

On Being Late: Cruising Mauna Kea and Unsettling Technoscientific Conquest in Hawai‘i

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On July 15, 2019, I joined *kia‘i*—mountain protectors—blockading construction of the Thirty Meter Telescope (TMT) at the base of Mauna Kea. After flying from Toronto, Ontario to Hilo, Hawai‘i, I was late. I did not make it in time for ceremonies on July 12, 13, and 14 that established the *pu‘uhonua* nestled into Pu‘uhuluhulu near the entrance of Mauna Kea Access Road (MKAR).¹ Although the *pu‘uhonua* at Pu‘uhuluhulu has been referred to as a “protest camp,”² Pu‘uhonua o Pu‘uhuluhulu is what *kia‘i* and the Royal Order of Kamehameha I created in ceremony (fig. 1).³ It is what Kānaka Maoli (Indigenous Hawaiians) understand and care for as a sanctuary for the safety of *kia‘i*, including Kanaka Maoli (the Indigenous people of Hawai‘i) and otherwise.⁴ All were welcome with access to housing, food, health care, education, transportation, and child care. Many left the *pu‘uhonua* when the COVID-19 pandemic struck, but some *kia‘i* remained steadfast.⁵ Kānaka Maoli established the *pu‘uhonua* based on an Indigenous philosophical and political order to care for the *‘āina* (land, that who feeds). A profound *aloha* animating from *‘āina* to sustain reciprocal relations with it,⁶ *aloha ‘āina* is a geontology—an ecological way of being—for protecting *‘āina* as the animate genealogical relative it is.

I did not make it in time for the commencement of nonviolent direct action demonstrations. Kānaka Maoli chained themselves to a cattle guard grate in the access road to prevent TMT construction crews from ascending to their build site at Mauna Kea’s northern plateau. Eight courageous Kānaka Maoli locked down, for the long haul, in the early morning cold on July 15 for approximately twelve hours. Local reporters quick to the scene streamed a live interview with one of the eight *kia‘i* bound

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FIGURE 1. Pu'uhonua o Pu'uhuluhulu tucked into the hillside across the highway from the entrance of Mauna Kea Access Road. All photographs by author.

to the cattle guard grate on the ground, Noelani Goodyear-Ka'ōpua, who had her husband 'Īmaikalani Winchester tied closely next to her. A reporter asked Goodyear-Ka'ōpua, “Where are your children? Do your kids understand what you're doing here?”⁷ I watched the interview of my mentor on my phone in the airport, tearing up quietly, surrounded by tourists wearing rainbow-colored, plastic lei loudly excited to arrive in paradise. Tourism in Hawai'i, built upon commodification of Hawaiian culture, conceals how Kānaka Maoli fight to survive and endure in our own homeland.⁸ The tourism industry also relies on tours of US military infrastructure,⁹ as well as stargazing and observatory tours at Mauna Kea.¹⁰ In turn, the astronomy industry benefits from militourism in Hawai'i, and vice versa.¹¹

I arrived at Mauna Kea after the primary frontline defense formed with kūpuna—Kānaka Maoli elders—fashioning a human blockade at the entrance of MKAR. The blockade stopped construction crews escorted by police in their tracks, preventing them from climbing the only paved road to the northern plateau to start work on the observatory. TMT is now estimated to cost \$2.4 billion, with leadership and funding from a multinational corporation headquartered in Pasadena, California.¹² In the face of industry, police, and a multibillion-dollar corporation, kūpuna were unwavering. Sitting in thin folding chairs typically reserved for cruising or relaxing at the beach,

throughout the night kūpuna sat in bitter cold temperatures and throughout the day under blistering sun. Not only do Kānaka Maoli actively resist settler colonialism, but our kūpuna stand, and sit when necessary, against extractive capital and police force.

I showed up to be with kia'i and kūpuna at Mauna a Wākea,¹³ a sacred mountain that is an elder relative to Kānaka Maoli.¹⁴ We are of it insofar as it is our kupuna (ancestor); this relation and orientation is not possessive but familial, genealogical, and cosmological. The mountain is the piko, or navel, a center of our beginnings and ends.¹⁵ Unsurprisingly then, thousands upon thousands of our people descended on Mauna Kea. That day feels so long ago and yesterday at the same time. Showing up when I did though, I still felt late. Why did I *feel late*? In order to convey this affect, I confess I will be late in this article. By now, some readers may feel that this introduction is taking too long to make its point, but in the spirit of what I call *lateness* you will have to wait for it, and more, to truly appreciate the point.

On October 8, 2014, Lanakila Mangauil interrupted an official groundbreaking ceremony at Mauna Kea for the TMT project attended by representatives from the Thirty Meter International Telescope Corporation Observatory (TIO), including those from the United States, Canada, India, Japan, and China, as well as the State of Hawaii.¹⁶ Event attendees were puzzled by the interruption from Mangauil, a queer Kanaka Maoli teacher and cultural practitioner. Chiding with ferocity and grace, he objected to the ceremony and construction of TMT, narrating ongoing mismanagement of Mauna Kea by the State of Hawaii and mistreatment of Kanaka Maoli.¹⁷ Event organizers tried to proceed by clumsily speaking over Mangauil, but could not and abandoned their program. Mangauil and other kia'i arriving later successfully prevented the breaking of ground at the northern plateau.

Partners and stakeholders were noticeably stunned. "It's mind blowing," responded Luc Simard, a Canadian astronomer and member of the TIO's board of governors: "You are going to be the first generation of people that has a chance to answer this question—Is there life elsewhere in the universe?—and this is going to be the tool you are going to use to do it."¹⁸ When participants in TMT's groundbreaking ceremony exited, slinking away in confusion about the disapproval of such a technoscientific marvel, they left their ivory-colored chairs littered about the site. Taking seriously the care of Mauna Kea, kia'i cruising around stacked the chairs into neat piles for event staff; Kanaka Maoli are left to clean the messes made by the astronomy industry and telescope observatories.

Since stopping TMT construction in 2014, inquiries about timing and time itself exploded. Where were you *before*? Why are you protesting *now*? There are already twenty-one telescopes and thirteen observatories on Mauna Kea, and you didn't protest those *back then*? Are you going to protest others *in the future*? Queries from reporters intensified during the recent blockade. When I lived at Pu'uhonua o Pu'uhuluhulu, cruising around for the first weeks of the blockade, requests flooded my email inbox from journalists looking for interviews. Canadian astronomers reached out to me with similar questions. Inquiry transformed into statement: "I have been traveling to Mauna Kea for research since the 90's and feel a special connection to it, too." Arriving at the blockade in July 2019, I had just begun working at the University of

Toronto and Canadian astronomers noticed. In a conversation at the pu‘uhonua with other Kanaka Maoli educators, I took on responsibility to negotiate with the Canadian federal government, an investor and stakeholder in the project, to divest from TMT in Hawai‘i. This responsibility was a gift issued from my community to defend and balance our relations with ‘āina. In collaboration with colleagues, the first action was a call to Prime Minister Justin Trudeau, the National Research Council of Canada (NRC), Canadian Astronomical Society (CASCA), and the Association of Canadian Universities for Research in Astronomy (ACURA) to divest.¹⁹

I quickly discovered that, with nineteen other Canadian universities and their astronomy departments and faculty, the University of Toronto is intimately involved in the TMT project (fig. 2). It is an institutional member of ACURA, a founding partner of the TIO with the California Institute for Technology, and collaborating with CASCA successfully lobbied the federal government to invest in TMT. After a stunted groundbreaking, then Prime Minister Stephen Harper approved \$243.5 million for allocation to the NRC to be used for TMT development.²⁰ Canada’s investment sought a second-to-none share in the project, and Canadian scientists and engineers still play a significant role in designing, fabricating, and testing infrastructure and instrumentation for the telescope observatory. In my divestment work, I plunged into the Canadian settler-state’s financial, technological, and scientific investments. This labor, working at a blockade in Hawai‘i and in an international divestment campaign, inspired me, motivated by relocating to Canada when Wet’suwet’en matriarchs and land defenders were arrested for protecting their unceded territory,²¹ to consider a method for Indigenous land-based activist scholarship in critical Indigenous studies. Many of us are engaged in activist scholarship and this is my humble attempt to carve out a method, honoring the labor of land defenders on-the-ground and those yet to come. Fighting for land back is a constant struggle, and writing about fighting for land back is a necessary part of the project.

As research in Indigenous movements for life, land, and sovereignty, I employ a method that I call *writing the land back*. A number of brilliant scholar-activists are quite busy doing so.²² In addition to narrating my participation in the defense of Mauna Kea in this article, I also describe my TMT divestment work in Canada. In Toronto, I thrust myself into a network of Canadian astronomers with power over the astronomy industry at Mauna Kea. My unique transnational focus differs from other research on the topic. I follow a trail of historical accounts, industry reports, leaked documents, and science recommendations. Inverting the colonial gaze, I am a Native studying the colonizer—an anthropologist observing Canadian astronomers. After presenting information about Kanaka Maoli opposition to TMT, I am often asked questions like “Who even are Native Hawaiians?” and “How do we get consent from your people?” These are crucial data to measure the (colonial) power of (settler) desire. As TIO suggests TMT will aid astronomers in exploring dark ages when the first light and elements in the universe formed,²³ astronomers question why Kānaka Maoli, described as turning back to *dark ages* to live in the *stone age*,²⁴ protest technoscientific advancement and its promise for human progress. Combining observations of institutional, industry, and individual technoscientific desires for TMT with my

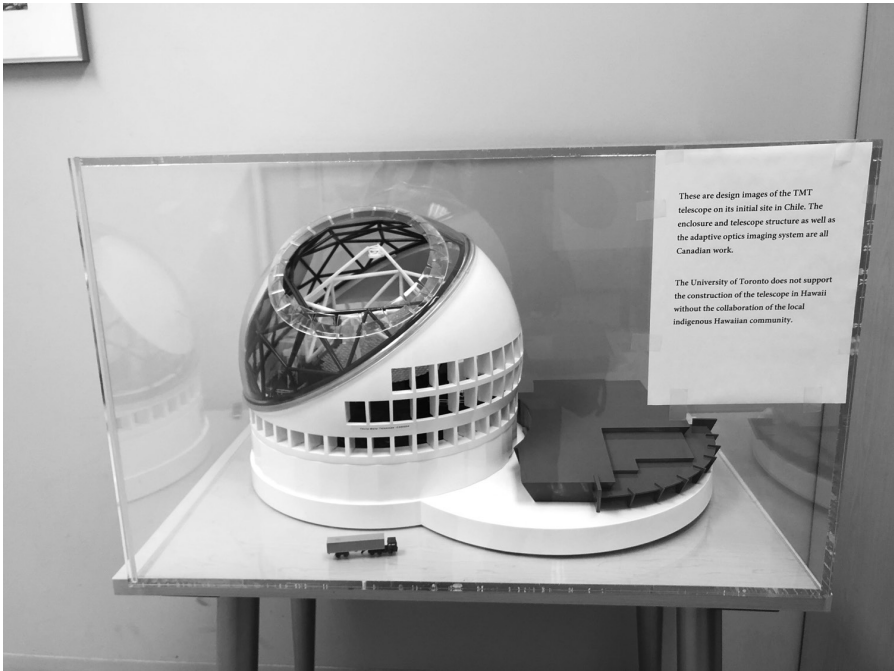


FIGURE 2. A model of the TMT in the University of Toronto's Department of Astronomy and Astrophysics, with a note: "These are design images of the TMT telescope on its initial site in Chile. The enclosure and telescope structures as well as the adaptive optics imaging system are all Canadian work. The University of Toronto does not support the construction of the telescope in Hawaii without the collaboration of the local indigenous Hawaiian community."

participation in frontline defense at Mauna Kea is a cogent method to analyze the multifaceted struggle against it. As such, the method presents a methodological criticism of scientific objectivity that disguises subjective valuations at the heart of haole technoscientific desire.²⁵ It is a decolonial methodology for Indigenous scholars writing about our own Indigenous movements for life, land, and sovereignty. This is writing about the work of getting land back to actually get land back.

In this article, I examine how astronomy industry development atop Mauna Kea is constituted through technoscientific desires for time, territory, and outer space. Operationalized via technological innovations in observatory design and telescope instrumentation for scientific inquiry in astronomy, the desire craves discovery of alien life and other worlds through settler colonialism on Earth. Here is the introduction some readers have been waiting for. My analysis demonstrates specifically that TMT's proposed astronomical research for modern human progress hinges on a temporality of lateness—late to show up and late in time—that contributes to the dehumanization, elimination, and dispossession of Kanaka Maoli. I argue that the thirst of

settler science on Mauna Kea for discovering nonhuman life and habitable planets for advancing human civilization—what I theorize as *haole technoscientific conquest*—is premised upon and perpetuates settler colonialism in Hawai‘i. This enterprise, as I show in the preceding section, rationalizes and obfuscates violence against Indigenous ecologies and orientations. I track thereafter how the search for exoplanets—planets beyond Earth’s solar system—to characterize conditions of (non)life on them is entangled in conquistador humanism. This article investigates intersecting formations of settler colonialism, capital, white supremacy, and patriarchal sexism in Hawai‘i that produce conditions of possibility for technoscientific conquest of other planets and forms of life.

Yet *kia‘i* cruise Mauna Kea as an alternative tempo and defend it by disrupting the pace to build TMT and, in the process, reassert responsibilities of care that overturn *haole technoscientific conquest* through an exercise of sovereign jurisdiction. I contend that *kia‘i* unsettle technoscientific desires for physical space, developmentalist pace, and conquering outer space in ways that cruise for a decolonized then and deoccupied there in Hawai‘i. Conceived in Hawai‘i as a leisurely, unhurried, and pleasurable pace, cruising is an alternative desire, movement, and tempo which is embodied in multiplying motions of enduring protection in a timescape that exceeds settler time: the here and now of normative colonial relations and occupation. Blockading wed to legal activism disturbs the pace to develop TMT by reoccupying land and reclaiming relationships to care for it. The rush to construct TMT quickly has been interrupted; construction is delayed and behind schedule. A disruption of this magnitude flags not only the fissures in the project and ideas of lateness, but also the precarious authority of the State of Hawaii to regulate astronomy industry development on Mauna Kea and manage Kānaka Maoli defending it. I show how Kānaka Maoli throw the settler-state into a neoliberal financial crisis that upends settler sovereignty by forcing it to wait. The article concludes—and you must wait for it—with a discussion on the temporal sovereignty of cruising for a decolonized then and deoccupied there. Intelligent and discoverable, other modalities of life and possible worlds are out there and we can relate to them without conquest, as I sketch next.

GIFTS OF SOVEREIGNTY

What does it mean to be late to a blockade? When I flew into Hilo on July 15, 2019, my close friend ‘Āina greeted me after cruising at the blockade all day. Sunburnt with skin starting to peel from his face, ‘Āina picked me up from the airport and we drove right back to the mauna, eager to set up our sleeping area at the pu‘uhonua. That night, the sun began to set as ‘Āina and I approached the blockade, cruising the highway surrounded by jagged ‘āā lava rock, dark like the pō—night and Blackness—from which all life in Hawai‘i sprang up.²⁶ It was not my first time making this drive. I visited earlier that same summer to offer ho‘okupu (formal offerings) at the ahu (stone altar) in front of Hale Kū Kia‘i Mauna, adjacent to the Mauna Kea Visitor Center (fig. 3).

Two ho‘okupu here were given from my family (fig. 4). One is a bamboo container with fresh water—an ‘ohe wai—made by my brother, Kapalikūokalani, who is an



FIGURE 3. *Ahu with ho'okupu at Hale Kū Kia'i Mauna, which was located across the street from the Mauna Kea Visitor Center.*



FIGURE 4. *Ho'okupu of 'ohe wai (bottom) and makau (top right) at the ahu of Hale Kū Kia'i Mauna, all of which was seized by the State of Hawaii in preparation for TMT construction.*

educator and cultural practitioner. Collected from fresh water on O‘ahu in the ahupua‘a (watershed) of Makiki, we offered this ho‘okupu in 2016 in respect for the mountain and its spiritual, religious, and environmental significance as a primary source of water in the ahupua‘a of Ka‘ohe. The ‘ohe wai was a ho‘okupu to acknowledge our positionality, as relatives visiting from O‘ahu, and to recognize the mauna’s geological and hydrological importance as it collects water in Ka‘ohe. The name reflects how this land is a water container for rain and snow melt that sustains the island.²⁷ The other ho‘okupu from my family, offered three years later, is a makau (fishhook) that I carved. My father and brother, both distinguished practitioners, taught me how to carve makau and weave lashing. I tied the makau to the ahu in May 2019 for a few reasons. One was to signify how Mauna a Wākea nourishes Hawai‘i, like a carved bone hook might be used in a fishpond to catch predator fish to feed the people. Another reason was to commit that our family would return when called to protect the mauna, not just as a sacred mountain ancestor but an animate existence that provides life to all of Hawai‘i’s social ecology.

In the beginning of that summer, I gave another ho‘okupu at the ahu on Pu‘u Kūkahau‘ula, the cone cluster at the summit of Mauna Kea where rare seed insects named wēkiu are endemic, but are now threatened by increasing industrialization on the mountain.²⁸ This ho‘okupu was a gift I was given by my comrade, Jennifer Marley, and is baked clay from her territory at San Ildefonso with an engraving of clouds representing my name: Uahi-kea-i-ka-lei-‘ohu (white smoke in the lei of clouds). I spent seven years on Pueblo lands, working alongside brilliant Indigenous scholar-activists like Marley, and the gift to me of that earth is now with Mauna a Wākea, hugged by clouds passing the summit at 14,000 feet (fig. 5). If one looks past the observatories from Pu‘u Kūkahau‘ula, another sacred mountain can be seen; Haleakalā on Maui is occupied by observatories such as the Air Force Maui Optical and Supercomputing Observatory used for the US Space Surveillance System. Farther up the access road on Mauna Kea there is the Canada-France-Hawaii Telescope (CFHT). Canadian astronomers are planning to renovate and upgrade this observatory and rename it the Maunakea Spectroscopic Explorer in the near future.²⁹ The fight over TMT construction looms large for these other astronomers who have their projects’ funding and capital in place. Canadian astronomers are not longing only for TMT—an eighteen-story tall observatory complex with a massive, thirty-meter segmented primary mirror that would extend twenty feet into the ground and sprawl over five acres—but also covet expansion of extant infrastructure at the summit region. The development of astronomy in Hawai‘i is not merely one telescope observatory on a single mountain, but a global and militarized industry.

On June 20, 2019, workers from the Department of Land and Natural Resources, accompanied by officers from the Department of Conservation and Resource Enforcement, confiscated the ho‘okupu offered by so many at the ahu of Hale Kū Kia‘i Mauna. They stated that seized offerings, if not claimed and authenticated as individual property, would be donated, sold, or disposed.³⁰ After a thirty-day deadline, we would be too late. Then, both the stone altar there and another at the northern plateau

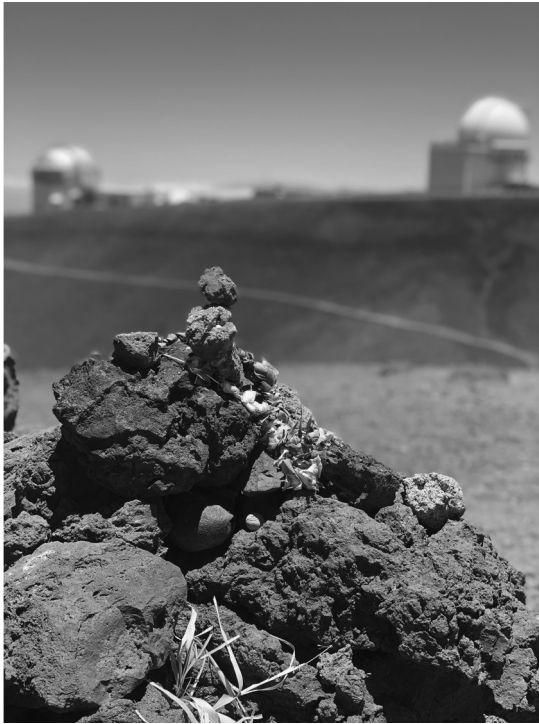


FIGURE 5. *Ho'okupu of baked clay from San Ildefonso Pueblo at Mauna Kea's summit on the ahu of Pu'u Kūkahau'ula, with the United Kingdom Infrared Telescope (left) and the University of Hawaii Telescope (right) in the distance.*

where TMT's build site is located (fig. 6) were demolished. Although the state constitution claims to protect Native Hawaiian customary and traditional cultural practices, including religion, with an attempt to eliminate Kanaka Maoli relations with Mauna a Wākea by desecrating and destroying religious offerings, it instead has demonstrated it will remove ho'okupu and ahu to assist astronomy industry development and to secure settler capital.

What does it mean to be late to the mauna? Driving that night to the pu'uhonua to link with kia'i, Āina turned to me in his car: "I'm glad you're here now." He reminded me of the summer of 2016, when he and I, along with my brother and best friend, cruised at Mauna Kea. After giving offerings with longtime kia'i Lākea Trask, the four of us coasted down to Waimea. We met with Pua Case and Kalani Flores, two enduring kia'i who have fought TMT on the mauna, in court, and across the world. Āina reminded me of something that Pua Case told us that day in front of Manaua, a sacred rock that she and her family care for. It is no coincidence the mo'ō wahine (reptilian deity) that visits the sacred rock Manaua is not merely a female-gendered deity, but specifically a femme water deity like those who reside in the wao akua (realm of deities) at the mauna, Lilinoe, Waiiau, Mo'oinanea, and Poli'āhu. Sleet and snow are kinolau (elemental manifestations) of Poli'āhu, who has prevented TMT construction crews from rushing to the northern plateau.³¹ Cruising with Āina, returning to the



FIGURE 6. *Ahu at the northern plateau of Mauna Kea that was destroyed by the State of Hawaii on June 20, 2019.*

mountain together, three years later Pua Case's words echoed again: "The mauna calls us all at different times. When your time is called, you go." What does it mean to be called at *different times* by a *mountain*? This is a gift of sovereignty, without conquest, that the mauna offers us. Exceeding settler capitalism and its colonial economy of exchange and time, such gifts symbolize a particular Indigenous orientation: an inseparability of being, deeply mutual interdependence, and enduring reciprocal responsibility.

ASTRONOMY ON STOLEN LAND

The State of Hawaii was erected on land seized from the Hawaiian Kingdom and Kanaka Maoli—a history clearly manifest in the present.³² Telescopes and observatories built on Mauna Kea, authorized by the state, are constructed on stolen land. Although TMT advocates posit that the project should be separated from nagging, past issues of Hawaiian sovereignty,³³ as this section will explain, territorial jurisdiction over Mauna Kea is not only at the heart of the dispute, but also imbricated in ideas about temporality.

The State of Hawaii took form in the wake of the overthrow of the Hawaiian Kingdom's government in 1893.³⁴ According to David Keanu Sai, an illegal intervention initiated the belligerent US military occupation of Hawai'i.³⁵ In the eyes of the

US federal government, the provisional government headed by white Euro-American men needed to reform its image after overturning the governmental apparatus. In 1894, they transformed into the Republic of Hawaii, and, consolidating control the following year, the republic merged the Hawaiian Kingdom's government lands and crown lands. Despite the lack of a treaty endorsed by the Hawaiian Kingdom, or popular consent from Kanaka Maoli, in 1898 the republic agreed to US annexation, including the 1.8 million acres of government lands and crown lands. This partial success whet President William McKinley's appetite for a fueling station in the Pacific to expand US empire.³⁶ That year, after a treaty of annexation failed ratification in the Senate, Congress passed a joint resolution to incorporate the Hawaiian islands. Hawaiian national lands hence were usurped in a legal sleight of hand: annexation of Hawai'i sought to transfer title of the Hawaiian Kingdom's national lands which had been seized by the provisional government and ceded from the Republic of Hawaii to the US federal government.

In passing and approving the 1959 Admissions Act that created the fiftieth state of the union, the federal government was spreading what Williamson Chang calls the myth of annexation.³⁷ The federal government subsequently delegated jurisdiction over Hawaiian national lands to the new state under the mandate that these lands be put into a public land trust. Located in the ahupua'a of Ka'ōhe, Mauna Kea is part of the crown lands which the state now manages as public land in the Ceded Lands Trust.³⁸ Although Noenoe K. Silva has documented that Kānaka Maoli actively resisted US colonization, some still suggest that Kanaka Maoli were too passive and slow to stop it.³⁹

Aroused by vows of technological advancement, scientific progress, economic benefits, and educational opportunities, the State of Hawaii has a vested interest in astronomy industry development. When it grants and enforces leases and permits at Mauna Kea, the state puts on display how support of astronomy industry development proliferates settler-colonial power so as to secure its hegemonic institutionalization in Hawai'i as a US settler-state. At the summit, 11,288 acres of land are classified the Mauna Kea Science Reserve in what is designated a Resource Subzone of a Conservation District. State authorization of subleases and building permits for observatories in the reserve obscure that this territory is Crown Land. Examining legislation of the Hawaiian Kingdom establishing inalienable land rights in the nineteenth century, Kamanamaikalani Beamer explains that although rulers of the Hawaiian Kingdom held authority over Crown Land, the rights to it were shared with Kanaka Maoli, who hold a vested interest in them which have never been relinquished.⁴⁰ Settler-state jurisdiction over astronomy industry development on Mauna Kea is legally precarious,⁴¹ but nevertheless the state has endorsed hasty development on Mauna Kea for over half a century.

Fewer than ten years after the state formed, the Land Board issued a general lease to the University of Hawai'i in 1968 to build a single observatory on Mauna Kea. The astronomy community struck gold on land and in the sky. In his revealing history, Jack B. Zirker suggests that Dutch-American Gerard Kuiper, "a pioneer in the use of infrared detectors to observe planets,"⁴² was the first astronomer to test observational conditions

at the summit of Mauna Kea. Excited to view planets with infrared detectors, he discovered outstanding observational conditions, like low humidity that guaranteed a good infrared signal, and became “convinced that Mauna Kea would make a perfect site for a large telescope.”⁴³ Working previously with the National Aeronautics and Space Association (NASA) during the Apollo program, Kuiper proposed that NASA fund the development of a Lunar and Planetary Laboratory. Coming to Hawai‘i in 1964 to become a physics professor at the University of Hawai‘i, John Jefferies also submitted a proposal for a two-meter telescope. In Zirker’s account, NASA surprisingly funded Jefferies’ proposal and Kuiper was furious. Quoting from the memoir of Walter Steiger,⁴⁴ Zirker notes that Kuiper “felt ‘his mountain’ was ‘stolen’ from him.”⁴⁵

In this accounting, Kuiper is the first to discover Mauna Kea as an exceptional location for astronomy and the antecedent, I contend, for the astronomy industry’s white patriarchal possessiveness over Mauna Kea. Construction of Jefferies’ telescope began in 1967 and it became operational in 1970. He was appointed in 1967 as the first director of the newly created University of Hawai‘i Institute for Astronomy. Although considered late to arrive, opposition to observatory developments ballooned at that time from Kānaka Maoli as well as environmentalists and some settler residents. Much like haole agents reconfiguring the provisional government’s appearance as an occupying force, Jefferies held town hall meetings to persuade the public that the “economic and scientific benefits, as well as the prestige Hawaii would enjoy, would outweigh the cost.”⁴⁶ Over the next two decades, the Land Board allowed developers to build a surplus of telescopes and observatories. Opposition then grew, despite a repeat of claims that it was late, to challenge the State of Hawaii’s negligence in regulating legal procedures for building permitting, which led to unremitting development at the mauna’s summit.⁴⁷

Canadian astronomy took advantage of this unscrupulous period. In 1973, Canada and France agreed to build a three-meter optical infrared telescope observatory with the University of Hawai‘i that saw first light in 1979 as the CFHT. CFHT’s headquarters was built in Waimea and Canadian astronomers began settling in Hawai‘i. In the coming years, astronomers from the United Kingdom, Netherlands, and Canada crafted plans to design the James Clerk Maxwell Telescope, a submillimeter-wave-length radio telescope.⁴⁸ Although American astronomers played a primary role in discovering Mauna Kea as an exceptional site for observatories, telescope viewing, and astronomy research—claiming possession over it—Zirker explains that Canadian astronomers benefited from this legacy and etched out their own. Extracted through settler accumulation on other Indigenous territories, United States and Canadian capital, largely in the form of national science funds secured through patriarchal white supremacist ideologies of discovery and possessiveness⁴⁹ are used to forward technoscientific conquest on our sacred mountain.

In fifty years, thirteen observatories and twenty-one telescopes were built at Mauna Kea on Hawaiian national territory and sacred Indigenous land. The period of insatiable industrialization, however, is not yet complete. While TMT would not be the first observatory here, TIO promises it to be the largest and most powerful in the northern hemisphere. “Large telescopes evoke a unique response in most people. They

symbolize pure science, our urge to understand the world,” Zirker opines, “in a way that nothing else does. They are tools that expand not just our visual horizons but our mental horizons as well. In a sense they are the grandest monuments of our technical civilization.”⁵⁰ TMT is one such monument Zirker envisions for modernity and its technocratic civilization. In my estimation, however, TMT is a monument of haole technoscientific conquest that hinges on a temporality of lateness.

HAOLE TECHNOSCIENTIFIC CONQUEST

Technoscience atop Mauna Kea is an embattled project of modern astronomers in their mission for human civilization and mankind’s progress. Astronomy industry development brings together technological evolution in observatory design as well as telescope engineering and instrumentation for research. In this section, I show how the astronomy industry and hegemonic forms of technological innovation and scientific inquiry practiced on Mauna Kea are steeped in haole technoscientific conquest, or white supremacist, settler-colonial technoscience, for the conquest of outer space that is premised upon, and furthers, settler colonialism in Hawai‘i. Zirker’s history of the telescope, for example, concludes with a forecast on Extremely Large Telescopes (ELTs) like TMT, yet, curiously, begins at Mauna Kea. In his genealogy, the mauna is narrativized as both a beginning and an end. This history neither begins in Europe with Tycho Brahe and the sextant in the sixteenth century, nor with Galileo Galilei’s telescopes that discovered the four brightest satellites of Jupiter in the early seventeenth century, nor William Herschel’s invention in the eighteenth century that later would be known as altitude-azimuth mountings, nor his testing of Immanuel Kant’s theory of island universes. Instead, Zirker’s prologue begins on an island in our universe:

I am standing on Mauna Kea, 4,200 meters above the sea, watching the Hawaiian twilight fade into evening. The first stars are beginning to appear in the deep blue vault above me. Far above, a fleecy cloud decks covers the island. A slight breeze is picking up. The night will be clear and moonless, and it promises good hunting for the astronomers.⁵¹

Told this way, Hawai‘i is sited as *the past* and *the future* in the hunt for discovery, human progress, and nonhuman civilizations. Mauna Kea is a conjured history and imagined horizon for technoscientific conquest. As I will explain, settler science’s linear time is tethered to colonial ideas about lateness: a temporality that *inscribes being* and *imposes feeling*. This temporality concerns not only those who feel, and are construed to be, late to show up in politics and activism, as in “slow,” but also those who are marked late, as in “archaic,” in humanity’s march toward modernity.

Technoscientific desire at Mauna Kea is operationalized in an industry dominated by haole astronomers.⁵² In 2018, the Maunakea Gender Equity and Diversity Committee, a group of twelve astronomers working across observatories, released a study measuring equity and diversity in the industry. The report and its data elucidate that technoscience atop Mauna Kea is operationalized by white patriarchal sexism.⁵³ It shows that the Maunakea Observatories (MKO) are dominated by men

and their patriarchal labor force is tethered to sexism, whiteness, and settlement. A haole oligarchy overthrew the Hawaiian Kingdom's government in the late nineteenth century and seized its national lands. In the middle of the twentieth century, haole astronomers claimed possession over Mauna Kea as an extraordinary site for celestial observation and telescope observatories. In the twenty-first century, the modern astronomy industry and its technoscientific order in the Mauna Kea Science Reserve are controlled largely by haole men.

The hegemony of white male astronomers occupying MKO extends Hi'ilei Julia Hobart's argument about nineteenth-century haole writers erasing Kanaka Maoli at the summit. In the early nineteenth century, haole writers commented on early expeditions to Mauna Kea and described Kanaka Maoli as unable to withstand the frigid temperature.⁵⁴ After uncovering ahu, haole writers explained away Indigenous activity by scoffing that Kanaka Maoli did not own warm clothes to endure the cold environment and were too suspicious of the "spirits" and "gods" dwelling there to build the stone altars.⁵⁵ "The Native" is marked too slow to explore the summit because of an inability to adapt to modern technology and antiquated spiritual, religious beliefs. Hobart shows that haole writers in the late nineteenth century remarked on the discovery of artifacts recognized Indigenous activity only "in a distant and forgotten past."⁵⁶ She details that in the early to middle twentieth century the NASA American Space Program characterized Mauna Kea as being like outer space and US military and tourism contractors represented it as a play space. Mauna Kea became fabricated as a landscape ripe for aeronautic, militouristic, and masculine plunder.

Hobart's astute research stops short, however, at examining how white patriarchal settler colonialism incorporates white women into its project, and how haole astronomers in and exterior to Hawai'i naturalize claims of possession over the mountain. Although dominated by haole astronomers identifying as men, haole astronomers identifying as women benefit from whiteness and can propagate white supremacy and settler colonialism in the industry. Mimicking Gerard Kuiper's entitlement, the group that conducted the report identifies themselves as "Women of Maunakea." In a twenty-first-century version of a classic colonial explorer story, astronomers from around the world imagine "only the presence of white male bodies on the mountain's summit"⁵⁷ who might claim Mauna Kea to satiate technoscientific desires for new, distant frontiers. This is striking when considering the TMT's opportunity for exoplanet research. Funding partners from the United States, Canada, India, Japan, and China initially pledged \$1.4 billion for the project, and TIO is seeking an additional \$850 million from the US National Science Foundation.⁵⁸ The milieu of desire is not merely international, but multinational, uniting nations under conquest's banner. I suggest that as a transnational network of power, haole technoscientific conquest formed in Hawai'i fuses together colonial dispossession and Indigenous dehumanization and elimination with neoliberal capital. The settler-state and its police apparatus secure the construction of observatories, as well as their physical occupancy by largely haole men. Now, a *mélange* of funding governments, astronomy organizations, and astronomers are demanding an ELT on Mauna Kea to search for life elsewhere in the universe. The desire for TMT and its promised technoscience is a yearning to discover

both nonhuman forms of life and habitable planets for humans outside of our solar system—exoplanets.⁵⁹ In the last two decades, exoplanet research has taken off as an area of study in astronomy, focusing on detecting exoplanets light-years away in the universe and characterizing their physical properties and habitable conditions.⁶⁰ Although the first was discovered only in 1995,⁶¹ now more than 4,000 extrasolar planets have been confirmed.⁶² Nevertheless, the census is incomplete.

ELTs like TMT, with massive primary mirrors and sophisticated infrared adaptive optics systems, promise to complete the exoplanet inventory. These also promise to capture clearer images of planets, classify their comparable habitability to Earth, and uncover biosignatures from alien life on them. “We have yet to conclusively identify a true (potentially habitable) Earth twin around a sun-like star. . . . The Thirty Meter Telescope will provide an enormous advance in our ability to identify and characterize extrasolar planets.”⁶³ ACURA listed this venture as a vital motivation for joining the project.⁶⁴ TMT therefore consolidates and inspires technoscientific desire for space colonization, the conquest of extraterrestrial existents, and human settlement on planets beyond our solar system. In a collection of white papers submitted for CASCA’s 2020 Long Range Plan, Canadian astronomers are presented as major players in actualizing TMT’s promise for exoplanet research. Canadian engineers, astronomers, and astrophysicists are designing and testing the first light suite of instruments for TMT—Narrow Field Infrared Adaptive Optics System (NFIRAOS) and InfraRed Imaging Spectrograph (IRIS)—for discovering Earth analogues and detecting extraterrestrial biosignatures. Canada is committed to conquest (fig. 7).

Desire for nonhuman life and exoplanets with habitable conditions for human life has superseded Indigenous life, ecologies, and orientations on our planet. In a *Los Angeles Times* article, former professor of astronomy at California Institute of Technology Richard Ellis groans: “It annoys me to see astronomers portrayed as tyrants who come in to exploit Mauna Kea. That’s very unfair.”⁶⁵ Technoscientific possessiveness over Mauna Kea is not tyrannical or exploitative, under such logic, yet still reigns supreme in its search for truth and knowledge. “We’re searching for truth and knowledge,” explains Ellis, “the kinds of things that have motivated countries for centuries. We don’t need to apologize.”⁶⁶ Opposition to astronomy industry development is met with an unapologetic position, which locates its desire in state operations of imperialism and colonialism.

Haole astronomers continue to practice this tradition of white supremacist impotence and colonial conquest, albeit more privately amongst themselves. After kia’i prevented TMT construction in 2015, University of California Santa Cruz astrophysicist Sandra Faber sent an email to colleagues describing opposition as “a horde of native Hawaiians who are lying about the impact of the project on the mountain and who are threatening the safety of TMT personnel.”⁶⁷ In the Canadian astronomy community, the discourse goes a step farther. In another leaked email, University of Toronto astrophysicist Pawel Artymowicz fumes: “This wonderful project is being attacked by forces that are straight out of the middle ages, and I’m not even sure of that because medieval people actually held strong beliefs and were not fighting for political gains.”⁶⁸



FIGURE 7. At the main entrance of the National Research Council of Canada in Ottawa, Ontario, a plaque celebrates technoscientific conquest: "Great is truth and mighty above all things: It endureth and is always strong: It liveth and conquereth for ever more: The more thou searchest the more thou shalt marvel."

This is more nefarious discourse regarding how lateness is crucial to haole technoscientific conquest. US and Canadian astronomers rationalize so-called pure, objective desires for TMT at Mauna Kea by dehumanizing Kānaka Maoli as *unenlightened medieval hordes*. To be late in time is to be manufactured as pre-modern and primitive, and to articulate determination over others being late in this way is an abjection to avow oneself as properly in time, modern, and civilized. Although the temporality of lateness generates this cramped space for Indigenous subjects, it is mediated through a frame of reference, or settler time,⁶⁹ that some subjects are oriented to persevere on and articulate their own humanity, abjecting both *the Native* and *the extraterrestrial*. Technoscientific anxiety about the backwardness of human civilization is closely connected to anxieties about finding more advanced intelligent life beyond Earth.

TMT development on Mauna Kea depends upon the dehumanization of Kanaka Maoli, which I suggest hinges on lateness as a particular temporality inscribed through haole technoscientific conquest in Hawai'i. In his indispensable analysis, Iohepa Casumbal-Salazar interrogates the imperial practices of modern astronomy that manufacture a clash between (western) science and (Indigenous) culture at Mauna Kea to refine operations of colonial elimination and replacement.⁷⁰

Claiming a fictive kinship with “ancient Hawaiians” who engaged astronomical inquiry in seafaring traditions, modern astronomers attempt to indigenize themselves by racializing Kanaka Maoli as primitive ancestors in an anachronistic past. Yet Kānaka Maoli challenging astronomy development at Mauna Kea are conjured through the magic of modernity as unreasonable, irrational, regressive, and less-than-human. As “TMT proponents argue that exploration of new frontiers and discovery of distant worlds is a universal human aspiration,” Casumbal-Salazar writes, “the ideologies of science and multiculturalism in which these assumptions are embedded function to delimit what constitutes rationality and, thus, the category of the human.”⁷¹ The dehumanization of Kanaka Maoli is a discursive technique to humanize haole astronomers, and produce settler subjectivity through an attempt to transcend it in a process of staking territorial claim and legitimating possession over Mauna Kea. Maile Arvin’s study of racial discourses in social scientific studies of Polynesia and Polynesians in the nineteenth and twentieth centuries explains that the possessive logic of whiteness activates settler colonialism through ideas about time, “relying heavily on idyllic ancient history, while simultaneously projecting the greatness of past civilizations onto a white settler future.”⁷²

Building on this research, technoscientific desires for TMT at Mauna Kea express ideas about temporality and thus (in)humanity to justify possession and conquest. Indigenous subjects are evaluated and produced in proximity to (possessive) *whiteness* and *the human* (civilization). For instance, Kānaka Maoli advocates of TMT are viewed as more modern subjects closer to whiteness and humanity, whereas Kānaka Maoli opponents are rendered pre-modern therein outside of whiteness and less-than-human. Mark Rifkin suggests this is settler time’s double bind: “Either they [Native peoples] are consigned to the past, or they are inserted into a present defined on non-native terms.”⁷³ The science of settler colonial whiteness, furthermore, imagines Indigenous peoples in Oceania through an anti-Black logic as either “almost white” or “black.” “Polynesians,” Arvin posits, “can fail to live up to their supposed conditional whiteness and then be treated as degenerate, black, primitive.”⁷⁴ For Tiffany Lethabo King, this is a formation of conquistador humanism, “which requires Black and Indigenous dehumanization (as death bound).”⁷⁵ To interrupt the global regime of white supremacy that structures genocidal projects of colonization and slavery, King calls for a shoaling—an interruption to knowledge production that brings together Black and Native studies—to decenter the whiteness of the turn in academic research toward examining settler colonialism⁷⁶ and to focus on conquest as a “larger conceptual and material terrain than settler colonialism.”⁷⁷ “The parasitic and genocidal violence required to make the human or self-actualize as White,” King argues, “is hard to conceptualize within the discourse of settler colonialism. Conquest as a grammar and a frame from which to think makes it possible to register the always already intersectional violence of anti-Blackness, slavery and its afterlife, and genocide at the same time.”⁷⁸ Theorizing haole technoscientific conquest is my attempt to name more harshly the quotidian relations of white patriarchal settler-colonial power on Earth, and its extension into outer space, that inscribe the affect and ontology of lateness.

CRUISING MAUNA KEA

Feeling late is not the same thing as being late, yet lateness is a temporality that inscribes both affect and ontology: one can *feel* like they *are* late. Although this way of being marked late emanates from a settler frame of reference, *the way being late is felt* can be mediated through other frameworks, and indeed an Indigenous one. If lateness renders Kānaka Maoli protecting Mauna Kea as late showing up to defend it and simultaneously late in time, how do *kia'i* cruise on and against this confining temporality? It may appear totalizing and inescapable to be marked late, but *kia'i* have performed alternative possibilities, politics, and desires in such a cramped timescape. In this concluding section that you have been waiting for, I explore how *kia'i* cruise at and around Mauna Kea.

Although there are multiple meanings and interpretations for cruising, the practice in Hawai'i holds an Indigenous inflection that I make sense of through queer theory. One with capital, time, and/or desire might cruise at the beach, for instance, as in leisurely gathering at the beach and playing in the ocean's waves. This is largely accepted as a natural pace for locals and encouraged pace for tourists in Hawai'i, although Indigenous subjects engaged in leisure activities have historically been rendered lazy, idle, and wasting time.⁷⁹ Alternatively, one might "holoholo i ka mauna," which could be interpreted as taking a pleasurable excursion to the mauna, to present *hōokupu* and practice Indigenous traditions, customs, and ceremonies, for example. Literally translated, *holoholo i ka mauna* means "cruising the mountain." Whereas the former is a socially and economically constructed slow pace in the hyper-commodification of Hawai'i, largely for the global tourism industry and its tropes of tranquility, but also for settlement and its colonial escapism from the quick-paced industrial metropole—the latter pace can be unacceptably slow. But cruising to, at, and around the mountain is an active, yet not rushed, response to the seemingly monolithic totality of lateness. An alternative tempo, movement, and desire, cruising in this sense disidentifies with the constraining dominant ideology of lateness.⁸⁰ Of course other kinds of cruising occurred during the blockade, trust me.

For Rifkin, settler time is a linear, straight, and heteronormative time that violently confines subjects, and queer theorizing highlights "alternative kinds of temporal experience."⁸¹ "The here and now is a prison house," José Esteban Muñoz provoked: "We must strive, in the face of the here and now's totalizing rendering of reality to think and feel a *then and there*."⁸² In such a perspective, to *kia'i* thus is to *holoholo* and cruise, without rushing, feeling pleasure in a desire to protect and endure. It is an active, dynamic, diverse, and non-normative practice of defending ecological existents with a careful rhythm and enduring pace. Indigenous resistance, protection of sacred sites, and land defense may sometimes seem slow or late, but together it is unyielding against the genocidal status quo of settler-colonial occupation and holding steadfast for a then and there beyond it. "It is an invitation," Muñoz wrote, "to desire differently, to desire more, to desire better."⁸³ In Hawai'i, the here and now of *haole* technoscientific conquest is a militarized prison house—it occupies and contains—and yet *kia'i* continue, despite claims it is not pragmatic and too utopian, to cruise for a decolonized then and deoccupied there. Cruising therefore arises as both an Indigenous pace and queer concept that can express temporal sovereignty in Hawai'i.⁸⁴

Kānaka Maoli cruising Mauna Kea, reoccupying sovereign land and reasserting territorial jurisdiction to protect it, have been criminalized as a performance of settler-state sovereignty. Under colonial governmentality,⁸⁵ the settler-state manages Kanaka Maoli as criminals to be surveilled, detained, and incarcerated. The criminalization of Indigenous people is an eliminatory technique for colonial dispossession from Mauna Kea to Standing Rock, Wet'suwet'en, and Palestine. Assaults on Indigenous life and land illustrate how, as Jodi Byrd contends, Indigenous people are “the original enemy combatant.”⁸⁶ The criminalization of Indigenous populations, across America and Oceania, is an original feature of settler sovereignty: “The exercise of jurisdiction over indigenous crime performs the myth of settler sovereignty over and over.”⁸⁷ Rifkin calls this legal myth the empty sign of settler sovereignty, which performed obsessively, over and over again, reveals a hollowness in settler-state power to be antagonized.⁸⁸

On July 17, 2019, militarized police forces arrived at the blockade in MKAR and arrested thirty-three kūpuna for obstructing TMT construction.⁸⁹ Because of their stand, TMT did not break ground. That night, Governor David Ige issued an emergency proclamation suspending existing statutory code and enacting new legal regulations that authorized police and the National Guard to remove kia'i at the blockade, including myself. Two days after issuing the order, in a press conference Ige accused kia'i of drinking alcohol, smoking marijuana, and not being “hygienic.” Deploying this barely veiled, colonial trope and racist rhetoric, the discourse supported increasing military and police force to remove kia'i cruising Mauna Kea to protect it from desecration and destruction. Later that week, Kanaka Maoli cultural practitioner Paul Neves filed a lawsuit against the governor claiming the state violated his constitutionally protected customary and traditional rights to exercise cultural and religious practices at Mauna Kea. Neves contended further that the proclamation, which empowers governors to declare states of emergency in the case of natural disaster, violated the state's Emergency Management law. There were two hurricanes approaching Hawai'i at the time, but neither hurricane would adversely impact the island—the environmental disaster the governor identified was us. Before a judge could issue a ruling, Ige withdrew the proclamation. It was not the first time Kānaka Maoli protecting Mauna Kea were marked threats to the environment.⁹⁰

Although some contend lawsuits against the state and TMT are a losing battle, in the spirit of Muñoz's affect and methodology,⁹¹ I remain critically hopeful of the potential that, when paired with direct action, this work interferes with the pace of state-sanctioned haole technoscientific conquest. Former lawsuits against the TMT's building permit and sublease challenged the project's schedule and timing. Because the Board of Land and Natural Resources granted the sublease and building permit before holding contested case hearings, the state has a palpable desire to build TMT in a *timely manner*. There is demand and pressure to begin construction to secure global capital. Yet legal actions pausing the project *cool down the pace*. “But it is costly and time-consuming to go down legal paths, and the courts are in any case heavily biased towards ruling class interests, given the typical class allegiance of the judiciary. Legal decisions tend to favour rights of private property and the profit rate over rights

of equality and social justice,” cautions David Harvey. “The frequent appeal to legal actions, furthermore, accepts the neoliberal preference for appeal to judicial [power].”⁹²

While I agree neoliberalism impels subjects into courts biased toward the ruling class and their decisions tend to favor property and profit, I disagree with Harvey’s analysis of time. Time is not simply a commodity for consumption. It is an economic relation and social production that can be disturbed. In my view, unsettling TMT’s pace—to break ground *as soon as possible* to look into *past* dark ages and *future* frontiers—is a critical strategy. Coupled with legal activism, blockading has forced the state to wait and TIO to consider building the project elsewhere. Glen Sean Coulthard writes, “[Blockades] embody an enactment of Indigenous law and the obligations such laws place on Indigenous peoples to uphold the relations of reciprocity that shape our engagements with the human and non-human world—the land.”⁹³ He postulates that direct action seeks “to negatively impact the economic infrastructure that is core to the colonial accumulation of capital in settler political economies.”⁹⁴ Blockading TMT construction negatively impacts the neoliberal pulse of settler capital, while affirming Indigenous kinship and responsibilities to protect Mauna a Wākea.

This has generated a remarkable financial crisis. Harvey suggests that capital flight occurs when oppositional movements organize against accumulation by dispossession. Investing partners have grown weary of the legal and direct actions disrupting TMT, and TIO is eyeing another location for the project: its backup site on La Palma in the Canary Islands.⁹⁵ This financial crisis also afflicts the State of Hawaii. As oppositional pressure placed onto global capital weighs more heavily, the neoliberal growth supported by the settler-state dims and becomes unstable. The state cannot control global capital inasmuch as the state is controlled by it. As money backing development of TMT cajoles extra-judicial advocacy, such as emergency proclamations, some power is given up in return for international competition. But what happens to settler sovereignty when foreign direct investment and global capital threaten to flee?

Settler sovereignty is an empty signifier that fretfully coheres by making Indigenous people appear peculiar, in an anomalous status, in the geopolitical terrain of settler-colonial biopower.⁹⁶ As it attempts to shore up sovereignty in Hawai‘i by sanctioning astronomy development on Mauna Kea, the state tries to cohere power by funneling both *development* and *defense* of the mountain into its juridical orbit to signify territorial authority and jurisdiction. This renders Kanaka Maoli peculiar and anomalous in the landscape of what is being designated for telescopes, observatories, and astronomy. But when neoliberal capital pulls TMT elsewhere, the geopolitical landscape classified by the settler-state becomes precarious. Kia‘i cruising Mauna Kea ultimately interrupt and disturb the pace of TMT development for constructing an observatory to explore outer space and thereby unsettle haole technoscientific conquest. This is a sharp expression of temporal sovereignty, one which combines the material exercise of territorial jurisdiction and self-determination over timing and being in time.

When I returned to the blockade in November 2019, at noon, ceremonial protocol in what is now called the ala hulu kupuna to venerate kūpuna for their stand at the entrance of MKAR, Kaho‘okahi Kanuha spoke explicitly about time. A kia‘i and mighty voice in the movement, Kanuha told our crowd of hundreds that he frequently is asked:

where were *kia'i* before, and what makes things different now? Laughing at the former question, Kanuha paused on the latter one. “We’ve let this happen,” he said abruptly gesturing to the existing observatories on the mountain. “We’ve let this happen, but no more.” Rather than reading this comment *quickly* as blaming *kia'i* for aggressions by the settler-state and *haole* technoscientific conquest, I want to read it *slowly*.

It’s okay to be late to the struggle. It’s okay to be late to movements to protect Indigenous lands, waters, and more-than-human relatives. But when you are called, as Pua Case observed, there must be a response. Unsettling physical space, developmentalist pace, and technoscientific desire to explore outer space at Mauna Kea are ways to respond that cruise for a decolonized then and deoccupied there in Hawai‘i. It is a cruising for a future beyond the here and now of *haole* technoscientific conquest, and beyond the straitjacketing, mutual exclusions of science *versus* culture, lawsuits *or* blockades, and decolonization *versus* deoccupation. This cruising also opens up radical coalitional practices. It has cultivated an inclusive relationality for all of those who are willing to stand for the mauna—even if you are late, even if you are not *Kanaka Maoli*. Pua Case, during cultural protocols at the *ala hulu kupuna*, would typically open and conclude the ‘*aha* (ceremony) with a reminder about this capacious relationality in *Oli Kūkulu*, a chant she carefully crafted in struggle and solidarity. It is a powerful call and response that continues to be chanted at Mauna a Wākea, throughout Hawai‘i, and beyond it:

E nā hoa‘āina e (Native people of Hawai‘i)
 E nā hoawelo like e (Native people of the Pacific)
 E nā hoapili e (Native people of Turtle Island)
 E nā hoaaloha e (friends in our struggle)
 ALOHA ‘ĀINA!

Kūkulu e, nā kūkulu ‘ehā e (pillars, the four cardinal points)
 KŪKULU!

He mau maka koa e nā maka ka‘eo (beloved, strong warriors)
 EŌ!

E hū e (rise)
 HŪ!

He kū kia‘i mauna (a mountain protector)
 KŪ!

He pōhaku kū (a standing rock)
 KŪ‘Ē!

He ‘ili‘ili kapu (a sacred stone)
 ALOHA!

He koa wai ola e ola (a water protector)
 OLA!

E hū e (rise)
 HŪ!⁹⁷

Acknowledgments

I offer the deepest aloha and mahalo to 'Āina Akamu, my hoā pili (close friend), for being an enduring source of knowledge, support, and care throughout my life, and of course for cruising Mauna Kea and holding things down in 2019. This article was only possible because of 'Āina. Mahalo to the departments and programs, associations, and people that hosted me to present early stages of this research: the University of Hawai'i's Department of Political Science; the University of Toronto's Indigenous Education Network, School of the Environment, and Jackman Humanities Institute; and the American Political Science and Hawai'i Sociological Associations. The sharp engagement, questions, and feedback have been invaluable. Mahalo also to the anonymous reviewers for their constructive input and helpful insight. Finally, mahalo nui loa to Kim TallBear and David Shorter for organizing and editing this groundbreaking special issue in the *American Indian Culture and Research Journal* and also to the AICRJ editorial staff, with whom I am honored to work.

NOTES

1. One interpretation of "Pu'uhuluhulu" is "hairy hill," signifying the hill's lush appearance as an old volcanic cinder cone with abundant *koa*, *'ohelo*, and other endemic plants. A *kipuka*—a calm and safe place, containing vegetation, surrounded by lava fields—Pu'uhuluhulu is a native tree and bird sanctuary. Establishing the *pu'uhonua* at Pu'uhuluhulu reconnected *kānaka* (people) with the *kipuka's* social ecology and reaffirmed Kānaka Maoli relations with more-than-human existents a part of the *lāhui* Hawai'i (Hawaiian nationhood). The blockade of TMT was made possible because of the *pu'uhonua*, established through protection of the *kipuka* at Pu'uhuluhulu.

2. Nancy Cook Lauer, "Maunakea Protest Camp Spurs Ethics Complaint," *Hawaii Tribune-Herald*, August 13, 2020, <http://www.hawaiiitribune-herald.com/2020/08/13/hawaii-news/maunakea-protest-camp-spurs-ethics-complaint>.

3. "VIDEO: Pu'uhonua at Base of Mauna Kea Explained," *Big Island Video News*, July 13, 2019, <http://www.bigislandvideonews.com/2019/07/13/video-puuhonua-at-base-of-mauna-kea-explained>.

4. For more information about the *pu'uhonua*, see <http://www.puuhuluhulu.com>.

5. Michael Brestovansky, "Despite Pandemic, Some Continue Camping on Maunakea," *Hawaii Tribune-Herald*, April 26, 2020, <http://www.hawaiiitribune-herald.com/2020/04/26/hawaii-news/despite-pandemic-some-continue-camping-on-maunakea>; Stephanie Salmons, "Lawmakers to DHHL: Don't Clear Protestors," *Hawaii Tribune-Herald*, September 4, 2021, <http://www.hawaiiitribune-herald.com/2021/09/04/hawaii-news/lawmakers-to-dhhl-dont-clear-protesters>.

6. See Noelani Goodyear-Ka'ōpua, "Introduction," *A Nation Rising: Hawaiian Movements for Life, Land, and Sovereignty*, ed. Noelani Goodyear-Ka'ōpua, Ikaika Hussey, and Erin Kahunawaika'ala Wright (Durham: Duke University Press, 2014), 1–33.

7. See Noelani Goodyear-Ka'ōpua, "From the Cattle Guard," *Biography* 43, no. 3 (2020): 527–29, <https://doi.org/10.1353/bio.2020.0055>.

8. See Haunani-Kay Trask, "Lovely Hula Hands: Corporate Tourism and the Prostitution of Hawaiian Culture," *Border/Lines* 23 (1991/1992): 22–29.

9. See Kathy Ferguson and Phyllis Turnbull, *Oh, Say, Can You See? The Semiotics of the Military in Hawai'i* (Minneapolis: University of Minnesota Press, 1999); Vernadette Vicuña Gonzalez,

Securing Paradise: Tourism and Military in Hawai'i and the Philippines (Durham: Duke University Press, 2013).

10. For an example of stargazing and observatory tours at Maunakea, see <http://maunakea.com>.

11. For discussion of militourism, see Teresia Teaiwa, "Reading Gauguin's Noa Noa with Hau'ofa's Kisses in the Nederends: Militourism, Feminism, and the 'Polynesian' Body," in *Inside Out: Literature, Cultural Politics, and Identity in the New Pacific*, ed. Vilsoni Hereniko and Rob Wilson (Lanham, MD: Rowman & Littlefield, 1999), 249–63; Teresia Teaiwa, "Reflections on Militourism, US Imperialism, and American Studies," *American Quarterly* 68, no. 3 (2016): 847–53, <http://www.doi.org/10.1353/aq.2016.0068>.

12. Jennifer Sinco Kelleher, "Giant Hawaii Telescope Cost Estimate Increases to \$2.4B," *Associated Press*, March 17, 2020, <http://apnews.com/2f652a90c3c51011ebdc37709752a80a>.

13. A primary interpretation of "Mauna a Wākea" is "Wākea's mountain." Wākea is the *akua* (deity) known as Sky Father. I use Mauna a Wākea interchangeably with "Mauna Kea." The first, however, stresses the Indigenous cosmogenic, geontological, spiritual, and religious relations between Kanaka Maoli, *akua*, and Mauna Kea. "Mauna Kea" can be interpreted as *white mountain*, since snow falls and accumulates on the summit and in surrounding areas. The interpretation of "Mauna Kea" as white mountain, unfortunately, can erase Indigenous cosmogenic, geontological, spiritual, and religious relationships in Hawai'i.

14. Marie Alohalani Brown, "Mauna Kea: Ho'ōmana Hawai'i and Protecting the Sacred," *Journal for the Study of Religion, Nature and Culture* 10, no. 2 (2016): 150–69, <http://www.doi.org/10.1558/jsrnc.v10i2.27795>; Leon No'ēau Peralto, "Mauna a Wākea: Hanau ka Mauna, the Piko of Our Ea," in *A Nation Rising: Hawaiian Movements for Life, Land, and Sovereignty*, ed. Noelani Goodyear-Ka'ōpua, Ikaika Hussey, and Erin Kahunawaika'ala Wright (Durham: Duke University Press, 2014), 232–43.

15. Emalani Case, "I ka Piko, To the Summit: Resistance from the Mountain to the Sea," *The Journal of Pacific History* 54, no. 2 (2019): 166–81, <http://www.doi.org/10.1080/00223344.2019.1577132>.

16. David Callis, "TMT Opponents Halt Groundbreaking Ceremony," *Big Island Video News*, October 8, 2014, <http://www.youtube.com/watch?v=SZ4Gt35hs-s>.

17. Iokepa Casumbal-Salazar, "'Where Are Your Sacred Temples?' Notes on the Struggle for Mauna a Wākea," in *Detours: A Decolonial Guide to Hawai'i*, ed. Hōkūlani K. Aikau and Vernadette Vicuña Gonzalez (Durham: Duke University Press, 2019), 203–4.

18. Tom Callis, "TMT groundbreaking disrupted," *Hawaii Tribune-Herald*, October 4, 2014, <http://www.hawaiitribune-herald.com/2014/10/08/hawaii-news/tmt-groundbreaking-disrupted>.

19. See <http://www.change.org/p/justin-trudeau-a-call-to-divest-canada-s-research-funding-for-the-thirty-meter-telescope-on-mauna-kea>.

20. "Canada Finally Commits its Share of Funds for Thirty Meter Telescope," *Canadian Broadcasting Corporation*, April 6, 2015, <http://www.cbc.ca/news/technology/canada-finally-commits-its-share-of-funds-for-thirty-meter-telescope-1.3022659>.

21. Kanuhas Manuel and Naomi Klein, "'Land Back' Is More Than a Slogan for a Resurgent Indigenous Movement," *The Globe and Mail*, November 19, 2020, <http://www.theglobeandmail.com/opinion/article-land-back-is-more-than-a-slogan-for-a-resurgent-indigenous-movement>.

22. See Iokepa Casumbal-Salazar, *First Light: Settler Colonial Science and Indigenous Resistance at Mauna a Wākea* (Minneapolis: University of Minnesota Press, forthcoming); Nick Estes, *Our History Is the Future: Standing Rock versus the Dakota Access Pipeline, and the Long Tradition of Indigenous Resistance* (New York: Verso, 2019); Jamaica Heolimeleikalani Osorio, *Remembering Our Intimacies: Mo'olelo, Aloha 'Āina, and Ea* (Minneapolis: University of Minnesota Press, 2021); Leanne

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27. One translation of "Ka'ōhe" is "bamboo container."

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32. See Jon M. Van Dyke, *Who Owns the Crown Lands of Hawai'i?* (Honolulu: University of Hawai'i Press, 2008).

33. "TMT Not Backing Down, Supporters Unwavering," *Big Island Video News*, July 27, 2019, <http://www.bigislandvideonews.com/2019/07/27/tmt-not-backing-down-supporters-unwavering>.

34. See David Keanu Sai, "The American Occupation of the Hawaiian Kingdom: Beginning the Transition from Occupied to Restored State" (PhD diss., University of Hawai'i, 2008).

35. *Ibid.*, 156.

36. Silva, *Aloha Betrayed*.

37. Williamson Chang, "Darkness Over Hawaii: The Annexation Myth Is the Greatest Obstacle to Progress," *Asian-Pacific Law & Policy Journal* 16, no. 2 (2015): 70–115, http://blog.hawaii.edu/aplpj/files/2015/09/APLPJ_16_2_Chang.pdf.

38. See "Legal Protections," KAHEA: *The Hawaiian-Environmental Alliance*, <http://kahea.org/issues/sacred-summits/legal-protections>; "Mauna Kea," Office of Hawaiian Affairs, <http://www.oha.org/maunakea>.

39. Silva, *Aloha Betrayed*, 1.

40. Kamanamaikalani Beamer, *No Mākou Ka Mana: Liberating the Nation* (Honolulu: Kamehameha Publishing, 2014).

41. David Uahikeaikalei'ohu Maile, "Precarious Performances: The Thirty-Meter Telescope and Settler State Policing of Kanaka Maoli," *Abolition: A Journal of Insurgent Politics*, September 9, 2018, <http://abolitionjournal.org/precious-performances>.

42. Jack B. Zirker, *An Acre of Glass: A History and Forecast of the Telescope* (Baltimore: Johns Hopkins University Press, 2005), 89.

43. *Ibid.*, 90–91.

44. See <http://ifa.hawaii.edu/users/steiger/epilog.htm>.

45. Zirker, *An Acre of Glass*, 91.

46. *Ibid.*, 94.

47. See “Timeline of Mauna Kea Legal Actions Since 2011,” KAHEA: The Hawaiian-Environmental Alliance, September 10, 2016, <http://kahea.org/issues/sacred-summits/timeline-of-events>.

48. Zirker, *An Acre of Glass*, 95.

49. See Aileen Moreton-Robinson, *The White Possessive: Property, Power, and Indigenous Sovereignty* (Minneapolis: University of Minnesota Press, 2015).

50. Zirker, *An Acre of Glass*, 1.

51. *Ibid.*

52. My use of “haole” to describe the large number of astronomers working at observatories on Mauna Kea is a descriptive qualifier that signifies, through the nuance of ‘ōlelo Hawai‘i, white Euro-American settlers in Hawai‘i. I qualify technoscience and technoscientific conquest as haole to index the whiteness, white supremacy, and settler-colonial characteristics of technoscience and its relations of conquest in Hawai‘i.

53. Out of a total of 530, 357 workers participating in the “Maunakea Gender Equity and Diversity Survey Report,” 112 workers identified as “women” and 239 identified as “men.” This gendered differential—a binary construction based on biological notions of gender/sex—is much larger for “women in STEM fields” versus “men in STEM fields.” The results become more nuanced considering responses to “ethnic identification.” The study reports that 62% of participants are “White/Caucasian,” whereas “Hawaiian[s]” represent only 6% of the workforce. With little discussion on this disparity, nor conceptualization of “ethnic identification” let alone “Hawaiian,” it contends that while the number of “White/Caucasian” workers is much higher than the State of Hawaii’s general population, it is equivalent to the US population. The opposite though is true about “Hawaiian[s].” The report posits that “Hawaiian[s]” in MKO, equivalent to the state’s general population, are represented higher than the US population. While the survey shows the industry is dominated by white men, and overwhelmingly non-Kanaka Maoli, its discussion rationalizes this disparity by comparing demographics with the general population of the US and state of Hawaii. In its logic, “Hawaiian” representation is proportionate to state representation and actually much higher than national numbers. Although constituting 12% of the US general population, only 1% of survey participants identified as “Black/African American.” The discussion cleaves Indigenous and Black erasure to justify white presence and labor at the mountain’s summit. Examining gender as it intersects with race, white men are disproportionately employed in the astronomy industry at Mauna Kea. There were 159 white male participants, whereas 66 were white women. The report illustrates that women who identify as “White/Caucasian” are employed disproportionately over women who are “Asian,” “Hawaiian,” and “Minorities of Color.” Twice as many white women work in MKO than non-white women, while non-Kanaka Maoli Indigenous women and Black women are homogenized under “Minorities of Color.”

54. Hi‘ilei Julia Hobart, “At Home on the Mauna: Ecological Violence and the Fantasies of Terra Nullius on Maunakea’s Summit,” *Native American and Indigenous Studies* 6, no. 2 (2019): 37, <http://www.doi.org/10.5749/natiindistudj.6.2.0030>.

55. *Ibid.*, 37–38.

56. *Ibid.*, 38.

57. *Ibid.*

58. Timothy Hurley, "Foundation Exploring TMT ahead of Funding Decision," *Honolulu Star-Advertiser*, January 27, 2021, <http://www.staradvertiser.com/2021/01/27/hawaii-news/foundation-exploring-tmt-ahead-of-funding-decision/>.

59. See "What Is an Exoplanet?" NASA, <http://exoplanets.nasa.gov/faq/3/what-is-an-exoplanet/>.

60. There are a number of methods, although some are more effective than others, for finding exoplanets: radial velocity, transit, direct imaging, gravitational microlensing, and astrometry. Pictures of these planets can be captured by removing the sun glare of stars from imaging. Measuring a star's light over time, exoplanets transiting a sun while orbiting generate a shadow and dim starlight. In gravitational microlensing, the light from a distant star can be bent and made brighter by the gravity of a passing planet. Radial velocity measures changes in the color of light from a star with an orbiting planet that cause it to wobble because of gravitational force. The wobble from a planet's orbit then can generate miniscule movements for stars nearby, which provides reference stars to calculate, through astrometry imaging, the distance to a target star with its orbiting planet.

61. "About Exoplanets," NASA, <http://exoplanets.nasa.gov/what-is-an-exoplanet/about-exoplanets/>.

62. "How Many Exoplanets Are There?" NASA, <http://exoplanets.nasa.gov/faq/6/how-many-exoplanets-are-there/>.

63. "Exoplanets," TMT.

64. "Thirty Meter Telescope," *Association of Canadian Universities for Research in Astronomy*, <http://acura.craq-astro.ca/projects/tmt>.

65. Usha Lee McFarling, "Science, Culture Clash over Sacred Mountain," *Los Angeles Times*, March 18, 2001, <http://www.latimes.com/archives/la-xpm-2001-mar-18-mn-39418-story.html>.

66. *Ibid.*

67. Molly Solomon, "How The Debate over TMT Prompted a Problematic Email," *Hawai'i Public Radio*, May 15, 2015, <http://www.hpr2.org/post/thirty-meter-telescope-hawaii-series>.

68. Justin Brake, *The Breach*, forthcoming.

69. Mark Rifkin, *Beyond Settler Time: Temporal Sovereignty and Indigenous Self-Determination* (Durham: Duke University Press, 2017).

70. Iokepa Casumbal-Salazar, "A Fictive Kinship: Making 'Modernity,' Ancient Hawaiians,' and the Telescopes on Maunakea," *Native American and Indigenous Studies* 4, no. 2 (2017): 1-30. <http://www.doi.org/10.5749/natiindistudj.4.2.0001>.

71. *Ibid.*, 3.

72. Maile Arvin, *Possessing Polynesians: The Science of Settler Colonial Whiteness in Hawai'i and Oceania* (Durham: Duke University Press, 2019), 66.

73. Rifkin, *Beyond Settler Science*, 1.

74. Arvin, *Possessing Polynesians*, 29.

75. Tiffany Lethabo King, *The Black Shoals: Offshore Formations of Black and Native Studies* (Durham: Duke University Press, 2019), 16.

76. *Ibid.*, 63.

77. *Ibid.*, 65.

78. *Ibid.*, 68.

79. Silva, *Aloha Betrayed*, 33.

80. For research on disidentifications, see José Esteban Muñoz, *Disidentifications: Queers of Color and the Performance of Politics* (Minneapolis: University of Minnesota Press, 1999).

81. Rifkin, *Beyond Settler Time*, 37.

82. José Esteban Muñoz, *Cruising Utopia: The Then and There of Queer Futurity* (New York: New York University Press, 2009), 1, original emphasis.

83. Ibid., 188.
84. See Rifkin, *Beyond Settler Time*, 30.
85. Glen Sean Coulthard, *Red Skin, White Masks: Rejecting the Colonial Politics of Recognition* (Minneapolis: University of Minnesota Press, 2014), 15.
86. Jodi A. Byrd, *The Transit of Empire: Indigenous Critiques of Colonialism* (Minneapolis: University of Minnesota Press, 2011), xviii.
87. Lisa Ford, *Settler Sovereignty: Jurisdiction and Indigenous People in America and Australia, 1788–1836* (Cambridge: Harvard University Press, 2010), 208.
88. Mark Rifkin, “Indigenizing Agamben: Rethinking Sovereignty in Light of the ‘Peculiar’ Status of Native Peoples,” *Cultural Critique* 1, no. 73 (2009): 88–124, <http://www.doi.org/10.1353/cul.0.0049>.
89. “33 Kupuna Arrested for Protesting on Mauna Kea,” *KITV*, July 17, 2019, <http://www.kitv.com/story/40804841/33-kupuna-arrested-for-protesting-on-mauna-kea>.
90. The BLNR approved an emergency rule in 2015 to criminalize kia’i reoccupying the mountain to stop TMT. On one hand, it regulated kia’i as criminals to police by disciplining them as trespassing campers harming pristine environment. And on the other, the rule declared a state of emergency to swiftly make blockading TMT construction unlawful. With short notice, BLNR met and sought public testimony on the emergency rule. Douglas Chin, then the state attorney general, gave testimony in which he claimed there was “[an] imminent peril to public health, safety, and morality.” For instance, a surveillance log filed by rangers of the Office of Maunakea Management alleged there was a bomb threat; that one kia’i threatened a suicide bombing. This was unsubstantiated, but nevertheless was the story the settler-state told itself. Urging BLNR, Chin exclaimed the rule should be adopted to “mitigate these threats.” Board member Stanley Roehrig agreed with Chin that this was a “clear and present danger,” and recommended that rangers be given police powers. The emergency rule passed and was signed into law by Ige, who noted: “We cannot let some people put others at risk of harm or property damage.” The settler-state will do what is necessary to protect capital’s bottom line of property, profit, and dispossession. But an environmental court invalidated the rule. It posited that the state improperly implemented an emergency rule by sidestepping requirements for public notice to enact new administrative rules with the explicit purpose of stopping protests. This Third Circuit court ruling suggested the rule created an unlawful exception, declaring new administrative law by suspending existing procedural regulations. This was a settler state of exception that revealed the precarious incoherence of settler sovereignty while Kānaka Maoli asserted their own jurisdiction and territorial sovereignty. Kalani Flores brought the suit against the board and remarked delightedly: “The State can no longer arrest innocent people who are on Mauna Kea at night for cultural or spiritual reasons.”
91. Muñoz, *Cruising Utopia*, 4.
92. David Harvey, *A Brief History of Neoliberalism* (New York: Oxford University Press, 2005), 176.
93. Glen Sean Coulthard, “For Our Nations to Live, Capitalism Must Die,” *Unsettling America: Decolonization in Theory & Practice*, November 5, 2013, <http://unsettlingamerica.wordpress.com/2013/11/05/for-our-nations-to-live-capitalism-must-die>.
94. Ibid.
95. Daniel Clery, “Stalled in Hawaii, Giant Telescope Faces Roadblocks at its Backup Site in the Canary Islands,” *Science Magazine*, September 3, 2019, <http://www.sciencemag.org/news/2019/09/stalled-hawaii-giant-telescope-faces-roadblocks-its-backup-site-canary-islands>.
96. Rifkin, “Indigenizing Agamben.”
97. See <https://www.puuhuluhulu.com/learn/protocol>. This translation is my own.

