was tasked with tracking. In 1962, Typhoon Karen, a Category 5 super typhoon, struck Guam and battered the

center with “gauged sustained winds of 135 knots” (“Guam Torn Apart by Typhoon Karen”). A newspaper article from *The Austin Statesman* reports that personnel at the JTWC had to flee the building and seek shelter elsewhere (“Guam Torn Apart by Typhoon Karen”). The building was destroyed, and the center had to be rehoused (“JTWC Formation, 1958-1959”). Thirty years later, in 1992, another powerful typhoon, dubbed Omar, hit Guam, causing significant damage to U.S. military infrastructure on the island. The Category 4 typhoon, which resulted in approximately 15 deaths and numerous injuries, severely damaged Andersen Air Force Base and ran aground two Navy supply ships in Apra Harbor (“Typhoon Omar levels buildings in Guam”). In the JTWC’s *1992 Annual Tropical Cyclone Report*, Donald A. Mautner and Charles P. Guard note that Typhoon Omar incapacitated the JTWC for a total of eleven days (iii). During this time, the center was unable to distribute Pacific storm warnings to the different branches of the Department of Defense, and instead had to rely on the Alternate Joint Typhoon Warning Center (AJTWC) in Japan. Mautner and Guard write that this “was the first time in recent history that the AJTWC had to activate in the middle of the western North Pacific tropical cyclone season for JTWC and keep the Pacific Command’s warning system running for a long period” (95). Subsequently, in 1999, the JTWC was relocated to Naval Station Pearl Harbor in Hawai‘i. There, it continues to “focus on ensuring safety of flight and navigation for U.S. military assets, and enabling TC [tropical cyclone] preparedness for military

bases” (Fine). It is important to note that these forecasts generated by the JTWC are generally designed to protect the military rather than civilian populations.⁴⁰

The JTWC is a key legacy of Typhoon Cobra and the vulnerability that it revealed. The JTWC attempts to counteract this susceptibility through its carefully targeted forecasts. However, this very focus on protecting military assets in the face of inclement weather only serves to further highlight the vulnerability of the U.S. military to tropical cyclones and the damages they incur. In fact, the JTWC itself is not protected from the storms that it tracks, as was evident with Typhoon Karen and Typhoon Omar. The JTWC’s ability to track storms for the military is wholly dependent on the weather conditions of its location, while U.S. military operations are wholly dependent on the accuracy of a weather forecast.

The Caine Mutiny, a Literary Adaptation of Typhoon Cobra

While Typhoon Cobra inspired the birth of a militarized infrastructure for storm forecasts in the Pacific, it was also the inspiration behind Herman Wouk’s Pulitzer Prize-winning novel, *The Caine Mutiny*. Published in 1951, seven years after Cobra, this novel follows the life of protagonist Willie Keith, a young white man from a wealthy family who, after graduating from Princeton University, decides to join the U.S. Navy during World War II. Willie completes Naval school on the East Coast, and is subsequently given orders to report to San Francisco, where he boards an outdated minesweeping vessel called the *Caine*. The *Caine* is part of U.S. military

⁴⁰ However, there are some exceptions to this rule. Caitlin Fine states that the JTWC’s tropical cyclone forecasts “are used by civilian populations in Guam, Micronesia and American Samoa.”

operations throughout the waters of Asia and the Pacific. When Willie and his crew are stationed at Pearl Harbor, Hawai‘i, the vessel conducts mine sweeping exercises off the coast of O‘ahu. Later, the *Caine* travels to Kwajalein Atoll in the Marshall Islands, where it is part of the Battle of Kwajalein against occupying Japanese forces. It is after this battle that Typhoon Cobra takes center stage in the narrative.

The *Caine* is ordered to join the Third Fleet off the Philippine island of Luzon to help with refueling. During this mission, the crew is given a storm warning, indicating that they are 300 miles from a “mild circular disturbance” (316). This storm warning is proven grossly inaccurate when the vessel gets caught in the throes of Typhoon Cobra and travels close to the eye of the storm. Despite the threat of capsizing, the ship’s captain, Captain Queeg, orders the crew to continue into the eye of the typhoon, resulting in a non-violent mutiny, wherein the character Maryk takes over by using Naval regulations, declaring the captain unfit for command. Although Maryk steers the *Caine* into safety, other ships are not so lucky. As in the case of the real Typhoon Cobra, numerous destroyers are sunk by the storm. The *Caine* passes by this wreckage, which includes the bottom of a destroyer floating in the waves: “The thing drifted closer. It was immense, long and narrow, longer than the *Caine* itself, bright red. Waves were breaking over it in showers of foam” (337). After the crew stares at the ship’s remnants, “in awe at the horror,” they pick up three survivors floating in a raft among the wreckage—who also share their own story of the typhoon (337). In the aftermath of Cobra, the remainder of the narrative focuses on Maryk’s court martial for the mutiny, which he eventually gets acquitted from.

Although the mutiny and court martial in the text are entirely fictional, the novel still holds true to the historical record of Typhoon Cobra—depicting the damages incurred by the Third Fleet, the misguided orders of a captain, and the communication of incorrect storm forecasts. In addition to drawing from Cobra, the novel is likewise based on Wouk’s own experiences serving for the Navy during World War II. In 1943, Wouk was ordered to report to the *U.S.S. Zaine*, an outdated destroyer-minesweeper that was the direct inspiration for the similarly named *U.S.S. Caine* in the novel (“Herman Wouk: A Biographical Sketch”). Like his protagonist Willie, Wouk assisted with numerous Naval operations in the Pacific, and later, in the immediate aftermath of the war, Wouk became “the executive officer on the *Southard*, a similar vessel” to the *Caine* (“Herman Wouk: A Biographical Sketch”). Although Wouk did not go through Typhoon Cobra, he did encounter typhoons while out at sea. In October of 1946, he “relieve[d] the captain when the vessel [the *Southard*] was lost in a typhoon on Okinawa” (“Herman Wouk: A Biographical Sketch”). These experiences are infused into the novel, which was well received by readers. The text was a *New York Times* bestseller and was later adapted into both a play and an academy award-winning film.

This novel, which was immensely popular with a 1950s readership, is directly aligned with the power of the U.S. military-industrial-complex. The narrative uncritically celebrates the U.S. military invasion and so-called “liberation” of Kwajalein Atoll, a “liberation” that decimated the land of the islands through an aggressive bombardment campaign. While watching the assault through binoculars,

Willie notices that the “islands were no longer green at all, but sandy gray, spotted here and there with black. Little fires flickered on them, pale in the white sunlight. The foliage had all burned or withered away, leaving splintered, crisscrossed tangles of tree trunks, through which could be seen ruins of squat buildings” (239-40). However, despite this immense destruction, the narrator praises the “Kwajalein invasion,” dubbing it a “a grand classic of sea warfare, a lesson for the generations. There has never been a more wisely conceived and surgically executed operation” (236). The narrative likewise depicts the atomic bombings of Hiroshima and Nagasaki in a positive and celebratory light. Wouk writes that “when the news of the atom bomb came through, [...], a complete change took place in the officers and the men of the *Caine*. There were holiday faces on the decks and in the passageways” (471). Amid the “current of merry relaxation among the crew” (471), the novel fails to highlight the immense devastation, destruction, and loss of lives caused by these bombings, instead portraying them as a triumphant ending to the war.

The narrative’s clear support of the U.S. military-industrial-complex is coupled with deeply problematic racial politics. The novel is centered almost exclusively around white, male characters. The only characters of color are the “mess boys” aboard the *Caine*, such as Rasselas and Whittaker. These characters are Black men who work as servants for the officers and other members of the crew, and they are often described in explicitly racist terms. This is evident in an encounter between Rasselas and Willie: “As Willie turned to go his eyes met Rasselas’. The Negro gave him the beseeching dumb look of a calf being led down the road on a rope. Willie

shrugged and went out” (289). Here, Rasselas is dehumanized and likened to an animal—an animal that is cast as “dumb” and that lacks agency, as it is “being led down the road” by another. This is a consistent pattern throughout the narrative, as Rasselas and Whittaker are relegated to the sidelines and not given development nor agency, even amid the disastrous conditions of Typhoon Cobra. Moreover, the novel’s depiction of Black characters serving in the Navy is reflective of the segregation and discriminatory policies practiced by the U.S. military during World War II. During this time, the “Army, Navy, and Marine Corps all segregated African Americans into separate units because of the belief that they were not as capable as white service members” (“African Americans Fought for Freedom”). In addition to this segregation, Black people “were mostly relegated to labor and service units” due to the military’s racist belief that they “were [un]fit for combat or leadership positions” (Clark). Like the duties of Rasselas and Whittaker aboard the *Caine*, “working as cooks and mechanics, building roads and ditches, and unloading supplies from trucks and airplanes were common tasks for Black soldiers” (Clark). Wouk’s novel not only supports U.S. military power, but it upholds and perpetuates the troubling racial politics of the U.S. military-industrial-complex.

However, despite *The Caine Mutiny*’s overt alignment with U.S. military power and racial politics, it nonetheless reveals the vulnerability of the U.S. military to weather disasters vis-à-vis its depiction of Typhoon Cobra. This is first evident when the *Caine* gets close to the eye of Cobra, and the narrator describes the sheer force of the storm:

There was nothing in sight all around the ship but gray waves streaked with white. But they were like no waves Willie had ever seen. They were as tall as apartment houses, marching by majestic and rhythmical; the *Caine* was a little taxicab among them. It was no longer pitching and tossing like a ship plowing through waves, it was rising and falling on the jagged surface of the sea like a piece of garbage. (321)

Here, the narrative relies on extensive figurative language, likening the ocean's waves to looming apartment buildings and the *Caine* itself to a "little taxicab." Similes and metaphors construct an urban landscape on the seascape of the typhoon. In one respect, this urban metaphor allows Willie, who had never experienced a typhoon, to better understand the chaos of the storm. The eye of the typhoon is likened to the fast-moving streets of New York, where Willie spent much of his time prior to joining the Navy. However, in another respect, this urban metaphor highlights the vulnerability of the *Caine* to the force of the typhoon. The large warship is transformed into a "little taxicab" and then devolves further into an insignificant "piece of garbage." Just as a garbage is haplessly strewn across city streets, the *Caine* is haplessly strewn through the tumultuous waves of the storm.

This description of Typhoon Cobra's power and its impact on the *Caine* is juxtaposed with a discussion of warships and their ability to withstand storms. The narrator writes, "A warship is a special kind of steamship, built not for capaciousness and economy, but for power. Even the minesweeper *Caine* could oppose to the gale a force of some thirty thousand horsepower" (324). However, despite the apparent strength of warships, the narrator states that the *Caine* and its counterparts are no match for a typhoon:

But surprising things happen when nature puts on a freak show like a typhoon, with wind gusts up to a hundred and fifty miles per hour or more. The rudder, for instance, can become useless. It works by dragging against the water through which it is passing; but if the wind is behind the ship, and blows hard enough, the water may start piling along as fast as the rudder so that there is no drag at all. Then the ship will yaw or even broach to. Or the sea may push one way on the hull, and the wind another, and the rudder a third, so that the resultant of the forces is very erratic response of the ship to the helm, varying from minute to minute, or from second to second. (324)

By describing, in detail, the numerous ways that a typhoon can damage a warship, Wouk's narrative highlights the vulnerability of the U.S military, and specifically the Navy, to extreme storm systems. Typhoons, like Cobra, have the potential to render the rudder, hull, and helm of the warship useless so that the vessel becomes impossible to navigate.

Moreover, the narrator notes that warships suffer a key drawback when compared to sailing ships: "It [a warship] suffers under one disadvantage as a drifting hulk, compared to the old wooden sailing ship: iron doesn't float. A destroyer deprived of its engines in a typhoon is almost certain to capsize, or else fill up and sink" (324-5). Although the *Caine* did not meet this fate, numerous destroyers were indeed capsized by the typhoon, which the crew later witnessed when they sailed through the wreckage left behind by the storm. While Wouk's novel may uncritically align itself with U.S. military power, the text's depiction of Typhoon Cobra calls this very same power into question—revealing the stark vulnerability of Naval warships to extreme weather while operating in the waters of the Pacific.

Naming Storms After the “Women Back Home”

As a result of this vulnerability to tropical cyclones, a vulnerability that was showcased by both Wouk’s *The Caine Mutiny* and the incident of Cobra itself, U.S. military meteorologists devised an entirely new storm-naming system to better track, identify, and differentiate storms. In 1944, in the immediate aftermath of Cobra, military meteorologists began naming Pacific typhoons after their wives and girlfriends (Skilton 25). Reid Bryson, the meteorologist who correctly forecasted Cobra, took credit for starting this practice in a 1986 interview with Laura Smail for the University of Wisconsin Archives Oral History Project. Although Bryson was proud to claim responsibility for this naming tactic, his interviewer, Smail, had a decidedly different take on the matter. Smail quickly denounced this naming practice, stating, “I’ve always detested that,” to which Bryson responded, “but you’re a later-day woman” (“Interview #320” 7). Indeed, Smail’s response reveals the blatant misogyny of this system, which equated women with the destructive and devastating force of storms.

During his interview, Bryson dismissed the problematic implications of this new naming system, and instead proceeded to explain the rationale behind it:

Well, there’s a reason why we did it. We were all lonesome, and because a storm had been called Maria, hey, that’s a neat idea, so this one came along and it was called Denata, after Denata Plumley, and this one comes along and it’s called Franny, after Franny Bryson—except that one pooped out, and Franny’s been a little disappointed ever since that the one named after her didn’t amount to anything. So, we named them after our wives or sweethearts, just because that’s what we were thinking about. (“Interview #320” 7)

Although Bryson drew inspiration from the storm-naming system used in Stewart's novel, he and his colleagues took matters a step further by naming storms not just after women in general, but after specific women in their personal lives—namely, their “wives or sweethearts.” In the above passage, Bryson jokingly refers to the typhoon he named after his wife, Franny Bryson, which “didn't amount to anything.” As we are only given her husband's account, it is difficult to determine if Franny Bryson was in fact disappointed that the typhoon named after her was a weak storm; one might assume that her disappointment could stem from being named after a typhoon in the first place.

In either case, Bryson's statements highlight the sexualized connotations behind the new naming system, which used the names of “wives and sweethearts” because “that's what [...] [they] were thinking about” (“Interview #320” 7). Later in the interview, Bryson elaborated on this sentiment: “What do soldiers overseas think about, anyhow? The women back home. So, that's where the naming got started that way” (“Interview #320” 7). Indeed, this decision to name storms after the “women back home” was reflective of the sexual and gendered politics of World War II, as described by Skilton:

On the war front, as historian Robert Westbrook explains, the US government created more sexualized symbolic images of women for the men at war. Distributed through placards or trading cards, representations of ample-bosomed beauties, known as ‘pin-ups,’ served as propaganda to remind the patriotic soldier what he was fighting for and what awaited him back home. (25-6)

This desire, initially directed towards sexualized pin-ups, was carried over to the process of naming storms. Just as pin-ups boosted morale on the warfront, reminding

U.S. soldiers of the women they left behind, naming storms after wives and girlfriends likewise reminded soldiers and military meteorologists of the “women back home,” in Bryson’s words. In this sense, gendered storm naming became another vehicle for the expression of heterosexual, male desire during the war, as female storm names circulated alongside the distribution of pin-ups. Both the storm names and pin-ups reduced women to objects—whether that was a sexualized image or a storm developing in the Pacific.

A Stormy Heroine Named Maria

While Bryson and his colleagues problematically gendered storms, this gendering was a direct result of their reading experiences during the war, and more specifically, their interpretations of Stewart’s novel, *Storm*. In her analysis of the novel’s circulation history, Skilton states that a “special-edition reprint” of the text was included in the “*Armed Services Edition* [...] ration kits in 1943,” which were “designed to entertain deployed soldiers with cheap government-issued printed versions of popular and classic books” (25). Indeed, Stewart’s novel “was among the first round of books sent to soldiers in 1943, just a year before the introduction of the US military’s storm-naming system,” making it “likely that any soldier or meteorologist during the time period read” the text (Skilton 25). In her research, Skilton asserts that the “Weather Bureau records contain no formal documentation that confirms a specified reason for the adoption of this naming system,” despite its “striking resemblance to the famous storm-naming system of George Stewart’s *Storm*” (25). However, Bryson’s interview with Smail provides proof that *Storm* was

indeed the inspiration behind the use of female code names for storms. Bryson stated that the text was a “very nice book about a storm. He [Stewart] named the storm Maria, that developed off Taiwan and came across, and all things that happened in California and so on as a result of this storm named Maria. So, remembering that, we started naming the typhoons after women” (“Interview #320” 6-7). Bryson’s statement reveals that he and his colleagues were not only reading Stewart’s novel but were using it as the direct basis for their storm-naming system.

While Bryson and his colleagues were inspired by *Storm*, Stewart himself was likewise inspired by a text when developing the stormy heroine of his novel. In his introduction to the 1947 edition of *Storm*, Stewart writes that his decision to make a storm the central character of his novel was derived from “Sir Napier Shaw’s four-volume *Manual of Meteorology*,” where he “read that a certain meteorologist had even felt storms to be so personal that he had given them names” (viii). Stewart soon realized that a “storm itself had most of the qualities of a living thing. A storm could be a character, even the protagonist” (viii). Skilton notes that the meteorologist Stewart read about in Shaw’s *Manual of Meteorology* (1919) was Clement Lindley Wragge, “the chief meteorologist for Australia’s Queensland Weather Bureau from 1887 to 1903” (20). In 1896, Wragge created a new storm-naming system that gave tropical cyclones exclusively female names (Skilton 20). However, Skilton asserts that while this “female-only storm-naming system stirred up considerable discussion in Australia,” the discussion quickly changed when Wragge created a new storm-naming system in 1902, which named “storms after well-known Australian

politicians, particularly those who recently implemented cuts to the Weather Bureau budget” (21). This ultimately resulted in Wragge’s downfall, as his politician storm-naming system led to a cut in his funding and “he was forced out of his job,” while the “next Australian weather chief indefinitely suspended the cyclone-naming system in 1903” (Skilton 21). However, while Wragge’s gendered storm-naming system was discontinued in Australia, it lives on in the pages of Stewart’s novel. Skilton notes that “the hurricane-naming system that Stewart uses in *Storm* is a simplified version of Wragge’s, built from its most successful elements and filtered through current trends in Stewart’s field” (22). Indeed, Stewart heavily drew from Wragge’s example, as documented in Shaw’s *Manual of Meteorology*, to create both the storm-naming system in his novel and the unusual protagonist that resulted from this system.

In his introduction, Stewart reflects on the significance of this unusual protagonist, Maria, and her role within the novel:

More than any human character, as much perhaps as all of them put together, she was to be the center of attention. Her birth, growth, adventures, and final death were to be the main vortex of the story, with the various little human beings and their troubles and triumphs isolated here and there around the edges. (“Introduction by George Stewart” viii)

Stewart places Maria at the center of his narrative, giving the storm more weight and attention than any human character in the novel. In fact, Maria is the only character in the novel with a name, while the human characters in the text, who are predominately male, remain unnamed and are instead identified by the titles of their professions, such as the Junior Meteorologist at the San Francisco Weather Bureau. However,

while Stewart anthropomorphizes Maria as the most significant character in the text, this act of humanizing a storm is inherently tied to a distinct process of gendering.

In this introduction to the 1947 edition, Stewart elaborates on the gendering of the storm when describing the specific pronunciation of the name Maria: “The soft Spanish pronunciation is fine for some heroines, but our Maria here is too big for any man to embrace and much too boisterous. So put the accent on the second syllable, and pronounce it ‘rye’” (ix). Here, Stewart describes Maria as a “big” and “boisterous” woman who can evade a man’s “embrace,” or, in other words, a man’s control. Indeed, Skilton notes that when “creating his fictitious character Maria, Stewart utilized a destructive feminine character—the femme fatale—to place his work within other popular literature of the time” (34). Femme fatale, a French term that literally translates to “fatal woman,” signifies an attractive woman who is responsible for “leading men into danger or causing their destruction” (“femme fatale”). By situating Maria as a femme fatale figure, Stewart connected his novel to the iconic character archetype of the noir genre, a genre that was both emerging and evolving at the time of the novel’s publication. In the text, Maria is sexualized and quite literally a source of danger and disaster for the male characters who cross her path.

This sexualization of Maria is tied to the gendered storm-naming system established in Stewart’s novel, a system that is created by a character dubbed the Junior Meteorologist. Towards the beginning of the text, this character’s use of female names for storms is framed as a secret practice:

The first sweeping glance assured him that nothing exceptional or unforeseen had happened in the twenty-four hours since he had prepared the last similar map. Antonia had moved about as he had expected. Cornelia and the others were developed normally. Not at any price would the Junior Meteorologist have revealed to the Chief that he was bestowing names—and girls' names—upon those great moving low-pressure areas. But he justified the sentimental vagary by explaining mentally that each storm was really an individual and that he could more easily say (to himself, of course) “Antonia” than the “low-pressure center which was yesterday in latitude one-seventy-five East, longitude forty-two North.” (12)⁴¹

In one sense, this passage highlights the practicality of naming storms as a means to differentiate them from each other. This logic falls in line with Bryson's own commentary on the purpose behind storm naming, as he noted in his interview that naming typhoons allowed he and his colleagues “to keep them straight,” especially when there was more than one storm on the map at the same time (“Interview #320” 6). However, while the Junior Meteorologist does acknowledge the larger purpose of storm naming, he is also keenly aware of the secret and almost illicit pleasure he gets from “bestowing names—and [specifically] girls' names” to the different storms he encounters on his forecasting map (12).

This secret pleasure is explicitly sexualized when the Junior Meteorologist further describes the rationale behind his choice of names. When he first began naming storms, the character “had christened each new-born storm after some girl he had known—Ruth, Lucy, Katherine” (12). But, once this list of names is depleted, the Junior Meteorologist begins “relying chiefly upon long [...] [names] ending in *-ia* which suggested actresses or heroines of books rather than girls he had ever known”

⁴¹ All quotations from Stewart's *Storm* are from the original 1941 edition of the novel.

(13). This shift to the names of actresses and heroines highlights the eroticized underpinnings of the Junior Meteorologist's naming practice, as he names storms after famous women who are often objectified by the public eye, and more specifically, the male gaze. In a similar manner, the storms on the map are also subjected to the male gaze of the Junior Meteorologist, as he directs a "sweeping glance" at the map and then "watche[s] [them] eagerly, hoping in turn that each of these little storms might develop in proper fashion" (12-3). The novel thus couples the act of feminized storm naming with the assessing eye of the male gaze.

The Junior Meteorologist's sexualized, male gaze becomes the gaze of the colonizer when he first spots the storm Maria, the novel's protagonist. He immediately anthropomorphizes this storm, characterizing it as a baby human: "As a baby is without teeth, so also the storm was lacking in some attributes of maturity. But just as surely as a baby is a human being, so also was his new discovery a storm in charming miniature" (16-7). The character's use of the word "discovery" denotes a larger rhetoric of colonial conquest; as the colonizer seemingly "discovers" a territory already inhabited by Indigenous peoples, so too does the Junior Meteorologist "discover" a storm that was already forming long before he locates it on his map. In fact, the beginnings of this storm are apparent on the first page of the novel, before the Junior Meteorologist even appears in the narrative.

This masculinist, colonial rhetoric is perpetuated when the Junior Meteorologist decides to name the storm:

He must name the baby. He considered a moment for more names in

-ia, and thought of Maria. It was more homely than Antonia or Cornelia; it did not even sound like them. But it was a name. And, as if he had been a minister who had just christened a baby, he found himself smiling and benign, inchoately wishing it joy and prosperity. Good luck, Maria! (18)

The Junior Meteorologist at once feminizes, baptizes, and christens the storm Maria, casting himself as a paternal figure who fathers and discovers the storm. This is reminiscent of the paternal discourse of U.S. empire itself, as colonized countries, such as the Philippines, were often feminized and infantilized to justify U.S. colonization.⁴² Moreover, the act of naming is intimately connected to the history of colonization in Asia and the Pacific. Greg Dvorak writes that the name “Pacific” itself “is a colonial term, a reminder of the embedded and entangled imperial forces that named and mapped this ocean, and that still need to be confronted.” Naming and mapping are acts of colonial conquest, one that the Junior Meteorologist participates in by naming and mapping a storm in Asia and the Pacific from the confines of his office in San Francisco, just as colonized countries were often named after EuroAmerican rulers and explorers from distant countries.

⁴² For example, the Philippines, a country that was still under U.S. colonial occupation when Stewart’s *Storm* was published, was often infantilized in colonial travel narratives. In John Bancroft Devins’s 1905 travel narrative, *An Observer in the Philippines, or Life in Our New Possessions*, he problematically writes that Filipinos are exceptionally eager to please others: “The Filipino [...] has no idea except to please. He will do what he thinks you wish him to do, whether it seems right or wrong” (109). Devins further infantilizes Filipinos by referring to them as “little brown people” (103). Such racist depictions of Filipinos were perversely used to legitimize U.S. colonization of the archipelago. As such, infantilization of storms in Stewart’s novel should also be viewed as a colonial mechanism that lays the groundwork for U.S. empire.

While the gendered discourse of colonial conquest and naming permeates the novel, the feminization of storms is deepened when the Chief Forecaster of the Weather Bureau, the Junior Meteorologist's supervisor, uses explicitly misogynist language to describe storms. When the Junior Meteorologist proclaims that Maria will strike the entirety of California, the Chief warns him not to get overly excited:

“You haven't seen as many storms come across that map as I have.” Then there was a miracle, for the Chief relaxed a moment from his work. “But don't go throwing out any forty-eight-hour guesses. Storms are hussies, in this part of the world anyway. I've known a lot of them—storms, I mean. You can't trust 'em twelve hours out of your sight.” (91)

Here, storms are likened to untrustworthy, sexually promiscuous women, or “hussies,” who must be continually monitored by the male gaze. The language of the Chief tellingly blurs the distinction between encounters with storms and sexual encounters with women, as he states, “I've known a lot of them—storms, I mean” (91). His knowledge of “them” is thus equated with a knowledge of both storms and women—a piece of wisdom that he imparts to the virginal Junior Meteorologist who has not seen many storms, or presumably, many women.

This identification of storms as sexually promiscuous comes to fruition when Maria later gives birth to a baby storm, which the Junior Meteorologist names Little Maria. When Little Maria is first forming, the Junior Meteorologist even likens Maria's “body” to that of a pregnant woman: “Maria had had a baby! The event was no more unusual than in organic life, and had not been unexpected; in fact, during the last twenty-four hours, the eastward bulge of the isobars had given a distinct suggestion of mammalian pregnancy” (233). At the end of the novel, with the “death”

of Maria, Little Maria goes on to wreak similar havoc in New York City, bringing power lines down in the Appalachians, flooding rivers, and delaying modes of transportation (333). Storms in Stewart's novel are thus likened to sexualized women—women who can reproduce disaster and destruction across vast geographic space.

These sexualized storms, which are cast as femme fatale figures, are ultimately a means to showcase heroic masculinity, as the male characters in the narrative attempt to fight against Maria and her prodigality. Male characters in different positions of authority, such as the Chief Service Officer at the Bay Airport, the Road Superintendent of U.S. 40 Donner Summit, and the L.D. in charge of power lines, all desperately try to keep their roads, airports, and power lines open and functioning amid the storm. Meanwhile, the Junior Meteorologist and Chief Forecaster at the San Francisco Weather Bureau continue to name, track, and meticulously map out the whereabouts of Maria, and later, Little Maria.

Thus, while Maria is positioned as a feminized threat to masculinized industry, this storm is also the vehicle through which heroic masculinity is achieved. In the novel, Stewart writes that “those atmospheric powers which seem to overwhelm men in the temperate zone, also stimulate the energy to live and conquer” (177). Throughout the narrative, this “energy to live and conquer” is often depicted through militarized language and what Gonzalez refers to as “the gendered logics that structure militarism” (*Securing Paradise* 6). The Chief Forecaster refers to the forecasting department at the Weather Bureau as “the battle-line” (23), while the act

of mapping out storms itself is likewise described as a battle: “for the Chief this was no mere ritual or drama, passing inevitably toward a fixed end. It was a contest, a battle, in which the mighty forces of the air were preparing against him unknown attacks and ambushes” (26). The male forecasters must both fight against and predict the onset of seemingly feminized atmospheric forces, creating a gendered war where feminized storms are mapped and tamed by the militarized Weather Bureau.

In the novel, these depictions of militarized masculinity are perhaps most apparent with a character who is aptly named the General. The General is retired from the U.S. Army and oversees the levies and flood control for the American River and Sacramento Valley. Although he is now retired from his military position, he still approaches his work from a military perspective. When deciphering a map of levees and river channels in the Sacramento Valley, he uses war analogies to make the document legible: “The General liked to explain matters in military terms. ‘The blue is enemy country. If he attacks strongly enough, we give ground and he takes over the red territory; if that doesn’t hold him, we yield the green, and then put up our last fight along the levees to hold the white’” (170-1). Flooding from a storm is likened to military combat between men, hence the General’s use of the pronoun “he.” However, here blue “enemy country” is not an opposing army, but rather the atmospheric forces of a storm system.

The General’s supposed jurisdiction over the American River is celebrated through a discourse of militarized heroics, as “the newspapers referred to the General as ‘The Czar of the River’” (172). This character controls the gates of the

“Sacramento Weir,” and Stewart writes that only “at the General’s orders should those gates be opened” (173). The General’s protection of Sacramento is situated within the realm of a militarized hierarchy, wherein “stability [is] guaranteed by masculine labor and sacrifice” (Gonzalez 6). Both the masculinized labor of the General and his military background are used in various attempts to protect the city against incoming floods generated by Maria. However, these attempts are often unsuccessful. Stewart writes that the General “knew that his authority was not very effective. The planning and construction of the vast levee-system had to be done months and years in advance, and once the rain started falling, even a Czar was little more than a spectator” (172). The General, like many of the characters in the novel, is ultimately at the mercy of Maria. His vulnerability to the storm as a “military man,” showcases the vulnerability of the military-industrial-complex itself to destructive storm systems.

Stewart’s novel thus pits militarized masculinity against seemingly feminized storms. Maria is cast as a sexualized femme fatale who wreaks widespread havoc and destruction—all while showcasing the heroic masculinity of the male characters who cross her path. With the novel’s extensive use of militarized language, metaphors, and parallels, it is no wonder that it was a popular read among U.S. military service members. Indeed, Bryson and his meteorologist colleagues at the Air Force drew inspiration from the gendered storm-naming system in Stewart’s narrative when creating their own classified, storm-naming system for the military. However, instead of naming storms after actresses and heroines, like the Junior Meteorologist in the

novel, Bryson and his colleagues named storms in the Pacific after the wives and girlfriends left behind on the home front. In both cases, gendered storm names were used to address the vulnerability created by destructive storm systems, a vulnerability inherently tied to the operations of the U.S. military.

Gilda and Helen of Bikini: Nuclear Bombs as Femme Fatales

While Air Force meteorologists were naming storms after women to better track and document typhoons forming in the Pacific Theater of World War II, U.S. military physicists were simultaneously naming and gendering a disaster of its own class: nuclear bombs. Initially, this disastrous technology of war was labelled as distinctly male. The bombs that emerged from the Manhattan Project were given the code names Thin Man, Little Boy, and Fat Man. Like the military meteorologists who were inspired by Stewart's novel, military physicists were likewise inspired by novels and films when devising the gendered code names for these bombs. Thin Man, a gun-type plutonium bomb that could not be used due to design issues, was named after Dashiell Hammett's 1934 detective novel, *The Thin Man*, which was later adapted into a film (Serber and Crease 104). The design of this literary-inspired bomb was revised, leading to the creation of Little Boy, the atomic bomb dropped on Hiroshima on August 6, 1945.

In his memoir, Robert Serber, an American physicist who helped name the bombs from the Manhattan Project, states that while "the Air Force ran into trouble getting the two hooks [of Thin Man] to release simultaneously," they were "relieved when a much shorter, one bomb bay version was substituted [...]. They named the

new version Little Boy, by comparison with Thin Man” (Serber and Crease 104). After the production of Thin Man and Little Boy, Serber, who gave “the bombs names descriptive of their shapes,” notes that the “name the Fat Man for the implosion bomb then followed naturally, after Sidney Greenstreet’s role in *The Maltese Falcon*” (Serber and Crease 104). Like the Thin Man bomb, Fat Man was named after another work of noir fiction—this time a 1941 film directed by John Huston. Fat Man, which was dropped on Nagasaki on August 9, 1945, three days after the detonation of Little Boy, was significantly more powerful than its predecessors. This implosion bomb with a plutonium core had “the explosive power of 22 kilotons of TNT,” in comparison to Little Boy, which had the power of 12.5 kilotons (Bradbury and Blakeslee). Although both Little Boy and Fat Man caused immense suffering, devastation, and destruction, the design for Fat Man “became the basis for US domination in the nuclear age,” while the design for Little Boy was abandoned and never used again (Bradbury and Blakeslee).

However, despite these differences in design, both bombs were named and created vis-à-vis the same gendered logic, a logic that coded them as overtly male. In her article, “The metaphors of radiation” (1991), Jane Caputi writes that “the original scientists working at Los Alamos took bets among themselves as to whether they would ultimately have a ‘boy’ or a ‘girl,’ that is, a success or a dud” (426).⁴³ Per this patriarchal framework, the first “successful” bomb was labelled Little Boy, while its

⁴³ This quote from Caputi is also reproduced on page 92 of Teaiwa’s article, “bikinis and other s/pacific n/oceans” (1994).

more powerful predecessor, Fat Man, moved from the realm of boyhood to manhood—a move that highlighted the maturation of its design. While this gendering of atomic bombs was tied to patriarchal conceptions of boyhood and manhood, it also revealed a key relationship between these bombs and the natural world. Drawing from the work of historian Elaine Tyler May, Skilton notes that the male gendering of the Little Boy and Fat Man bombs was inherently tied to understandings of the atomic bomb “as an object that could harness nature’s most awesome power, an object that was invulnerable to any other tool produced to control or regulate the natural world” (26). Skilton writes that this distinction hearkens back to the “old notion, rooted deep in mythology and history, that man-made forces were undeniably masculine, [while] natural forces were feminine” (26). Indeed, the feminization of so-called mother nature is a long-standing trope, one that can be readily tied to the use of female storm names themselves (Skilton 26).⁴⁴

However, unlike the storm-naming system used by the U.S. military, (and later the Weather Bureau), wherein storms were reliably given female names, the gendering of nuclear bombs has been much less consistent over time. In 1946, one year after the destruction wreaked by Little Boy and Fat Man, the U.S. military began its nuclear testing program in the Marshall Islands, a brutal program that lasted until 1958. The first of these tests was Operation Crossroads, which entailed the detonations of two nuclear bombs at Bikini Atoll. In contrast to their masculine

⁴⁴ Skilton writes that this very “belief directly carried over to the acceptance of the attachment of feminine names to tropical storms” (26).

predecessors, the bombs dropped during Crossroads were given the distinctly female code names Gilda and Helen of Bikini.

This noticeable shift in the gendering of nuclear bombs is best explained by Teresia Teaiwa in her foundational article, “bikinis and other s/pacific n/oceans” (1994). In this article, Teaiwa argues that the “excessive visibility” of the female body in the bikini bathing suit ultimately “inverts the colonial dynamics [...] [of] nuclear testing in the Pacific,” and specifically U.S. nuclear testing at Bikini Atoll, “by rendering [it] invisible” (87). While the bikini bathing suit obscures the horrors of nuclear testing through the sexualized female body, Teaiwa argues that the feminized names given to the bombs dropped on Bikini Atoll performed a similar logic:

The sacrifice of Islanders and military personnel during nuclear testing in the Pacific cannot be represented without threatening the legitimacy of colonial power, so nuclear technology becomes gendered and domesticated. In the end the female body is appropriated by a colonial discourse to successfully disguise the horror of the bomb. (92)

As Teaiwa compellingly states, gendering nuclear bombs as female worked to hide and disguise the immense devastation wrought by these weapons of mass destruction. The terrible power of the bomb was at once domesticated and rendered safe, even desirable, in the American imaginary. This was accomplished through the appropriation of the female body. By highlighting and exposing the female body through the framework of the bomb, attention was drawn towards this body, vis-à-vis the male gaze, and this very attention obscured the destruction and long-lasting devastation caused by these weapons.

This sexualized dynamic was readily apparent during the first test of Operation Crossroads. The test itself was titled Able, a name derived from the U.S. military's Joint Army/Navy Phonetic Alphabet, often called the Able Baker alphabet ("The Nato Phonetic Alphabet"). However, while the test was given a male name, via a predesignated phonetic alphabet, the bomb itself was given the female name Gilda.⁴⁵ The Gilda bomb was named after Rita Hayworth's femme fatale character, Gilda, in Charles Vidor's 1946 noir film, also titled *Gilda* (1946). Prior to its detonation over Bikini Lagoon, the bomb was housed in a "fenced enclosure in a restricted section" of Kwajalein Island ("Test Bomb Named 'Gilda'" 3). In an interview with *The New York Times*, Thomas Lanahan, one of the scientists responsible for the bomb, stated that Gilda was chosen as the bomb's name "because the picture 'Gilda' was currently making the rounds of Kwajalein theatres" ("Test Bomb Named 'Gilda'" 3).

While the name was initially chosen to reflect the current film screenings at Kwajalein Island, the gendering of this bomb was taken a step further when scientists painted an image of Rita Hayworth herself on the outer shell of the bomb, alongside a stenciling of the word "Gilda" ("Test Bomb Named 'Gilda'" 3). Hayworth's image on the bomb was a pin-up portrait copied from the June 1946 edition of *Esquire*, a

⁴⁵ Starting in 1941, all branches of the U.S. military adopted the Joint Army/Navy Phonetic Alphabet, "called the Able Baker alphabet after the first two code words" ("The Nato Phonetic Alphabet"). While some of the code words in this alphabet are male-gendered names, such as Able, Baker, and Charlie, most of the code words are gender-neutral, such as Dog, Easy, and Fox ("The Nato Phonetic Alphabet").

well-known men's magazine (Inglis-Arkell; "Atomic Goddess Revisited"). Esther Inglis-Arkell notes that the original portrait, which was created by Bill Coburn, is titled "American Beauty." Indeed, painting a pin-up portrait, titled "American Beauty," on a nuclear weapon at once feminized and sexualized the bomb, casting it as a desirable and seductive display of American military force.

However, this display was created without Hayworth's consent. In a *New Yorker* article, Alex Wellerstein notes that Hayworth was not happy about her association with the bomb. Wellerstein writes that once "word got back to Hayworth [about the Gilda bomb], according to Orson Welles, her husband at the time, she 'almost went insane, she was so angry.'" Hayworth was not consulted about the name of the bomb, nor did she give consent for her image to be painted on it. The Gilda bomb marked a noted shift in Americans' gendered perceptions of nuclear bombs.⁴⁶ However, in this case, the sexualization of this bomb not only framed it as desirable in the American imaginary, but appropriated the female body, and more specifically Hayworth's body, via a misogynist framework that disregarded the actor's autonomy and approval.

This sexualization and feminization of nuclear weaponry continued with the second test of Operation Crossroads, otherwise known as the Baker test. The bomb dropped during this test was given the code name Helen of Bikini, after the

⁴⁶ In his 2016 *New Yorker Article*, Alex Wellerstein reflects on the gendered shift in American perceptions of the bomb. He writes, "The sombre ruminations prompted by Trinity, Hiroshima, and Nagasaki—What did it mean to possess the almost divine power to split the atom?—had been transmuted into gaudy sex symbols."

mythologized Helen of Troy. Although there were no images or portraits painted on this bomb, the “name ‘Helen of Bikini’ was painted on the side of the underwater atomic bomb” (“‘Helen of Bikini’ Name of Underwater A-Bomb” 2).⁴⁷ In “‘more like us than mice’” (2007), Barbara Rose Johnston writes that Operation Crossroads, as a whole, “was meant to determine the relevance of a naval fleet when atomic weapons could simply be dropped by air” (Johnston 29). This was especially the case for the Helen of Bikini bomb, which was the first nuclear bomb to ever be detonated underwater. Via “a specially designed opening in the tank-deck of [...] [a] landing ship, the caisson [of the bomb] was lowered several fathoms into the limpid waters of Bikini lagoon” (“Helen of Bikini” 27). Shortly afterwards, the bomb was exploded beneath a fleet of target vessels.

While the Gilda bomb was not as destructive as planned, “smash[ing] only a few vessels below the center of the burst,” scientists hoped the Helen of Bikini bomb would have a more dramatic impact on the target vessels of the Pacific Fleet (Lindley 9). This hope was the rationale behind the name of the bomb. In a 1946 newspaper article from *The Baltimore Sun*, which was published before the test was conducted, William J. Perkinson writes, in the words of the scientists responsible for the bomb, that the name Helen of Bikini was chosen because “‘Helen of Troy, [was] the face that launched a thousand ships’” and “‘Helen of Bikini, [would be] the bomb that

⁴⁷ In addition to the name “Helen of Bikini,” the phrase “Made in New Mexico” was chalked on the side of the bomb by “Senator Carl Hatch [...] in a plug for his home state” (“Helen of Bikini” 27).

sank a thousand ships—we hope” (1).⁴⁸ While this bomb did not sink a thousand ships, it did destroy eight target vessels, as well as the landing ship that released it (Fear).

The radiation released from Helen of Bikini’s underwater explosion was particularly dangerous and pervasive. Johnston provides a detailed account of the contamination that followed in the immediate aftermath of the detonation:

The underwater detonation [...] produced a huge cloud of radioactive mist that did not disperse and that blanketed the lagoon and atoll with a heavy deposition of radiotoxins, briefly enshrouding the naval fleet, which had briefly reentered the lagoon shortly after the test. Radioactivity was dangerously high even a week after the blast when the fleet returned. Decontamination was next to impossible, as radioactivity adhered to all exposed organic materials, including rope, canvas, wood, clothing, food, and people. (“more like us than mice” 30)

Due to this vast contamination, spread by radioactive mist, the target vessels that were not sunk by the bomb were scuttled, resulting in “the eventual loss of much of the targeted Pacific Fleet” (Johnston, ““more like us than mice”” 30). While the Helen of Bikini bomb did not sink a thousand ships, as initially hoped, those ships that it did not sink it contaminated with extensive radioactive fallout. This same fallout polluted the waters of Bikini Lagoon, radiating an atoll that is still deemed uninhabitable to this day—as Bikini Islanders remain permanently displaced.

⁴⁸ Before the name Helen of Bikini was chosen, there were other suggestions for the bomb’s name. Dr. Bradley Dewey, who was part of the advisory board for the bomb, “suggested it be named ‘Moby Dick’ after the celebrated fictional whale, with the added inscription, ‘Thar she blows’” (“‘Helen of Bikini’ Name of Underwater A-Bomb” 2).

Unlike their masculine predecessors, Little Boy and Fat Man, the Gilda and Helen of Bikini bombs were distinctly feminized. Interestingly enough, both bombs were likened to seductive, femme fatale figures. In Charles Vidor's film, *Gilda* (1946), Hayworth's character, who is also named Gilda, is a classic femme fatale. However, the supposed dangers she poses, or her "'fatality,'" as Hope Davis notes, "derives from her desirability." The character does not plot destruction or create violence, and instead it is "her sexuality [that] drives men like [the character] Johnny to obsession" (H. Davis). Even so, this sexuality "is generally directed toward the audience, most notably in the famous 'Put The Blame On Mame' number" (D'Angelo). During this performance, Gilda does "a faux-striptease while singing a song about blaming disasters on women's sexuality" (H. Davis). In the film, the song begins by describing the 1906 earthquake in San Francisco, a deadly 7.9 quake on the Richter scale, and then proceeds to blame this disaster on a woman named Mame: "One night she started to shim and shake. That brought on the Frisco quake. So you can put the blame on Mame, boys" (1:39:07-1:39:19). In this song, Gilda, a femme fatale herself, sings about another femme fatale, Mame—one who is responsible for a wide range of natural disasters, ranging from fires to blizzards and earthquakes. In the song, and in the film as a whole, women's sexuality is equated with danger and destruction. This equation was exponentially magnified when scientists named a nuclear bomb after Gilda. Gilda's sexuality, which was highlighted through Hayworth's pin-up portrait on the bomb, was tied to the immense destruction and terrible power of the most formidable weapon on Earth.

This connection between women's sexuality and the terrible power of nuclear weaponry was perpetuated with the Helen of Bikini bomb—a bomb that was likened to the notorious Helen of Troy from Greek mythology. While Gilda's character is often considered the archetypal femme fatale within the film noir genre, Martin M. Winkler notes that Helen of Troy “is the West's original *femme fatale*” (210). In fact, Winkler writes that Helen was well-known “in Western culture long before Eve [another femme fatale], whose story depended for its familiarity on the spread of Christianity” (210). In the story of Helen of Troy, which was not tied to the Christian faith, “Helen was the wife of Menelaus, king of Sparta, and [the] mother of Hermione” (Winkler 210). However, despite her marital ties to the Spartan throne, Helen was driven by “her illicit love for Paris, the handsome son of King Priam of Troy” (Winkler 210). Paris, who was promised “the most beautiful mortal woman” by the goddess Aphrodite, set sail from Troy to Sparta to retrieve Helen (Winkler 210). Consequently, Helen “followed Paris to Troy,” leading to the “Trojan War and the fall of Troy, antiquity's biggest myth” (Winkler 210). When this same myth was refashioned for the nuclear bomb, Helen's ability to launch a thousand ships, through the supposed power of her beauty, was likened to the power of a nuclear bomb to sink a thousand ships (Perkinson). Like the Gilda bomb, the Helen of Bikini bomb framed both Helen's body and her sexual desire as dangerous and destructive. Helen's sexuality was likened to a technology of war, as it is blamed for starting the Trojan War, and then later, it was transformed into a weapon of mass destruction itself.

As such, the shift in the gendered naming of nuclear bombs represents a key change in their public perception in the American imaginary. The bombs that emerged from the Manhattan Project were given overtly masculine names to showcase the sheer force of their destructive capabilities. Little Boy and Fat Man were framed as masculine technologies of war with the power to control and regulate a feminized, natural world. However, as the technology of these bombs escalated during the Cold War, and specifically during the U.S. military's nuclear testing program in the Marshall Islands, they were coded as female and given women's names, such as Gilda and Helen of Bikini. As Teaiwa argues, these bombs were "gendered and domesticated" in order to "successfully disguise the horror of the bomb," a disguise that was accomplished through the appropriation of the female body (92). While the bombs were cast as desirable and situated within the sphere of the male gaze, as seen with the pin-up portrait painted on the Gilda bomb, this ultimately worked to perpetuate a misogynist representation of women's sexuality. Both the Gilda and Helen of Bikini bombs were likened to femme fatale figures who were deemed dangerous precisely because of their sexual desires and appeal to the male gaze. By framing nuclear bombs as femme fatales, American scientists framed women's sexuality and desire as a dangerous and destructive technology of war—one with the capability to wreak mass havoc and devastation.

Gendered Storms and Bombs on a Warming Planet

This chapter closes with a reflection on the implications of gendering disasters, specifically storms and bombs, as we move forward in the 21st century on

an increasingly warming planet. In his poem, “Storm Tracking,” Craig Santos Perez, an Indigenous Chamoru poet from Guåhan (Guam), highlights the dangers of naming disasters that are beyond human control.⁴⁹ Santos Perez begins the poem by describing the initial formation of a tropical cyclone: “This is when the warm ocean gives birth to a cyclone—” (29). From here, the poet addresses the process of naming this growing disaster: “This is when we give a human name to weather we can’t control—” (29). In this line, Santos Perez critiques the practice of naming and humanizing storms. Giving a storm a human name, and with that, a gendered name, is a means to assert control over it. However, this is merely the illusion of control, as the storm remains, in the words of Santos Perez, a form of “weather we can’t control.” Instead, the act of naming a disaster simply underscores our vulnerability to it.

This was indeed the case for the U.S. military, as the practice of naming and gendering tropical cyclones was adopted during World War II in response to the immense vulnerability of military operations to destructive storm systems, like Typhoon Cobra in 1944. Tracking, naming, and feminizing storms was an attempt to impose order on disasters that were a threat to the U.S. military-industrial-complex. Although Santos Perez’s poem provides a commentary on this dynamic of storm naming, this same logic can be readily applied to the practice of bomb naming. While nuclear bombs are products of human creation, these devices often exceed the confines of human control. The immense, destructive capabilities of these

⁴⁹ The poem “Storm Tracking” is included as a folio in Santos Perez’s “Guåhan, The Pacific and Decolonial Poetry,” published in 2019 by the journal *Shima*. In his introduction to this folio, Santos Perez notes that “Storm Tracking” will appear in the fifth installation of his *from unincorporated series*, which is “forthcoming in 2022” (23).

technologies of war can be unpredictable, as was the case with the extensive contamination that ensued in the aftermath of the Helen of Bikini bomb.

More importantly, for those on the ground, such as the residents of Hiroshima, Nagasaki, and the Marshall Islands, nuclear bombs are uncontrollable and volatile disasters that reign destruction from above. By imposing humanized, gendered names on these weapons of mass destruction, American scientists not only attempted to control the uncontrollable, but also attempted to obscure the horrific capabilities of these bombs. This was especially apparent with the Gilda and Helen of Bikini bombs, as the names of sexualized, femme fatale icons were used to at once cast the bombs as desirable and manageable, while simultaneously designating women's sexuality as dangerous and destructive.

This history of storm naming and bomb naming further converged in the aftermath of World War II. After the war, the militarized U.S. Weather Bureau temporarily phased out the use of female code names for tropical cyclones, deciding “that it was unnecessary for peacetime military communications and never meant for public consumption” (Skilton 29). Starting in 1948, they instead adopted “an unofficial naming system for all internal communications” that used “the Joint Army/Navy Phonetic Alphabet” (Skilton 30). Storms were given standardized names from this alphabet on a rotational basis, such as Able, Baker, and Charlie (Skilton 30). Subsequently, in 1951, “the Weather Bureau implemented [this naming system] [...] publicly, introducing the first storm of that year as ‘Hurricane Able’” (Skilton 30). This use of the Joint Army/Navy Phonetic Alphabet to name storms converged with

the naming system for the U.S. military's nuclear bomb tests during the Cold War. Many of the nuclear bombs detonated on the Marshall Islands and the Nevada Test Site during the 1950s were likewise given names from this same phonetic alphabet. For instance, during Operation Ranger, which occurred in 1951, the same year as Hurricane Able, the bombs exploded at the Nevada Test Site were given the names Able, Baker-1, Easy, Baker-2, and Fox ("Operation Ranger"). Over in the Marshall Islands, at Enewetak Atoll, the bombs for Operation Greenhouse, (which likewise occurred in 1951), were given code names that drew from other letters in the phonetic alphabet, such as Dog, Easy, George, and Item ("Operation Greenhouse"). However, while the U.S. military continued to use its phonetic alphabet to name bomb tests for years to come, this system was quickly dropped by the U.S. Weather Bureau in 1952 when it "was reclassified from a subsidiary of the military to an independent organization" (Skilton 30). Because the Weather Bureau "was now free from military oversight," the Joint Army/Navy Phonetic Alphabet was swapped "with the less militaristic International Phonetic Alphabet" for storm naming" (Skilton 31). From here, the histories of storm naming and bomb naming became less intertwined, as the practice of storm naming took on a path of its own.

During this same period, Stewart's popular novel, *Storm*, was continuing to exert cultural influence on the American public via various adaptations and renditions. In 1951, the Broadway musical *Paint Your Wagon* debuted on stages, "featuring an iconic single that was clearly inspired by *Storm*" (Skilton 31). This song was tellingly titled "They Call the Wind Maria" (Skilton 31). Skilton notes that this

song “reinforced the growing twentieth-century concept of the wind as gendered” and “inspired a Weather Bureau struggling with a confusing naming system to alter its course definitively” (Skilton 33). As a result, two years after the release of this song, in “1953, the US Weather Bureau introduced a new naming system for hurricanes and other tropical storms” (Skilton 33). This new naming system used exclusively female names for tropical cyclones, starting with the name Alice (Skilton 33). From here, the use of female storm names became a long-standing, permanent tactic for the U.S. Weather Bureau, and later the World Meteorological Organization, when this naming practice was adopted at an international level.

Up until 1978, solely female names were used for tropical cyclones. In 1978, male names were added to the list for storms in the Northern Pacific, and one year later, male names were added to the list for storms in the Atlantic” (“Why do we name tropical storms and hurricanes?”).⁵⁰ This created the storm-naming system we have today, a system that alternates male and female storm names via a list that is updated and maintained by the World Meteorological Organization. However, although storm names now alternative between male and female, the gendering of storms in and of itself still poses significant issues.

In the 21st century, naming storms after women has led to violent expressions of misogyny. This was especially the case for Hurricane Katrina, a category 5 hurricane that wreaked significant destruction in New Orleans in 2005. In their

⁵⁰ Other institutions took longer to implement male storm names. For example, the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) did not begin using male names for typhoons that entered the Philippine Area of Responsibility until 2001.

analysis of souvenir t-shirts sold in New Orleans in the aftermath of Katrina, Kris Macomber and co-authors note that these shirts often used slogans with “words like *whore* and *hooker* to denote ‘Katrina’s’ imagined promiscuity” (Macomber et al. 529). In addition to these problematic terms, “gendered epithets like *bitch*” were often used to reference Hurricane Katrina (Macomber et al. 529). Macomber and co-authors assert that “Hurricane Katrina was branded not just a bad woman but a sexually aggressive woman—not just a *bitch* but also a *whore*,” as we see “gendered expletives connecting ‘Katrina’s’ destruction with ‘her’ imagined lewd behavior” (529). The authors notes that this ultimately works to “reinforce the ideologies that sustain gender inequality” (Macomber et al. 529). These same gendered epithets were used to describe Hurricane Sandy, a Category 3 hurricane that hit the East Coast of the United States and the Caribbean in 2012. Social media posts about Hurricane Sandy were at once misogynist and explicitly violent. In her analysis of the rhetoric in these posts, Jill Filipovic writes that during the storm and in its aftermath, social media posts relied “heavily on calling the storm a bitch or a whore,” and the hashtag “#SandyBitch was a popular storm hashtag.” Moreover, many posts on Twitter and Facebook were centered on violence against women, as Filipovic notes that statements such as “‘will cut the shit out of a bitch,’ ‘beat that bitch,’ [and] ‘stab a bitch’” were often used in reference to Hurricane Sandy. As with Hurricane Katrina, labelling Sandy as an “angry or promiscuous women is not benign,” but rather “a symptom of a misogynist culture” (Filipovic). As such, naming storms after women is

a dangerous practice that creates an avenue for public expressions of misogyny that at once demonize women's sexuality and promote violence against women.

While naming storms after women perpetuates the destructive force of misogyny, the act of gendering storms poses a significant obstacle for public safety and storm warnings. In their 2014 analysis of death rates for U.S. hurricanes, Kiju Jung and co-authors found that “feminine-named hurricanes cause significantly more deaths than do masculine-named hurricanes” (8782). Jung and co-authors’ controlled experiments show that this discrepancy in death rates “is because hurricane names lead to gender-based expectations about severity and this, in turn, guides respondents’ preparedness to take protective action” (8782). More specifically, the strength of hurricanes with female names is often underestimated, despite their ratings on the category system, with “male-named hurricanes being perceived as riskier and more intense than female-named hurricanes” (Jung et al. 8782). This, in turn, poses serious issues for storm evacuation warnings, as the public is more likely to disregard warnings for a female-named storm due to sexist, “gender-based expectations about severity” (Jung et al. 8782). Storms with female names are, quite literally, deadly, as they are underestimated by society due to gender biases—an underestimation that can mean the difference between life and death.

Indeed, the safety issues tied to female storm names are exacerbated during our current era of climate change, as scientific evidence shows that extreme weather events, such as destructive storm systems, will continue to escalate in both frequency and intensity over the course of the 21st century. It thus seems fitting to end this

chapter with a reflection on the relationship between climate change and gendered storm names, as Reid Bryson, the meteorologist who began the practice of naming storms after women, was himself a notorious climate change denier.⁵¹ Bryson created a feminized storm-naming system that at once responded to the U.S. military's vulnerability to tropical cyclones, in the wake of Typhoon Cobra, and that now intersects with the very world-altering changes in climate that he fervently denied. Today, the U.S. military-industrial-complex views not only storms, but climate change itself, as a major "threat to national security," as "the military's own bases are very vulnerable to the effects of climate change because of rising seas and forest fires, storms, and floods" (Ward). This is all compounded by the fact the U.S. military is responsible for extensive greenhouse gas emissions and has been dubbed "the largest single climate polluter and contributor to global warming" (Hynes, "The 'Invisible Casualty of War'" 4). Moreover, while storms and climate change are a threat to the U.S. military-industrial-complex, a threat that the military actively contributes to, nuclear bombs and the stockpiling of these weapons pose another grave threat that still looms over the horizon. In our current moment, the U.S. military "maintains an active nuclear stockpile of roughly 4,000 nuclear weapons, including over 1,500 deployed warheads" (Hartung). As a result of this stockpiling on a global scale, the

⁵¹ In 1973, Bryson made an infamous speech at the American Association of Geographers at the University of Wisconsin, where "he explained that the planet was cooling" (Kaufman). Years later, in 2000, Bryson "claimed that the role of humans in shaping climate was minimal," stating that the "Earth has been constantly warming up in the past centuries, even when the emission of CO₂ was extremely low" ("Byrson Reid 1920"). While Reid changed his belief that the planet was cooling, he now believed that the "phenomenon of global warming [...] [was], thus, due to emergence from an ice age" ("Bryson Reid 1920").

“Bulletin of Atomic Scientists has set its ‘doomsday clock’ at 100 seconds to midnight, an indication of how close humanity has come to a nuclear conflict” (Hartung). Giving storms and nuclear bombs human, and specifically gendered, names is thus a tactic that should not be taken lightly. Feminizing storms and bombs, via the use of female names, is a practiced that has obscured and distracted from the real dangers posed by these disasters, all while creating new dangers that have detrimental impacts on women and gender equality.

Conclusion

This dissertation has examined the intersections between U.S. militarization, storm systems, weather forecasting, Hollywood war films, and bombing operations in Asia and the Pacific during World War II and the Cold War. By analyzing texts from above, or texts that support and promote U.S. military power, and texts from below, or texts that actively resist and challenge the U.S. military-industrial-complex, this project has aimed to highlight three key relationships between the U.S. military, Hollywood, and weather disasters. I argue that the U.S. military's aerial operations act as weather disaster in and of themselves, that Hollywood simulations of this aerial warfare exacerbate this destruction, and that the U.S. military and Hollywood are still quite vulnerable to extreme storms—as evidenced by the typhoon that disrupted the shooting of *Apocalypse Now* and the gendered, storm-naming system adopted by military meteorologists during World War II. These intersections highlight the racialized, gendered, and environmental consequences of both the U.S. military's operations in Asia and the Pacific and Hollywood's reenactments of said operations.

While these claims are indeed important, they are by no means a comprehensive list of notable intersections between the U.S. military and weather disasters. For example, although storms may have the potential to disrupt military operations, the military's deployment of disaster aid has often counteracted such disruptions by expanding and legitimizing the U.S. military's presence in Asia and the Pacific. As such, the remainder of this conclusion moves forward historically, to

the late 20th century and the 21st century, in order to reflect on the implications of militarized disaster aid in Asia and the Pacific in an era of climate change.

This close connection between the U.S. military and disaster aid was particularly apparent in the wake of Typhoon Yolanda in 2013, a devastating super typhoon that resulted in approximately 10,000 deaths in the Philippines. After Yolanda, the U.S. military launched a large-scale relief maneuver, known as Operation Damayan, that was largely celebrated by mass media.⁵² Operation Damayan was a key example of “disaster militarism,” a concept defined by Annie Fukushima and co-authors as “a pattern of rhetoric, beliefs, and practices” that situates the military as “the primary responder to large-scale disasters.” Damayan showcased the soft power of U.S. forces and, in turn, was used “as additional leverage to pressure the Philippine government to accept a mutual defense agreement” (Fukushima et al.). This agreement, known as the Enhanced Defense Cooperation Agreement (EDCA), was signed “in April of 2014, just six months after Yolanda hit the archipelago” (D. Crawford 113). The EDCA itself allowed for “an increased and more permanent presence of the U.S. military” in the Philippines, with troops being “allowed to operate out of ‘agreed locations’ on Philippine soil” (D. Crawford 113). Following the logic of Naomi Klein’s concept of “disaster capitalism,” in which disasters are quite literally capitalized on “as exciting market opportunities” (6), here

⁵² For more information about the relationship between U.S. militarism and Typhoon Yolanda, see Jeffrey Santa Ana’s essay, “Filipino Ecological Imagination” (2018). Here, Santa Ana writes that the damage caused by Typhoon Yolanda in the Philippines, and particularly Tacloban City, “must be understood in the historical context of Western imperialist plunder, conquest, and war in the Asia-Pacific” (63).

Yolanda became an opportunity for the U.S. military to expand its footprint in Asia and the Pacific.

However, militarized disaster aid does not always signal a literal expansion of the U.S. military-industrial-complex. It can also simply legitimize the presence of troops and bases that are already stationed on occupied land. This was evident during Hurricane 'Iniki, a category 4 hurricane that struck Kaua'i in 1992 and caused the deaths of six people, along with extensive damage throughout the island. In the days following 'Iniki, the U.S. military launched a relief campaign known as Operation Garden Sweep. During Garden Sweep, the National Guard and other military personnel stationed on O'ahu flew into the neighborhoods of Kaua'i "to pick up the mounds of storm debris lining the streets" ("The Clean Up Starts"), in addition to the tasks of "delivering supplies by helicopter, repairing roofs and generators, [and] cooking thousands of meals" ("Joint Task Force Garden Isle"). This militarized disaster aid resulted in elaborate displays of appreciation. National Guard members who participated in Operation Garden Sweep were treated, courtesy of American Hawai'i Cruises, to a luxury cruise in the Hawaiian archipelago. During this thank you cruise, known as "Operation Kaua'i Aloha," residents of Kaua'i came out to greet and thank the National Guard when the luxury liner stopped at the island for one day: "Waiting in the early morning sunrise for the guests to arrive at the designated spot, children and adults bore signs of Mahalo, the kind of signs we've planted like seeds along the roads and spray-painted on houses. It's an easy word to say to you guys n' gals. Mahalo. You're in our hearts forever more" (O'Malley and Radke 44).

Although residents' response to the National Guard was by no means monolithic, the many painted signs of *mahalo* draw attention to how militarized disaster aid creates a sense of indebtedness that legitimizes the U.S. military's illegal occupation of Hawai'i.

While disaster aid operations obscure the colonial underpinnings of the U.S. military's presence, they also obscure the environmental impact of the U.S. military-industrial-complex itself. The Department of Defense is one of the most egregious polluters on the planet. In a 2019 paper, published under Brown University's Costs of War Project, Neta C. Crawford writes that "the DOD is the world's largest institutional user of petroleum and correspondingly, the single largest institutional producer of greenhouse gases (GHG) in the world" (2). However, these staggering emissions are often rendered invisible when the U.S. military uses its distribution of disaster aid to posit "itself as a 'savior' and [...] obscure its role as a major contributor to the rise of climate disasters" (Fukushima et al.). Moving forward in the 21st century, with the dangerous progression of climate change, this relationship between the U.S. military and disaster aid will very likely intensify—especially as extreme storms are projected to increase in both intensity and frequency on a warming planet. Now, more than ever, it is imperative that we address the damaging, socio-environmental legacies of U.S. military operations and their intersections with weather disasters in Asia and the Pacific—all while envisioning possible futures to heal from this damage.

Bibliography

- Achebe, Chinua. "An Image of Africa: Racism in Conrad's *Heart of Darkness*." *Heart of Darkness: A Norton Critical Edition*, edited by Robert Kimbrough, Norton, 1988, pp. 251-262.
- Advisory Committee on Human Radiation Experiments (ACHRE). *Advisory Committee on Human Radiation Experiments: Final Report*. Washington, D.C., U.S. Government Printing Office, 1995.
- . Testimony of Senator Tony deBrum to the Advisory Committee on Human Radiation Experiments Public Meeting, 5 July 1994, Vista Hotel, Washington, D.C. bioethicsarchive.georgetown.edu/achre/commeet/meet4/trnsct04.html. Accessed 10 March 2020.
- "African Americans Fought for Freedom at Home and Abroad during World War II." *The National WWII Museum New Orleans*, 1 Feb. 2020, www.nationalww2museum.org/war/articles/african-americans-fought-freedom-home-and-abroad-during-world-war-ii. Accessed 15 Aug. 2021.
- Aguilar-San Juan, Karin. "A Conversation with Jessica Hagedorn." *The Women's Review of Books*, vol. 21, no. 6, 2004, pp. 6. JSTOR, www.jstor.org/stable/4024342?origin=JSTOR-pdf. Accessed 10 May 2021.
- Almendral, Aurora. "In the Philippines, Dynamite Fishing Decimates Entire Ocean Food Chains." *The New York Times*, 15 June 2018, www.nytimes.com/2018/06/15/world/asia/philippines-dynamite-fishing-coral.html. Accessed 10 Jan. 2019.
- Apocalypse Now*. Directed by Francis Ford Coppola, performances by Marlon Brando, Martin Sheen, Frederic Forrest, and Laurence Fishburne, United Artists, 1979.
- Arvin, Maile. "Still in the Blood: Gendered Histories of Race, Law, and Science in Day v. Apoliona." *American Quarterly*, vol. 67, no. 3, 2015, pp. 681-703. Project Muse, doi:10.1353/aq.2015.0041. Accessed 1 Dec. 2021.
- "Atomic Goddess Revisited: Rita Hayworth's Bomb Image Found!" *Conelrad Adjacent*, 19 Aug. 2013, conelrad.blogspot.com/2013/08/atomic-goddess-revisited-rita-hayworths.html. Accessed 1 June 2021.
- Barclay, Robert. *Me!a! A Novel of the Pacific*. U of Hawai'i P, 2002.
- Bartholomae, David, et al. "Introduction: Ways of Reading." *Ways of Reading: An*

- Anthology for Writers*. 10th ed., edited by David Bartholomae, Anthony Petrosky, and Stacey Waite, Bedford/Martin's, 2014, pp. 1-21.
- Barton, William S. "Los Angeles Peril from A-Bomb Told." *Los Angeles Times*, 20 April 1949, pp. 1-2. *ProQuest Historical Newspapers*. Accessed 2 March 2020.
- Benjamin, Walter. *Illuminations*, edited by Hannah Arendt, translated by Harry Zohn, Schocken Books, 1968.
- Berkhouse, L., et al. *Operation Crossroads 1946*. Washington, D.C., Defense Nuclear Agency, 1984, *Department of Energy OpenNet*, www.osti.gov/opennet/servlets/purl/16389165.pdf. Accessed 2 March 2020.
- Bonnot, Carlos D. and Hershel H. Slater. *The Effects of Castle Detonations Upon the Weather*. Washington, D.C., Joint Task Force Seven, 1954, *Department of Energy OpenNet*, www.osti.gov/opennet/servlets/purl/16364903.pdf. Accessed 3 March 2020.
- Bradbury, Ellen and Sandra Blakesless. "The harrowing story of the Nagasaki bombing mission." *Bulletin of the Atomic Scientists*, 4 Aug. 2015, thebulletin.org/2015/08/the-harrowing-story-of-the-nagasaki-bombing-mission/. Accessed 3 Sept. 2021.
- Brechin, Gray. *Imperial San Francisco: Urban Power, Earthly Ruin*. U of California P, 2006.
- "Bryson Reid 1920." *Climate Policy Watcher*, 14 April 2021, www.climate-policy-watcher.org/global-climate-2/bryson-reid-1920.html. Accessed 4 Sept. 2021.
- Bryson, Reid. "Interview #320: Bryson, Reid." Interview by Laura Smail. *University of Wisconsin-Madison Archives*, 11 April 1986, digital.library.wisc.edu/1793/72173. Accessed 1 May 2021.
- . "Typhoon Forecasting, 1944, or, The Making of a Cynic." *Bulletin of the American Meteorological Society*, vol. 81, no. 10, 2000, pp. 2393-97.
- Caputi, Jane. "The metaphors of radiation: Or, why a beautiful woman is like a nuclear power plant." *Women's Studies International Forum*, vol. 15, no. 5, 1991, pp. 423-42. *Science Direct*, [doi.org/10.1016/0277-5395\(91\)90045-J](https://doi.org/10.1016/0277-5395(91)90045-J). Accessed 10 July 2021.
- "Carbon Sequestration." *United States Department of Agriculture Forest Service*, 7

- Oct. 2016, www.fs.fed.us/ecosystemservices/carbon.shtml. Accessed 10 Feb. 2018.
- Carey, Bjorn. "Coral reefs provide protection from storms and rising sea levels, Stanford research finds." *Stanford News*, 13 May 2014, news.stanford.edu/news/2014/may/coral-reef-protect-051314.html. Accessed 10 Feb. 2019.
- Carrigan, Anthony. "Postcolonial Disaster, Pacific Nuclearization, and Disabling Environments." *Journal of Literary & Cultural Disability Studies*, vol. 4, no. 3, 2010, pp. 255-272. *Project Muse*, doi: 10.3828/jlcs.2010.22. Accessed 3 March 2020.
- Chavis, Benjamin F., Jr. "The Historical Significance and Challenges of the First National People of Color Environmental Leadership Summit." *The First National People of Color Environmental Leadership Summit: Proceedings*, 24-27 Oct. 1991, Washington, D.C., edited by Charles Lee, United Church of Christ Commission for Racial Justice, 1992, pp. 7 – 9.
- Chow, Rey. *The Age of the World Target: Self-Referentiality in War, Theory, and Comparative Work*. Duke UP, 2006.
- Clark, Alexis. "Black Americans Who Served in WWII Faced Segregation Abroad and at Home." *History*, 5 Aug. 2020, www.history.com/news/black-soldiers-world-war-ii-discrimination. Accessed 30 Aug. 2021.
- "Climatology of the Eniwetok – Bikini Area for the Months of January, February, March and April." *Department of Energy OpenNet*, www.osti.gov/opennet/servlets/purl/16183708.pdf. Accessed 1 March 2020.
- Cohn, S.H., et al. *Project 4.1 – Addendum Report: Nature and Extent of Internal Radioactive Contamination of Human Beings, Plants, and Animals Exposed to Fallout*. San Francisco, Naval Radiological Defense Laboratory, 1954. *Department of Energy OpenNet*, www.osti.gov/opennet/servlets/purl/16028692.pdf. Accessed 4 March 2020.
- Commission for Racial Justice. *Toxic Wastes and Race in the United States*. New York, United Church of Christ Commission for Racial Justice, 1987.
- Conrad, Joseph. *Heart of Darkness: Authoritative Text, Backgrounds and Contexts, Criticism*, edited by Paul B. Armstrong, Norton, 4th edition, 2006, pp. 3-77.
- Coppola, Eleanor. *Notes: On the Making of Apocalypse Now*. Faber and Faber, 1995.

Cowie, Peter. *The Apocalypse Now Book*. Da Capo, 2001.

Crawford, Danielle. “‘The Storm of the Century’: Typhoon Yolanda, the Event, and the Slow Violence of U.S. Empire in the Philippines.” *Eco Culture: Disaster, Narrative, Discourse*, edited by Robert Bell and Robert Ficociello, Lexington, 2018, pp. 105-128.

Crawford, Neta C. “Pentagon Fuel Use, Climate Change, and the Costs of War.” *Costs of War: Watson Institute International & Public Affairs Brown University*, 13 Nov. 2019, watson.brown.edu/costsofwar/files/cow/imce/papers/Pentagon%20Fuel%20Use%2C%20Climate%20Change%20and%20the%20Costs%20of%20War%20Revised%20November%202019%20Crawford.pdf. Accessed 28 Oct. 2021.

“Damage from the Atomic Bombing.” *Sadako and the Atomic Bombing*, www.pcf.city.hiroshima.jp/kids/KPSH_E/hiroshima_e/sadako_e/subcontents_e/08higai_4_e.html. Accessed 10 March 2020.

D’Angelo, Mike. “There’s more to *Gilda* than just an iconic hair flip by Rita Hayworth.” *AV Club*, 16 Jan. 2016, www.avclub.com/there-s-more-to-gilda-than-just-an-iconic-hair-flip-by-1798186243. Accessed 31 Aug. 2021.

Davenport, Coral. “The Marshall Islands are Disappearing.” *The New York Times*, 2 Dec. 2015, www.nytimes.com/interactive/2015/12/02/world/The-Marshall-Islands-Are-Disappearing.html. Accessed 10 March 2020.

Davis, Hope. “‘Gilda, are you decent?’ Interpreting Rita Hayworth’s femme fatale.” *The Maneater*, 2 March 2021, theman eater.com/gilda-are-you-decent-interpreting-rita-hayworths-femme-fatale/. Accessed 1 Sept. 2021.

Davis, Mike. *Ecology of Fear: Los Angeles and the Imagination of Disaster*. Metropolitan Books, 1998.

---. *Late Victorian Holocausts: El Niño Famines and the Making of the Third World*. Verso, 2001.

Davis, Sasha. *The Empires’ Edge: Militarization, Resistance, and Transcending Hegemony in the Pacific*. U of Georgia P, 2015.

“Deforestation.” *Climate & Weather*, 2017, www.climateandweather.net/global-warming/deforestation.html. Accessed 3 Jan. 2018.

“Deforestation one of major causes of RP floods.” *Philstar*, 10 Nov. 2005,

- www.philstar.com/nation/2005/11/10/306119/deforestation-one-major-causes-rp-floods#:~:text=With%20the%20gravity%20of%20forest,in%20Regions%20and%2011. Accessed 10 Dec. 2019.
- Deis, David and Cindi Alvitre. "Mapping Indigenous LA: Place-Making Through Digital Storytelling." UCLA: Mapping Indigenous LA, *Story Map: ESRI*, www.arcgis.com/apps/MapJournal/index.html?appid=a9e370db955a45ba99c52fb31f31f1fc. Accessed 30 May 2020.
- Delden, Simone Oettli-Van. "Problematizing the postcolonial: Deterritorialization and cultural identity in Robert Barclay's *melal*." *Journal of Postcolonial Writing*, vol. 39, no. 2, 2002, pp. 38-51. Doi: 10.1080/17449850208589357. Accessed 10 March 2020.
- DeLoughrey, Elizabeth. "Heliotropes: Solar Ecologies and Pacific Radiations." *Postcolonial Ecologies: Literatures of the Environment*, edited by Elizabeth DeLoughrey and George B. Handley, Oxford UP, 2011, pp. 235-253.
- Devins, John Bancroft. *An Observer in the Philippines, or Life in Our New Possessions*. Boston, American Tract Society, 1905.
- Dillon, Lindsey. "Race, Waste, and Space: Brownfield Redevelopment and Environmental Justice at the Hunters Point Shipyard." *Antipode*, vol. 46, no. 5, 2014, pp. 1205-1221. Doi:10.1111/anti.12009. Accessed 1 March 2020.
- Dinh, Linh. "Apocalypse lies." *The Guardian*, 1 Nov. 2001, www.theguardian.com/film/2001/nov/02/artsfeatures.londonfilmfestival2001. Accessed 10 March 2018.
- Dvorak, Greg. "S/pacific Islands: Some Reflections on Identity and Art in Contemporary Oceania." *e-flux Journal*, Oct. 2020, www.e-flux.com/journal/112/352069/s-pacific-islands-some-reflections-on-identity-and-art-in-contemporary-oceania/. Accessed 30 Aug. 2021.
- Eliot, John L. "Reefs in a Prairie Sea." *National Geographic*, www.nationalgeographic.com/science/earth/surface-of-the-earth/south-dakota-badlands/. Accessed 12 March 2018.
- "Energy and Radioactivity." *AtomicBombMuseum.org*, 2006, atomicbombmuseum.org/3_radioactivity.shtml. Accessed 15 March 2020.
- "Environmental Justice." *Avoice: African American Voices in Congress*, www.avoiceonline.org/environmental/history.html. Accessed 3 Feb. 2019.

- “Environmental Justice & Environmental Racism.” *Green Action*, 2019, greenaction.org/what-is-environmental-justice/. Accessed 20 May 2020.
- Espiritu, Yen Le. *Body Counts: The Vietnam War and Militarized Refuge(es)*. U of California P, 2014.
- Fear, Peter. “Bikini Atoll Nuclear Target Fleet.” *The Scuba Doctor*, Nov. 2012, www.scubadoctor.com.au/article-bikini-atoll-nuclear-target-fleet.htm. Accessed 7 Sept. 2021.
- “femme fatale.” *Cambridge Dictionary*, dictionary.cambridge.org/us/dictionary/english/femme-fatale. Accessed 8 Sept. 2021.
- Ferrario, Filippo, et al. “The effectiveness of coral reefs for coastal hazard risk reduction and adaptation.” *Natural Communications*, 2014, pp. 1-9.
- Filipovic, Jill. “Stop calling Sandy a bitch: it was a storm, not a woman to hate.” *The Guardian*, 2 Nov. 2012, www.theguardian.com/commentisfree/2012/nov/02/stop-calling-sandy-bitch-jill-filipovic. Accessed 10 July 2021.
- Fine, Caitlin. “Joint Typhoon Warning Center Celebrate 60th Anniversary.” *The Sentinel*, 7 June 2019, hanfordsentinel.com/joint-typhoon-warning-center-celebrates-60th-anniversary/article_2ac863ed-edf2-593e-bcc4-fea6ebe5da06.html. Accessed 20 Aug. 2021.
- Flight of the Intruder*. Directed by John Milius, performances by Danny Glover, Willem Dafoe, and Brad Johnson. Paramount Pictures, 1991.
- Freeman, Bob. “Joint Typhoon Warning Center Marks 50 Years of Service.” *Official United States Air Force Website*, 16 Nov. 2009, www.557weatherwing.af.mil/News/Article-Display/Article/871985/joint-typhoon-warning-center-marks-50-years-of-service/. Accessed 15 Aug. 2021.
- Fukushima, Annie Isabel, et al. “Disaster Militarism: Rethinking U.S. Relief in the Asia-Pacific.” *Foreign Policy In Focus*, 11 March 2014, fpif.org/disaster-militarism-rethinking-u-s-relief-asia-pacific/. Accessed 10 Aug. 2021.
- Gilda*. Directed by Charles Vidor, performances by Rita Hayworth and Glenn Ford, Columbia Pictures, 1946.
- Gillis, Justin and Nadja Popovich. “The U.S. Is the Biggest Carbon Polluter in

- History. It Just Walked Away From the Paris Climate Deal.” *The New York Times*, 1 June 2017, www.nytimes.com/interactive/2017/06/01/climate/us-biggest-carbon-polluter-in-history-will-it-walk-away-from-the-paris-climate-deal.html. Accessed 10 Nov. 2017.
- Gonzalez, Vernadette Vicuña. *Securing Paradise: Tourism and Militarism in Hawai‘i and the Philippines*. Duke UP, 2013.
- Graves, Alvin C. and P.W. Clarkson. “Memorandum for Record: Bravo Shot, Operation Castle.” San Francisco, Joint Task Force Seven, 12 April 1954, pp. 1-5. *Department of Energy OpenNet*, www.osti.gov/opennet/servlets/purl/16130866.pdf. Accessed 1 March 2020.
- “Green Devolution: Contradictions in the Marcos Environmental Agenda.” *Martial Law Museum*, martiallawmuseum.ph/magaral/green-devolution-contradictions-in-the-marcos-environmental-agenda/. Accessed 1 Feb. 2019.
- Gross, Terry. “Author Viet Thanh Nguyen Discusses ‘The Sympathizer’ And His Escape From Vietnam.” *NPR*, 17 May 2016, www.npr.org/2016/05/17/478384200/author-viet-thanh-nguyen-discusses-the-sympathizer-and-his-escape-from-vietnam. Accessed 1 March 2018.
- “Guam Torn Apart By Typhoon Karen.” *The Austin Statesman*, 12 Nov. 1962, *ProQuest Historical Newspapers*. Accessed 1 May 2021.
- Hagedorn, Jessica. *Dream Jungle*. Penguin, 2003.
- Hamburger Hill*. Directed by John Irvin, performances by Anthony Barrile, Michael Patrick Boatman, and Don Cheadle, Paramount Pictures, 1987.
- Hammett, Dashiell. *The Thin Man*. 1933. Vintage Books, 1992.
- Hampton, Phil. “UCLA Institute of the Environment Urges More ‘Green’ Practices by Film and Television Industry.” *UCLA Newsroom*, 14 Nov. 2006, newsroom.ucla.edu/releases/UCLA-Institute-of-the-Environment-7484. Accessed 10 Dec. 2017.
- Hartung, William. “Why Are We Still Building Nuclear Weapons? Follow the Money.” *Forbes*, 10 Aug. 2021, www.forbes.com/sites/williamhartung/2021/08/10/why-are-we-still-building-nuclear-weapons----follow-the-money/?sh=7fa6cb935888. Accessed 5 Sept. 2021.
- Hau‘ofa, Epeli. *We are the Ocean: Selected Works*. U of Hawai‘i P, 2008.

- Hearts of Darkness: A Filmmaker's Apocalypse*. 1991. Directed by Fax Bahr, George Hickenlooper, and Eleanor Coppola, performances by Francis Ford Coppola and Eleanor Coppola, Lionsgate, 2007.
- “‘Helen of Bikini’ Name of Underwater A-Bomb.” *Los Angeles Times*, 25 July 1946, p. 2, *ProQuest Historical Newspapers*. Accessed 1 June 2021.
- “Helen of Bikini.” *TIME Magazine*, vol. 48, no. 6, Aug. 1946, p. 27. *EBSCOhost*. Accessed 5 June 2021.
- “Herman Wouk: A Biographical Sketch.” *Herman Wouk Author*, June 2019, www.hermanwouk.com/biography.html. Accessed 15 Aug. 2021.
- Hess, Alex. “My favourite Cannes winner: *Apocalypse Now*.” *The Guardian*, 30 April 2015, www.theguardian.com/film/filmblog/2015/apr/30/my-favourite-cannes-winner-apocalypse-now. Accessed 27 Feb. 2018.
- Hong, Christine. *A Violent Peace: Race, U.S. Militarism, and Cultures of Democratization in Cold War Asia and the Pacific*. E-book, Stanford UP, 2020.
- Hong, Terry. “Q&A with Viet Thanh Nguyen.” *Bloom*, 8 April 2015, bloom-site.com/2015/04/08/qa-with-viet-thanh-nguyen/. Accessed 10 March 2018.
- House, Richard A. “Memorandum for Record: Command Briefing, 0000, 1 March 1954.” 1 March 1954, pp. 1-2. *Department of Energy OpenNet*, www.osti.gov/opennet/servlets/purl/16130866.pdf. Accessed 20 Feb. 2020.
- . “Memorandum for Record: Final Weather and RadSafe Check, 0430, 1 March 1954.” 1 March 1954, p. 1. *Department of Energy OpenNet*, www.osti.gov/opennet/servlets/purl/16130866.pdf. Accessed 20 Feb. 2020.
- . “Tab B: RadSafe Narrative Sequence of Events.” Pp. 1-5. *Department of Energy OpenNet*, www.osti.gov/opennet/servlets/purl/16130866.pdf. Accessed 1 March 2020.
- Hutchinson, Sean. “17 Fascinating Facts about *Apocalypse Now*.” 31 Aug. 2015, mentalfloss.com/article/68031/17-fascinating-facts-about-apocalypse-now. Accessed 10 Feb. 2018.
- Hynes, H. Patricia. “The ‘Invisible Casualty of War’: The Environmental Destruction of U.S. Militarism.” *Differenttakes*, no. 84, 2014, pp. 1-4, popdev.hampshire.edu/. Accessed 1 Sept. 2021.

---. "The Military Assault on Global Climate." *Truthout*, 8 Sept. 2011, www.truth-out.org/news/item/3181:the-military-assault-on-global-climate. Accessed 10 Jan. 2018.

Ibuse, Masuji. *Black Rain*. Trans. John Bester. Tokyo, Kodansha, 1969.

"Iep Jaltok." *The University of Arizona Press*, uapress.arizona.edu/book/iep-jaltok. Accessed 10 Oct. 2021.

Inglis-Arkell, Esther. "Extraordinary sleuthing connects Rita Hayworth and the atom bomb." *Gizmodo*, 21 Aug. 2013, gizmodo.com/extraordinary-sleuthing-connects-rita-hayworth-and-the-1169473966/amp. Accessed 10 June 2021.

International Court of Justice. Testimony of Lijon Eknilang on the Legality of the Use by a State of Nuclear Weapons in Armed Conflict and in Legality of the Threat or Use of Nuclear Weapons. International Court of Justice, 14 Nov. 1995, Peace Palace, The Hague, pp. 24-28. Verbatim Record. www.icj-cij.org/public/files/case-related/95/095-19951114-ORA-01-00-BI.pdf. Accessed 3 Feb. 2020.

Jetñil-Kijiner, Kathy and Dan Lin. "'Anointed' Final Poem and Video." *kathyjetnilkijiner.com*, 16 April 2018, www.kathyjetnilkijiner.com/dome-poem-iii-anointed-final-poem-and-video/. Accessed 5 March 2020.

Jetñil-Kijiner, Kathy. *Iep Jāltok: Poems from a Marshallese Daughter*. U of Arizona P, 2017.

Johnston, Barbara Rose. "'more like us than mice': Radiation Experiments with Indigenous Peoples." *Half-Lives and Half-Truths: Confronting the Radioactive Legacies of the Cold War*, edited by Barbara Rose Johnston. Santa Fe, School for Advanced Research, 2007, pp. 25-54.

---. "Nuclear Disaster: The Marshall Islands Experience and Lessons for a Post-Fukushima World." *Global Ecologies and the Environmental Humanities: Postcolonial Approaches*, edited by Elizabeth DeLoughrey, Jill Didur, and Anthony Carrigan, Routledge, 2015, pp. 140-161.

"Joint Task Force Garden Isle." *Iniki the Experience*, 11 Sept. 1992, p. 35.

Jose, Coleen, et al. "This dome in the Pacific houses tons of radioactive waste—and it's leaking." *The Guardian*, 3 July 2015, www.theguardian.com/world/2015/jul/03/runit-dome-pacific-radioactive-waste. Accessed 10 March 2020.

- “JTWC Formation, 1958-1959.” *Netscape Communications*, 1996,
web.archive.org/web/20050218162410/http://home1.gte.net/anstett/Jthist04.htm. Accessed 10 Aug. 2021.
- Jung, Kiju, et al. “Female hurricanes are deadlier than male hurricanes.” *PNAS*, vol. 111, no. 24, 2014, pp. 8782-8787,
www.pnas.org/cgi/doi/10.1073/pnas.1402786111. Accessed 10 Aug. 2021.
- “Kaho’olawe.” *GlobalSecurity.org*,
www.globalsecurity.org/military/facility/kahoolawe.htm#:~:text=By%201967%2C%20Kaho%60olawe%20was,target%20airfields%20on%20the%20island. Accessed 1 Dec. 2020.
- “Kaho’olawe History.” *Protect Kaho’olawe ‘Ohana*, 2017,
www.protectkahoolaweohana.org/history.html. Accessed 10 Jan. 2018.
- Kaufman, Mark D. “The Ice Age that never happened.” *Science Line*, 27 April 2017,
scienceline.org/2017/04/ice-age-never-happened/. Accessed 8 Sept. 2021.
- Keown, Michelle. “Children of Israel: US Military Imperialism and Marshallese Migration in the Poetry of Kathy Jetnīl-Kijiner.” *Interventions*, vol. 19, no. 7, 2017, pp. 930-947. Doi: 10.1080/1369801X.2017.1403944. Accessed 30 March 2020.
- Kennedy, Caitlyn, and Rebecca Lindsey. “What’s the difference between global warming and climate change?” *NOAA Climate.gov*, 2015,
www.climate.gov/news-features/climate-qa/whats-difference-between-global-warming-and-climate-change. Accessed 1 Feb. 2018.
- Kihleng, Emelihter. “*Iep Jāltok: Poems from a Marshallese Daughter* by Kathy Jetnīl-Kijiner (review).” *The Contemporary Pacific*, vol. 30, no. 1, 2018, pp. 258-260. *Project Muse*, doi: 10.1353/cp.2018.0026. Accessed 30 March 2020.
- Kim, Jodi. *Ends of Empire: Asian American Critique and Cold War Compositions*. U of Minnesota P, 2010.
- Kinder, Marsha. “The Power of Adaptation in *Apocalypse Now*.” *Film Quarterly*, vol. 33, no. 2, 1979-1980, pp. 12-20. *JSTOR*,
www.jstor.org/stable/1211972?origin=JSTOR-pdf. Accessed 10 Nov. 2021.
- King, Patti Jo. “The Truth About the Wounded Knee Massacre.” *Indian Country Today*, 30 Dec. 2016, indiancountrytoday.com/archive/the-truth-about-the-wounded-knee-massacre. Accessed 10 March 2018.

- Klein, Naomi. *The Shock Doctrine: The Rise of Disaster Capitalism*. Metropolitan Books, 2007.
- Kunkle, Thomas and Byron Ristvet. *Castle Bravo: Fifty Years of Legend and Lore, A Guide to Off-Site Radiation Exposures*. Kirtland Air Force Base, Defense Threat Reduction Agency, 2013. *Defense Technical Information Center*, apps.dtic.mil/dtic/tr/fulltext/u2/a572278.pdf. Accessed 4 Feb. 2020.
- “L.A. Mock Bomb ‘Deaths’ Put at 450,000.” *Los Angeles Times*, 21 July 1956, pp. 1-3. *ProQuest Historical Newspapers*. Accessed 5 March 2020.
- Leber, Rebecca. “This is What Our Hellish World Will Look Like After We Hit the Global Warming Tipping Point.” *The New Republic*, 21 Dec. 2014, newrepublic.com/article/120578/global-warming-threshold-what-2-degrees-celsius-36-f-looks. Accessed 30 March 2020.
- Lindley, Ernest K. “Big Let-Down: What Was Wrong With Gilda?” *The Washington Post*, 3 July 1946, p. 9, *ProQuest Historical Newspapers*. Accessed 10 May 2021.
- Lowe, Lisa. *The Intimacies of Four Continents*. Duke UP, 2015.
- MacLean, Alistair. *Goodbye California*. Doubleday & Company, 1978.
- Macomber, Kris, et al. “‘Katrina That Bitch!’ Hegemonic Representations of Women’s Sexuality on Hurricane Katrina Souvenir T-Shirts.” *The Journal of Popular Culture*, vol. 44, no. 3, 2011, pp. 525-544. *JSTOR*. Accessed 10 May 2021.
- Man, Simeon. “Aloha, Vietnam: Race and Empire in Hawai‘i’s Vietnam War.” *American Quarterly*, vol. 67, no. 4, 2015, pp. 1085-1108. *Project Muse*, doi.org/10.1353/aq.2015.0062. Accessed 10 Nov. 2020.
- Mautner, Donald A. and Charles P. Guard. *1992 Annual Tropical Cyclone Report*. Joint Typhoon Warning Center, 1992.
- May, Elaine Tyler. *Homeward Bound: American Families in the Cold War Era*. 1988. Basic Books, 2017.
- McKay, Deirdre, and Padmapani L. Perez. “‘Apocalypse Yesterday Already!’: Ifugao Extras and the Making of *Apocalypse Now*.” *Our Own Voice*, March 2004, www.oovrag.com/essays/essay2004a-3.shtml. Accessed 1 March 2018.
- Mendoza, Ronald U. “Ferdinand Marcos’ economic disaster.” *Rappler*, 26 Feb. 2016,

www.rappler.com/thought-leaders/123773-marcos-economic-disaster.
Accessed 5 Jan. 2019.

Morales, Rodney. *The Speed of Darkness*. Bamboo Ridge, 1988.

Nguyen, Viet Thanh. *Nothing Ever Dies: Vietnam and the Memory of War*. Harvard UP, 2016.

---. *The Sympathizer*. Grove, 2015.

Nimitz, Chester W. "Classic Letter: Damage in typhoon; lessons of Fleet Admiral Chester, W. Nimitz, USN." 1945, pp. 1-6, *Manila Observatory Archives*, Ateneo de Manila University, Philippines. TYP S1 001.

Oliver-Smith, Anthony and Susanna M. Hoffman. "Introduction: Why Anthropologists Should Study Disaster." *Catastrophe & Culture: The Anthropology of Disaster*. Edited by Susanna M. Hoffman and Anthony Oliver-Smith. Santa Fe, School of American Research P, 2002.

O'Malley, Anne E. and Ellie Radke. *Miracle of Iniki: Stories of Aloha from the Heart of Kaua'i*. Honolulu, Bess P, 1993.

Operation Castle - Project 9.1: Cloud Photography. Boston, Edgerton Germeshausen & Grier, 1955. *Department of Energy OpenNet*, www.osti.gov/opennet/servlets/purl/16033760.pdf. Accessed 3 March 2020.

"Operation Greenhouse." *The Nuclear Weapon Archive*, 2 Aug. 2003, nuclearweaponarchive.org/Usa/Tests/Grnhouse.html. Accessed 2 Sept. 2021.

"Operation Ranger." *The Nuclear Weapon Archive*, 3 Jan. 2005, nuclearweaponarchive.org/Usa/Tests/Ranger.html. Accessed 1 Sept. 2021.

"Operation Redwing: 1956 – Enewetak and Bikini Atolls, Marshall Islands." *The Nuclear Weapon Archive*, 22 Oct. 1997, www.nuclearweaponarchive.org/Usa/Tests/Redwing.html. Accessed 2 April 2020.

Osorio, Jon Kamakawiwo'ole. "Memorializing Pu'uloa and Remembering Pearl Harbor." *Militarized Currents: Toward a Decolonized Future in Asia and the Pacific*, edited by Setsu Shigematsu and Keith L. Camacho, U of Minnesota P, 2010, pp. 3-14.

O'Sullivan, Joe. "Tribe closer to reclaiming bombing range." *Rapid City Journal*, 28

- May 2013, rapidcityjournal.com/news/tribe-closer-to-reclaiming-bombing-range/article_636a9cab-951d-56a3-a924-9577ca41b174.html. Accessed 12 March 2018.
- Paludi, Michele A. and Shelley Haley. "Scientific Racism." *Encyclopedia of Critical Psychology*, edited by Thomas Teo, New York, Springer, 2014, pp. 1697-1700.
- Pate, Elbert W. and Clarence E. Palmer. *A Study of Certain Operational Weather Considerations Involving the Test and Delivery of High Yield Weapons*. Washington, D.C., Joint Task Force Seven, 1953. *Department of Energy OpenNet*, www.osti.gov/opennet/servlets/purl/16177957.pdf. Accessed 10 March 2020.
- Perkinson, William J. "Helen of Bikini, Name Given Bomb." *The Baltimore Sun*, 23 July 1946, p. 1, *ProQuest Historical Newspapers*. Accessed 1 May 2021.
- Platoon*. Directed by Oliver Stone, performances by Tom Berenger, Willem Defoe, and Charlie Sheen, Orion, 1986.
- Ponce, Martin Joseph. *Beyond the Nation: Diasporic Filipino Literature and Queer Reading*. New York UP, 2012.
- Reyes, Barbara Jane. *Poeta en San Francisco*. Tinfish, 2005.
- Robb, David L. *Operation Hollywood: How the Pentagon Shapes and Censors the Movies*. Prometheus, 2004.
- Robock, Alan. "Nuclear Winter." *Wiley Interdisciplinary Reviews: Climate Change*, vol. 1, 2010, pp. 418-427. Doi: 10.1002/wcc.45. Accessed 10 March 2020.
- Ross, Andrew. *Strange Weather: Culture, Science and Technology in the Age of Limits*. Verso, 1991.
- "Sailor Hat." *GlobalSecurity.org*, www.globalsecurity.org/wmd/ops/sailor-hat.htm. Accessed 1 Dec. 2020.
- Santa Ana, Jeffrey. "Filipino Ecological Imagination: Typhoon Yolanda, Climate Change, and Imperialism in Philippine Poetry and Prose." *Southeast Asian Ecocriticism: Theories, Practices, Prospects*, edited by John Charles Ryan, Lexington, 2018, pp. 61-85.

- Santos Perez, Craig. "Guåhan, The Pacific and Decolonial Poetry." *Shima*, vol. 13, no. 2, 2019, pp. 22-29. shimajournal.org/issues/v13n2/05.-Perez-Shima-v13n2.pdf. Accessed 1 Dec. 2021.
- Seed, David. *Under the Shadow: The Atomic Bomb and Cold War Narratives*. Kent State UP, 2013.
- Serber, Robert and Robert P. Crease. *Peace & War: Reminiscences of a Life on the Frontiers of Science*. Columbia UP, 1998.
- Sharp, Patrick B. *Savage Perils: Racial Frontiers and Nuclear Apocalypse in American Culture*. U of Oklahoma P, 2007.
- Shewry, Teresa. *Hope at Sea: Possible Ecologies in Oceanic Literature*. U of Minnesota Press, 2015.
- . "Sea of secrets: Imagining illicit fishing in Robert Barclay's *Meġal* and Rob Stewart's *Sharkwater*." *Journal of Postcolonial Writing*, vol. 49, no. 1, 2013, pp. 47-59. Doi: 10.1080/17449855.2011.574859. Accessed 2 March 2020.
- Shigematsu, Setsu and Keith L. Camacho. "Introduction: Militarized Currents, Decolonizing Futures." *Militarized Currents: Toward a Decolonized Future in Asia and the Pacific*, edited by Setsu Shigematsu and Keith L. Camacho. Minneapolis, U of Minnesota P, 2010, pp. xv-xlvi.
- Skilton, Liz. *Tempest: Hurricane Naming and American Culture*. E-book, Louisiana State UP, 2019. *Project Muse*, muse-jhu-edu.oca.ucsc.edu/book/65907. Accessed 10 May 2021.
- Starr, Marlo. "Paradise and Apocalypse: Critiques of Nuclear Imperialism in Kathy Jetnil-Kijiner's *Iep Jaltok*." *Commonwealth Essays and Studies*, vol. 41, no. 1, 2018, pp. 119-130. Doi: 10.4000/ces.400. Accessed 15 March 2020.
- Stewart, George R. "Introduction by George R. Stewart." *Storm*. The Modern Library, 1947, pp. vii-ix.
- . *Storm*. New York, Random House, 1941.
- Streitfeld, David. "For Viet Thanh Nguyen, Author of 'The Sympathizer,' a Pulitzer but No Peace." *The New York Times*, 21 June 2016, www.nytimes.com/2016/06/22/books/viet-thanh-nguyen-prizewinning-author-of-the-sympathizer-still-wrestles-with-apocalypse-now.html. Accessed 10 March 2018.

- Suid, Lawrence H. *Guts & Glory: The Making of the American Military Image in Film*. Revised and Expanded Edition. UP of Kentucky, 2002.
- Suzuki, Erin. "Transpacific." *Routledge Companion to Asian American and Pacific Island Literatures*, edited by Rachel Lee. Routledge, 2014, pp. 352-364.
- Teaiwa, Teresia K. "bikinis and other s/pacific n/oceans." *The Contemporary Pacific*, vol. 6, no. 1, 1994, pp. 87-109. *JSTOR*, www.jstor.org/stable/23701591. Accessed 10 Feb. 2020.
- "Test Bomb Named 'Gilda,' Honoring Rita Hayworth." *New York Times*, 30 June 1946, p. 3, *ProQuest Historical Newspapers*. Accessed 1 May 2021.
- The Caine Mutiny*. Directed by Edward Dmytryk, performance by Humphrey Bogart, Columbia Pictures, 1954.
- "The Caine Mutiny (1954)." *IMBD*, www.imdb.com/title/tt0046816/. Accessed 1 Aug. 2021.
- "The Clean Up Starts." *Iniki the Experience*, 11 Sept. 1992, p. 44.
- The Maltese Falcon*. Directed by John Huston, performances by Humphrey Bogart, Mary Astor, and Gladys George, Warner Brothers, 1941.
- "The NATO Phonetic Alphabet." *North Atlantic Treaty Organization*, 20 Oct. 2016, www.nato.int/cps/en/natohq/declassified_136216.htm. Accessed 10 May 2021.
- The Thin Man*. Directed by W.S. Van Dyke, performances by William Powell, Myrna Loy, and Maureen O'Sullivan, Loew's Incorporated, 1934.
- Tolentino, Rolando B. "Popular Discourses of Vietnam in the Philippines." *Philippine Studies*, vol. 50, no. 2, 2002, pp. 230-250. *JSTOR*, www.jstor.org/stable/42634461. Accessed 1 Dec. 2021.
- "Typhoon Omar levels buildings in Guam." *The Hartford Courant*, 30 Aug. 1992, *ProQuest Historical Newspapers*. Accessed 1 May 2021.
- Uncommon Valor*. Directed by Ted Kotcheff, performances by Gene Hackman, Fred Ward, and Reb Brown, Paramount Pictures, 1983.
- "Use It and Lose It: The Outsize Effect of U.S. Consumption on the Environment." *Scientific American*, 2018, www.scientificamerican.com/article/american-consumption-habits/. Accessed 7 March 2018.

- Virilio, Paul. *The Vision Machine*. Trans. Julie Rose. Indiana UP, 1994.
- . *War and Cinema: The Logistics of Perception*. Translated by Patrick Camiller. Verso, 1989.
- Ward, Alex. “‘All hell breaking loose’: How the Pentagon is planning for climate change.” *Vox*, 24 Feb. 2020, www.vox.com/2020/2/24/21145687/climate-change-usa-military-book-interview. Accessed 9 Sept. 2021.
- Wilkinson, Todd. “Indian Reservations Reap Deadly Legacy of WWII.” *The Christian Science Monitor*, 9 Dec. 1996, www.csmonitor.com/1996/1209/120996.us.us.5.html. Accessed 1 March 2018.
- Weick, Karl E. and Kathleen M. Sutcliffe. *Managing the Unexpected: Sustained Performance in a Complex World*. John Wiley & Sons, 2015.
- Wellerstein, Alex. “America at the Atomic Crossroads.” *The New Yorker*, 25 July 2016, www.newyorker.com/tech/annals-of-technology/america-at-the-atomic-crossroads. Accessed 15 June 2021.
- Westbrook, Robert B. “‘I Want a Girl, Just Like the Girl that Married Harry James’: American Women and the Problem of Political Obligation in World War II.” *American Quarterly*, vol. 42, no. 4, 1990, pp. 587-611.
- “Why do we name tropical storms and hurricanes?” NOAA, oceanservice.noaa.gov/facts/storm-names.html. Accessed 1 Sept. 2021.
- Williams, Paul. *Race, Ethnicity and Nuclear War: Representations of Nuclear Weapons and Post-Apocalyptic Worlds*. Liverpool UP, 2011.
- Williams, Robert Moore. *The Day They H-Bombed Los Angeles*. Ace, 1961.
- Wilson, Rob. *Reimagining the American Pacific: from South Pacific to Bamboo Ridge and Beyond*. Duke UP, 2000.
- Winkler, Martin M. “Helen of Troy: Marriage and Adultery According to Hollywood.” *Cinema and Classical Texts: Apollo’s New Light*. Cambridge UP, 2009, pp. 210-50.
- Witek, John. “Women as Warriors: The Philippine Revolutionary Context.” *Navigating Islands and Continents: Conversations and Contestations in and around the Pacific*, edited by Cynthia Franklin, Ruth Hsu, and Suzanne

Kosanke, College of Languages, Linguistics, and Literature U of Hawai'i,
2000, pp. 4-23.

Wouk, Herman. *The Caine Mutiny: A Novel of World War II*. 1951. Doubleday, 1952.

---. *The Caine Mutiny Court-Martial: A Drama in Two Acts*. Doubleday, 1954.

Zierler, David. *The Invention of Ecocide: Agent Orange, Vietnam, and the Scientists
who Changed the Way We Think about the Environment*. U of Georgia P,
2011.

Ziesmer, Jerry. *Ready When You Are, Mr. Coppola, Mr. Spielberg, Mr. Crowe*.
Scarecrow, 2000.

Zimring, Carl A. *A History of Environmental Racism in the United States*. New York
UP, 2015.