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"Indians Don't Make Maps": Indigenous Cartographic Traditions and Innovations

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> Just as none of us is outside or beyond geography, none of us is completely free from the struggle over geography. That struggle is complex and interesting because it is not only about soldiers and cannons but also about ideas, about forms, about images and imaginings.
>
> —Edward Said, *Culture and Imperialism*

Land dispossession and displacement are commonly understood facets of colonial genocide and occupation, and the role that Western cartography played in these processes is widely recognized. However, as the above quote from Edward Said so beautifully argues, struggles over geography are also struggles over representation and imaginations of the land and the people that belong to it—or, in Western thought, to whom the land belongs. In this sense, colonial maps themselves are mobilized as weapons in ongoing occupation and theft, while scholastic and popular rhetoric on cartography as a medium and discipline function to assert colonial power of representation. This rhetoric, which has now become canonized as disciplinary creation story, tells us that Indians don't make maps and cartography is a Western science. In this way, colonial mapping has not only denied the political sovereignty of Indigenous peoples, but also visual and intellectual sovereignty in representing Indigenous cultures, nations, and lands for themselves as they see fit.

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This rhetoric is maintained by academic and archival silences on Indigenous mapping practices, the underrepresentation of Indigenous cartographers within the field today, and institutionalized erasure of Indigenous intellectual property. My understanding of these silences is informed by my own experience as a professionally trained cartographer: though I was trained in a department and institution that are both known to be committed to social justice and diverse perspectives, Indigenous mapping traditions were not included in any textbook, assignment, or lecture. Colleagues trained at other institutions have reported similar experiences. Throughout my career as an Indigenous cartographer, I have repeatedly received questions and criticism accompanied by claims that mapping is a colonial tool inconsistent with Indigenous cultures. Moreover, much of the academic literature that exists on Indigenous mapping is focused on mapping practices utilizing Western technology in a contemporary context, and posits Indigenous mapping as an appropriation of colonial technology, rather than a continuation of Indigenous intellectual innovation or tradition, wherein lies this paper's purpose. I am here to tell you: yes, Indians do make maps. Pretty special ones actually. But that history has been erased, forgotten, and willfully ignored, arguably due to the persistent racism and imperial attitudes within the fields of geography and cartography.

In their argument for geography as a form of reconciliation within the Canadian context, Cindy Smithers Graeme and Erik Mandawe provide examples of non-Indigenous geography students who are able to correct significant ignorance regarding Indigenous cultures through field study within an Indigenous community to make this point.[1] Similarly, Jouko Keski-Säntti and colleagues demonstrate how restrictive disciplinary definitions of what a map is serve colonial interests and exclude Indigenous practices,[2] and Brian Tucker and Reuben Rose-Redwood as well as Sarah de Leeuw and colleagues critique contemporary "inclusive" mapping practices, such as incorporating Indigenous representation in place-naming and participatory mapping, as nonetheless bound up in and supportive of continued colonial power structures.[3]

To contest these erasures, this article offers a summary of what I have identified as the three key periods of Indigenous mapping before discussing some ways in which mapping can continue to be useful to Indigenous peoples. In excavating the stories of these traditions that have been erased and silenced in colonial archives and by offering a sample of the diverse, rich Indigenous mapping traditions in use before and after colonialism, I hope to open up a space for comparative study of such practices. A thorough overview of all Indigenous mapping practices cannot be undertaken here, nor can this brief article provide deep analysis of these maps. My aim is simply to dispel the myth that Indigenous peoples did not, and do not, draw maps. Although Indigenous notions of nationhood do not align with the highly politicized imperial borders in settler frameworks, it is far from the truth that Indigenous people have not participated in the process of mapping Indigenous lands and narratives. Indeed, many Indigenous nations have rich traditions of mapping, and there are a number of Indigenous cartographers today who carry those traditions on and further develop them.

This paper highlights works created by Indigenous cartographers throughout history, and argues that they engage culturally specific ideas of space, nation, territory,

and relationships to land, as well as resist colonial occupation and epistemologies. In this sense, it also asserts the technological and theoretical interventions Indigenous cartographers have and continue to contribute to the fields of cartography and geography. Lastly, this paper makes the argument that an increase in cartographic training in Indigenous communities is necessary in ongoing efforts to document Indigenous histories and cultures, as well as efforts to strengthen tribal sovereignty and mobilize towards restorative justice.

Ancestral, Anticolonial, and Decolonial Indigenous Map-Making

I have identified three key time periods in Indigenous mapping: *ancestral*, *anticolonial*, and *decolonial*. I choose these terms for these historical periods because employing terms like *precontact* and *postcontact* collapses Indigenous history into categories arbitrarily defined by a binary date that, privileging the presence of settlers as the defining moment in all Indigenous histories, also purports to represent engagement with settlers across multiple continents—exactly the type of scholarly epistemic violence that this paper seeks to address.[4] In contrast, *ancestral*, *anticolonial*, and *decolonial* denote three periods in the development of Indigenous cartography defined by Indigenous cartographers' practices and interventions.

These classifications are by necessity fluid in that their date ranges shift according to space and territory. Anticolonial mapmaking, for example, took place much earlier in Nahua territory than it did in Nimiipuu homelands—not because the Nimiipuu were less fierce in defense of their people and lands, but because Nahua peoples have a different historical engagement with colonialism, one that began hundreds of years prior to the conditions that necessitated Nimiipuu resistance. These conceptual categories are a useful analytical tool that avoids collapsing Indigenous histories and the cartographers who documented them into a single linear timeline. I offer this article's summary discussion of these categories and accompanying examples not only to support the use of such alternate conceptual categorization, but also to provide scholarly citations to the next Indigenous cartographer who is told, "Indians don't make maps."

Ancestral Mapping

The first category, ancestral mapping, encompasses any mapping or cartographic praxes developed by Indigenous ancestors who were not explicitly engaging with colonialism in their cartography. This might include cartographers traditionally caged within the precontact category, yet it also includes more recent ancestors who chose to develop or continue mapping praxes as a means to further develop or contribute to their culture and community. In short, these are the cartographic mediums gifted to us by ancestors in order to continue our relationships to land. In that sense, they are sacred. Similar to songs, dances, and ceremonies, these maps remind us of our contractual responsibilities to the land, and show us how our ancestors meant for us to engage with it. They are shining beacons of the intellectual innovation and scholastic rigor of Indigenous ancestors, who created sophisticated yet practical tools for navigating and thriving on

their homelands. In the four examples that follow, I discuss how these maps would be used, who should have access to such knowledge, and how that knowledge would be best represented, and thereby demonstrate that Indigenous ancestors were not only cartographers in their own right, but highly skilled and pioneers of critical interventions in cartography as a science.

Perhaps one of the more compelling examples of such invention are the carved wooden maps of Kalaallit Nunaat. Now known as Greenland, Kalaallit Nunaat is the home of three distinct Inuit Greenlandic communities—Kalaallit (western), Tunumiit (eastern), and Inughuit (northern). In 1885, Danish naval officer Gustav Holm visited a Tunumiit community on the eastern coast of Greenland and purchased a set of wooden maps from a local man named Kunit. These maps depicted the geography of the coastline connecting Sermiligak to Kangerdlugsuatsiak, and the peninsula between Sermiligak and Kangerdluarsikajik. Holm brought these maps back with him, where they sat in various museums until nearly a century later, when they gained scholarly attention in 1998. Woodward and Lewis wrote that the only other known example of such mapping held in academic archives was a copy of Kunit's work held at Michigan State University's museum.[5]

Kunit's maps were remarkable in their representation of the seafaring culture his community practiced, but neither Kunit nor any other Tunumiit cartographer ever received any formal recognition for the pioneering innovation his maps represented. Carved from buoyant wood, they would float if accidentally dropped from a boat and were both three-dimensional and tactile. Their carved ridges matched the coastline, representing significant sites like peninsulas, fjords, and villages so that Kunit's maps could be read in the dark as well as by someone with impaired vision. Moreover, they were small enough to be handheld, easily carried by hunters and navigators hauling heavy gear, and also durable, withstanding voyages across the sea and over a century of colonial conflict. Indeed, Kunit's village, Umivik, is now formally classified as a ruin; his maps remain even when his home may no longer stand.

Contemporary analysis of Kunit's maps can be a powerful demonstration of assumptions regarding Indigenous peoples and mapping. Alhough the carvings have been understood as maps and catalogued as such for nearly one hundred years, some have recently debated if they are indeed maps, as well as whether they are authentically Inuit. For example, in 2018 anthropologist Hans Harmsen described mapping as "a foreign practice" to Greenlandic Inuit people although he also acknowledged that historical views claiming it was "highly improbable that an 'Eskimo' could possess the mental faculties to 'invent' a three-dimensional wooden map" were couched in racism. Moreover, while the article quotes Holm's journal entry that "[Kunit] declared that it was not unusual to make such charts when one wanted to tell others about regions they did not know," it then asserts that Kunit's maps are storytelling devices rather than navigational tools—oddly assuming that because a device assists in telling stories about the land it is precluded from being a navigational tool.[6] On a fundamental level, all maps are storytelling devices; indeed, Western mapping practices have also always served in telling stories. Apparently, maps are "folk art" when created by Indigenous people, and "scientific tools" when created by a European or settlers.

However, some Indigenous cartographers who utilize ancestral mapping have been recognized. For example, in 1987 Pius "Mau" Piailug, a master navigator from the Micronesian island of Satawal, received an honorary degree from the University of Hawai'i, and in 2000 was commended by the Smithsonian Institution for his knowledge of traditional wayfinding practices.[7] Piailug's contributions to research on Polynesian non-instrumental wayfinding not only proved that Polynesian navigators held sophisticated geographic knowledge, but also confirmed that Polynesian knowledge of their origins was correct. In addition, his work disproved academic theories that claimed—in another example of colonial presumptions that Indigenous peoples were incapable of making sophisticated maps—Polynesians did not develop technology sufficient to purposefully travel across the sea, and, as a result, Piailug revitalized cultural pride and knowledge not just in Satawal, but across the Pacific.[8]

Although Piailug was born thousands of miles away and nearly fifty years after Kunit sold his maps to Holm, they experienced many of the same cultural upheavals. Both Piailug and Kunit came to learn cartography and their respective cultural ideas regarding land and navigation at a time when their communities had not yet been strongly affected by colonial violence. Piailug achieved the title of master navigator after World War II at about the same time that American missionaries arrived on his island and his initiation ceremony as a master navigator was the last to be held on Satawal for another fifty years. As he approached middle age, Piailug began to share his navigational knowledge with the Polynesian Voyaging Society in support of their research attempting to prove that Polynesian non-instrumental wayfinding was purposefully used in voyages across the Pacific. This research became foundational, clearly demonstrating that non-instrumental wayfinding was utilized in this way. A few decades later, Piailug held another initiation ceremony for eleven new master navigators in 2007, the first on his island since his own initiation and three years prior to his passing.

Though Piailug did not draw Western-style maps, his complex knowledge of the geography and environment of the Pacific shows an ancestral understanding of the region that is deeper than that of Western scholars. The diagrams and charts that Piailug used in training his apprentices show that complex maps are utilized in Polynesian non-instrumental wayfinding in the form of treasured knowledge memorized and held by navigators. For example, Piailug trained Native Hawaiian navigator Nainoa Thompson, who later developed a Hawaiian star chart based on Piailug's, with a wayfinding chart that represented the stars with shells and that clearly shows the complex spatial knowledge of these Indigenous navigators.[9]

Older examples of Indigenous ancestral mapping have not been identified as the work of a specific cartographer. Similar to the ancestral star charts Piailug had memorized, Maya astronomers created extremely complex charts of stars and celestial bodies together with their relationships to events occurring upon their lands and within their communities. Maya astronomy produced some of the most accurate pre-telescope knowledge in the world; indeed, their calculations proved to be more accurate than that of the Spanish navigators. Maya communities were well known for their vast collections of books, which included maps and star charts; many of these codices

were purposefully destroyed by Spanish colonizers, though some remain intact. One is the oldest surviving book of the Americas, an astronomical almanac dating to the thirteenth or fourteenth century now known as the Dresden Codex.

The Shoshoni Map Rock, on the other hand, is one example of a petroglyph map. Found in southwest Idaho on the plains of the Snake River, it is a striking example of an Indigenous mapping medium very clearly designed for ecological reference, rather than navigation. Depicting the Snake and Salmon Rivers and various animals, the Shoshoni Map Rock informs its readers of the greater environmental landscape of the nearby rivers and what animals to expect locally. The map rock may be understood as an early predecessor to information booths aimed at visitors to a natural area that inform us of the natural landmarks and wildlife—a very different type of navigational knowledge than that mapped by Polynesian star charts or Inuit wooden map carvings, which represent geographic navigations.

As with Kunit's carvings, some have debated whether the map rock is an example of a precolonial map, or simply a drawing representing the relationships between natural landmarks and the beings that navigate them. Again, this distinction and how academia defines what a map can be, are, arguably, Western constructions that evidently are limited by systemic racial and cultural bias. Are the online maps in widespread use today significantly different? In essence, maps are images designed to represent spatial relationships, connecting land to other beings in one way or another. Within this conceptualization, the Shoshoni Map Rock is clearly a striking example of ancestral mapping practices. Moreover, understanding in what ways the Shoshoni Map Rock is indeed a map may broaden analysis of the ways in which other petroglyphs may be maps as well.

Anticolonial Mapping

Indigenous cartographers during this period were grappling with representing their homelands and peoples while they were constantly being violated, stolen, and destroyed. Faced with having to reconcile the representational practices they knew while surrounded by an entirely new context, these cartographers were drawing maps in hopes of guiding their people home to their lands and culture. Often they had to adapt to drawing their stories on new materials, and, in some cases, on items that colonial forces saw as garbage scraps. Knowing their maps would be used by an enemy military and yet also had to function as an intellectual weapon for their descendants, they learned how to hide ancestral knowledge in plain sight, which a century later helped them to assert territorial homelands. These maps carry data obtained in the midst of incredible loss and determination, through prison bars, between languages, and during exile and forced relocation.

Some of these maps represent compromises and strategic navigations of settler violence; others defiantly insist upon Indigenous title and refuse to turn away from the genocide swirling around them. They all, however, demonstrate Indigenous cartographers' movement to utilize their medium and develop it in new ways in order for their peoples' stories to survive. By necessity, these cartographers invented as they went,

and contributed critical interventions in mapping nationhood, sovereignty, homeland, violent upheaval, and ethnic cleansing. Up to this point, no known cartographer had developed cartographic practices that specifically addressed how to document genocide; consequently, I argue that Indigenous people pioneered this particular genre of mapping.

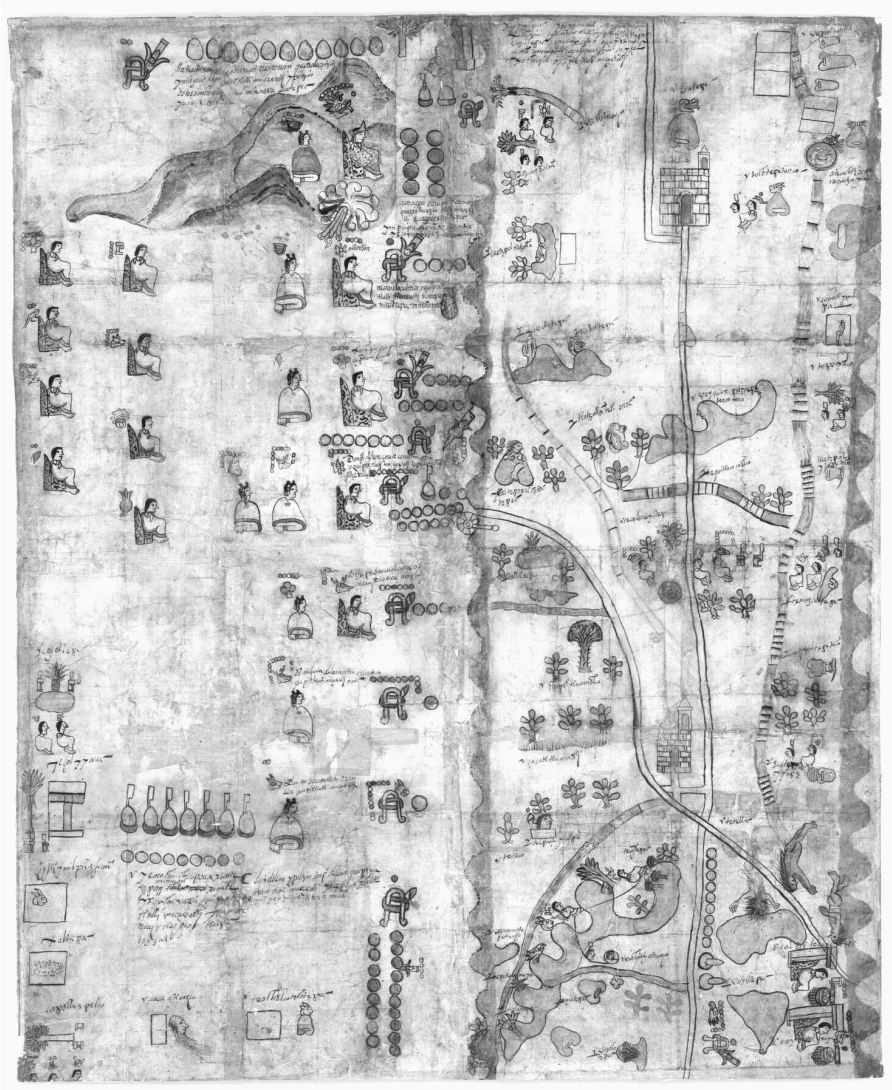

Figure. Mapa de Ecatepec-Huitziltepec/The Codex Quetzalecatzin *(Mexico: Producer not identified, 1593). Map can be viewed in detail at the Library of Congress, https://www.loc.gov/resource/g4701g.ct009133/.*

The Codex Quetzalecatzin (fig. above) provides the first example of such mapping as well as evidencing the efforts colonial forces have made to destroy Indigenous intellectual property. Recently acquired and made available for public viewing by the Library of Congress, the Codex Quetzalecatzin dates to the late 1500s, which makes it one of less than one hundred Indigenous maps of pre-1600 Mexico in existence. The Codex Quetzalecatzin depicts the genealogy and property of the de Leon family, who are descendants of Quetzalecatzin, a major Nahua leader in the late 1400s. Drawn with Indigenous dyes, namely "Maya blue" and cochineal, Nahuatl (Aztec language) hieroglyphics trace this lineage on the map. These features adhere to previously developed Nahua cartographic practices. However, the codex breaks from these practices in its depictions of colonial occupation: some members of the de Leon family are listed with Spanish names, suggesting they had been baptized, and churches and Spanish place-names also dot the map.

Documenting the transition from Indigenous nationhood to colonial occupation and the development of colonial society, the Codex Quetzalecatzin has been lauded as one of the most important documents in Indigenous history. However, I suggest that we emphasize the importance of this map by interpreting it not as a document portraying the inevitability of colonial rule or assimilation, but as a guide to Indigenous survivance. It is no surprise that colonial museums and academics have read this map as an example supporting their grandiose, romantic narrative of the development of the Americas, but where they see Spanish victory, I see Nahua resilience. The Nahua creators of this map most likely knew that if they did not incorporate Spanish elements into the map, it could be destroyed. Representing life under Spanish occupation was not only an aesthetic choice, but a matter of survival. The cartographers involved in the creation of this map refused to forget their lineage, refused to abandon their traditional dyes or language, and refused to depict a vision of Spanish rule without its thriving Indigenous families and landholdings. In creating a map with those objectives, they gifted their descendants with a guide that not only places them within a lineage of a great leader and represents the beauty of Nahuatl, but also teaches deep connections to land with its inclusion of territorial areas and use of natural dyes, and reminds us of continued Indigenous survival in the face of occupation.

On the coast of southern Alaska nearly 300 years later, a Tlingit leader and his two wives drew another masterpiece of Indigenous cartography. The year was 1869, and the American government was eager to gather cartographic data on the Alaskan coastline, which was relatively foreign to them. US Coast Survey employee George Davidson was sent to gather such data and arrived in Sitka on a mission to observe a solar eclipse. Also recently arrived in Sitka was Kohklux, a Tlingit clan leader who had participated in the 1852 Chilkat raid of Fort Selkirk—he and his group had been arrested.[10] In exchange for their freedom, Kohklux agreed to support Davidson's team by taking him to an ideal location to view the eclipse. Davidson traveled with Kohklux from Sitka to the village of Klukwan to observe the eclipse from the capital of Chilkat Tlingit territory.

Kohklux was fascinated with Davidson's knowledge of the eclipse, and Davidson was eager for information on the local territory. After Davidson, Kohklux, and his

wives (who, unfortunately, have not been named in any literature on this map) watched the eclipse, the four of them agreed to a trade: Davidson painted the eclipse on the blank side of a Tlingit blanket pattern board and gave it to Kohklux in exchange for a detailed map of Chilkat Tlingit homeland and the massive trade routes connecting it to the Alaskan interior.[11]

Creating this map took Kohklux and his wives three days. It covered five hundred miles and included place-names in at least three Indigenous languages. Speaking in Chinook Jargon, Davidson and Kohklux and his wives were able to consult on English translations for these place-names, and Davidson was able to record more than one hundred of them. As John Cloud notes, the pencils they used were new technology for Kohklux and his wives.[12] Because some of their lines were very faint, with their permission, Davidson used ink to trace the map onto a piece of cloth. This finalized map documented locations of major geographic features like mountains and valleys, river and land trading routes, and prominent trading sites.

Like Piailug's navigational charts, the Kohklux map shows the sophistication and incredible breadth of Indigenous knowledge of the environment they navigated, spanning much larger geographic distances than colonial scholars and settlers believed. It is also noteworthy that the map was also drawn to scale based not on distance, but travel time, and that landmarks like mountain ranges were drawn three dimensionally, a use of scale and three-dimensional topography that remains quite advanced. In contrast to rampant historical stereotypes of Indigenous peoples as being unintelligent, lacking spatial awareness, and primitive in their science, the Kohklux map depicts Tlingit people and their trading partners as multilingual master navigators, successful traders and diplomats, and skilled cartographers.

Despite its significance, the map sat ignored in archives for more than a century: the original pencil map was kept in the Bancroft Library archives at University of California, Berkeley, while the cloth version was kept in the National Archives in a collection of topographic maps, where John Cloud discovered it in 2007.[13] A few years later, Cloud secured funding to deliver digital versions of the Coast Survey maps back to the Chilkat Tlingit people. Kohklux was also known by another name, Shotridge, and Kohklux's grandson Stuwukáa (Louis Shotridge), eventually became the Penn Museum's first Indigenous curator. Stuwukáa collected hundreds of items from his home territory, which are now in the process of being repatriated. Whether his grandfather's effort to document Tlingit and other Alaska Native cultures inspired Stuwukáa is difficult to know, but we can say that this family made immeasurable contributions to preservation of Tlingit lifeways. Thanks to Kohklux and his wives and grandson, their experimentations with colonial technologies and forms of knowledge production have given their descendants and other Indigenous peoples of Alaska precious knowledge of their relationship to the land.

Less than ten years after Kohklux and his wives drew their map, the Cheyenne leader Crazy Mule was also busy creating two maps that were commissioned by the American government. When the Two Moons Band of Cheyennes surrendered to the US military in April 1877, Crazy Mule, his brother Stands Different, and seven other Cheyenne and Lakota warriors of the band were taken as hostages. After Crazy

Mule turned in his weapon and ponies, he and his brother enrolled as scouts serving General Miles. Crazy Mule drew both maps retrospectively as he reflected on his experiences and knowledge gained while a scout; they were drawn in Sidney, Nebraska, for Lieutenant Bourke, an aide to General Crook. Even though Crazy Mule was forced to serve his "former" enemies, when he was no longer able to fight colonial occupation in other ways he utilized mapping to preserve Indigenous experiences of dispossession, forced relocation, and genocide. The only documentation we have of the experiences of a Cheyenne scout, these maps visually represent Indigenous perspectives on stories that previously had only been held in oral archives. They are a powerful representation of Cheyenne, Lakota, and Nez Perce ties to homeland and efforts to survive.

As with interpretations of the Codex Quetzalecatzin, Crazy Mule's maps have been seen as a unique example of transitional Indigenous life under increasing colonial rule, as Linea Sundstrum and Glen Fredlund argue. In arguing for four "types" of mapping common among Indigenous cultures of the Great Plains, they categorize the Crazy Mule maps as "biographical mapping," with the three other types being ceremonial maps (utilized in religious ceremonies), message maps (usually informal and sent as directions to stragglers in the process of migration), and trade-route maps created for settlers.[14] According to Sundstrum and Fredlund, biographical mapping mostly focuses on oral accounts of battles, major events, and warfare; other examples of such mapping in Plains cultures include winter counts and ledger art. The Crazy Mule maps, however, document colonial dispossession as well as warfare and major events, and thus differ from other maps that may be placed in this category. What sets Crazy Mule's maps apart are the attention to experiences of Indigenous refugees attempting to escape the violence of the Indian Wars.

His first map chronicles two battles he observed as a scout, as well as the aftermath. The first of these battles was the siege and capture of Chief Joseph's band of Nez Perce in the Bears Paw Mountains in north-central Montana. Crazy Mule not only mapped the battle itself, but also the route the Nez Perce had taken while trying to flee to Canada. Since Crazy Mule did not accompany the Nez Perce on their journey, it is presumed he gained this knowledge after the battle by communicating with incarcerated Nez Perce warriors using Plains Indian Sign Language. His choice to privilege the Nez Perce narrative of their attempt to survive, rather than Miles's story of their pursuit, shows that while he may have been working as a scout—and arguably, violence may have coerced him to do so—Crazy Mule still empathized with Indigenous attempts to survive. On the same map, moreover, he again chose to feature the Indigenous experience of events. In addition to depicting Miles's invasion of Lakota leader Lame Deer's camp, he also documented the trail of abandoned camps the Lakotas left behind as they fled to North Dakota.

The second map depicts a painful moment in Cheyenne history—forced removal from homelands to Indian Territory. Now known as Oklahoma, the Indian Territory lands allocated to the Cheyenne were a malaria-infested wasteland where many starved to death. After his missions on the previous map, Crazy Mule was tasked with escorting a group of Cheyennes to this area in the summer of 1878. The group left Fort Lincoln, traveled through the Black Hills, and stopped at Bear Butte to fast and

pray. They continued through Fort Robinson to Sidney, where Crazy Mule drew the maps, and finally, on December 9, arrived in Fort Reno.

Just a month later, in a last attempt to return to their homelands, Cheyenne prisoners famously broke out of Fort Robinson and survived multiple massacres, events which eventually prompted the government to create the Northern Cheyenne reservation in Montana. Crazy Mule's group, however, did not participate in the Fort Robinson Breakout; they were permitted to relocate to the Pine Ridge reservation three years later, and then to return home to Montana when the Northern Cheyenne reservation was created. Crazy Mule himself, however, remained a scout and was sent to Fort Keogh. Eventually he joined his people in Lame Deer and became one of the first Indian police officers on the reservation.

My final example of anticolonial mapping discusses a collection of works by Yurok leader Lucy Thompson (Che-na-wah Weitch-ah-wah), who utilized cartography in her fight to preserve her tribe's religious beliefs. Thompson was both a highly respected member of Yurok aristocracy and prominent within local settler society. During her lifetime, her own Yurok people and the neighboring Hupa, Karuk, and Wiyot nations had suffered massacres, forced relocation, starvation, and slavery. Frustrated with inaccurate representations of her culture and the violence perpetrated against Native peoples in northern California, in 1916 Thompson leveraged her privileged position as an aristocrat and wife of a respected white man to publish an autobiography, at a time when it was rare for a Native woman to be able to publish anything.[15] Thompson's autobiography documented not only her own life, but also her culture and the major events of the time. Indeed, Thompson's stated reason for writing the book was her concern that her people would not survive the genocide, and thus it was her hope that their culture at least would survive in the pages of her book.

For the original edition, Thompson drew a single map to explain a ceremonial event, the White Deerskin Dance, which depicts major rivers, place-names, and ceremonial and gathering sites.[16] While this one page is a map from a Western perspective, I argue that Thompson's entire book—rich with stories about Yurok connection to land, as well as land dispossession—can be seen as a map in literary form. Throughout, as Thompson painstakingly explains the day-to-day life of Yurok people, ceremonial practices, traditional stories, and the violence around her, she ties them all to specific places and provides Yurok place-names. In this sense, her book functions as a kind of atlas for Yurok people today, one that weaves together place, language, stories, and history to create a guidebook with which future generations can navigate varying elements of their culture.

Decolonial Mapping

In contrast to anticolonial mapping (defined herein as actively responding to and resisting colonial violence), the task of the contemporary period of Indigenous cartography is reclamation and reinvention: decolonial mapping. After centuries of colonial occupation, land dispossession, genocide, criminalization, and attacks on Indigenous cultures and lifeways, today's generations are reclaiming knowledges that have been

taken away or forced into secrecy, and reinventing mediums and practices in order to best engage with them. In short, not everything has to be about colonialism: these maps are not about fighting violence, but concerned with moving beyond it. I argue that although the job of any map is to tell a story as it relates to place or space, as cartographers it is crucial that we utilize and develop praxes that tell Indigenous stories in a meaningful way. Created by and for Indigenous people, decolonial mapping engages with this meaningfulness by telling our stories in the ways that we want them to be shared.

Ojibwe writer Lois Beardslee's fiery words about women warriors have been inspiring to me in conceptualizing this decolonizing mode of Indigenous mapping:

> Those women warriors, they know when to be lovers, when to be haters, when to be friends, foes, smooth, soft, hard and dangerous. Those women warriors, they know how to use a grain of sand as a weapon. They can fight you back with your own voice, your own words, your own angry breath. They can climb in and out of your expectations and crawl out of your whims on their hands and knees if necessary. They train in secret camps, in sheds and cornfields and forest glens, under the heavy branches of snow-loaded spruce, at kitchen tables, and at computers in public libraries. They cannot be destroyed. Every time one of them is murdered, she reincarnates, becomes new and young flesh, with flashing eyes and elk and windstorms and wild mustangs and '57 Chevys in her hair.[17]

Just as a grain of sand can be used as a weapon, decolonial mapping can utilize miniscule details to communicate immensely powerful ideas. Also like Beardslee's women warriors, decolonial mapping can easily navigate both in and out of colonial academic and aesthetic norms, yet it is only concerned with these standards and expectations when necessary and strategic. Decolonial mapping can be soothing to settler consciences, be abrasive and confrontational, or refuse to engage with them altogether. Decolonial mapping is a product of the gems carefully maintained and shared by aunties and grandmothers, at coming-of-age and healing ceremonies, in longhouses, in the books they fought to leave for us in libraries and archives, at kitchen tables, during rides home from the casino, or while brewing cups of tea made just like her grandmother did. It is also a product of generations of Indigenous youth who grew up watching the American Indian Movement, the Oka Crisis, Idle No More, and thousands of Native people who survive the violence of colonial higher education.

In trying to describe the aesthetics of decolonial mapping, my mind is filled with images of ribbon skirts paired with Jordan sneakers; tobacco offerings left on concrete; berry soup in Styrofoam cups; sweetgrass braids on dashboards of beat-up old cars; red paint on the faces of my undergraduate students; videos of a friend's baby playing with a drum posted on Facebook; and the raised fist and giant Lakota pride tattoo a man showed off on his back as my car speakers boomed Cheyenne flag songs at the site of the Battle of the Greasy Grass. We survive by any means necessary. We survive on our own terms. We survive using any technology or materials we want. We are grounded in ancestral knowledge and unapologetically Indigenous, without holding ourselves to anyone's standards on what is traditional enough, modern enough, Indian

enough, educated enough, or scientific enough. We Indigenous people and the decolonial maps we create are not the clashing of two worlds of opposites; we are whole beings, traversing the spaces between and through disparate realities that are layered over shared geography. Decolonial mapping is liberatory in its freedom from norms or standards. Colonialism may be one of the realities we navigate, but it does not define the type of stories we tell, or how we draw them.

It should not be a surprise that Indigenous women warriors and decolonial mapping have these elements in common. As I have discovered, those warriors are some of the cartographers developing this decolonial medium. I met one of these women in what felt like a most unlikely place—a cartography conference. In presenting some of my work, I communicated some frustrations and feelings of isolation and alienation from the field. This cartographer approached me afterward and handed me a small piece of paper with names of fellow Indigenous cartographers for me to look up. This small gesture had a profound impact; I realized the alienation that I had felt was racialized exclusion that appeared in the guise of scholastic rigor, and, most likely, was gendered exclusion as well. We are not really alone, but made to feel more rare and disconnected from one another than we actually are. Indigenous people do make maps—that little piece of paper was proof. In this sense, my brief interaction with this cartographer served as inspiration for this paper: so if we do make maps, why are we repeatedly told that we do not?

The cartographer I am speaking of is Margaret Pearce of the Citizen Potawatomi Nation, whose work is an example of the rigorous efforts to privilege indigenous place-names. Pearce worked for years in collaboration with the Penobscot Nation to create maps of their territory in the northeastern United States. They produced a beautiful bilingual map depicting Penobscot place-names, significant gathering and ceremonial sites, and trade and travel routes. One side of the massive map is in English, the other in Penobscot, with a Penobscot language pronunciation guide and an adjoining gazetteer for reference. The map also traces traditional Penobscot stories throughout the land represented and contains artistic renderings of animals significant to Penobscot culture. This map is perhaps one of the most comprehensive efforts to revitalize and honor Indigenous place-names, and executed with painstaking attention to detail and Penobscot epistemologies. Its significance therefore is not just in its contribution to the Penobscot Nation, but to all Indigenous cartographers seeking guidance in how to map Indigenous territories and their relationship to language.

Pearce has also worked with Renee Pualani Louis, another Indigenous cartographer engaged in developing decolonial mapping; their article, "Mapping Indigenous Depth of Place," was also published in the *American Indian Culture and Research Journal*.[18] Pualani Louis's recent book, however, is perhaps an unprecedented contribution to the revitalization of Indigenous cartographic practices. In *Kanaka Hawai'i Cartography: Hula, Navigation, and Oratory*, Pualani Louis examines Native Hawaiian cartographic praxes, demonstrating how Hawaiian spatiality and epistemologies are implemented in cultural practices such as hula and oceanic navigation. The book is replete with maps and charts in Hawaiian language that reflect Hawaiian star knowledge, place-names, and cultural frameworks. A beautiful example of decolonial mapping and indigenous spatial theory, Pualani Louis's work honors and reclaims the cartographic interventions

developed by Hawaiian people while it also rejects colonial norms of what constitutes a map or spatial theory.

My own cartographic work attempts to open new possibilities for decolonial mapmaking by exploring the roles narrative mapping can play in imagining restorative justice, as well as by examining map-making itself as a healing process. In the spirit of Crazy Mule, I have endeavored to contribute to Indigenous narrative cartography of genocide. Rather than analyze a finished map, my work is concerned with the mapping process itself and how the creation of the map helped to produce a map that tells a more holistic story of violence. For my master's thesis, for example, I created a collection of six maps that depict varying intergenerational narratives on Indigenous experiences of genocide.[19] Informed by Indigenous epistemologies and aesthetics, these maps represent three forms of genocide—destruction of nationhood and erosion of sovereignty; mass death and dispossession; and the ways in which intergenerational trauma has caused families and communities to become toxic. My aim in this work is to effectively communicate the varied scale of the loss and violence suffered, and in addition, that cartography has been, and can be, not only a powerful medium that Indigenous people use to tell their stories, but also, through the map-making process itself, to find healing. This assertion is based on self-reflexive analysis of the process of map-making, during which I interrogated my own experiences of violence as part of much larger narratives of genocide. I am a survivor of sexual and domestic violence and a Cheyenne woman. This map-making process empowered me to tell my stories in a way that was meaningful and indeed healing for me. I am currently continuing to research mapping data on missing and murdered Indigenous women.

Indigenous People and Cartography Today: Why Maps Matter

I assert that these varying types of Indigenous mapping practices, spanning large geographies and timelines, demonstrate cartography is unquestionably an important facet of Indigenous cultures. As we can see, rhetoric and scholarship that ignores Indigenous cartographic practices denies thousands of years of advancements, traditions, and intellectual property created by Indigenous people. When a person says, "Indians don't make maps," they are erasing the achievements and intelligence of Indigenous ancestors. For hundreds of years, colonial academics have lied to themselves and the societies they inform, telling the world that Indigenous peoples are primitive, lacking even the will to invent the basic items Europeans used to measure civilization. Many continue to lie to themselves that they are not creating work biased by such colonialist intellectual heritage and that they have left that legacy behind. Many hide behind "politically correct" syllabi and language, yet in remaining willfully ignorant of the contributions of Indigenous intellectuals, rest in the ignorance required to confidently repeat, "Indians don't make maps." Indigenous students have a right to learn about the intellectual traditions of their ancestors, and the additional right to continue these practices without the racialized bullying that works to erase the full beauty of their cultures.

Moreover, as the erasure of Indigenous mapmaking traditions fuels ongoing colonial dispossession of our intellectual history, it additionally supports the ongoing

occupation and theft of Indigenous territories. The maps our ancestors created clearly demonstrated connections to land, and the places we gathered, harvested, hunted, traveled, and prayed. They documented place-names, land theft and occupation, refugee routes, trade routes, traditional stories, celestial knowledge, massacre sites, navigational technology, and the myriad ways in which Indigenous peoples engaged with the land and peoples around them. When we allow those maps to collect dust in archives and tell the world that they do not exist, we erase the labor, sacrifices, and intellect of Indigenous cartographers and the territories and people they fought so hard to advocate for in their work. Honoring and reclaiming Indigenous mapping praxes is a crucial element of working towards restorative justice for Indigenous peoples. Both the historic maps and continued work represent a rich intellectual history and significant contributions to cartographic science, but more largely, provide a pathway with which Indigenous people are able to reclaim their relationships and responsibilities to their homelands, and interrogate how those stories may be told.

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Notes

1. Cindy Smithers Graeme and Erik Mandawe, "Indigenous Geographies: Research as Reconciliation," *International Indigenous Policy Journal* 8, no. 2 (2017), https://doi.org/10.18584/iipj.2017.8.2.2.

2. Jouko Keski-Säntti, Ulla Lehtonen, Pauli Sivonen, and Ville Vuolanto, "The Drum as Map: Western Knowledge Systems and Northern Indigenous Map Making," *Imago Mundi* 55, no. 1 (2003): 120–25, https://doi.org/10.1080/0308569032000097558.

3. Brian Tucker and Reuben Rose-Redwood, "Decolonizing the Map? Toponymic Politics and the Rescaling of the Salish Sea," *The Canadian Geographer/Le Géographe canadien* 59, no. 2 (2015): 194–206, https://doi.org/10.1111/cag.12140; Sarah de Leeuw, Emilie S. Cameron, and Margo L. Greenwood, "Participatory and Community-Based Research, Indigenous Geographies, and the Spaces of Friendship: A Critical Engagement," *The Canadian Geographer/Le Géographe canadien* 56, no. 2 (2012): 180–94, https://doi.org/10.1111/j.1541-0064.2012.00434.x.

4. I use the term *scholarly epistemic violence* to refer to reiterative epistemological practices within academia that constrain not only what we know, but the ways in which we know it, in service of violent, oppressive systems of power. In the context of Indigenous histories, the most prevalent example of such violence is the insistence upon centering colonialism and settlers within Indigenous narratives. We do not commonly refer to Indigenous histories by temporal markers consistent within their own cultures (e.g., the winter the horses froze, the time before the great flood, the dog days); rather, we refer to them as pre- and postcontact, or even worse, pre-Columbian (as if Columbus arriving in the Caribbean in the 15th century bears any relevance to something like a 12th century piece of pottery). When Indigenous histories must be filtered through settler histories in order to be made visible or legible, colonialism becomes the means through which Indigenous people have a history at all; they cease to have meaning outside of their relationship to colonialism. Ultimately, this bolsters

the power of ongoing settler-colonial occupation by framing colonialism as an inevitable and unquestionable signifier of meaning, erasing Indigenous notions of time, and denying Indigenous rights to narrative sovereignty regarding their own histories.

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9. Formalized versions of Piailug and Nainoa Thompson's star charts are available courtesy of the Polynesian Voyaging Society, http://archive.hokulea.com/ike/hookele/star_compasses.html.

10. Michael Gates, "There's a Dramatic Story Behind the Kohklux Map," *Yukon News* (Whitehorse, YT), December 15, 2007.

11. See John Cloud, "The Tlingit Map of 1869: A Masterwork of Indigenous Cartography," *Expedition* 54, no. 2 (2012): 10–18.

12. Ibid., 13.

13. Ibid., 16.

14. Linea Sundstrum and Glen Fredlund, "The Crazy Mule Maps: A Northern Cheyenne's View of Montana and Western Dakota in 1878," *Montana: The Magazine of Western History* 49, no. 1 (1999): 46–57.

15. Mrs. Lucy Thompson, *To the American Indian* (Eureka, CA: Cummins Print shop, 1916), https://books.google.com/books?id=o5QLAAAAIAAJ&printsec=frontcover&source=gbs_ViewAPI#v=onepage&q&f=false.

16. Lucy Thompson, *To the American Indian: Reminisces of a Yurok Woman* (Berkeley: Heyday Books, 1991), 134. In addition to the original 1916 map, the 1991 reprint includes a map of village sites, place-names, and present-day reservation boundaries.

17. Lois Beardslee, *The Women's Warrior Society* (Tucson: University of Arizona Press, 2008), 19.

18. Margaret Pearce and Renee Pualani Louis, "Mapping Indigenous Depth of Place," *American Indian Culture and Research Journal* 32, no. 3 (2008): 107–26, https://doi.org/10.17953/aicr.32.3.n7g22w816486567j.

19. Annita Lucchesi, "-hóhta'hané: Mapping Genocide and Restorative Justice in Native America," MA thesis, Washington State University; 2016.