SUBJUGATION BY NOISE:
COLONIAL RETUNING OF KNOWLEDGE, LANGUAGE, AND LAND

By

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ABSTRACT

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This dissertation explores how sound was used as a part of a strategy of domination by colonial powers. Using the theory of the soundscape advanced, I argue that colonization used sound as means to retune the cultures and geographies of colonized and formerly colonized peoples. I use "retune" as an analytic to describe the epistemological, ethical, and environmental processes by which a colonial power alters the function and meaning-in-sound to serve its purposes. The dissertation examines retuning within two contexts: linguistic and environmental. The dissertation's first half unpacks how colonization transfers hermeneutic power through the creation and imposition of syllabic writing systems. Syllabic writing systems cannot express the range of meaning in sound used in the languages of colonized peoples. Thus, meaning is contorted to fit into the syllabic structure imposed by colonizers. The second half of the dissertation explores how soundscapes can be tools for environmental injustices. In particular, I examine how unwanted sounds (i.e., noise pollution) are dumped on Black, Indigenous, Brown, and other marginalized people. Environmental solutions to noise pollution often do not provide justice to marginalized peoples for the harms of environmental noise pollution. In order to address justice concerns for all entities, I argue we should adopt non-anthropocentric forms of Indigenous environmentalism.

To everyone who has made this possible:
Thank you.
To my nephews and niece:
I hope to leave you a better world than I inherited.

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my identity. There are too many others to name but thank you all for the gifts you have given me. I will sow seeds for a better future for others.

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CHAPTER 1

Sound, Society, and the Soundscape

From January to July 1964, the federal government tested the effects of sonic booms on people and buildings, using non-consenting residents as guinea pigs. Jets would fly over the city close enough from the ground that the sonic booms would vibrate buildings and destroy property. Residents were physically sickened from the noise exposure, and their lives were miserable due to the plague of noise. The soundscape of Oklahoma City was turned into a dumping ground for noise. The noise was such as problem that thousands of lawsuits against the federal government during the testing (Suisman 2015). In another instance, the soundscape was weaponized against Jannique Martinez and her family. The family moved into a Virginia suburb with her husband and children. Shortly after moving in, her neighbor began playing racist sounds, including monkey noises and voice recordings of derogatory language, anytime she left her house. Using motion sensor cameras, which surveilled the Martinez home, the neighbor ensured the racist sounds would automatically trigger whenever movement occurred on the Martinez property. Martinez sought relief from her racist neighbor by reporting him to the local police. The police stated that what the neighbor was doing did not violate any civil, criminal, local ordinances, or statute related to noise policy. The state district attorney stated, "As appalling and offensive as the neighbors' behaviors are, the city attorney and Virginia magistrates" have determined "actions thus far did not rise to a level that Virginia law defines as criminal behavior" (Bella 2021). As a result, "the [Virginia Beach Police Department] has had no authority to intervene" (Bella 2021). The law allows the soundscape to be weaponized against the Martinez family. The legal loophole shows that the acoustic layer of one's existence can be utilized, with impunity, to inflict what should properly be called sonic racism.

The two instances represent how soundscapes can be used as tools of environmental injustice or domination. One of the earliest western works on the relationship between soundscapes, noise, and society is a 1967 extended pamphlet titled "The Book of Noise." The document lays out a

preliminary framework for understanding that the world's soundscapes are dying due to increasing anthropogenic noise. The pamphlet was expanded into a book called *Tuning of the World* by R. Murray Schafer. The book still stands as one of the best texts evaluating the social and ecological effects of the continuous expansion of anthropogenic noise. Schafer develops the concept of the soundscape, an analytic tool to capture the sonic topography of space, including its social and environmental elements. What is of particular utility is how the text illuminates aspects of our sonic relationship in ways that show the significance of sound in lived experiences and our environmental sustainability. However, the book fails to address issues of justice that arise due to the use of the soundscape. It is at the intersection of justice and the soundscape that this dissertation begins.

The concept of the soundscape was introduced into academia by R Murray Schafer in the 1977 work *Tuning of the world*. That work was republished in 1993 under *The Soundscapes: Our Sonic environment and the tuning of the world*. Since its reintroduction, the book has been cited over 6k times. The concept of the soundscape has been widely used in academic and popular discourse. The concept is so prolific and used in so many contexts that some argue that it has lost meaning (Kelman 2010). In the academic context, Schafer's work has been cited in a broad range of disciplines, including sound studies, communication, environmental sciences, environmental ethics, ethnomusicology, gender studies, women's studies, Africana studies, political philosophy, and urban studies. The concept has found its most frequent utility in interdisciplinary works as the work itself touches a variety of disciplines. Schafer's concept has been the cornerstone of many academic disciplines, popular works, and academic papers and continues to be a resource for scholars and others thinking about sound and society. It is because of the lasting influence and legacy of the original work that Schafer's work is of central focus for this dissertation. This section will briefly trace some of the ways in which the soundscape has been deployed by others in both academic and

popular works. To be clear, I am tracking the proliferation of Schafer's term and associated concept, not its definition.

Schafer's major work, *The Tuning of the World*, sought to bring attention to sound as a significant feature of human socialization, political systems, and physical and mental well-being. It also wanted to bring attention to the declining relationship humans have with the soundscapes and acoustic experience in the world. His text mapped out the historical decline of the natural soundscapes due to human technologies, particularly the rise of noise producing inventions of the Industrial Revolution. These technologies set humanity on a determinist path that is responsible for the decline of the world's natural soundscapes. Schafer fears the loss of quiet. His concern is not only environmental but social as well. Sound is interwoven with the social, cultural, and political aspects of society. Schafer links the state of sonic production to the state of the state. He says, "When the rhythms of the soundscape become confused or erratic, society sinks to a slovenly and imperiled condition. That was the thesis announced in the introduction to this book (Schafer 1993)." Speaking about the link between sound and governance, he says, "the egalitarian and enlightened reign of Maria Theresa (for instance, as expressed in her unified criminal code of 1768) and the grace and balance of Mozart's music are not accidental" (Schafer 1977, 1993). To that end, a world filled with noise implies social conditions are too in disarray or deadly for individuals (Schafer 1993).

In his view, technology does not just introduce noise into society. It altered the social, economic, and cultural relationships humanity has with the natural environment and with other people. The rhythms of work introduced by factories, the modes of transportation, and the expansive geographies of industrial noise are some of the social-sonic impacts that are of concern. What sounds populate the soundscape? How did those sounds come to populate the soundscape? What should the world sound like? These are some of the questions that are of concern to Schafer and should be of concern to society. However, these questions do not ask whether the Martinez

family should hear racist noise or whether it is fair that the residents of Oklahoma City must reside with noise. Though Schafer's work nudges us to think about soundscapes and society, it does not ask us to think about justice. Domination is seemingly only of concern to the environment, not to people.

Yet, I think *The Tuning of the World* deserves focus because of the breadth of the work. Schafer tied together the social, historical, political, ecological, cultural, semiotic, and embodied experience of sound into a single text in a way that, in my view, has not been replicated. One example is that Schafer thinks that sound reveals moral and ethical flaws in our embodied being. He says, "The Music of the Spheres represents eternal perfection. If we do not hear it, it is because we are imperfect… But our imperfection is not merely moral; it is physical also" (Schafer 1993). While I disagree with much of this work, few of the traditional theorists consider sound to have social, moral, ethical, political and embodied implications. Schafer's work engages with both the humanistic and scientific aspects of sound, including analysis and methodological tools. This dissertation engages with the humanistic aspects of Schafer's work, as very few other theorists have done this.

It is the humanistic interrogation of the sound, I think, that has Schafer's concept broad utility. The concept of the soundscape is still used as a broad catch-all for ways of talking about the role of sound in shaping our lived experiences in the world (Kelman 2010). It also helped usher into the academy conceptual language, tools, and methodologies for the scientific study of the relationship between sound, society, built environments, and the ecological world. The soundscape was a concept capable of capturing the ways in which humanity's heard experience—which I understand broadly to include acoustic phenomenology in deaf and hard of hearing communities— has been declining over time and the loss that continues to accumulate. It makes concrete that sonic layer of reality that is in need of caring for and revitalizing.

In addition to Schafer's original work, I highlight two other theorists. Barry Truax, an early collaborator with Schafer, published the "Handbook on Acoustic Ecology" in 1978. Truax's main contribution is the inclusion of technology into the soundscape. His book *Acoustic Communication* explores how technology alters the soundscape, listeners, and acoustic communities (Truax 1977, 2001, 2008). Bernie Krause is another early scholar whose theoretical contribution includes refining the concept of the soundscape into three components: biophonic, geophonic, and anthropophonic sounds. His work, *Voices of the Wild*, captured the deterioration of soundscapes across the world by recording the same soundscape at different times through the years (Krause 2015). Many other theorists have expanded the field of acoustic ecology and continue to expand the methods, tools, and theories that undergird further research into the acoustic environment.

There are many scholars and popular authors who have advanced a version of the concept of the soundscape. However, my focus remains on Schafer. His original work is still one of the most insightful works on sound, society, and our acoustic life. The influence of his work is why it is a central text in this dissertation. The dissertation will not discuss the work of other theorists except as it relates to Schafer's work. It should be noted that there are criticisms of Schafer. One criticism is that as the soundscape has become a more popular concept, the theory itself has lost its meaning (Ingold 2007). The concept of the soundscape has been stretched to mean too many things and thus lacks utility to describe the phenomenon in the world. Ingold does not think the concept should be abandoned; rather, he thinks the term should be restricted in its theoretical application.

Another criticism offered by Kelman states that Schafer's historical analysis is rooted in the imagination of an ideal soundscape (Kelman 2010). The Tuning of the World is written as a historical narrative explaining how time and technology have turned what was a divine acoustic environment into a sonic wasteland. This view of sound and society romanticizes humanity's relationship to sound and sonic environments. Additionally, romanticism erases the many native

peoples who have been stewards of the soundscape and continue to be stewards as part of their cultural heritage. Schafer universalizes the experience of all people with the soundscape. These criticisms highlight an idealism that grounds Schafer's work. Idealism is a liability in his thinking because it allows for philosophical and material erasure that will eventually harm individuals. These erasures begin with how the original text defined the soundscape.

From its initial use in the 1970s, the term soundscape has been somewhat fluid. Schafer's original use of the term did not explicitly define it. He simply stated that a soundscape is "the acoustic environment that can be isolated for study" (Schafer 1977, 1993). I believe Schafer was intentional about the breadth of this definition since he thought the entire world needed to be tuned. The definition made the term find utility in all kinds of projects. Thus, other theorists sought to refine the meaning. For example, Barry Truax defines the soundscape as "An environment of sound (or sonic environment) with emphasis on the way it is perceived and understood by the individual, or by a society" (Truax 1977). Truax emphasizes the interpretative and epistemic dimensions of the soundscape. Social meanings are imbued into the soundscape giving it unique cultural value and grounding the formation of acoustic communities. Krause argued that technology has made it necessary to refine the concept of the soundscape. Due to the complexity of sounds that are in the soundscape, Krause argues that soundscape acoustics should be "described as comprised of three active acoustic sources: biophony, geophony, and anthropophony" (Krause 2008). Krause's definition takes a more ecological approach to the definition of the soundscape because it is the product of a study at the Envirosonics lab at Michigan State University.

Several other definitions have been given for the soundscape. Payne et al. sought to eliminate the amorphous nature of the term soundscape because it hindered accurate research into the concept. Payne et al. reviewed 500 academic writings, case study assessments, soundscape design assessments, and interviews with soundscape experts. They defined the soundscape as "the totality

of all sounds within a location with an emphasis on the relationship between individual's or society's perception of, understanding of, and interaction with the sonic environment" (Payne et al. 2009). Payne et al. use of the terms "perception" and "understanding" more explicitly focuses on the interpretative and experiential nature of soundscapes. In the book *Soundscape Ecology: Principles, Patterns, Methods, and Application*, Alma Farina defines the soundscape as the "entire sonic energy produced by a landscape and is the result of the overlap of three distinct sonic sources: geophonies, biophonies, and anthropophonies" (Farina, 2013). Here the soundscape is again ecological, building directly off of Krause. Porteous and Mastin emphasize the materiality of the architectural and spatial design that houses the soundscape by defining it as "the overall sonic environment of an area, from a room to a region" (Porteous and Mastin, 1985). These definitions all emphasize different ways in which our relationship with the environment is a key component of the soundscape. None of these definitions recognize the power relationships, particularly historical inequities such as colonialism, embedded in the sonic world. Thus, sound never intersects with domination in the way Schafer thought possible.

Before I end this section, I must point out that many other cultures have no need for the concept of the soundscape. The idea that a thing called 'the soundscape' is an integral part of social, ecological, political, epistemological, and cultural systems is not novel at all. In many Indigenous communities, sound cannot be separated as part of the broader ecological understanding since all existence is necessarily an interdependence between all entities, including elements such as sound (McGregor 2009). For example, Deborah McGregor argues that part of Indigenous belief systems includes responsibilities to all entities, including elements like sound. Keith Basso shows how the environment is a central interpretative component in Western Apache language and communication (Basso 1988). The Ashanti people of modern day Ghana derive the names of animals from their specific vocalizations (Deikumah et al. 2015). In these examples, sound, environment, and culture

are not distinct parts of a phenomenon that can be atomized for study. The soundscape is part of the relationships we have with the world and each other. Sound is included within the larger systems of knowledge, belief, and meaning in ways that are not true of Western scientific theories. The idea that sound is an integral part of the lived reality humans experience is not new in any capacity. I take the term "soundscape" and much of the theorizing of Schafer to be an artifact of academic disciplines and meaningful in the sense that these concepts convey information to people within certain academic traditions.

Sound Imperialism and Sonic Colonialism

Schafer's work on noise and sound capitalized on a time when environmental justice was becoming more prominent. The first earth day was in 1970. In 1972, the Noise Pollution and Abatement Act (NPAA) was passed into law. It added a sonic layer to the environmental laws. The NPAA also meant noise was being recognized as public health and quality of life issue by the federal government. Schafer first released his first work in 1967, which describes the multifaceted problem of noise. He defines 'noise' as "unwanted sound" and distinguishes it from 'signals,' which are "desired sounds." Technological advancements have made noise more abundant in more spaces, with silence or quiet becoming a scarce resource. The spread of noise cascaded into greater health, quality of life, and environmental issues. Of importance for my work is that Schafer blames Europe and America for spreading the noise. In particular, he states, "Territorial expansion has been one of our aims… Just as we refuse to leave a space of environment uncultivated, unmastered, so too have we refused to leave acoustic space quiet…" (Schafer 1967). He calls this "sound imperialism" (Schafer 1967, 1977). Imperialism for Schafer is an environmental event with human casualties or costs. He again makes mention of sound imperialism in his more prominent text, The Tuning of the World. In that text, he acknowledges that imperialism has destroyed cultures but does not interrogate sound imperialism as it relates to people and culture. For example, he says in regard to

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the noise print of western technologies, "As the factories and the airports of the world multiply, local culture is pulverized into the background" (Schafer 1993). Schafer neglects the humans that are central to imperialism, as it is a process of human subjugation. It is only by separating people from their lands and environment that the process of subjugation can make happen. Schafer is aware of the territorial expansion and the loss of local sound cultures. Yet, he does not discuss the violence to people as part of the loss of sound cultures. Nor does he engage in the continued destruction of acoustic cultures in the present. Colonialism violently unmakes worlds and then narrates a story in which that violence never existed (Mills 2007). In Schafer's work, the soundscape is unrelated to colonial violence. This dissertation seeks to make present the colonial violence within discourses on the soundscape.

Many works deal with music and colonialism. These texts shed partial light on the soundscape and therefore make important contributions to this dissertation. *The Sonic Color Line* deals with the racialization of sound and its function as both a liberatory tool and proxy for Blackness. The Sonic Color Line "examines how American culture polices the sonic color line at the level of representation, where political powers affix meaning" (Stoever 2016). It shows how race is sonically constructed by the social and cultural listening practices of America. Culture has constructed the perceptual habits of American polity to hear Blackness. In *The Race of Sound: Listening, Timbre, and Vocality in African American Music*, Eidsheim argues Black voices are technologies. Eidsheim argues that Black voices have been, and continue to be, cultivated. Voice training lessons, auto-tune, or simply type-casting actors because of associations of their voice with qualities or traits of the part (Eidsheim 2019). For Eidsheim, voices are technologies through which racialized practices of listening can be constructed. Technology has further the creative capacities allowing the 'Black voice' to be wholly conjured from machines. In contrast, *The Color of Sound: Race, Religion, and Music in Brazil* argue that Black gospel singers in Brazil strive to create an essentialist

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Black voice. Burdick examines how religion, music, and Blackness are woven together materially through voice to form an Afro-Brazilian identity (Burdick 2013). These texts address the sound as they engage with music and race. The sounds of the soundscape are far greater than just music. Sound is too often narrowly theorized as music. Music is a kind of sound, but the category of sound includes a much larger set of things. The narrow interpretation of sound as music, which these texts reinforce, is precisely what my dissertation aims to go beyond. Additionally, the scope of these texts is not colonial but racial. Race and music do not describe the broad usage of sound to subjugate a people. As such, discussion of the causal role of colonialism and settler colonialism in shaping acoustic perceptions are not addressed.

Some texts do engage with colonialism. However, these also limit sonic engagement with music. In *Audible Empire*, sound is explicitly identified as colonizing force and "a key tool in imposing other forms of discipline and order" (Duffy 2019). However, it notes that the noises of occupation are violent and chaotic to "people, animals, materials and things" in the introduction of the book. The actual content of the text is narrowed to a single dimension of sound—music. As such, the soundscape of colonization is not analyzed or theorized. In *Hungry Listening: Hungry Listening: Resonant Theory for Indigenous Sound Studies*, Robinson address the ways in which ethnomusicology has erased the role of Indigenous peoples of North America's contributions to music and sound studies. Robinson is one of the few works to engage directly with the settler colonial history of opera, erasures of Indigenous peoples' contributions to various music productions, and academic scholarship (Robinson 2020). Another work that excavates the colonial histories of ethnomusicology and sound studies is *African Music, Power, and Being in Colonial Zimbabwe*. In that book, Chikowero recounts the attempts of colonizers to destroy the sonic ways of being in Colonial Zimbabwe. Sound is deeply interwoven in the Indigenous life of the people of Zimbabwe. Chikowero traces colonial forms of domination that targeted the sonic productions of Indigenous

peoples in modern Zimbabwe for destruction and erasure (Chikowero 2015). These works added

the important dimension of harm and violence enacted by colonialism to the musical soundscapes of

various people, including Native Americans and colonized Africans. Yet, they are largely focused on

music and therefore leave out the other sound that is integral to lived reality. This dissertation will go

beyond music, showing how the colonial project incorporates sound into domination.

Some works do engage sound in broader terms than just music. In *Noise*, David Hendy has a

short 12-page chapter devoted to colonialism and the soundscape. In the chapter, he gives a short

cultural analysis of the role sound played in colonial America (Hendy 2013). The brevity of this

chapter does not engage the mechanisms and processes by which colonialism has intentionally

retuned the acoustic perceptions of colonized soundscapes. Hendy recounts incidents where

different meanings, and usage, of sound by colonizers and Indigenous people, were a source of

tensions and division. The chapter highlights different interpretations of sound, which is important

for understanding the sonic harm of colonialism but does not make any further inquiry. In *The

Acoustic City*, the editors explicitly incorporate the work of feminist and post-colonialism studies.

They try to "de-centre some of the implicit assumptions underlying earlier approaches to the study

of sound by including feminist insights, post-colonial threads" (Gandy and Nilsen 2014). These

authors address the historical legacies of research into sound and the soundscape in important ways.

They argue that cultural assumptions of the role of women are reinforced through technologically

constructed female voices, which serve visitors and residents in urban centers. These disembodied

female voices reflect social and cultural power dynamics that assume the role of women in service

within society. These texts address the ways acoustic perceptions are encoding power, yet they do

not address colonialism has done such things. These texts do not show how colonialism is an

acoustic process.

Colonialism: Three Types

Colonialism is not a single process. Broadly speaking, colonialism is a process by which a people, nation, or community are forcibly subdued or dominated by another nation, people, or community. How a people are dominated can be significantly different depending upon the geographic relationship between colonizer and colonized. It also affects the mechanisms of domination by which acoustic perceptions are changed. We can think of colonialism in three distinct kinds of processes – external, internal, and settler. These serve to ground different chapters of the dissertation. Colonization is specific to the goals, geography, and powers that are engaging it. Colonialism does not have a singular form of expression.

External colonialism, also known as blue water colonialism, describes a type of colonialism where the colonial power is physically separated by ocean water from the geographical land that it controls. European colonization of Africa and the Caribbean colonies is a prime example of this. A key feature of external colonialism is the domination of the maintaining of the distinction between the colonizer and the colonized (Memmi 1991; Fanon 2008). The colonizer/colonized distinction is maintained through direct violence, coercion, and administrative laws (Césaire 2001). In *Unity and Struggle*, anti-colonial theorist Railcar Cabral explicates some of the ways that Portugal has enforced the colonizer-colonized distinction. After Portugal enslaved the population and stole lands, they instituted various policies that controlled "the collective and individual life of Africans." Africans were given the legal status of "uncivilized," which placed limitations on education, jobs, housing, and the ability to move through the city. (Cabral 1979). Cabral's story shows the codification of the colonizer/colonized distinction in law, education, labor, and more. This is not unique to Guinea (Wilson 1972).

Many African countries have histories of external colonialism. But some share a history of internal colonialism with other parts of the world. *Internal colonialism* is when a population within a

country dominates and controls another population internally within the same geographic space. Colonization in Latin and South America is emblematic of this kind of colonialism. There, a small cadre of foreign and domestic elites established control over the rest of the population through various administrative schemes and violent land grabs during colonization. South Africa is another example of this. There, the white population set up an apartheid system to completely subjugate and disenfranchise the Black population.

The third form of colonialism is settler colonialism, in which the colonizer embeds themselves into the lands of another by killing off the native population and end up establishing independent nations or establishing themselves new native population (Veracini 2011). One of the better definitions is "complex social processes in which at least one society seeks to move permanently onto the terrestrial, aquatic, and aerial places lived in by one or more other societies…" (K. Whyte 2018a). One of the critical differences between settler colonialism and other forms of colonialism is the ongoing structural elimination of the Indigenous population. In other forms of colonialism, the divide between colonizer and colonized is maintained, but in settler colonialism, that separation must go away so that the settler can become native (Wolfe 2006). Settler colonialism has worked to deny Indigenous people the very right to make claims for their lands. By severing Indigenous relationships to land, colonizers engage in the slow violence of removal and erasure (Tuck and Yang 2012). It has also sought several ways to disappear the Native population through forced assimilation. (Carpio 2004; Stremlau 2005). For example, the US government created the Dawes Act, which made access to native lands, contingent on proving their assimilation into American culture.

The forms of colonialism serve as the basis for theorizing how sound functions as a tool of colonial violence. Importantly, each of the forms of colonialism is not necessarily mutually exclusive. One could argue that the United States is an amalgamation of all three forms. There is settler

colonial genocide of the various Native Americans through land theft, the internal colonization of

African Americans through slavery, and external territorial control of lands physically separated by

water, such as Puerto Rico or American Samoa (Blauner 1969; Gutiérrez 2004; Sailiata 2014).

Additionally, the failure of a colonial state may lead to a transformation in what kind of colonial

state it is. For example, South Africa experienced external colonialism but collapsed into internal

colonialism (Weitzer 1990). Liberia began as a settler colony but collapsed into internal colonization.

Schafer ignores the violence that is endemic to the colonial project. Ignoring colonial

violence is a feature of his theory of sonic domination, causing his theory to be unable to account

for ways colonizers forcibly retuned cultures and environments to fit their needs. Colonization of

the soundscape has led to the theft of interpretative power by creating a writing system for an oral

language to extract knowledge(Grosfoguel 2008; Mignolo 2012). Colonizers razed entire ecologies

for resources, which fundamentally weakened the resilience of environments and destroyed the

existing acoustic communities within those geographies.

A greater problem with erasing colonialism is that it obscures the *causal* role of colonialism,

granting it immunity from participating in the creation of the central problem of his text -- noise.

Thus, colonialism cannot be at fault for the global noise problem, for the destruction of native and

Indigenous sonic cultures, or for ecological damage done to non-human environments. Further,

ecological imperialism, the violently looting of the ecology for resources, cannot be a cause of the

declining soundscape (Clark and Foster 2009). Schafer traffics in the form of colonial innocence, in

which colonizers erasure their role in the subjugation of the colonized (Tuck and Yang 2012; Mills

2015).

The imperial and colonial powers of the old world have become the capitalist powers in our

current world. The world's wealthiest nations protect the world's biggest corporations through

byzantine systems of laws, trade agreements, treaties, and brute force (Grosfoguel 2000; Appel

2019). These governments and corporations are the world's largest polluters tucked away under a political economy designed to hide their actions. Schafer acknowledges that industry, and governments, are responsible for eroding soundscape. He does not offer prescriptions for either to end noise pollution (Schafer 1993). In doing so, his text enacts a form of colonial innocence. The colonial world is abstracted away from the equation, immune to blame, fault, or responsibility. This is the great harm of Schafer's work. It indemnifies colonialism against accountability for the destruction of the soundscape. This text knowingly perpetuates ignorance and colonial ignorance. That is the violence this dissertation calls out (Mills 2015).

The colonial logic of Schafer's text has only recently become recognized. In *Listening to Race and Colonialism within Sound Studies?* Michael Bull begins to unpack the colonial erasures and assumptions that deeply permeate sound studies broadly and in Schafer's text in particular (Bull 2020). Bull acknowledges several ways in which colonialism is overlooked in Schafer's work and sound studies writ large. The same destruction of the natural soundscape that he is worried about in the "Western world" has taken place and continues to take place in soundscapes of other parts of the world. The soundscape has been used to *subjugate* other populations. Schafer sanitizes the violence of colonialism in order to make his analogy work. Unlike Schafer's account of the man with the jackhammer merely boxing out other sonic activities in the soundscape, colonizers came to destroy and disrupt the soundscapes of colonized peoples. If not destruction or disruption, then readjustment was the goal. Taken together, colonizers came to violently retune the soundscapes of the people they encountered to establish their sonic world.

This is not merely expanding control over the soundscape of other populations. European expansionism required the elimination of sounds already existing in other soundscapes. The use of "noise" as a weapon was for the specific purpose of robbing colonized peoples of their cultural heritage, cultural knowledge, and histories by assimilating them and their environments into the

soundscape of European domination. To be clear, the colonizer intended to silence or retune entire acoustic ecologies. In *The Book of Noise*, he writes, "It is we of Europe and America who have produced these problems… The huge noises of our civilization are also a crude manifestation of this same imperialistic ambition" (Schafer 1967). He acknowledges the use of "outrageous sound" is part of the European and American colonial project. There are various acknowledgments of the weaponization of sound by colonial powers. However, there is a lack of engagement with the harms resulting from that colonization.

The entire acoustic world of various Indigenous people in Africa, the Americas, and elsewhere was silenced. The result was an acoustic order that embedded the sounds of the colonizing power. This contrast directly with the title of Schafer's book, "Soundscapes: The *Tuning* of the World (Emphasis added)." In my view, the soundscapes of the present world inflect the historical colonialism. Thus, what we are hearing is the *re*tuned world. I use the prefix "re-" to show that Schafer has Eurocentric assumptions grounding his theory of the soundscape. The difference between Schafer's tuning and my retuning highlights how his theorizing is itself still deeply embedded with Eurocentrism. The extent to which colonialism has not been a significant point of inquiry for soundscape studies or acoustic ecology shows how a theory itself is a form of silencing. This itself is a form of sanctioned ignorance, silencing the voices of the colonized (Spivak 2010; Smith 2013).

Spivak's concept of sanctioned ignorance is specifically on the way Eurocentric knowledge constructs not knowing as a kind of 'success-in-failure.' To know in the colonial knowledge system is to be ignorant of the world of colonized peoples. Schafer's ignorance of the colonized is a structural feature of his knowledge. The issue here is that he creates a structural silence of the entire colonized world in his writings. The structural feature of his ignorance creates a 'subaltern' in the text (Spivak 2010). The subaltern is a class of people who are structurally removed from the sources of power.

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What I find fascinating is that in the subaltern in this particular context, sound and its significance create a sonic subaltern. It is unique in how misinterpretations can arise. The colonial interpreter does not necessarily need to silence colonized. Rather they can merely 'turn down the volume on significant sounds of the colonized. As such, a unique form of hermeneutic violence can result when the knowledge of colonized peoples is filtered through the Eurocentric sonic worldview. When sound is constituted of the very concepts and ideas that are used by the colonized to make sense of the world are absent or obscured, it creates silences and misinterpretations.

Sound has been another way in which colonialism has retuned the world. In Three women's text and critique of imperialism, Spivak says worlding "effectively and violently [slides] one discourse under another" in order to make their imperialistic norms and values seem like it has always been there (Spivak, 1985). Spivak's concept of worlding can be slightly expanded to show how colonialism is returning people's aural relationship to the world and text. By showing how colonization retuned the "audible discourses," we can glimpse an audible worlding, a retuning that embeds colonizers' sounds into the soundscapes of Indigenous peoples across the world. Retuning is the aural process by which colonial powers relocate the sounds and rhythms that constitute everyday life in the colonizers' world. The creation of pidgins; changes to the phonetics of native languages; silencing of Indigenous instruments, oratories, and vocalizations; the sounds generated from the use of colonial materials in production; the sounds of laboring for colonial purposes; silencing of rituals, feasts, and ceremonies; and the environmental changes of unfettered resource extraction combine to impose a world that sounds unlike their own. As such, colonialism de-linked the meanings attached to communities' sounds and re-linked new sounds with colonial meanings attached. They turned to signal to noise and noise to signal to assimilate native peoples into the sonic practices and culture of their colonizers.

Aims of this dissertation

My overall goal is to make clear that sounds and soundscape studies are tools used for violence and subjugation in the day-to-day life of oppressed people. Sound is a weapon against colonized, subjugated, and oppressed peoples worldwide. The soundscape is the medium by which violence is carried out. My dissertation seeks to reveal the violence done through the soundscape. I deploy an anti-colonial discursive methodology through excavating the colonialism erasures in Schafer's text and the corresponding literature to show how these continue to be part of colonial machinery, which subjugates people. There are ways I address domination in the soundscape in this dissertation.

The first is sound as it relates to meaning production and language. Meaning and language, conceived of as sonic productions, have been, and continue to be, sites of colonization (Williams 1975; Skutnabb-Kangas and Phillipson 1990; Wa Thiong'o 1992; Hinton 2003; Harvey 2010; Rickford and King 2016). One of the ways this was done was by creating orthographic scripts for unwritten languages (Lepsius 1863). The mapping of the phonetic systems to a Latin alphabetic script would forever change the relationship between sound, language, and society for hundreds of colonized people (Ong 2013). One specific change wrought by colonialism is linguicism, discriminating on the basis of language. Indigenous languages were claimed to be incapable of science, mathematics, and singing Christian prayers (Harvey 2010; Roy-Campbell 2019). Linguicism directly implicates linguistic sub-economies of enunciation, pronunciation, and intonation, which gave those who could speak the colonizer's language 'properly' access to resources (Mufwene 2017). It gives rise to linguistic soundscapes that privilege colonial languages and phonetic mastery of those languages.

The second sound in the soundscape I address is 'global noise.' Schafer's text is centered on global noise and loss of silence. Yet, he locates the cause of our current noise crisis in

anthropocentric technologies. Human inventions, beginning with the Industrial Revolution, afforded humanity the ability to rival nature in raw sound power, i.e., volume. Electrical and now technological revolutions further human ability to generate noise in areas previously inaccessible to us. Schafer erases the colonial histories that are essential for historical development, he theorizes. The erasure of colonial history causes Schafer's analysis to miss the reason for the growing noise crisis. Once colonialism is reinserted, we can see the spread of noise is in tandem with colonial resource extraction. It was the search for resources that sent the sounds of Europe to other continents. It is still the case that the search, extraction, and transportation of resources serve as a vector for spreading noise around the globe. The growth of noise has become an increasingly noisy ocean soundscape is being threatened by noise pollution (Firestone and Jarvis 2007).

The first thing my dissertation contributes is showing the hermeneutic violence of orthographic systems. I do this in two ways. First is through the creation of orthographic scripts and the imposition of writing. One decision when creating a writing system using letters is matching the phonetic aspects of the language to the newly created script. Many colonized languages are oral languages. Thus tones, intonation, pitch, and other prosodic features of the language are far more significant in those languages. Further, those languages incorporate sounds that are not strictly semantic or propositional in their production of meaning. Colonial orthographic scripts were not capable, nor did they intend to, represent the full range of the sonically produced meaning of colonized languages. More broadly, written language is unable to capture the full range of non-linguistic meaning produced in the soundscape. The issue of written language fully mapping on to spoken language becomes a significant problem in two particular instances I examine. The first is a land claim made by First Nations peoples in Canada. The land is held and passed through both linguistic and non-linguistic sonic productions. During a court case, two First Nations peoples were required to show their land claims. They performed their claim as they would normally. The

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performance of the claim had to be documented in court by a stenographer. This is one instance of sound "being brought to text" that occurred. A question of what exactly was brought to text is applicable here. What about sounds that were not words? Are they part of the land claim? Were they documented by the stenographer? A series of questions about what sounds were actually brought to text is important for what the land claim actually looks like to anyone reading the transcript.

The claims made were then backed by textual documents and testimony of historians, anthropologists, and others. This is the second form of "bringing to text." The orality of the tradition is not being upheld. Rather it is the relationship between the oral tradition. It is being subverted by the documents and testimony. The oral tradition is legitimate because of the documents and testimony, not because it is recognized as an Indigenous oral tradition. For sovereignty land claims, Indigenous oral traditions are being reinterpreted into the textual foundations of Eurocentric legal systems. The entire case of land claims is only possible because of the parasitic nature of orthographic writing on oral tradition. More broadly, colonial orthographic systems are parasitic on oral languages and oral traditions for meaning-making. Further, using the parasite of written language, colonialism reinterprets the sonic meaning of oral languages and oral traditions to fit within the orthographic and legal fictions of settler and colonial systems.

The soundscape also has something to offer to the way the environmental justice movement thinks about sound. Noise pollution is not a significant part of the environmental justice movement broadly, but I argue that it should. Very few works within the space of environmental justice are about noise pollution despite the negative effects it has on people. Noise pollution has been shown to cause health problems like hypertension and reduced sleep (Alvarsson et al. 2010). A 2011 report by the World Health Organization (WHO) for the European region showed noise pollution increases or causes cardiovascular health issues, hearing loss, and cognitive problems in children. Aviation noise is a particular example of an environmental noise problem that does not

receive much attention. Since airports are largely located in cities, the noise they generate is compounded by other sources of noise such as factories, bridges, or roads. Noise is distributed unequally across class, race, and geographic axis (Casey et al. 2017). For example, towns intentionally locate noisy structures, such as bridges, in communities of color. The act of intentionally or unintentionally locating the nosiest structures in communities of color is a form of acoustic dumping. It also has negative health effects on residents.

Global noise pollution is a direct result of moving goods around in a global economy. "Goods movement" is the process of moving the parts, pieces, and products from one place to another. The global economy ships things, small and large, from distances as short as a few feet to thousands of miles. This complex system of movement creates noise from boats, planes, automobiles, and even people. In certain instances, this has caused noise problems for residents living near such facilities (Taylor 2014). As shopping habits move from in-person to online, the global movement of goods will increase as well as the noise associated with such distribution. If stopping the global supply chain is not feasible, then locating the increasing amount of noise in a global economy will certainly be a question for environmental justice activists.

By definition, noise pollution focuses on the sounds that negatively affect humans, animals, and the environment. I think equally as important is attending to the sounds that positively affect humans, animals, and the environment. There are studies showing the health benefits of natural sounds (Aletta et al. 2018). Many communities also generate their own sounds that serve as de-stressors. The work on noise pollution is sure to capture all the harmful sounds. However, it is unclear that it will capture the enhancing sounds of geography. Environmental justice should include sounds in the soundscape that communities desire and want, not just noise pollution. Schafer's desire to be intentional about the sounds we want to preserve is something that I have not seen in the approach to sounds in urban environments. The recognition of noise pollution is almost a

default setting as noise disrupts our way of life. However, if we take up being intentional about the aural world, then it seems that we should ensure we document the sounds that positively shape the soundscape.

Conclusion

Colonialism continues to resonate throughout the many different soundscapes. This dissertation is split into two halves, with each half containing two chapters. The first half is on the way colonization has retuned the relationship between sound, interpretation, text, and knowledge production. Broadly this section questions how colonialism eliminated or reduced the significance of native sonic productions in service of colonial sonic productions.

In the first chapter, I argue that colonization introduced linguistic and phonetic changes to soundscapes. The creation of orthographic scripts for oral, hieroglyphic, and pictorial languages posed phonetic challenges to colonizers. The introduction of colonial languages as the definitive mode of communication created a linguistic hierarchy and a phonetic one. Speaking the colonizer's language was necessary to survive. But phonetic mastery is necessary for mobility within colonial administrative structures. Thus, phonetic economies are sonic infrastructure to linguistic economies. Code-switching, and style-switching, are ways in which people adapt to navigate phonetic economies. For those who cannot, the psychological stress of 'sounding foreign' affects their lives in material ways. This chapter highlights the violence of forcibly returning to the point where the colonized attempts to adjust the pitch, tones, accents, and prosodic features of their voice to sound like their colonizer (Fanon 2008).

The second chapter argues that a by-product of orthographic writing is that significant and meaningful sounds are not captured by the administrative state. In my view, colonial orthographic writing created a parasitic relationship between meaningful sound and their symbolic representation. The result is that text, and discourse, are unable to represent the non-linguistic sonic aspects of

experience. Settler colonial administrative states have used orthographic writing to reduce Indigenous ceremonial claims to land as text. The experience of d/Deaf and hard of hearing through closed captioning is affected by this. Closed captioning cannot convey the experience of a media. Rather, it reduces media to plot points devoid of great context. This chapter attempts to offer possible ways in which meaningful, non-linguistic sounds can be reinserted into the text and discourse.

The second half of the dissertation is broadly focused on colonialism and environmental justice. Resource extraction is central to my thinking about noise pollution. This section overall argues that colonialism is the beginning of any anthropocentric environmental problems (Davis and Todd 2017). Noise pollution began when colonizers started extracting materials from other people's lands. Two major claims of this half of the dissertation. The first is that global noise pollution predates industrial, even mechanical technologies. The second is that conservationist ethics cannot solve the problem of global noise pollution.

The third chapter argues colonial resource extract lead to the razing of entire acoustic worlds. Resource extraction in many parts of the world had begun before industrial technologies. In those places where extraction had already begun, colonizers had razed whole soundscapes by banned instruments, ceremonies, and "acoustic-forming" ecologies. As the need to extract more resources at faster rates grew, entire ecosystems were razed, and people were enslaved or killed. What colonizers did to the soundscape was perform the acoustic equivalent of terraforming. Such actions serve to permanently erase acoustic communities and their histories. It also established entirely new soundscapes that serve to further expand the sites of resource extraction. Cities, ports, and fortresses were built on these razed landscapes. This chapter highlights the retuning of whole geographies en mass in order to facilitate continued colonial extraction and destroy cultural sonic productions.

The fourth chapter focuses on environmental justice and Indigenous environmentalism. I argue that preservationist and conservationist ethics will not save the soundscape. They argue for some version of managed use of the environment or a quarantined area insulated from usage. I think both these approaches center on anthropocentric and patriarchal. They do not address the continued resource extraction from other people's land. Capitalist drive for resources remains the fundamental reason for the spread of noise. Advanced technologies of extraction, global trade deals, and the movement of goods across continents continue to spread noise across the world. Their approach does not address the systems of extraction, production, and profit as the cause of the noise. I argue that an environmental justice approach that takes a distributive justice approach would prevent companies and governments from dumping noise in poor parts of the world. However, such an approach does not address non-human soundscapes like the ocean. I further argue that an Indigenous framework is best suited to address the harms of global noise output through its framework of interdependence.

Mining, drilling, war, metallic dumping, manufacturing, bombings, sonic weapons, and other high-volume noises are increasingly being imposed upon many environments worldwide. This chapter will argue that Indigenous environmental approaches offer the best solution for noise pollution.

This dissertation identifies the ways in which the literature on the soundscape evades engagement with colonial violence. Sound and soundscapes were as much a tool of colonialism as guns, disease, or schools. I begin with methods of soundscape research.

PART 1: SOUND, LANGUAGE, AND MEANING

CHAPTER 2

Introduction

In this chapter, I want to focus on language as a sound that can hide colonial histories in the soundscape. I want to argue that the methodologies of soundscape investigation need to be decolonized. To make this point, I examine an approach to investigating the soundscape that is universally available, which is the soundwalk. At its most basic, a soundwalk is simply traversing through a defined geographic area, documenting the sounds that one hears (Westerkamp 1974). Even without any training, a soundwalk can be a great source of information about your immediate soundscape. For example, the Sound Around Town project has residents in the Chapel Hill area of North Carolina record the sounds of their neighborhood through daily walks and analyzes them over time (https://soundaroundtown.org/). Record the Earth is a similar research project that asks anyone on the planet with a cellphone to record their soundscape and upload it for others to listen to (https://www.recordtheearth.org/). Of course, the soundwalk can also be used by academics with more sophisticated recording tools and training to produce a more complex picture of the acoustic ecology of any area. In *Voices of the Wild*, Bernie Krause used soundwalks to show the damage done in the form of the loss of sounds within the soundscape (Krause 2015). For researchers, ordinary citizens, and acoustic ethnographers, documenting the sounds heard can be an important knowledge-gathering tool about the acoustic ecology of a place. Yet, soundscapes are not without their own colonial histories. Unpacking these histories from sound requires soundscape research to deploy decolonial strategies for doing research.

Soundwalks, as a method of inquiry, document the soundscape as it presently exists, potentially leaving out how colonialism has influenced what sounds are present in the soundscape. As a result, soundwalks can facilitate colonial erasures by ahistorically documenting the soundscape. Colonizers subjugated the soundscape by forcing how colonized people valued or the usefulness of cultural sounds. Soundwalks do not necessarily capture the retuning of the soundscapes by

colonizers. One way to show this is through various alterations and changes to languages in colonized soundscapes. "Language," for my purposes, should be understood as a cultural *sonic practice*. Like other cultural practices, colonizers sought to eliminate, alter, or assimilate native languages in ways that served colonial ends. Soundwalking does not capture the historical ways colonialism has affected the soundscape generally, particularly language. To unpack the colonial histories of language within a soundscape, I argue that soundwalks must actively be situated within decolonial or anti-colonial methods of knowledge production.

This chapter reviews two competing perspectives on research methodologies with respect to language within a soundscape. Soundwalking, as it is traditionally done, deploys both quantitative and qualitative metrics that measure the soundscape and generate a descriptive account of language within a soundscape. Let's call this view the *analytic view* of language within a soundscape. The analytic view of research often hides several different kinds of linguistic and hermeneutic violence because it does not measure coerced linguistic changes to language as sonic practice. Forcible adoption of colonial languages or the banning of native languages directly affects the soundscape. As such, using the scientific approach to the soundscape research hides how colonialism has shaped language in the soundscape. I advocate a decolonial approach to researching language within a soundscape. Soundscape research should adopt a situated view of language within a soundscape, using a hermeneutic lens. A hermeneutic approach to language within a soundscape situates speaking and language within a historical web of meaning. The historical nature of the web allows for traceability of colonial coercion or violence on language and thus on the larger soundscape. Historicizing offers a better way to identify ways of colonial violence in the soundscape.

In the first section of this chapter, I analyze the soundwalk as a common methodological tool for doing soundscape research. My reasoning for choosing soundwalking is because of its broad use by a wide range of people, including citizen scientists and academic researchers. I specifically

argue that soundwalking, as a research method, cannot elucidate how sonic colonialism has affected language within a soundscape. I make a distinction between sound events and sonic practices in that soundwalking detects the former but not the latter. Colonialism forcibly retunes sound practices changing what sound will occupy the soundscape. In doing so, its effect on the soundscape evades detection through soundwalks.

The second section shows how colonialism coercively changed how language operates within the soundscape of those they colonized. The most significant changes are the creation of orthographic scripts for some oral languages of the colonized people. These languages were given alphabetic systems on the decision of the colonial powers for purposes such as the religious conversion of colonized peoples. Creating orthography for an unwritten language requires, among many other things, mapping the phonetics of the language to the newly created writing system. Despite help from native speakers, colonial linguists were unable to agree on how to identify different sounds in many of the languages they colonized. One result was alphabetic scripts that poorly approximated the phonetic systems of spoken languages. Another problem was the misinterpretation of the images, glyphs, and pictures that were incorporated into oral languages. Going from an oral culture to a written one has ramifications that will affect all future users of the language and completely change the structure of knowledge, meaning, and the nature of thinking (Ong 2013).

The third section draws on the work of linguistics to argue that economies of speaking grew out of linguistic erasure, displacement, and subjugation. Indigenous children in North America were sent to boarding schools specifically to sever them from their language and culture (Adams 1995). Enslaved Africans were intentionally put with those whose languages were not mutually intelligible. This prevented coordination and planning for escape. Because of being with mutually unintelligible linguistic conditions, enslaved Africans created what is now known as African American Vernacular

English. Further, economies of speaking are calcified due to other social factors such as education, class, gender, and geography.

I close the chapter arguing that a slight methodological intervention is necessary. Speaking and the larger research project of soundscape studies cannot simply be ahistorically investigated. The analytic approach to speaking in the soundscape should be abandoned for a historical approach. By taking up history as a research value, we can see how colonial power permeates the soundscape through speech. In taking up history, I argue that severing speech from language only serves to hide colonial power.

The main idea of this chapter is that language can elide harms of sonic colonialism that analytic methods of knowledge production cannot detect. The methodology of soundscape studies is analytic and ahistorical, which reveals some information while covering others. I argue not that we should give up the analytic framework; rather, we should be sensitive enough to context to know when analytic frameworks hide colonial violence.

Soundwalking and Hearing the Linguistic Soundscape

When Schafer began working on the original soundscape project, soundwalks were the tool used to measure the soundscape. In The Tuning of the World, Schafer has a basic outline of how to capture the information acquired in a soundwalk. First, he conceives of the soundscape as a collection of sonic events. These sound events have properties that are relevant to know what they are. Schafer created a form for documenting the key features of each sound event. These specific aspects of the sound event are then ordered, organized, and then stored, and studied, allowing for an accurate description of what are the sounds of any particular soundscape. For example, one could describe a sound event by reference to its physical features using the following criteria: distance, intensity, clarity, texture, repetition, and environmental augments. For example, a dog's bark would be recorded as "20meters, 85 dB, heard distinctly, hi-fi/human, repeated irregular, and short

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reverberations" (Schafer 1993). The list captures several dimensions of the dog's bark and allows us to map out the physical geography of the soundscape. If a researcher were more interested in sound context, the criteria for identifying that would be acoustic, psychoacoustic, semantic, and aesthetic. For example, an alarm bell would be recorded as "sharp/85 dBs, high pitch/sudden arousal, alarm signal/warning, frightening/unpleasant" (Schafer 1993). As a knowledge gather tool, to document language in the soundscape, Schafer's method we would have a set of data points that inform of the features of the sound of someone's voice. Such a method would not be able to unable to detect phonetic changes that were coercively adopted. Let's call Schafer's method of using soundwalks the quantitative soundwalk because it quantifies the sonic information gathered from a soundwalk. There are different versions of these methods, which offer a broad range of ways to extract different kinds of information during a soundwalk.

A researcher on the initial soundscape project was Hildegard Westerkamp. Westerkamp published an early piece entitled *Soundwalking*. In it, Westerkamp offers an alternative method for analyzing the information experienced during soundwalks (Westerkamp 1974). She starts soundwalks by listening to the sound of "your body moving." The movement of your body should generate audible sounds in the environment, which is the basis of engaging with the soundscape. Westerkamp views this engagement as establishing "the first dialogue between you and the environment" (Westerkamp 1974). The initial "dialogue" with nature is meant to ground your listening to the sounds of the environment around while not letting go of the fact that the researcher is part of the environment. Documenting the soundscape is an interactive process in which the researcher identifies the sounds of the soundscape as they hear them. Westerkamp asks researchers to not only name the sounds but also hear their constitution and depth. "Other people, nature sounds, mechanical sounds, how many continuous sounds? Can you detect rhythms, beats, high or low pitches?" (Westerkamp 1974). Westerkamp's engaged method of doing soundwalks centers the

hearer of the soundscape and develops an acoustic relationship with the world. The description of the soundscape comes from this relationship. In Westerkamp's model, the soundwalk is contextualized acoustic map of the researcher's acoustic relationship with nature (Westerkamp 1974). Let's call Westerkamp's method of using soundwalks the relational soundwalk. Westerkamp's model situates the researcher as part of the environment in which she is documenting.

Schafer and Westerkamp offer very distinct methodological approaches to doing soundwalks. Yet, both still extract knowledge from an aural world that has already been retuned such that the ahistorical listener will not be able to detect the subtle tones and frequencies of colonialism. The problem with Schafer's quantitative soundwalk and Westerkamp's relational soundwalk is that they track sound events, not sound practices. Here, the idea of retuning, that is, the altering of the material causes of sounds in a soundscape for colonial ends, is what limits Schafer and Westerkamp's use of soundwalking from tracking colonial retuning. I need to differentiate between a sound event and sonic practice. Sound events are a sonic sequence that occurs within the parameters of space and time in the soundscape. The main difference between a sound event and a sonic practice is knowledge. Sound practices are a specific form of cultural knowledge that specific to the production of associated sounds that have historically developed through intentional actions of a community. The knowledge associated with these sonic practices is transferred to community members by way of community membership. Sound events do not have a specific cultural history, nor is the knowledge behind its creation intentionally transferred to others.

Sound practices are forms of cultural knowledge that are embedded within a larger system of "know-how" and "know-that." Colonialism is a force of cultural genocide through assimilation or elimination (Fanon 2008). Cultural sonic knowledge and the production of cultural sound are not exempt from this assault. As such, the mere documenting of sounds in the soundscape cannot reveal what sounds, if any, were, in fact, retuned or the possibly certain sounds were retuned because of

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colonialism. Ultimately, Soundwalks measure the aural world as it exists, and any historical changes cannot be documented as part of the research method. As a result, colonialism subtly embeds itself into the existing sounds of the soundscape. Soundwalking, as a research method, will not capture the layers of colonial soundscapes buried.

The upshot is that soundwalks leave in place a kind of "coloniality" that continues to dominate and subjugate. Various features of settler colonialism were sonic in nature, causing the practice of speaking native languages to fade. There are many harms of Indigenous boarding schools, but one that was specifically sonic in nature was giving Indigenous children in these schools Western sounding names because teachers and staff at these schools could not pronounce the children's Indigenous names (Adams 1995). The suppressing of native languages and the changing names of native children are direct assaults on Indigenous sonic practices. By forcibly changing sonic practices, colonialism retuned what sounds are heard or not heard in the soundscape. The absence of native languages is an intentional retuning done in the service of settler domination. That Indigenous languages are unheard is now an embedded feature of the soundscape that data acquired through soundwalking will not reveal. What will be heard are sound events that hide the role of settler colonialism in retuning the soundscape.

When colonialism changes sonic practices, soundwalking is not an effective research tool for detecting injustices within the soundscape, which in turn makes it difficult to trace how colonial has retuned the aural experience. Further, it becomes quite difficult to unpack any inequities within the soundscape or injustices within the aural experience of subjugated and oppressed people more specifically. Language, as a sonic practice, is a great example of this. Colonialism has forcibly altered the practice of language and created unjust conditions which penalize practitioners of language because of their inability to master language.

Unlike sound events, languages contain history and knowledge that extend much further than the contemporary soundscape. Additionally, a person has to learn how to produce the sounds and sound combinations that constitute the practice of speaking the language. Further, as speakers become well versed in the sonic practice language, they are able to produce an understanding and truths about the world specifically through said language. Thus, the initiation into the sound practice of language is an act of "world-building." That is to say, by developing a sonic practice, language, one develops a way to understand and interpret reality. I'll call this the hermeneutic view of language, which is sound-based. On this version of the hermeneutic view, language is a practice by which we come to understand the world (Gadamer 2004).

I want to briefly explain the idea of world-building and its significance. Sound practices in general, and language in particular, are culturally situated within a particular community's web of meaning. The "web of meaning" is a unique cultural and historical formation, which then imbues very specific meaning to those sound practices. In order to understand the meaning of a sound practice, a person must know how the sound practice is related to and co-exist with the larger web of meaning in which said sound practice sits. For example, male speakers of African American Vernacular English (AAVE) quite often use a term of address in communication. The use of a term of address is a particular linguistic practice that is understood by those within Black communities in the United States. Officers did not know about such a practice, and as a result, he misinterpreted the request for a lawyer (Tabler 2018; Tully 2020). To fully understand a sonic practice, one must be familiar with the web of meanings from which that practice is produced. The importance of this is to show the significance of retuning sound practices. Whole swaths of cultural interpretation and understanding are lost when colonizers change sound practices in a culture.

Retuning Sound Practices: Language and Colonial Violence

Linguistic imperialism ruptured the interpretative systems of native peoples across the world. The decision by colonizers to create orthographic systems directly affected the phonetics of various languages. Colonizers ran into one significant problem when they encountered the languages of colonized peoples, and they could not distinguish between some of the sounds of the native language. The native languages' phonetics was such that some sounds did not correlate with anything in colonial languages (Lepsius 1863). This fact became relevant when colonial powers created orthographies or attempted to translate existing writings of Indigenous languages. Their attempts to translate caused the loss of phonetic aspects of Indigenous languages. This loss can be deemed a *phoneticide*. Phoneticide is one way in which colonial powers shaped the soundscape during colonialism.

Another result of colonialism is the creation of linguistic hierarchies, or linguicism, in the soundscape through direct control over the condition in which native languages would be valuable to use. As colonizers stole land, enslaved peoples, and began establishing imperialist and settler cities, they outlawed the use of native/Indigenous languages or made access to necessities dependent upon fluency in a colonial language (Rama 1996). Colonizers shaped the soundscape for slaves by actively putting grouping together slaves whose languages were mutually intelligible. These actions, along with missionaries forcibly educating children in Christian schools, would establish linguistic hierarchies between colonial languages and as well as within the diverse local languages.

Colonizers encountering Indigenous and native populations were hearing aspects of language that were completely new. The tones, pitches, and even clicks, did not fit into the linguistic world they knew. However, through their imperialistic and evangelizing needs, a written form of communication for the people they colonized became essential (Lepsius 1863). These needs would drive the orthography for African, North American, Latin, and South American Indigenous

languages. The change of introducing a written script into an oral culture changes the soundscape. It destroyed the language's existing phonological structure by imposing an artificial change for ease of colonizing the people. This loss is what I call phoneticide.

Phoneticide permanently changes the soundscape by adjusting the removing from a language the phones that are not beneficial for colonial purposes. I have three ways that happened. One way is the creation of an orthographic script for an oral language. This will introduce new sounds into the soundscape while eliminating native sounds from the soundscape. Another is the misidentifying of songs of colonized as "text." This linked the wrong acoustic identity to sounds it entering into the soundscape (Tomlinson 2007).

In some cases, colonialism caused the creation of entirely new languages to enter the soundscape. For example, African American English is a form of English created by slaves to communicate (Baugh 1999). Slaves were grouped with the specific intention of preventing communication. As a result, they developed their linguistic system, which has become a part of a particular soundscape. A variety of pidgins, creoles, and languages are the direct result of colonialism.

In each of these situations, colonialism was directly responsible for slight and massive changes, or losses, in the language's phonetics. These are some of the acts of retuning that are not captured by a mere field study. I also want to state that languages are not static things. Languages are continually being shaped and reshaped by interactions caused by migration, environment, and speakers' new generation. Language is a particular sound in the soundscape that is always in flux. However, the specific changes I am outlining are not caused by linguistic randomness, regeneration, or interaction. These are specific changes caused by the colonial power to their benefit.

As colonial powers in Europe spread across the Americas and Africa, they created a syllabic alphabet system for the spoken languages of the people they colonized. Latin-derived orthographic

scripts were given to many through colonization. During the colonization of Ghana, a declaration by English colonizers could not be written in Ashanti because it did not have a script. This motivated the creation of an alphabetic system, with the first text, a bible, published by the Basel Mission in 1870. Similarly, in Latin America, colonizers created an orthographic system for many Indigenous and pidgin languages.

The creation of orthographies was, in some cases, a collaboration between academics, missionaries, colonized people, and colonial administrators. The need to systematize and standardize the many different languages colonizers and missionaries encountered was for various reasons. Spreading the gospel, civilizing people, and ensuring colonial documents or information could be uniformly distributed to entire colonized populations were all reasons that motivated alphabet creation. Several manuals were written and led to the creation of several manuals. Books were written specifically to assist with the creation of a syllabic writing system for languages. Like other books, "*the standard alphabet for Reducing unwritten languages and foreign graphic systems to a uniform orthography in European letters*," Karl Lepsius instructed colonials and native populations alike on how to convert their language to an orthographic system. In the book, Lepsius acknowledges the ethical dilemma of introducing an alphabet to oral cultures when he says, "It was natural that the European system of writing should be used for all those languages which had no system of their own. But here, the same question arose as in linguistic science: Which orthography ought to be need? Was it advisable to force upon those nations to which the Bible was to be presented as their first reading-book, the English orthography, which is complicated, irregular, and singular even in Europe? Was it suitable that those nations should be compelled to learn to read and write for all future time after this fashion? And according to what principles should those sounds be expressed which are neither found in the English alphabet nor in any other European system?" (Lepsius 1863).

One problem here is the forced changes to the language in linking sounds that are not found in English. The linking of phonetics to the sign is a fundamental problem for colonizers. The colonizers were unable to hear all the sounds of the language they were creating the script for. They acknowledge that their alphabet for the Zulu language was "not based on a sufficiently comprehensive system of phonology" (Lepsius 1863). Many of the Indigenous languages in Africa were tonal languages. The problem of affixing the sounds to accurate syllabic representation plagued them throughout the creation of orthographies. Another linguist decried the "travesty" of orthographies that did not match the phonetics of the language. "A recent cursory investigation of Chikaranga, for instance, reveals that there are in this language two very distinct d sounds, as distinct shall we say, as English t and k. There is no indication of this distinction in the accepted orthography" (James 1928). Colonizers' decision to create syllabic systems with a single alphabetic for the hundreds, if not thousands, of different languages and dialects in different regions of Africa necessarily required reducing the phonetic differences of those languages (Whitney 1860; Lestrade 1927). The fundamental problem of linking an orthographic script to the phonetic system is further complicated by imagery that is also incorporated into the meaning-making of the language.

Another problem colonizers faced was their inability to understand the expressive writing of cultures. Some Indigenous languages, like the Nahuatl, Mayan, and Twi, used in part pictorial or symbols as a form of "writing" (Appiah 1993; Boone and Mignolo 1994; Tomlinson 2007; Danzy 2009). Colonizers created orthographic writing for these languages as well. The problem of phonetics takes on a whole new level here. In *The Singing of the New World*, Tomlinson argues that Indigenous Mesoamerican languages operated as a contiguous spectrum from speech through song. This meant that the pictographic images, writings, and other imagery or signs were embedded with prosodic aspects of the language. The function of prosody in these native languages did not track with a Eurocentric understanding of fixed and distinct categories of text, speech, and song.

Tomlinson writes, "the distinction between poetry and music emerged only as an artifact of the alphabetic inscription that comprised the words of the cantares apart from their sung delivery" (Tomlinson 2007). The introduction of alphabetic writing meant a loss of the Indigenous prosody and the fluidity of the language when translating. This established a hierarchy in which the written word becomes the most important signifier. As long as we have the words of a song, then it is assumed then what is essential is captured (Tomlinson 2007). The alphabetic system's introduction established fixed categories of songs, poetics, and other forms of expression that are entirely different from the text.

The significance of this is that it changes oral expressions, their categorization, and how it is vocalized as they enter into written language. Tomlinson remarks on this when he says the European "technology" at work reinterpreting the character of the book of Mayan songs become a literary work instead. Poetry, song, and speech became distinct linguistic entities once they were translated into writing. Colonizers could not know the prosodic features of the language. This point is even more salient when we understand that the pictographic images that include signs informing those what aspects are sung, what tones to use, and other such things. The inability to read the language's images created an interpretative loss of the language's prosodic features when orthography was created. The case of ideographic languages shows another way colonizers were unable to synthesize a phonological system based on entirely different principles. As colonizers continued to expand their power, the sounds that entered the soundscape were of a completely different kind in some instances. This is another way that colonialism has pre-structured the soundscapes of colonized people. It also highlights why a more historical approach to the soundscape can reveal changes that will remain hidden if the scientific view of language is used.

Another result of the colonization was the creation of pidgins, creoles, and languages. Though this was not the result of orthographic writing, it is still the result of colonialism. It also has

a large effect on the possibilities for what can be heard in the soundscape. To be clear, language contact during the colonial era happened for a variety of reasons. Trading was a significant reason for the interaction between European colonizers and various populations. For example, Native Americans developed pidgins because of the fur trade. Similarly, pidgins existed along the western coast of Africa, where Europeans and the different native peoples traded for food and metals (Mufwene 2020). Mufwene puts forth a view of language that I think helps understand how pidgins, creoles, and language changes happen. In his view, language is akin to biological species, with individual people acting as carriers of the language's entire genetic makeup. At the individual level, linguistic interaction of "phonological and morphological units" creates the context in which "principles that regulate how they are used individually and in combinations with each other" are created (Mufwene 2001, 2017). With Mufwene's framework, we can understand how the more massive linguistic soundscape will change by attending to the individual-level changes.

Contact for economic reasons might have been the origin of pidgins, which are new sounds entering the soundscape, but furthering the different forms of colonization made these pidgins into prominent and stable sounds of new world soundscapes. In particular, Transatlantic Slavery moved hundreds of thousands of people, linguistic vectors in Mufwene's framework, from the continent of Africa to different parts of the world. Slave traders mixed the different language speakers to prevent mutiny or organizing. Regarding the soundscape, the forced movement of this many people and dozens, if not hundreds of languages, is a massive sonic bomb into the soundscapes of where they arrived, not to mention the slave ships' soundscape. This has to be one of the significant changes wrought by colonialism, and it is an act of creation. The emergence of Haitian Creole, African American English, Portuguese creoles, and other languages fundamentally shifted the soundscape, and Schafer does not include the kind of changes caused by the movement of people.

One example of the complication wrought to the soundscape resulting from colonialism and the transatlantic slave trade is the linguistic soundscape of North America. Colonizers excised the Native languages that once filled these soundscapes. In the United States, many Indigenous languages have few remaining speakers, and simultaneously there is the language that was developed by enslaved people. This says nothing of the colonial languages that dominate the soundscape, shaping the acoustic norms and establishing a linguistic hierarchy, which is forced upon Indigenous, Black, and immigrant populations. Colonialism has created a convoluted mess of the linguistic soundscape in North America. The creation of whole linguistic systems, the excising of the Indigenous languages, and the introduction of colonial language retuned the entire continent's soundscapes.

The varieties and variants of languages that were brought together through colonial expansion paved the way for linguistic hierarchies to arise. As the colonizers became the most dominant force in the land, speaking colonial language rose to the top of that hierarchy. Speaking their language granted access to material survival. It was not just speaking the colonial language but the similarity between an individual's speech patterns and the normative ideal of speaking that language. In short, how well you spoke the "King's English" is directly linked to one's ability to survive and navigate colonial systems. Colonial language and a particular strand of a colonial language are hegemonic sounds.

Phonocentrism, as commonly understood, is the belief that spoken language is a superior means of communication to written language (Spivak and Derrida 1998). I am going to use phonocentrism in a different way. For my use, I take phonocentrism to be the superiority in value of *the sound of colonial languages, especially as spoken by the highly literate and highly educated colonizers* (Rama 1996). Phonocentrism is a sonic index for linking language and speech to a colonial hierarchy in the soundscape. Colonialism created many different registers for domination, including knowledge, race,

and gender (Oyěwùmí 1997; Lugones 2007; Quijano 2007). Each one of these registers has a linguistic component influencing how individuals under each register sound. Aside from gender, social standards of language are also set by colonial powers. As the process of colonialism continued to restructure societies, the linguistic soundscape was reshaped with it. Phonetic mastery grants one access to social, economic, and political capital.

Phonetic mastery, the elite use of language, became a sonic commodity as colonial administrative states controlled access to education. With many oral languages being given orthographic scripts, literacy was a new necessity in the lives of many people. The need to learn to write as well as read is a significant transfer of power in the form of cultural meaning production (Haugen 1972; Ong 2013). Writing also standardizes the sonic aspects of the language over time (Rousseau 2012). Those that do not have access to literacy will diverge from the standard pronunciations and enunciations of written language. As such, differences in access to literacy will create divergent forms of spoken language. By controlling access to literacy, colonizers materially structured how large groups of people would sound when using colonial languages (Baugh 1999). The power of knowing colonial languages, and the ability to speak in highly literate terms, allowed colonized people to navigate colonial soundscapes. The imposed sonic order cements a phonocentric soundscape in the colonizer's favor.

Soundscape and Linguicism

As I stated in the last section, colonialism created several different registers of domination. Phonocentrism in the soundscapes creates a linguistic hierarchy that is completely acoustic. In this section, I go through several different ways colonialism still influences the interpretations of people based on how they sound when speaking. Negative and positive assumptions about a person's knowledge, class, race, and gender, among other things, can all be made on the basis of how one sounds when speaking (Craft et al. 2020). Discrimination arising from negative assumptions about

one's speech is commonly known as linguicism (Skutnabb-Kangas and Phillipson 1990; Skutnabb-Kangas 2012). Having an accent can be so laden with negative assumptions that a person might get stricken from serving on a jury (Rose 2019). There are psychological harms and emotional harms associated when one's linguistic skills are not suited for the environment. In recent years, there has been emerging literature on the injustices that occur at the differing levels of language, and scholars have been advocating for linguistic justice (Van Parijs 2011; Baker-Bell 2020; Gaby and Woods 2020). The goal of this section is to elucidate the hierarchies in the soundscape spoken.

Nothing has shaped the soundscape of the US more than settler colonialism. Briefly, settler colonialism is the "complex social processes in which at least one society seeks to move permanently onto the terrestrial, aquatic, and aerial places lived in by one or more other societies…" (Whyte 2017). One of the things that settlers' societies bring with them is their sonic norms. These sonic norms are then embedded in the lands they colonize. This is harmful to some Indigenous languages. Indigenous languages are deeply ecological. Jeanette Armstrong tells us that her people's language, the Syilx, was "given to us by the land we live within," and it changes as her people migrate to different lands (Armstrong 1997). In the language of the Western Apache people of Cibecue, specific locations in the environment are incorporated into dialogue for emotion and distinct meaning. In a conversation between speakers, the land is referenced in dialogue to evoke certain meanings (Basso 1988).

African American Vernacular English (AAVE) is a dialect of English that is the product of enslaved Africans in America (McWhorter 2016). It is mostly spoken by Black people in the United States as a native dialect. Enslavers purposefully put people with mutually unintelligible languages together to prevent communication and coordinated action. AAVE was developed by enslaved peoples because of the need to communicate. Part of the cause of the development was the legal exclusion of African Americans from being literate (Dillard 1973). As the language of enslaved

Africans, it has always been perceived as a form of bad English, including how it sounds. Here are a few examples showing how sounding 'Black' through the use of AAVE can negatively affect social interactions. It is harder to rent an apartment if you are voice leads a real estate agent to assume you are not white (Purnell et al. 1999). I've personally had the experience of being denied the opportunity to view an apartment for rent during my time as a field researcher examining the racial dynamics of the New York City housing market. If you are using AAVE in a court of law, and probably for others that do not speak Standard English, you are at an increased chance of being misinterpreted by a court reporter (Jones et al. 2019). Many AAVE speakers have to develop separate Standard American English (SAE) phonetic skills for navigating social institutions (Alim and Smitherman 2012). Known as code-switching, many multilingual people develop this skill to navigate different sociolinguistic spaces (Myers-Scotton and Coulmas 1997; Nilep 2006). Speaking AAVE is a social burden in navigating society. Code-switching increases the phonetic and cognitive workload on those that must change how they vocalize in order to reduce the friction of navigating settler colonial soundscape. The additional labor mandated by linguicism is wholly a creation of settler colonialism. It is also invisible to research methods such as soundwalks.

Indigenous language loss, AAVE, and code-switching are some of the ways in which colonialism shapes a linguistic soundscape. Gender also influences our use of language and how we sound when speaking to others. Power imbalances, as well as gender norms, were created or reinforced through a colonial understanding of gender (Lugones 2016). Language is a form of that power. Sounding feminine or masculine is attached to social perceptions and benefits. For example, men and women associate leadership and prefer leaders who sound have a lower pitch or more masculine voices (Anderson and Klofstad 2012). This is why it is theorized Elizabeth Holmes, a fraudulent female tech entrepreneur, deepened her voice when talking in public (Dundes et al. 2019). Researchers have shown women use 'uptalk' more than men. Uptalk is the use of intonation to make

declarative statements sound like questions. It gives the appearance that the speaker is asking a question instead of making a statement. This supports research that concluded that women were more influential if they spoke with a more tentative tone (Carli 1990; Linneman 2012). Gender and language intertwine to produce hierarchies of speaking that reinforce colonial legacies. Linguicism is gendered. That gendering is constantly reified and normalized in soundscapes. Analytic descriptors of speech do not capture this injustice.

The deeper sonic power of the colonial soundscape is the incentive system it creates for all people who live under its sonic authority. Everyone is coerced into learning the colonizer's language and meeting the ideal phonocentric standard. The ever-present knowledge of not sounding like the colonial ideal is enough to be psychologically and materially damaging (Fanon 2008). Women are incentivized to accommodate the phonocentric expectations of gender. Thus, their use of language and how they speak and sound in subtly coerced. AAVE speakers are punished for using the language in various areas of society. AAVE speakers are strongly encouraged to conform to phonocentric ideals (McWhorter 2016).

Colonial incentives sonically structure the soundscape, and that structure is evident in speech. Those who do not learn the colonial language cannot survive. Even those that learn the colonial language still exist in a phonetic economy. Access to education improves a person's ability to articulate themselves, increasing their mobility within settler and colonial economies. The phonocentrism of colonial linguistic soundscapes forcibly empowers the reality of survival, social mobility, and basic resources and incentivizes many to not only learn the settler language but also contort their very tongue to sound in ways that produce sounds like they are highly literate.

Conclusion

This chapter establishes that using the scientific view of language cannot sufficiently capture the depth of the sound of speech when it is projected into the soundscape. I used soundwalks as a

heuristic for the scientific view of research. Soundwalks document sounds in the soundscape for analysis. It can be done in a variety of ways. My argument is that the sound of speech carries pertinent information about colonialism, and the method of soundwalk does not uncover that history. Further, it naturalizes the violent ways in which colonialism has shaped vocalizations in the soundscape. I explore the larger worlds embedded in the speech by using a hermeneutic view of language. The hermeneutic view situates language within history, geography, and people making visible how colonialism has already pre-structured the soundscape.

The second section of this chapter dealt with phoneticides, eliminating phones of Indigenous North American, Mesoamerican, and Indigenous African languages. This was done using an alphabetic script as a technology to create a syllabic alphabet for oral and ideographic languages. This imposition by colonizers changed the phonetics of languages in two different ways beyond the obvious problem of using western understandings of language in non-western languages. In some languages, colonizers did not have the acoustic tools for generating grammatical rules for sounds that were not found in their native languages. Thus, they improvised when devising the grammatical rules for some languages. Another problem was that they could not translate ideographic images accurately with the rules of western language. This caused a misinterpretation of what a thing is. They got the ontology wrong because they could not read the prosodic features of speech in the ideographs. Poetry became text, and songs became literature. The scientific view of language will not be able to identify these problems and will use the colonial registers to identify them as sounds in the soundscape.

The final section goes into the current ways colonialism has left a sonic resonance in the linguistic soundscape. Settler colonialism reduced the Indigenous population from stealing land. This reduced the various native languages and speakers. Simultaneously, enslaved Africans brought their language to these lands. The combination of the reduced native population, different colonial languages, and

languages of Native Africans created a fluid linguistic soundscape. The hierarchy that would arise anchored English as the dominant language in the soundscape, giving it sonic power in a linguistic economy. Social goods, like the ability to get a job or even to be understood in court, are linked to how you sound. Access to literacy also links how one sounds to wealth or class status. The degree to which a person was able to manipulate the phonetic system was an identity marker.

CHAPTER 3

Introduction

In the last chapter, I argued that some sounds are inflected with histories of colonialism. The chapter showed that orthographic technologies imposed on native languages across the globe caused harm to those languages. The problem of mapping the phonetic systems of vastly different Indigenous languages to a single orthographic script necessarily reduced these languages in different ways. Writing technologies caused loss of meaning, misidentification of meaning, and complete elimination of certain phonetic aspects of the language. Along with these changes, hierarchies or speaking developed. Colonial languages were linked to social goods, economic goods, and social status. Eurocentric, gendered forms of speaking were also imposed on colonized peoples. What emerged was a linguistic economy in which social, political, and economic power was co-extensive with speaking in a colonial language, and linguistic discrimination or linguicism was normalized. Colonialism imposed a sonic interpretative order, "sound-like," on the soundscape that structured the material reality of people's lives. The link between "sound like" and material or social goods is what I call *phonocentrism*, and that is where this chapter picks up. The last chapter dealt with phonocentrism as it relates to phonetics and prosodic influence on speech and language in the soundscape. Phonocentrism extends beyond just language in the soundscape. It imposes a hermeneutic order on entire acoustic communities. These hermeneutic schemas are unable to interpret the use of Indigenous acoustic meaning-making. This becomes a problem for administrative institutions. A result is a form of interpretative harm. I start with a case of an Indigenous land claim made in a settler administrative court to illuminate the problem.

In British Colombia, two Indigenous peoples, the Wet'suwet'en and Gitx'san, sued the Canadian government for violating the sovereignty of their lands. The case had immense importance for how North American Indigenous sovereignty claims, in particular their oral traditions, get recognized as 'legitimate' claims to land within settler colonial legal systems. The aspect of the case

was about how Indigenous peoples recorded their histories, possessed and transferred land claims, and ordered social relationships. Burrows explained these traditions as such, "Houses and Clans in which hereditary chiefs have been responsible for the allocation, administration, and control of traditional lands… The passage of these legal, political, social, and economic entitlements is performed and witnessed through Feasts" (Borrows 1999). The feast themselves consisted of the host serving food, giving gifts, naming successors and past chiefs, telling oral histories, and much more. Settler legal systems usually do not allow such ceremonies to be included as part of claims. However, the judge, in this case, allowed the Indigenous nations to perform their land claims. The land claims are two specific oral histories[1]: the Gitx'san *adaawk* and the Wet'suwet'en *kungax*. Cruikshank defines these as "The Gitx'san describes their adaawk as a collection of sacred reminiscences about ancestors, histories, and territories. The Wet'suwet'en speak of the kungax as a song or songs about trails between territories'" (Cruikshank 1992). Since these performances were done as court testimony, it means they had to be entered into the record of the court. The performances had to be translated into text. This requirement raises a specific question of how we record sounds that are meaningful in a context, which are not linguistic in nature, into a text. I have never witnessed an adaawk or kungax. I do not know what sounds, linguistic or non-linguistic, they contain. I assume that these performances included meaningful, non-linguistic sounds like vocalizations, maybe sounds from instruments or bodily sounds (like clapping) that are constitutive of the ceremony. These sounds are meaningful in themselves, i.e., knowing that the sound of two hands being brought together is a clap. They are also meaningful in that they contribute to the meaning of the larger performance. That is, there is an additional layer of meaning in the non-

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[1] Even calling them 'oral histories' betrays what they really are. See Weir 2007 on the textual nature of oral traditions.

[2] For a discussion on parasitism in language, see "Parasitic Speech Acts: Austin, Searle, Derrida"

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linguistic sounds, which is in the ceremony itself. How is the meaning of non-linguistic sound brought into text such that its contribution to the larger event is not lost?

Several of the papers on this case record the non-linguistic sonic aspects of the ceremonies as 'performance.' Cruikshank says of them, "These songs, dances, and performances, lacking arbitrary beginnings or endings, may flow into one another, like a trail or a stream" (Cruikshank 1992). Burrows argues that land claims are performed through feasts (Borrows 1999). There are meaningful, non-linguistic sounds that are seemingly constitutive to the meaning of these performances. Again, if the meaningfulness of the non-linguistic sounds is NOT entered into court records, has the performance retained its meaning in the text? If these performances are recorded without the non-linguistic sounds, are they still enacting those things it is supposed to? Does excising the non-linguistic sounds when put in text change the way the performances are interpreted and understood by the reader? Is the knowledge that was inherent in the performance encoded into the text? In short, is the recorded text of the court case performing the land claim? It is this question that motivates this chapter.

Weir asks a similar question with respect to another case dealing with oral tradition. In that case, Tsilhqot'in Nation v. British Columbia, the court accepted oral history, but it was heavily supported by various forms of text documentation. Weir worried that oral tradition and oral history were being accepted into legal precedent only insofar as it was supported by evidence that reified traditional Eurocentric textual evidence (Weir 2016). Her apprehension raised a question about sound, including non-linguistic sounds, documented in the text. Indigenous peoples' relationships with the land are expressed in ceremonies that include linguistic and non-linguistic sounds (Cruickshank 2021). The administrative state is predicated on documentation of speech. Let's refer to these as *linguistic sounds*. What of the equally meaningful but *non-linguistic* sounds? The sounds that are not language but hold meaning and significance within the context are what I am referring to as

non-linguistic sounds. How do the courts, and more broadly orthographic writing, records meaningful non-linguistic sounds? It seems the 'oral' of oral tradition excises significant and meaningful non-linguistic sounds when documented, at least in a legal context. Weir's article shows there is hermeneutic power in the soundscape. The administrative state determines how meaningful, non-linguistic sounds are documented in the text. Oral histories and oral traditions encode complex and historical meaning in many different sounds that cannot always be fully translated into text. The issue of translating the non-linguistic meaning to text is not confined to Indigenous land claims. Translating meaningful, non-linguistic sounds to non-hearing or hard-of-hearing people through closed captioning also finds this problematic. By reinserting meaningful, non-linguistic sounds into text, we recapture some of the knowledge lost in translation. The interpretative bias of colonial orthography is that it favors linguistic sounds, spoken words, to non-linguistic sounds in the production of meaning. Instead of excising sound from text, is there a way to put sound into text? How do we make the text more sonic?

One significant result of the imposition of writing was the need to create administrative systems based on writing. With the introduction of a written administrative system, all that was once oral had to be translated into written documents. What is important to note is that these new systems change, disempower or negate the oral traditions while empowering text-based administrative systems. It forces oral traditions to be translatable within semiotic systems of writing. Writing is the mechanism by which many people entered into unjust relations, including treaties, with colonial and settler colonial governments. The result is claims based on oral traditions are not necessarily recognized in a text-based system.

It has been argued that written language and spoken language are merely different variations of an 'interior' meaning (Spivak and 1998; Tomlinson 2007). Thus, there is no loss of meaning, only transfer, when spoken language is brought to the text. However, oral languages used non-linguistic

sounds as part of meaning-making. Orthographic writing has fundamental difficulties reproducing the meaningfulness of non-linguistic sounds in text. This chapter expands on the harm done by orthographic writing. I argue that another harm of orthographic writing is that it creates a parasitic relationship between linguistic sounds and non-linguistic sounds. Linguistic sounds become parasites that depend on difficulties in the translation of non-linguistic sounds. The resulting harm is that interpretative power defaults to colonial administrative states allowing that system to reinterpret, misinterpret, or not interpret meaningful, non-linguistic sounds of Indigenous oral traditions. A secondary goal of this chapter is to examine the ways in which non-linguistic sound can be encoded as text while still retaining, as much as possible, the meaning embedded in the material sound.

When writing about sound, we have to choose which sounds are significant for conveying the meaning to the listener. If we are representing the soundscape in the text, then similar questions arise. Which sounds are most significant for conveying meaning (not just in the sound, but also how it contributes to the larger meaning of the event)? How does one write meaningfully about the soundscape in the context where sound affects meaning? It's not just about writing; it's about how we record sound. The sonic world is an essential epistemic and hermeneutic resource, which many people are thoroughly dependent on.

The chapter begins by illuminating the epistemological and hermeneutic process of translating sound to text. I show that how the sonic aspects of the world are recorded into text changes the meaning enough to create an infrasonic text. The second section argues that the relationship between sound, meaning, and text has a gap that can be epistemically exploited. Interpreters can remove meaningful sounds when documenting an event, which can lead to misinterpretations or ignorance. Such ignorance reifies Eurocentric interpretations of sounds and soundscapes of Indigenous peoples. Further, they reduce the sonic traditions of the colonized to fit into a textual representation. In short, a sonic subaltern is created through the text. The third section

looks at ways that some authors have attempted to retain sonic significance in the text. I close this first half of the dissertation with some thoughts on the relationship between meaning, text, and sound.

I end this chapter by briefly reviewing the overarching themes of the first section of this dissertation. I review the main ideas of chapters 2 and 3. I offer concluding remarks on what I think soundscape studies should do to engage colonialism and language, and I introduce the second half of this dissertation.

Writing the Soundscape

Incorporating the meaning of the soundscape into text is challenging. When we document sound in writing, the meaning of the sound should retain its original significance. Significance is defined as the quality or feature which causes the sound to stand out from all the other sounds that are simultaneously heard. The significance of a sound may not always be able to be brought to language. My views on the relationship between meaning, spoken language, and written language are similar to that of Rousseau. I'll recount his theory of language, specifically his view that written language is parasitic on spoken language. I then build on this, acknowledging what he misses is the larger world of meaningfulness in the soundscape.

Rousseau thought that language is a unique human function that arises from human interaction and develops into two distinct elements: words and signs. Note that I reduce Rousseau's full theory of language for the purposes of this text. In On the Origin of Language, Rousseau claimed that two lovers spurned by their love for one another drew an image communicating the affection they have (Rousseau 2012). Other intimacies of family, kin, friendships, and community would spur similar communicative acts. What is important is the presumption there's something innately meaningful about human relationships that motivated the development of language as a representational system of sounds and symbols. Upon seeing another human, a person will

want/desire to communicate with them. That desire is the basis of language and that desire is fundamental to human intimacy. Those intimacies spurn grunts, emotes, images, and utterances that are all "language."

The basic features of all spoken languages are sounds. Rousseau thinks these sounds are necessary to convey the innate meaning in language. Specifically, tone and intonation bring out the innate meaning, which is emotion, in language. To hear language is to hear the production of a unique kind of meaning – human emotion. Rousseau thinks that the first languages had these features of tone and intonation built into them because they needed to express that innate emotion of the human experience. For Rousseau, the innate meaningfulness of language is tone, intonation, and other prosodic features of the language. Spoken language is unique in its ability to convey emotion. However, written language is inferior. On Rousseau's view, written language is unable to capture to emotional meaningfulness of language. In his view, written language does not capture the meaningfulness of speaking. In particular, writing affixes meaning. As Rousseau states, "In writing, one is forced to take all the words according to common acceptation; but he who speaks varies the meanings by the tone of his voice" (Rousseau 2012). The inability of the written word to capture sound makes it impossible to capture meaning. Ultimately, writing becomes a wholly distinct form of meaning-making. Rousseau state that "writing does not at all depend upon that of speaking" and that "It depends upon needs of another nature" (Rousseau 2012).

Rousseau introduces the problematic relationship between text, speech, and meaning. His question, how does writing embody the meaning of sound, is critical for sonically linking writing and spoken language in ways that maintain meaning between the two. The soundscape introduces another complex layer to this problem. For Rousseau, 'sound' is limited to sounds humans use specifically for language and speaking. We can all these *linguistic sounds*. The soundscape includes numerous sounds that are meaningful but do not fall under the category of language. For many

languages, sounds that are not linguistic are necessary parts of meaning-making. As the opening of this chapter showed, some Indigenous nations incorporate non-linguistic sounds as part of making land claim. The rest of this section looks at closed captioning in relation to the information it conveys to non-hearing and hard-of-hearing people to show the important contribution of non-linguistic sounds to meaning. In both these cases, the non-linguistic sounds in the soundscape are equal contributors to meaning *with* linguistic sounds. Eurocentric writing systems have excised contributions of non-linguistic sounds in the soundscape to meaning.

In its most basic form, closed captioning takes the audio of visual media and turns the sounds into text for audiences that are deaf or hard of hearing. It is the act of translating the audio information conveyed by a piece of media. The government defines closed captioning as "Closed captioning *displays the audio portion of a television program as text* on the TV screen, providing a critical link to news, entertainment and information for individuals who are deaf or hard-of-hearing" (https://www.fcc.gov/consumers/guides/closed-captioning-television). Closed captioning is a legal requirement for almost all English language cable and satellite television programming. However, this legal requirement is outdated as the Internet is quickly replacing traditional broadcast television. Programming viewed on the Internet is not required to have closed captioning. Despite no legal mandate, many Internet companies have closed captioning available to users on their platforms.

Closed captioning is the act of translating the acoustic information in a movie or TV show to a viewer through visual text. Let's say a character in a movie, Carmen Sandiego, is talking about her plan to steal the Aztec Sun Stone. The purpose of closed captioning is to convey any meaningful sonic information that is a part of the scene, whether it is dialogue, music, or another meaningful sound. If we remember that spoken language is a sound with fixed meanings, then we can note that language, and dialogue, are easily captioned. Rousseau's contention about sound and text is relevant here. Carmen might deepen her voice to project authority. How is the sound of her deepened voice

to be captioned in the closed captions? The significance of her deepened voice, which is to show authority, is meaningful to the context. Additionally, deepening one's voice is not dialogue or spoken language. How would closed captioning accurately translate the meaningfulness of Carmen's deepened voice in the text? In this, we see Rousseau's problem with translating the meaning of spoken language into written language. Rousseau's focus here is on the meaning embedded in the prosodic features of spoken language.

However, there is another layer to be explored. If music is playing in the background while Carmen is speaking, should that be captioned? What if the music is meant to emphasize the daring nature of the heist? Should that be captioned? If music and other people are talking in the background while Carmen is talking, should that be captioned? What if Carmen's cellphone rings? What if it vibrates instead? What about a brief 'chime' because of text, which alerts Carmen that she is being followed? There is an array of sounds that could or *could not* contribute to the meaning of the context.

The inclusion of the broader soundscape as a contributor to the meaning of the context raises two important questions. The first has to do with distinguishing between sounds in the soundscape. Which sounds are considered part of the meaning of the context? The second broadens Rousseau's claim of documenting prosodic features of speech to include the significant sounds of the soundscape. Assuming the music has meaning in the scene and is significant for some reason, how should it be represented in text? Should the word 'music' appear? Should the translator use a music note? The question of translating sound to text as explored by closed captioning will help understand the structural and hermeneutic sleight of hand that written language engages in to accommodate spoken language.

It is in this second question on bringing significant sounds to text that reveals institutional power and an epistemological disenfranchisement. The soundscape is a source of information that

helps, and is at times necessary, to understand the context of a situation. For example, in emergencies, a siren is used to transmit information, specifically the urgency of context. Due to the informational significance of the meaning of sound, the government mandates a certain level of accuracy in closed captioning. They require that "Captions must match the spoken words in the dialogue and convey background noises and other sounds to the fullest extent possible" (https://www.fcc.gov/consumers/guides/closed-captioning-television). The mandate requires captions "convey background noise and other sounds" to the fullest extent possible where sound, text, and meaning intersect.

When thinking about the accuracy of captioning sounds, there are several layers of importance. For example, captioning has to move at the speed of dialogue, which means it stays on screen for a very short amount of time. Other factors such as space, on-screen location, and text size place constraints that are unique to closed captioning. However, a fundamental problem of encoding the sonic into the text exists for closed captioning. For this section, I just want to focus on getting accurate meaning when translating the soundscape into captioning. In his book *Reading Sound*, Sean Zdenek argues that our understanding of closed captioning is far too narrow. To many people who are not part of the deaf or hard of hearing community, captioning might be thought of as simply the movie's dialogue on screen. Zdenek offers a different understanding of what captioning is. He says that captioning is like "reading a movie" and "experiencing it through the rhetorical transcription of its soundtrack" (Zdenek 2015). In his view, closed captioning is designed to allow the user to experience the movie. It is that experience, not the sound per se, that has to be captioned. To fully translate the experience of the movie, the soundscape must be translated as well.

Accurately translating the sonic experience of a movie requires that the meaning of an entire scene is retained and transferred into the closed caption. The meaning of a scene in a movie is created by both dialogue and significant, non-dialogue sounds. For example, a scene might use

sounds to heighten or emphasize a character's fear because they do not know the location of a threat. The scene might include dialogue such as the actor saying, "I'm scared." When translating the meaning embedded in the scene, it might be assumed that one can substitute the dialogue, "I'm scared," for the meaning projected by the soundscape. In this regard, dialogue is something of a stand-in, becoming synonymous in meaning with non-linguistic sounds. The meanings are not the same. Such translations create an interpretative gap between the meaning of the scene and the representation of the meaning of the scene. The interpretative gap can be exploited in ways that are harmful to subordinate groups. (Fricker 2007; Ruíz 2020).

One way to bridge the gap is to incorporate non-linguistic sound in a way that does not retain its full meaning or reduce it. Thus, to bring certain non-linguistic sounds into the text, the meaning and significance must be changed or reduced. This is similar to what we saw with mapping the phonetic to orthographic scripts. In my view, this is why Weir's critique of the Canadian court's acceptance of oral history is so salient. It is difficult to retain meaning when translating the meaningfulness of sounds and their significance in First Nations land claims to text. The problem is exacerbated when a settler administrative state is an interpreter.

Rousseau's critique of orthographic writing's inability to retain the meaningfulness of sound is true of non-linguistic sounds. Further, linguistic sounds are in an unequal relationship with non-linguistic sounds. Linguistic sounds leech meaning from non-linguistic sounds to enable the translation of meaning to text. Linguistic sounds and their symbolic representations, i.e., words, become *indirect signs* for meaning contained in non-linguistic sounds. My critique here is that linguistic sounds are actually parasitic on non-linguistic sounds.[2] Linguistic sounds become the

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[2] For a discussion on parasitism in language, see "Parasitic Speech Acts: Austin, Searle, Derrida" (Halion 1992).

mechanism by which acoustic knowledge is represented. As a result, the meaning that is in non-linguistic sounds gets transferred to linguistic sounds.

The importance of non-linguistic sound to the production of meaning also shows another way in which the colonial orthographic technologies shifted hermeneutic or interpretative power to administrative states through sound. By using a system that overemphasizes the production of meaning through linguistic sounds, colonial orthographic technologies have built a mechanism by which physical documentation, i.e., textual evidence, is easier to create than other forms of evidence. The remapping of the linguistic soundscape was also a remapping of the administrative forms of sonic governance. "The text," which represents linguistic sounds, has all but excised non-linguistic sounds as a component of a larger meaning-making system.

The fact that linguistic sound can be parasitic on non-linguistic sound allows for a unique kind of hermeneutic and epistemic disenfranchisement. The interpreter can influence the meaning of the text by choosing to translate or not to translate meaningful sonic aspects of an event. We can think of the interpreter as a 'textual disc jockey' subtly controlling the interpretation of the text. DJs use a synthesizer; DJs have control over a wide range of specific sounds, the speed of sounds, and so many other aspects of sound. The DJ controls what gets heard.

Linguistic Parasitism

Even though Rousseau is correct in thinking writing does not translate the meaningful sounds of speech, it still does convey information. There is still an acoustic-epistemological aspect to the text. Translating the sonic meaningfulness into text is not only about recognizing the meaningfulness of the sounds but also using text to convey that meaningfulness. I began to spell out this problem in the last section. In this section, I will turn to non-hearing artist Christine Sun Kim to highlight the acoustic-epistemic nature of text. In the video, "*Artist Christine Sun Kim Rewrites Closed Captions*," Kim dissects the way non-linguistic sounds are captioned. A central problem of captioning

sound is textual representations of non-linguistic sounds routinely *under*-inform *the listeners* of the meaning and significance of the sounds in the movie (Kim 2020). In another video, Kim explains that a movie she was listening to had too much captioning. So many sounds were captioned that it interfered with her listening experience (Kim 2017). It is through her insight I began to see the captioning under-informs or over-informs as sonic elements to the text. In the videos, Sun Kim begins to "adjust the volume" on the text so that neither was "too low" nor "too loud." The way the soundscape is brought into the text affects the perception of non-linguistic sound as meaningful to the context. To be clear closed captioning is also used by hearing people. So this interferes with their interpretation and experience, as well (Zdenek 2011).

She gives a simple example of how sound is under-captioned in media. In the video, she requests violin music to begin to play in the background. As the music starts, the captioning reads "music" to inform the viewer of the violin. A caption like this can be considered to be "too low" in information as it under-informs the viewer. The descriptor is too broad. It does not allow the reader to distinguish between kinds of instruments. Kim makes the point that a slightly better descriptor would be "violin music." If the violin music turns somber with the intention to convey sadness, should the music be captioned "sad music" or "sad violin music"? What if the violin is meant to convey a specific kind of sadness, like that of the death of a parent or child? Does the text read "deeply sad music"? How does the translator actually use the typography to match the sonic specificity that the emotional content being signified? Rousseau's critique of text is supported by Kim's critique of closed captioning. Text has difficulty, at minimum, in retaining the meaningfulness of sounds.

The issue can be pressed further when more complex information needs to be conveyed. Zdenek has an example of the difficulty of bringing significant but complex sounds to text. In the television show "The 100", a man is talking to a woman. The conversation proceeds normally until

the woman's voice glitches, like that of a computer, ever so slightly. The sound of the glitch in her voice is so brief that it is possible some people will not notice it. However, it foreshadows a very significant piece of information about the context. The woman in this conversation is actually a holographic representation of an advanced Artificial Intelligence program. How does a translator, or any translator, convey the significance of sonic foreshadowing embedded in the momentary glitch in her voice through text? It is simply too complex and inefficient of a task to retain the meaning of such a small sound in a captioned text. Thus, the translator approximates or substitutes the meaning, much like using the term "music" for "violin."

The soundscape is full of subtle but meaningful sounds that are incorporated into our interpretation of a context or situation. Sounds convey a wide range of information or perform an action. Sounds convey emotion (including anticipation), time (including past, present, and future), distance (including far or moving), place (including metaphysical places), and so much more. The breadth and subtlety of epistemological content humans transmit and receive through sound, and the soundscape already poses a problem for language. Attempts to translate these complex variations are nigh impossible.

The difficulty of translating sounds in this context causes the translator to reduce the meaningfulness or significance of the sound in order to fit into simpler, easy-to-express text. The informational content of non-linguistic sound is reduced or negated so linguistic information can be conveyed without any distortion. If non-linguistic sound contributes to the overall context, it will be omitted or reduced for "clarity." The reduction of the sonic significance reshapes the meaning of the context. The text, in that instance, represents the meaning produced by sound, but it has not retained the meaning produced by sound. The text merely approximates meaning while relying on the difficulty of translation to retain its representative status for sound. This is the moment of parasitism.

Parasitism is a structural feature of the relationship between translating meaningful linguistic sounds to meaningful non-linguistic sounds in written text. In the book *Reading Sound,* Zdenek offers structural features of captioning that hinder more accurate translations of meaningful sounds. Zdenek is specifically concerned with the context of closed captioning. There are some issues unique to closed captioning, such as the time captions stay on screen and the space required for captions. However, the translation problem is relevant to any context in which sounds, or the soundscape, are contributors to the meaning (Gadamer 2006). Zdenek lays out some of the considerations during the captioning process. One important one is the identification of significant and meaningful sounds. Since not every sound actually contributes to the larger meaning of the context, we must separate meaningful sounds from non-meaningful sounds. Further, whether a sound is meaningful is context-dependent. Unlike linguistic sounds (i.e., words), which always have meaning independently of context, non-linguistic sounds do not have meaning that is independent of context. If more than one sound is meaningful, then one must prioritize which sound is more meaningful. While it is out of the scope of this dissertation, the question of which sounds are significant is of vital importance in bringing sounds to text (Zdenek 2011).

Of the criteria Zdenek goes through, two show the universality of the problem. First, captions are meant to contextualize the information that is embedded in sound. Dialogue is easily captioned partly because words are pre-structured and standardized sounds that already contain meaning. However, non-linguistic sounds do not have pre-established meanings like linguistic sounds. As a result, "Even if we know, in raw technical terms, what a sound is—where it comes from, who or what made it, how to reproduce it precisely—we still won't have enough information to caption it" (Zdenek 2015). For example, the sound of a dog barking is very different from the meaning of the sound of a dog. The meaning of the barking is context specific. The bark can be projected over a censored term to stand in lieu of the censored term. A movie might use the sounds

of a dog barking to signal to the audience that the killer is nearby. A dog barking can simply be the sound of a dog barking. There are theoretically an infinite number of meanings that sound is capable of having. Unlike spoken words, non-linguistic sounds do not have pre-defined meanings. The fluid relationship between non-linguistic sound and meaning prevents it from being fixed and developing a singular universal representation.

Secondly, captions are meant to formalize acoustic information. There is a balance between ensuring the information is accessible and accurate. "In this way, we might say that captions *rationalize* the teeming soundscape. *Sounds that resist easy classification or simple description, such as mood music, are tamed or ignored altogether*" 1st emphasis in original; 2nd emphasis added (Zdenek 2015). Some sounds can and do, resist classification or easy description. They are "tamed" by language. Complex, meaningful sounds are reduced to signifying words so some meaningfulness of the sound can be accessible to the readers. These descriptions are linguistic tokens that do not retain the full meaning embedded in the sound. The "tamed linguistic expression" is only part of the meaning of the original sound. It is not identical in meaning to the original complex sound. Yet, it is dependent upon the original sound retaining its meaning so that the tamed linguistic expression will be able to retain its meaning. That is why captioning of non-linguistic sounds is parasitic. The problem is not one that is unique to the work of closed captioning. Any translation of meaningful non-linguistic sound has this problem. As long as there are sounds that do not admit to easy classification or description, tamed linguistic expressions will be linguistic parasites.

The fundamental relationship between text, sound, and meaning has some parasitic conditions. When translating sounds and soundscapes to written descriptors, the more complex the meaningfulness of the non-linguistic sounds, the more parasitic the descriptors will be. In these instances, written text must leech meaningfulness from the non-linguistic sound for two reasons. The meaning of a sound is not fixed. Since the same sound in the same context can have a different

meaning depending upon other factors, sound cannot be affixed to meaning in the language words can. Second, there are sounds that evade easy descriptions. Without easy description, translation must either ignore the sound by not captioning it or create a linguistic token representing the existence of the sound, but not the meaning of the sound. The meaning embedded in resistant sounds is not identical to the meaning of the written text. The written text does not inform of the identity of the sound. Yet, without the existence of the sound, there would be no written text informing of its existence.

I still have not yet argued why parasitism itself is a problem. Parasitism necessarily reinterprets non-linguistic meaning. In doing so, it harms the language by reducing its utility in favor of the parasite. In this case, it would mean that oral languages themselves lose social and epistemic utility as writing becomes the standard form of communication. The second harm is that parasitism causes harm through interpretative mechanisms, which is known as hermeneutic violence (Ruíz 2020). Parasitism is hermeneutic violence. The violence is a subtle but large-scale misinterpretation of any meaningful non-linguistic sound that is too difficult to translate is harmful. The continuous gaps in interpretation will eventually create a subtle class of sonic subalterns. As the opening of this chapter suggest, one critical situation is Indigenous sovereignty. Weir's worry is that Indigenous oral traditions were being accepted on the basis of textual evidence, not in tradition's full sonic sovereign capacity (Reed 2019). I extend this worry to other communities, like the non-hearing. I also extend it to other unwritten languages, some of which are being preserved through orthographic systems not capable of incorporating the meanings in the sounds.

In *Sonic Sovereignty*, Reed argues that rather than hearing Indigenous songs as aesthetic objects, "music and sound are often tools or processes whose uses have consequences across a variety of political and social networks, human and non-human" (Reed 2019). Reed informs us of a different system of governance in which sound itself is a necessary part of social and political

relations. He states, "Hopi musical composition and performance are deeply intertwined with Hopi political philosophy and governance, resulting in a form of sovereignty that is inherently sonic rather than strictly literary or textual in nature " (Reed 2019). Reed shows how Indigenous forms of governance tie sound, sovereignty, geography, and political authority into uniquely Indigenous sovereignty grounded in sonic performance rather than text. The paper highlights the meanings of sounds, and the role they play in the soundscape, which are themselves tied to forms of administrative governance, be they Indigenous or settler. Reed shows a contrast in the role of sound in creating sovereignty for Indigenous traditions with the textual nature of settler sovereignty of the written document. The significance of sound is literally tied to social and political sovereignty. We will return to this in the next chapter. For now, it is important to recognize the scale of violence in misinterpreting the cultural productions of sound.

Parasitism is what allows settler administrative systems to reinterpret the sonic nature of Indigenous sovereignty into textual sovereignty. It also has been shown that settler administrative systems misinterpret various other populations, with significant violence resulting. The reinterpretation of Indigenous sovereignty to fit under the settler administrative state subordinates Indigenous claims to land to the state. The transfer of power from the sonic nature of Indigenous sovereignty to settler administrative states through reinterpretation is a form of hermeneutic violence. The text of the court ruling is a stand-in for Indigenous sovereignty while not being Indigenous sovereignty. The introduction of colonial orthographies is a shift of hermeneutic power on a social, linguistic, and governance level resulting in forms of hermeneutic violence.

Another harm results from difficulties translating meaningful, non-linguistic sounds to text. We know that resistant sounds are to be tamed or ignored. I want to briefly speak about the harm of being ignored. Ignoring meaningful sounds of any group because they do not admit to easy translation turns down the volume on the swaths of meaning. The act does not silence since

meaningful linguistic sounds will still be translated. Rather, it merely turns down the hermeneutic volume of the group by quieting only meaningful, non-linguistic sounds. In my view, this creates a sonic subaltern (Spivak 2010). The sonic subaltern is not completely silenced from the text. Only meaningful, non-linguistic sounds are not included. This can be deeply harmful as it leads to misinterpretations. The work on closed captioning, the theory and industry of captioning do not always serve the most frequent users of captions. Zdenek's book shows that non-hearing and hard-of-hearing individuals are not given the same experience watching a movie or show. In another context, such as a professional or academic context, it would be detrimental to a person's growth. Zdenek's own motivations came after the birth of his non-hearing son. As he began using closed captioning, he realized the translations of media were of an inferior epistemic quality to what he could hear (Zdenek 2015). Trying to get the text to accurately identify and inform us of non-linguistic sounds and their meaning is difficult. Yet, a few attempts at 'breaking the text' have been made to reinsert sounds and the soundscape into writing.

Breaking The Acous-text Barrier

Resolving the problem of representing the meaningful, non-linguistic sounds of the soundscape in text should not be done, in my view. The aim of this section is not to create a lexicon for non-linguistic meaningful sounds. I do not think it is possible for written language to express sonic meaning. I agree with Rousseau. There is something distinct about sound and meaning, especially non-linguistic meaning, that cannot be transferred to text. Still, there is reason to improve how sound and the soundscape are translated to written text. Closed caption users, particularly non-hearing people, will benefit immensely from a better translation of the soundscape into writing. For those whose capacity to hear is slightly or largely diminished, translating sounds and the soundscape may be helpful. Court reporting has also been a place where speakers with strong accents, or speakers of a dialect of English, have been underserved by poor translating of their speech. People

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who are learning English, including children, might also benefit from more accurate translating tools for sounds. In my view, attempting to "save" oral languages by creating orthographic scripts should not be done. Languages are living entities. They should be carried and transferred by people (Mufwene 2001).

For those that would benefit from a more accurate translation of the soundscape, this section looks at ways some authors have attempted to add the soundscape into writing. These are not meant to have a universal application. They are context-specific, and they are efforts with varying degrees of success. The goal of this section is just to introduce possibilities for what writing the soundscape could be. In the first example, I look at Standing Rock as a sonic event. I then look at the work of John Daughtry's *Listening to Iraq*. The book examines the soundscape of war. Daughtry's method of documenting what he heard will be analyzed. Finally, I briefly look at Ann Wennerstrom's *Music of Everyday Speech*. In that text, she creates signs to represent prosodic features of language in text. My goal is to encourage new ways of thinking for translating sounds and the soundscape to text.

In 2016 water protectors from the Standing Rock Sioux reservation gathered together with supporters to prevent an oil pipeline from being built through unceded lands. The movement became known as #NoDAPL (No Dakota Access Pipeline). The #NoDAPL movement continues that long history of resistance and self-determination of Standing Rock Sioux Nation specifically, and Indigenous peoples broadly, against the settler government of the United States (Hall 1991). The pipeline itself was a problem for several reasons. The process of assessing the impact of the pipeline, including its cultural impact, made it difficult for the Sioux to participate as equals. Those doing the assessment did not take precautions when accounting for the potential environmental harms, including oil spills, to the native water supply. Whyte (Potawatomi) has an in-depth recap of the granular details of violations done by the United States government and private companies. The

pipeline is part of the continued struggle for Indigenous sovereignty from US settler colonialism (Whyte 2017).

The sounds of the #NoDAPL movement were a sonic event unto itself. It began with "an opening ceremony on the Rosebud Indian Reservation… A crowd erupted into bursts of akisas and lililis—Lakota war cries and the high-pitched tremolos of assent" (Estes 2019). As Estes notes, "this is a war story," and it sounded like it. The #NoDAPL movement brought hundreds of Indigenous nations and thousands of non-Indigenous people together in support of the Water Protectors of Standing Rock. The size of the crowd alone is another notable sound of the soundscape.

In documenting this sonic event, Estes describes the sounds indirectly through the narrative. The actions that generate harmful sounds are meticulously detailed. The documenting method is what gives an impression of what the camps actually sounded like. He describes a sonic weapon known as Long Range Acoustic Device (LRADs) that was used against protectors (Estes 2019). LRADs are sonic "crowd control" devices used by law enforcement and the military. It projects sound at extremely high volumes (up to 150 dB) and at great distances. The LRAD was the most direct weaponization of sound. In describing other sounds, Estes uses verbs to impress upon the reader the sound nature of the harms: "they dragged half-naked elders from ceremonial sweat lodges, tasered a man in the face, doused people with CS gas and tear gas, and blasted adults and youth with deafening LRAD sound cannons" (Estes 2019). Besides the mention of the sound cannon, there is not an explicit mention of sound.

In addition to the use of sonic weaponry, law enforcement raided tipis and used tear gas, water cannons, dogs, and more. Though Estes is not explicit about the role of sound, he again recounts the details that implicitly identify the sonic harms. On Backwater Sunday, law enforcement sprayed "Water Protectors with water laced with pepper spray from a water cannon mounted to an MRAP and shot with tear gas canisters, used as projectile weapons. Police also used beanbag rounds,

rubber bullets, and flashbang grenades to pummel the young, the old, the unarmed" (Estes 2019). An explosion from a projectile weapon caused one woman to lose an eye. Another woman almost lost an arm due to the "boom" of that same crowd control device.

In an interview for the blog *Sounding Out*, Nancy Marie Mithlo (Apache) and Marcella Ernest (Ojibwe) discuss the sounds that stood out to them as part of the #NoDAPL movement. At a march, Ernest recalls the layers of competing audio, impersonal and personal conversations concurrent with drumming and sounds of celebration. They spoke of hearing "anticipatory hope with ground swells of joys behind you."[3] Mithlo and Ernest give us a contrasting view of the soundscape of #NoDAPL. The chatter, music, and celebration of North American Indigenous peoples' struggle for sovereignty are resonating across different soundscapes. There is hope and joy in the future.

The way the soundscape is described in Estes's work is similar to how closed captioning translates the soundscape. Sound is implicitly embedded in the text through verbs, adjectives, or linguistic imagery. This is how many writers incorporate sound and the soundscape into written text. But it can be done differently, even if it is not always efficient. In *Listening to War Sound*, Daughtry situates the sounds of war described by survivors as providing life or death information and a source of trauma. My particular interest is his method of breaking the text by using onomatopoeia without the conventions of writing as a way of conveying more of the significance of these sounds. In the opening of the book, he writes, "In Lieu of an Epigraph: Sound-centered Memories of Operation Iraqi Freedom ."The following are part of the sound-centered memories, "Zzzip. P-e-e-w-w-w-w. Crack ... CrackCRACK" and "K-k-r-r-BOOM" both recounted by Armor Geddon. "Thump.... Thud.... BOOM" recounted by Riverbend (Daughtry 2015). Throughout the book Daughtry uses

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[3] https://soundstudiesblog.com/2017/03/30/sounding-out-podcast-60-standing-rock-protest-sound-and-power/

the phonological representation of non-linguistic, along with standard writing conventions, to bring out more of the sonic experience of being in a war soundscape. A solider documented their experience in these words: "No sooner had [my Platoon Sergeant] finished yelling at me, than there was an almighty BOOOOOOM, immediately behind us, followed by a deep, basal WHHHHOOOOOOOOSSSHHHHH, right over our heads" (Daughtry 2015). The capital letter, the extra alphabets, and the non-linguistic sound being textual situated between written words present the soundscape as meaningful, not just in the information that gave, but also in the larger experience of this moment. The way non-linguistic sounds are translated shows that it's possible for text to be more expressive of the sonic elements of the soundscape. Daughtry's presentation breaks the pre-structured typography of text. By using more than just typeface, Daughtry introduces a layer of non-linguistic meaning into the text.

As a methodological approach, *Listening to Iraq Sounds* reconceives how text can be more conducive to translating more of the sounds in the soundscape. Daughtry presses against the barrier of a basic institution of writing, standardized typology and typeface, which limit the inclusion of sound into text. In *The Music of Everyday Speech*, Ann Wennerstrom explores the ways textual discourse lacks mechanisms for signifying prosodic features of language. Thus, meaning is lost due to the prosodic features of language being routinely missing from written discourse. Prosodic features significantly alter the meaning of the text. In order to reinsert prosodic features of speech, Wennerstrom creates several symbols to indicate changes in pitch, speed, tone, and other prosodic elements (Wennerstrom 2001). Wennerstrom reinserts prosodic meaning into bodies of text by adding symbols to represent tempo, stress, rhythm, and pause in bodies of text. The addition of these symbols reduces the possibility for misinterpretation and brings written texts and spoken words to show various prosodic devices used to alter. Through her system, Wennerstrom shows that meaningfulness produced by the prosodic features of language can be included in text.

Conclusion

This chapter shows that the creation of an orthographic script shifts interpretative power from the colonized to the colonizer. Some communities incorporate non-linguistic sounds into the semiotics of their language. Colonial Orthographic writing is not able to represent non-linguistic sounds in its writing system. The result is that non-linguistic meaning is contorted to fit the semiotic limitations of orthographic writing. The first section brings out the tension between speech, sound, and text through two cases in which Indigenous oral histories were part of successful land claims in the settler legal system. The success of the claim worried at least one author because the acceptance of these claims into the settler judicial system signaled a reinterpretation of Indigenous oral tradition to fit the Canadian legal standard of evidence, essentially turning an oral tradition into a different kind of legal text. I use Rousseau because he argues that spoken language and written are completely distinct forms of meaning-making. In particular, he argues that writing is dependent upon spoken language. I think Rousseau is correct, and his point reveals the greater harm of colonials imposing orthographic writing and control over the interpretative soundscape. The issue, I think, is that it represents an important consequence of orthographic writing – the loss of non-linguistic meaning in a textual evidence-based system. In my view, one of them is the reason why the settler state can do such reinterpretations is because of the belief that orthographic writing can be a stand-in for spoken language. Similar issues of translating non-linguistic sounds and soundscape exist with closed captioning. I reject this view.

I argue that, under certain conditions, linguistic sounds are parasitic upon non-linguistic sounds. To bring out this point, I look at how non-linguistic sounds are translated in the space of closed captioning. In particular, I look at the work of non-hearing sound artist Christine Sun Kim and disability scholar Sean Zdenek's work on closed caption. Since words already have stable semantic content, it is easy to caption those sounds. However, not all sounds have stable,

meaningful content. It is difficult to bring their meaningfulness to text. This difficulty was made apparent when Sun Kim explained the lack of content in closed caption lines. In a video, she argues that closed captioning does not bring out the sonic information of the movie. Rather it catalogs the text. Such methods deprived Sun Kim of her experience of listening to movies. At the heart of the problem is that written language has to represent a meaningful sound whose meaning is not in semantic form.

The question of how you bring non-linguistic but meaningful sonic information to text is what the final section attempts to answer. I look at the work of Daughtry, who interviewed survivors of Iraq. His approach to documentation was to insert the phonetic representations of the interviewees. Wennerstrom offers the best way forward with the creation of symbolic representations of meaningful prosodic features of speech in text. Her approach focuses on creating more tools that can capture the sonic nature of the world. Both offer possibilities for 'louder' text in the future.

This first half of the dissertation was meant to engage with the topic of language and meaning through the soundscape. I raised several points about colonial hierarchies, parasitism, and spoken language vs. written language.

PART 2: ENVIRONMENTAL JUSTICE AND THE SOUNDSCAPE

CHAPTER 4

Introduction

The world has an environmental noise problem. Environmental noise is a feature of workplaces, neighborhoods, and homes. Noise is synonymous with cities. Noise is a problem for several reasons. Noise interferes with the ability of organisms to hear and respond appropriately to other sounds in the soundscape. So, noise disrupts the meaningfulness of sound. If loud enough, noise can cause physical trauma in human and non-human animals. Even noises that are not loud enough to cause physical pain can still disrupt concentration or impair cognitive functioning. While we typically think of noise in terms of the volume of sound, it is also possible to view noise through the meaning of sound. For example, projecting racist sounds at a very low volume is still harmful despite it not being loud. Many governments recognize that noise is a pollutant and therefore regulate noise in the soundscape. Yet, noise continues to be such a problem that "quiet" is a commodity that's being packaged and sold (https://www.quietparks.org/about).[4] You can buy a trip to experience natural acoustic environments free of anthropogenic noise. One theory of why noise is coming to dominate the soundscape is technology. On this account, industrial technology has given human beings the ability to produce devastatingly loud noises while desensitizing our ears with smaller, non-natural noises. This chapter seeks to offer a counter theory arguing that the proliferation of noise predates modern technology and is instead a product of colonial resource extraction. The domination of the soundscape is an effect of the extraction of the world's natural resources. The noise that plagues our present-day soundscape is the modern forms of the search for and the extraction of natural resources.

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[4] Quiet Parks International is an organization that is dedicated to "saving quiet." Their complete mission statement reads, "To save quiet for the benefit of all life." The organizations offer free educational programs. It also offers excursions to the quietest soundscapes across the United States for a small fee. https://www.quietparks.org/about

Noise is harmful to human and non-human communities across the globe (Goines and Hagler 2007; Slabbekoorn 2019). Natural environments are their own unique soundscapes maintained by the balance of the ecosystem. Resource extraction, as done by colonial powers, damaged these ecosystems. Overharvesting of natural resources, using environmentally damaging methods, and poor environmental stewardship led to some ecosystem changes that can only be heard. From Schafer's purview, technologies of the industrial revolution are the main cause of our current global noise crisis (Schafer 1993; Truax 1977). The industrial revolution has turned humanity into techno-acoustic gods free to pollute the soundscapes across the globe with anthropogenic noise at will (Schafer 1993). It is the case that advancements in technology have given humanity the sonic capacity to destroy a soundscape. However, noise pollution is not just a product of technology. Rather, it is initiated by the environmental damage done by the unsustainable extraction of natural resources. Colonizers understood the natural environments to be sources of limitless wealth. Precious metals, plants, soil, and vegetation, were filtered through a worldview that saw nature as a source of profit (O'Brien 1997). Because of this worldview, not only did colonizers subjugate various peoples, they engaged in processes of mass terraforming. Deforestation, overharvesting of livestock, the use of rudimentary explosives for mining, and the development of irrigation systems are just some of the ways colonials terraformed the colonized lands. These extractive activities introduce noise into the soundscape. They also have a secondary effect. Damaging the ecosystem reduces its ability to be resilient by making ecologies less capable of noise absorption and dispersion. Colonial resource extraction made ecologies less resilient to noise pollution. The attack on the resilience of acoustic ecologies predates industrial technologies.

The main point of this chapter is to advance an alternative theory to Schafer as to why noise has become the problem that it is. I argue that our current environmental noise problem begins with resource extraction from colonized lands by colonial powers. Thus, colonialism is a more accurate

way to describe the process by which the current global noise problem evolved. Second, I argue that colonialism has made ecologies less resilient to noise pollution because of unsustainable resource extraction. The unsustainable extraction of resources is significant for two reasons. For one, unsustainable resource extraction changed the physical capacity of ecosystems to handle noise pollution. A byproduct of these changes is the loss of acoustic communities, which are communities linked together by sonic recognition. From building a village to developing whole cities, colonizers introduced noise at levels that did not exist prior. Technology changed the levels of noise colonizers could pollute ecosystems with, but the polluting of ecosystems with noise began before industrial technologies were available. Colonialism made soundscapes more vulnerable to the harm of noise pollution and, in some instances, created noise at scales not previously possible. Finally, I argue that technology has created new forms of ways extraction that threatens acoustic communities broadly.

This chapter begins with a framework for defining acoustic communities and a summary of Schafer's theory of how anthropogenic technology has made noise into a global problem. In addition, I lay out his view of the social and ecological impact of anthropogenic noise on both the soundscape and society. The second section argues against Schafer's theory that technological advancement has been the main driver of global noise pollution. I argue colonialism, specifically unsustainable resource extraction, causes ecological damage in ways that reduce the capacity of natural ecologies to mitigate and regulate noise. As colonizers extracted the natural resources out of the environment, whole ecologies were left defenseless against the increasing noise of extraction. In addition, the knowledge of proper environmental stewardship was lost as colonizers subjugated native populations across the globe. In the final section, I argue that colonialism still affects how noise is distributed. The remnants of the former system of colonialism govern where environmental harms and benefits end up. Noise is usually intentionally funneled to the geographies of Black,

Brown, and Indigenous peoples. In some instances, noise mitigation is not used specifically in the areas of Black, Brown, and Indigenous people.

Sound and Society

Sound is a feature of society that is weaved into the practices of daily life. Sound is a political, social, economic, and ecological matter. Sound is a governing force in the lives of people under its authority. As a social norm, sound governs the tone of voice and volume people use in interacting with others. Sound is regulated by law, making it a form of legal governance (Parker 2019). It can be psychologically traumatizing to be in the soundscape of a warzone, for example (Daughtry 2015). Sound is fundamental to life. If your heart is not making noise by forcefully pushing blood through your veins, you are probably dead. For those that can hear, the sound is an inescapable part of reality.

There is one place on earth where you cannot hear sound. An anechoic chamber, a room designed to absorb sound so that it cannot be heard, is the most silent place on earth. Yet, even in such a place, a person can still hear the sounds of their own body. Life itself produces its own sound. In 1760 a doctor figured that he could feel the vibrations of a patient's heart if he pressed his hand against it and tapped with one finger. From that idea that he devised a way to listen to his patient's body, "I rolled a quire of paper into a kind of cylinder and applied one end of it to the region of the hear…I could thereby perceive the action in a manner much more clear…" (Hendy 2013). That doctor would go on to create the stethoscope. The invention of the stethoscope would open a new soundscape. In our high-tech world, sound itself serves as a translator of the body. Ultrasonic waves are used for examining abdominal, cardiac, pediatric, breast examinations, and many other parts of the body. Though we see these images, it is sound that makes them visible.

The trauma of wartime sound structures the day-to-day experience of those living under it. *In Listening to War Sound, Music, Trauma, and Survival in Wartime Iraq,* Daughtry captures the trauma

of the sounds of war from survivors and the ways in which the sounds of war were an embodied part of the daily rituals of life. Residents trained their ears to estimate the distance of rockets or gunfire, so they could determine whether to hide, run, or continue to listen (Daughtry 2015). To those that have lived long enough under its soundscape, the sounds of war become the ambient noise of their world. Silence is terror-inducing. Silence denies the knowledge one would gain from the sounds of war. Silence is a space of the unknown. It negates the many tools developed to be safe during the explicitly unsafe space of war. Unlike Goodman's theoretical account of the sound of war as technology, Daughtry shows us that the sounds of war are a texture for day-to-day existence, shaping how we make sense of the world.

Nina Power investigates how women's voices give an acoustic texture to living in an urban soundscape. Power identifies an array of female voice recordings that perform audible service work in the city. Women's voices perform informational announcements, provide navigational assistance, advise you on activities, and performs a wide range of service in the form of communication (Power 2014). The ubiquity of women's voices is a subtle but powerful reinforcement that the sound of a woman is to be in service to societal needs. Social rules that govern women's roles in society are nudging the social understanding of what women should do. Nina Power shows that women's structural position does not change even in sonic environments. The power relationships that subordinate women do not change in the different acoustic environments. In Warsaw, gentrifiers began using city ordinances to quiet the nighttime economies. The noise of nightlife -- bars, clubs, and cafes – offers a continuous party experience throughout the night. Such sounds defined being a resident of Warsaw (Kusiak 2014). The sounds of economic life at night are not the city gentrifiers want to live. Through local law, gentrifiers retuned the soundscape. They imposed limits on volume, types, and location of sonic production within Warsaw. The gentrifiers show the power of being able to control the sonic productions of space.

Sound is also a tool by which we systematize the actions and behaviors of people. The administrative system that sound is governed by has implications for the function of sound in the soundscapes. Additionally, it governs how people react in space. The control of sound in the soundscape has implications for what actions are possible in relation to which sounds. For example, an ambulance siren initiates a predetermined set of actions on all cars and people within audible range. If the predetermined action(s) is not taken, then a sanction could be applied to all who did not take said action. Sound in this context is part of a larger administrative or governance system. That system can be used to impose sonic order or *sonic disorder.* It can be selective in banning certain forms of sonic expressions while ignoring others. Sound in this context begins to set limits on the range of possible meanings with which we use to interpret events, situations, or other occurrences in the world.

In Sonic Lawfare, Parker argues that sound and soundscapes operate in nebulous spaces within the law. Sound and soundscapes are spaces of sonic violence that are legally ambiguous (Parker 2019). The gap in governance has allowed several sonic-based violence. In 2017 the United States dropped the 'Massive Ordnance Air Blast' (MOAB) on Afghanistan. However, it blew up the bomb *before* it hit the ground. A resident described it as if the "heavens were falling" (Rasmussen 2017; Parker 2019). The use of this bomb raises several legal questions about sonic force in a soundscape. For example, the Department of Defense authorization does not address questions of lifelong deafness resulting from the bomb's use. Thus, open questions remain regarding the legality of use strictly on sonic grounds. Their control of the interpretation of sound is complicit in the traumatic violence caused by sound. Sound can be interpreted as violence in other contexts. The important point here is that these are institutional and administrative powers that are interpreting sound.

As Parker explains, not only are sounds themselves a source of violence, but the power to interpret those sounds can also be. Turning our attention to colonial and settler colonial context sound, we'll see that this has been true since colonizers arrived. Slaveholders banned the enslaved Africans from using several musical instruments because they feared the enslaved would communicate with one another through these instruments, which they were very capable of doing (Hendy 2013). Slaveholders recognized that the instruments were not producers of music but forms of non-linguistic communication. They recognized the interpretative capacities of the enslaved as far beyond their understanding and thus limited their ability to produce sound. In colonial Zimbabwe, Chikowero informs us that missionaries would send raiding parties to villages in order to prevent native peoples from engaging in ceremonies, native singing, and other festivities. The raiding parties would forcibly confiscate musical instruments and other items associated with the ceremonies from their homes (Chikowero 2015). The missionaries also prevented children from learning how to play traditional instruments. Instead, children were forced to learn to play instruments of colonial heritage. The harm here is that colonizers intentionally sought to destroy the knowledge of how to play traditional instruments. In this case, colonizers controlled sonic cultural production and the knowledge associated with it.

Sound has different functions and roles in shaping individuals and communities. The colonial control of sound allowed colonial powers to impose order, systematize actions, and determine meanings in the soundscape. It is important to know that many sounds are cultural productions dictated by the customs and traditions of a people. Sound is also a community production. Reed shows that the Hopi ceremony is distinct in its cultural meaning and significance for the Hopi people. Similarly, other communities have both unique sounds and/or culturally specific meanings to more recognizable sounds. Sound is enmeshed with histories, practices, and environments of lived experience.

Acoustic Communities

Sounds are deeply interwoven into the identity of our communities. Communities weaving sounds from their environment together with unique cultural histories, knowledge, and practices lay the groundwork for an acoustic community. This section defines an acoustic community. Sound is one element that links community and meaning "[A]ny soundscape in which acoustic information plays a pervasive role in the lives of the inhabitants (no matter how the commonality of such people is understood)" (Truax 2001). Though there are reasons to be skeptical of the 'pervasiveness' criteria, Truax's framework for acoustic communities identifies the key aspects of the centrality of sound to communities' well-being. *Sounds* are cultural and informational links that keep community members connected to each other and their environments. The shared sonic knowledge defines the communities in terms of shared daily practices, spatially and institutionally (Truax 2001).

When a community gives sounds a special meaning, we can call these "soundmarks" (Schafer 1993). A soundmark can be the specific sounds that define a particular event. For example, on July 4th, the sounds of fireworks populate many soundscapes in the United States as people, and institutions, celebrate the nation's independence. The sound (of fireworks) *marks* something as meaningful as the independence of the United States, which is recognized as meaningful by a community of people. Soundmarks have important significance in marking events or places with deep cultural meaning. These sounds are of such significance they usually play a formative role in maintaining acoustic communities (Truax 2001).

Additionally, communities have "keynotes." *Keynotes* are the ambient sounds that define community space. These are background sounds associated with the community's environment (Schafer 1993). For coastal communities, keynote sounds could be the ocean and avian animals. These sounds serve as the ambiance of the community. Keynotes are ubiquitous and relegated to the background of a community but may become prominent if it is altered. The material environment

produces different keynotes for acoustic communities that overlap with geographic spaces. Topography, vegetation, and wind energy can affect the keynote sounds (Schafer 1993; Truax 2001). Soundmarks, keynotes, and other sounds create a shared sonic experience that connects individual community members through sound. Through their inter-related subjective position, these individual members form an acoustic community. The acoustic aspects of the soundscape are critical aspects of community identity and community life.

Acoustic communities may or may not necessarily be geographic entities. For example, hip hop scholars argue that practitioners of the various forms of hip hop, including beatboxing and beat makers, form a particular kind of acoustic community, a hip hop nation (Smitherman 1997; Alim 2009). Hip-hop songs of great significance are soundmarks of this community, and prominent styles of rapping or beat-making serve as keynotes. Conversely, multiple acoustic communities can be within the same geographic space. For example, gentrifying neighborhoods are often sites of sonic clashes between differing acoustic communities. As new residents move in, clashes over existing soundmarks and keynotes of the neighborhood erupt. These sonic clashes between existing acoustic communities and acoustic communities developing within the same physical space are settled through force. Acoustic communities can also be comprised of non-human animals. Various non-human animals, including dolphins and birds, use sound and vocalizations in complex The migratory patterns of birds and aquatic animals also make it difficult to define acoustic communities in terms of physical geography.

Acoustic communities are the subjects of harm in a world of increasing levels of ambient noise and explicit noise pollution. In the next section, I summarize Schafer's theory of how this noise has become a problem for acoustic communities. In addition, I offer some objects to his theory framing of noise the rise of noise pollution and ambient noise levels are harmful to various types of acoustic communities.

The Retuning of the World

In the Tuning of The World, Schafer argues the decline of natural soundscapes is the result of noise, unwanted sounds taking up space in the soundscape. Schafer's theory does not completely revolve around technology, but technology, particularly the industrial revolution, is central to his thesis. He views the soundscapes of the world as having two epochs. In the first epoch, soundscapes produced rhythm and song designed by nature and its natural order. We'll call this the epoch of the natural soundscape. In the second epoch, human inventions generate noises, directly and indirectly, dominate the soundscape. We'll call this the epoch of the anthropogenic soundscape. In Schafer's worldview, the natural soundscape is a harmonious orchestra. There is a divine quality in the natural soundscape that the perfect ear can hear (Schafer 1977, 1993). The ideal, divine soundscape is what Schafer believes noise pollution is destroying. Anthropogenic noise actively harms nature's orchestra. In addition, the noise is systemically eliminating the very existence of the natural soundscape.

The decline of natural soundscapes reflects a shift in nature's sonic authority in the soundscape. The ever-increasing power, speed, and geographic reach of noise produced by advancing technologies threaten the global soundscape. Humans have always contributed to any soundscape in which they existed. However, human-generated or anthropogenic sounds could never dominate the soundscape because nature produced sounds that were simply too loud. The power to produce sounds as loud as nature came about during the industrial revolution. The industrial revolution empowered industrialists to produce noise at levels rivaling nature. A defining technological invention of the Industrial Revolution was the steam engine, built in 1698. The steam engine was about as loud as medium traffic on a major city highway today. The inventions that followed the steam engine were in quick succession and were increasingly louder. Anthropogenic noise came to rival, then surpass nature in sound power, and the epoch of anthropogenic noise

began. "The Industrial Revolution introduced a multitude of new sounds" that would eventually have destructive consequences for the acoustic communities, natural and human, which they tended to dominate (Schafer 1993). The point is marked as the industrial revolution (Schafer 1993). The natural soundscapes that sustained acoustic communities were being invaded by noise. In Schafer's view, noise will continue to disrupt acoustic communities while permanently eliminating nature's soundscapes upon which they rely (Krause 2015; Schafer 1967, 1993).

The noise created by the Industrial revolution completely altered global soundscapes. Cars, railways, aerial transportation, and factories became vectors for noise. Transporting goods across the different soundscapes was not only easier but done with greater frequency. Urbanization would create densely populated cities as people felt coerced to move from farms, towns, and villages for work. Industrial technology brought a reorganization of labor, social relationships, and economic development. In the industrial soundscape, new rhythms of work were governed by factory production schedules that used sounds to govern the cycles of labor (Schafer 1967, 1993). What's important for Schafer is that processes by which sound is being weaved into society, and the very sounds that are being weaved in, have fundamentally shifted because they have had a negative effect on environmental and human relations. Noise started byproduct of industrial machines and then became incorporated into the social reality. The ability for anthropogenic noise to dominate soundscapes entered a completely new era. Sound domination is the result of the Industrial Revolution.

Schafer remarks on some of the technological changes that empowered anthropogenic noise, "The industrial revolution in England, the country which, for a variety of reasons, becomes the first to mechanize…the principal technological changes which affected the soundscape included the use of new metals…as well as new energy sources." Along with these to the soundscape came changes to society writ large. He remarks, "The social concomitants to these changes were also profound.

Agricultural workers were disfranchised… "Operated by steam engines, lighted by gas, the new factories could work nonstop day and night. Workers lived in squalid quarters," which "became centers of much greater noise and rowdiness" (Schafer 1993). The industrial revolution retuned human soundscapes to operate on the circadian rhythms of technology. However, nature could still produce the loudest, most intense sounds in the world. That would eventually change as well.

The latter half of the Industrial Revolution marks the point when anthropogenic acoustic productions would supersede nature in terms of raw sound power. Newer inventions resulting from industrial breakthroughs meant that with greater sound power came greater speeds at which anthropogenic noise could move across the entire globe. In addition, human-generated noise increased mobility allowing noise to enter previously inaccessible soundscapes. Industrialization, with its use of new metals, energy sources, processing methods, machinery, and knowledge, set industry on a path of outright domination of soundscapes and acoustic communities therein across the globe. Noise, as a global problem, cannot be far behind this sequence of events. On Schafer's view, global noise is the result of industrial innovation that has empowered anthropogenic noise to dominate human and natural soundscapes. Additionally, the industrial revolution has cascaded successive revolutions, the electronic revolution, and now our current digital revolution, with technological developments that have allowed human-generated noise to reach levels of intensity and corners of the earth previously unimaginable. In a technologically determined fashion, Schafer views the domination of all soundscapes as a result of industrial technologies that empowered anthropogenic noise to be an inevitable and subjugating force resulting from the technological advancements humanity has made.

It is a compelling story of how and why global noise has evolved from the steam engine to a threat to soundscapes and acoustic communities. However, Schafer conveniently erases the colonial histories that make possible the Industrial Revolution. In his narrative, the Industrial Revolution

caused the destruction of acoustic communities and soundscapes only to those in Europe. Schafer claims that Europe was "the first to industrialize" and thus the first to experience the harms and violence of industrialization (Schafer 1993). His analysis centers on the colonizers of Europe as subjects of harm but ignores that Europe has been a direct perpetrator of violence against acoustic communities for years prior.

Further, Europe, and other colonizers, actively sought to disrupt and destroy the shared acoustic knowledge, keynotes, and soundmarks of the communities they colonized. Schafer's theory, because it erases European colonialism, actually inverts the process of destruction wrought by industrialization. If we center on the acoustic communities of the colonized, we see that noise has been a weapon against their communities since the time of Columbus (Davis and Todd 2017). Colonizers took specific steps to erasure the sounds and soundscapes of the people they colonized. Colonizers targeted sound culture by banning instruments and aural practices. They also terraformed the environment to extract natural resources, which reduces its ability to mitigate noise pollution. Schafer specifically ignores the colonial histories of subjugation and extraction, which are necessary for the industrial revolution to happen. Without the extraction of raw materials such as metals, oils, plants, and more, the industrial revolution would not have been possible. Further, the subjugation of native populations, and the extraction of their knowledge, were also necessary for theorizing and learning the utility of these materials. In Schafer's theory, the machinery of industry retunes the world with noise resulting in the destruction of the soundscape. In my view, it is the machinery of colonialism that retunes the world with noise resulting in the destruction of acoustic communities and natural soundscapes.

By reinserting colonialism, we can see two things. The first is that colonialism is an acoustic process that targets acoustic communities. That colonialism is an acoustic process is something that Schafer recognized, despite excluding it from his analysis. He stated that Europe and North America

have "masterminded schemes" designed to dominate other peoples and value systems. One of these schemes is a form of sonic domination, which Schafer deemed "subjugation by Noise" (Schafer 1993). As a result of these schemes, Western machinery, factories, and airports colonized local cultures pulverizing them into the background (Schafer 1993). Second, the domination of the soundscape, destruction of acoustic communities, and the spread of noise were taking place before the industrial revolution. Colonizers were already extracting immense resources, enslaving populations, and expanding their territories already. Colonizers took resources they could not use simply because of the existing colonial relationship. Thus, because of the domination of colonialism, the industrial revolution was predicated on *the possibility of the future* utility of these resources. The industrial revolution could have never taken place, and yet the domination of acoustic communities and soundscapes would have happened. Rubber is exactly the type of natural resource that shows the alternative possibility to what Schafer proposes. The lack of its industrial utility did not stop its extraction. In fact, it shows that if there is determinism to the domination of the soundscape and the death of acoustic communities, then the determinant is colonialism, not technology.

In the early 1700's The Spanish had been on expeditions searching for raw materials. The purpose of these expeditions in the Upper Amazon was the exploration and identification of extractive products (Hvalkof 2000). Through the use of force as well as diplomacy, Spanish colonizers and Jesuit missionaries established approximately seventeen missions between 1709 and 1769 (Hvalkof 2000). Colonization of the land and people was already underway. The missionaries sought to assimilate the native population through the imposing of new beliefs, language, and new practices. Skirmishes for native lands and stealing of natural resources were also part of establishing this colonial outpost. In these early colonial years, the domination of land and the subjugation of the native population were localized. Through these engagements with Indigenous peoples of this area, including the Siona, Secoya, and the Cofan, colonizers learned of a milky white substance, which we

call latex or rubber. The Indigenous population has used rubber in several different ways, including as a water repellent and binding agent. Colonials saw the native population coat clothing or footwear with it to prevent water absorption. The native knowledge of the utility of rubber was coopted by colonizers who sought to use the milky white substance in other ways. Thus, colonizers began extracting rubber from the lands. Initially, colonial chemists tried to use rubber in commercial products, but the substance could not maintain chemical consistency at high temperatures. Despite not having any clear commercial utility, rubber was still being extracted along with many other raw materials (Hvalkof 2000). Much of what the Spanish took it did not yet know how to use, yet it continued to extract the resources. My point with recounting this part of the history of rubber is to give detail to the grand narrative that is the core of Schafer's theory. The raw materials used to fuel the Industrialization Revolution required the colonization of lands and peoples, even when it was unclear what exactly the materials could be used for. Domination precedes the possibility of industrial advancement. It is the material reality of colonialism that creates the conditions for Schafer's grand narrative.

The colonization of the amazon continued throughout the 1700's; rubber was still being extracted. In the early 1800's, well into the latter half of the Industrial Revolution, chemist Charles Goodyear was able to make rubber stable under high temperatures. The process, known as vulcanization, allows rubber to maintain its consistency despite being under intense heat, greatly increasing its usefulness. Rubber was initially used in bicycle tires, then expanded to shoe soles, industrial bands, and much more after initial success. Goodyear was the first company to successfully commercialize rubber products. The commercialization of rubber changed the speed and force with which the colonization of the upper amazon took place. Two specific results of the commercialization of rubber altered the soundscape. The first is ecological changes that completely destroyed the soundscape and made it less resilient to noise pollution. The second is the subjugation

of the native population, specifically the loss of Indigenous environmental stewardship and knowledge.

The Industrial Revolution expanded the need to colonize lands and people. Once rubber became commercially viable, due to "the industrial and scientific revolution in Europe, the demand for such products grew" (Hvalkof 2000). Thus, an increased need to expand land seizures for the extraction of rubber. The specific method of extracting is what's important as it shows how colonialism makes ecologies less resilient to noise pollution. The extraction of latex is known as "tapping," which is specifically the draining of sap from hevea trees. The method for extracting latex sustainably is to create a small incision in the center of the tree. The incision is then corked with a drain basin into which the sap seeps. The process is slow producing but is the safest method for the long-term health of the tree. The industrial revolution required rubber in quantities and at speeds that is only possible through unsustainable extraction, which would result in the loss of healthy trees. In order to extract larger quantities of latex at faster speeds, colonizers would a method known as slaughter tapping. Slaughter tapping maximizes sap output by creating two deep, angled slices across the top and bottom of the tree hull. The angular cuts increase the amount of sap drained from the tree. In addition, slaughter tapping leaves the tree without enough sap to sustain itself. Higher quality rubber-producing trees were quickly drained of their sap. Then lesser quality, rubber-producing trees were tapped using the same method. Slaughter tapping resulted in the loss of trees in the upper amazon and threatened the larger ecosystem. Trees act as natural sound absorbers, and the loss of large quantities of trees weakened the ecology's resilience against noise pollution. The loss of trees meant the ecology was less capable of mitigating the noise. Further, colonizers developed small forts, towns, and railways to transport raw materials. All of these topographical changes fundamentally retune the soundscape. These changes retune soundscapes making them less resilient

to future noise, in particular newer technologies of the industrial revolution. It is colonial retuning that created the conditions for which environmental noise is a problem.

In addition to retuning the natural soundscape, colonizers silenced the acoustic communities there through enslavement and torture. In order to extract vast quantities of latex, colonizers enslaved the native population, extracting labor and knowledge from the Indigenous population. The keynote sounds of native communities were no longer heard. The sound practices that uniquely marked Indigenous life were turned into sounds of violence and terror. Colonizers created a system of slavery and debt bondage to extract rubber through brutal force (Hvalkof 2000). What I want to note here is that sound was used as a specific weapon of subjugation. Colonizers would force Indigenous peoples to listen to the screams as their colonial enforcers tortured those that resisted subjugation (Hvalkof 2000). Colonial violence retuned the acoustic community and soundscape in order to provide industrial materials. The colonial pattern of retuning soundscapes and acoustic communities is a historical fixture pre-dating the Industrial Revolution.

In Dispossession by Degrees, the colonial relationship between the Indigenous nations, including the Massachusett, and English settlers using a variety of tactics slowly stole native land and changed topographical resilience and cultural practices. Though the process of retuning was slower, eventually, the soundscape, soundmarks, and keynotes of the native communities were "quieted" (O'Brien 1997). In the 1500's, Cortes was starting wars with the Nauthal in order to establish colonial outposts (Gruzinski 2014). These outposts served as a basis to expand his subjugation of the ecological and native nations. In the 1400's, Indigenous peoples and lands on the western coast of Africa were being infiltrated by Europeans. Eventually, the transatlantic slave trade would wreck the ecology and permanently reshape the various native communities of western Africa. As colonizers extracted natural resources, they made ecologies less capable of mitigating noise. The existing acoustic communities were razed or driven into silence. It is on the basis of colonialism that

the materials required for the Industrial Revolution were funneled from colonized lands into industrialists. Acoustic communities and ecological soundscapes were acoustically restructured by colonialism.

Thus, colonialism has been actively *re*tuning the world. The industrial revolution was simply not possible without colonialism. Colonization is the mechanism by which the raw materials used for industrial technologies were acquired. The metals, oils, plants, rare earth, and other raw materials that powered the industrial revolution were extracted by force and subjugation of lands and people. The forcible extraction of raw materials required colonizers overtly target the sonic practices of colonized peoples in order to subjugate them. From the silencing of native ceremonies to the banning of Indigenous music and instruments, colonizers attempted to strip colonized communities of the sounds and sonic practices that were intrinsic to their identity (Chikowero 2015). In my view, one thing that is significant but overlooked by Schafer is that colonization terraformed natural environments and ecologies, making them less capable of mitigating exogenous noise and less capable of adapting to increasing levels of ambient noise. Deforestation, infrastructure creation, mining, and other ecological changes made many places less absorbent of sound. The problem with Schafer's narrative is that it abstracts away the details by which the historical development has happened. In doing so, Schafer fails to accurately track significant details about the larger processes by which the Industrial Revolution took place.

The omission of colonialism from his analysis leads him to view the industrial revolution as the technology destroying the soundscape. In doing so, he ignores colonialism's impact and causality in creating the conditions for our current noise pollution crisis. Schafer's analysis can be understood as a form of structured ignorance designed to erase the violence of colonialism in partially constructing the present soundscape (Tuck and Yang 2012; Mills 2015). Despite acknowledging the existence of colonialism in several places in the texts, it plays an insignificant role in the historical

development of the soundscape and global noise pollution. What Schafer's analysis misses is that *colonialism is the technology*. It was through European colonial expansion that noise was spread throughout the globe. At the center of that expansionism was the extraction of value from lands and people. That logic, which undergirds colonial expansionism, continues to be operative in the present day (Appel 2019).

Subjugation By Noise

Colonialism is no longer an explicit form of domination. Yet, the intellectual infrastructure of colonialism continues to structure power relations between the former colonizers and the formerly colonized (Quijano 2000). Sound is no exception to that colonial heritage. It continues to be a tool of subjugation of ecologies and acoustic communities. Sound technologies have enabled new ways to use noise to subdue, subordinate, and subjugate people. In addition to targeting the cultural sound productions and environmental soundmarks or keynotes, subjugation by noise is also done through the interpretation or meaning in sound. Sound is used to reinforce or generate social meanings, which attach inferior status to a specific population or characteristic of a population. Subjugation in this form is done by creating harmful perceptions of people, which limit their ability to participate fully in society. In this section, I'll go through the different ways in which sound is a form of domination.

One instance of using noise to subjugate people is through the intentional locating of noise over in the airspace where people reside. Noise operates as a kind of environmental waste, which is then "dumped" onto a community. I call this "noise dumping." The Innu nation battled for years against the dumping of military noise on their lands. The struggle of the Innu Nation is situated within a history of the Canadian government's overt attempts to force them off their land for timber, metals, and expansion of infrastructure projects (Spice 2018). Noise would become another tool in taking Innu's land. The Innu and the Canadian government had an agreement that would

allow the Canadian government to fly about fifty military training flights per year. The training, known as ultra-low-level flight, required jets to fly as low as 100 feet above Innu lands. In 1996 Canada opened the training site to the North Atlantic Treaty Organization (NATO), allowing member nations to use the airspace to conduct military test flights. As a result, the number of flights expanded to an average of over forty flights per day (Penashue 2019).

The aviation noise from the extra flights created many disruptions in Innu life. In *I Keep the Land Alive*, Elizabeth Penashue details some of the effects the noise had on the Innu community and the animals on the land. The flights would create thunderous "booms" that were loud enough to be harmful to humans and animals. The booms would occur at random hours during the day and night, making residents, particularly elders, unable to rest or work. The loud, unexpected noise would scare children, leaving them traumatized. The vibrations created by the sonic "booms" would cause physical structures to vibrate. The noise also affected the wildlife. Game, which serves as a food source for the community, migrated away from the noise, and it is speculated that the noise affected the birth rates of the remaining animals. These changes made negatively affected the living conditions of the Innu Nation and served as part of a larger strategy for control over Innu lands.

The Canadian government has historically tried several different tactics to force the Innu off their land. One major example of this is the intentional flooding of Innu Lands to create the Smallwood Reservoir, which was part of a larger hydroelectric dam that was constructed on Innu lands. The flood destroyed all Innu possessions, ancestral sites, and fishing & hunting sites. The Innu were forced to relocate while the lands on which the Smallwood Reservoir stands were forcibly taken. Much like the flooding, the noise of low-level flying is a tactic that would require the Innu to relocate again while the government takes their land by force. Noise, in this instance, serves as another weapon used by the Canadian government against the Innu nation.

Noise dumping subjugates people by locating disruptive sounds in the environment. Subjugation can also happen by silencing the environmentally and culturally meaningful sounds of a people. As colonizers conquered new lands, they silenced the sounds that were markers of the colonized population. Under settler colonial Zimbabwe, known then as Rhodesia, colonizers specifically targeted the cultural sounds of the Indigenous population to force the conversion of native peoples to Christianity. The Shona "ceremonies" are forms of kinship revitalization that strengthen spiritual bonds with ancestors, impart wisdom from elders, and bless the community. These are culturally specific sounds of the Shona that serve to anchor relationships to kin, worldviews, and knowledge, which made Christian conversion all the more difficult. To that end, missionaries banned Shona instruments and ceremonies and even killed native mediums. Missionaries would work with colonial raiding parties to break up "ceremonies, pursuing the participants with dogs whipping masvikiro (mediums), healers, and dancers" (Chikowero 2015). Eliminating the sounds of Indigenous life was an important tool of subjugation. Forcing cultural assimilation required retuning the sonic practices of culture. In this instance, cultural silence was a form of 'noise' imposed upon the Shona.

Noise as a tool of subjugation can take many forms. During gentrification, gentrifiers move into Black and Brown neighborhoods and forcibly change the soundscape to fit their needs. Gentrifiers use law enforcement, civil codes, and noise ordinances to impose an acoustic order on existing residents of a neighborhood (Ramírez 2019). Similar to the Shona, gentrifiers view the cultural sonic productions of Black and Brown neighborhoods as "noise" and acoustically subdue the entire neighborhood through state power. In *The Right to Be Cold*, Cloutier informs us that the settler government killed all the dogs that were part of the Inuit family. In lieu of the dogs, community members were given snowmobiles. The machines increased the levels of ambient noise in the community without the consent or even consultation of the community. Additionally, dog

vocalizations can serve a variety of purposes, from a warning to affection, were stolen. Protestors and water protectors were exposed to sound cannons as they resisted state violence (Estes 2019). Noise continues to be a tool or mechanism of subjugation. As technology progresses, sound becomes a more explicit tool by which power can be exerted over a people.

Conclusion

Colonialism is an acoustic process that specifically targets the meaningfulness of sound, be they culturally or environmentally produced. Sounds, and their meanings, are part of the shared cultural resources that communities create, possess, and leave as an inheritance for future community members. In theorizing noise as a means of subjugation, I argue that colonialism targets the sonic meaningfulness of communities as a means of cultural disruption or destruction. Colonizers targeted sounds that were culturally significant, particularly those whose significance was tied to cultural beliefs. Such sounds were banned using violence as they presented an epistemological obstacle to assimilating the colonized into colonial belief systems. Subjugation by noise is part of the larger strategy to create conditions that will induce, coerce, or force assimilation or the destruction of cultural beliefs. In addition to the subjugation of people, colonizers unsustainably extracted natural resources, changing the environment's constitution. As a result of the resource extraction, the resilience to noise in many environments was weakened. The domination of noise pollution is partially the result of the anthropocentric changes made to the constitution of various soundscapes. Colonialism is a central cause of our current global noise crisis.

Despite the centrality of colonialism in causing a world that is over-polluted with noise, Schafer's explanation of the development of noise into a global problem is a narrative of the ever-increasing power of anthropogenic sound technologies that have become tools of dominance over the soundscape and people. In Schafer's theory, the technologies that developed from the industrial revolution have increased human capacity to produce sound at levels that superseded nature. The

innovations of the Industrial Revolution have been buttressed by successive revolutions, the electric revolution, and the current digital revolution. These technological changes continued to increase the speed, volume, mobility, and power of sound. The result is the ability of human-generated sounds that can dominate any geography, soundscape, or people. Schafer's narrative erases colonialism as even a part of the narrative. His story specifically leaves out the role of colonialism in *re*tuning the world.

I use the term "retune" as an analytic tool to describe a specific process by which colonizers targeted the meaningfulness of cultural sounds to undermine the colonized's belief systems. Retuning can also be done to the environment, as environments are acoustic entities in their own right. Retuning describes the intentional destruction of environments in order to extract natural resources. Colonial resource extraction results in environments that are less resilient against external noise due to force changes in their constitution. In many cases, colonizers developed cities or towns, which transformed the environment into sources of environmental noise. Retuning is as much an environmental process as a cultural one. In the final chapter, I examine how resource extraction is beginning to retune non-human soundscapes. The need for resources fueled the colonial activities that made possible the industrial revolution. Each successive revolution, the electric revolution, and our current digital revolution, also requires natural resources for their development. The logic of colonialism, subjugate and extract, continue to be instructive for how noise is spreading to more remote places around the world.

CHAPTER 5

Introduction

In the last chapter, I argued that colonialism is the cause of acoustic communities and soundscapes being subjugated by noise. Colonizers attacked the sounds of cultural significance and cultural soundscapes as part of a larger extraction of natural resources. Those natural resources powered the Industrial Revolution. Natural resource extraction continues to power technological innovation as the electric and digital revolution revolutions have increased the need for more natural resources and different kinds of natural resources. Thus, more communities and environments are subjected to industries creating noise through their extractive practices. The burden of this noise will disproportionately be on those formerly subjugated: Black, Brown, Indigenous, and less wealthy nations of the world. *The Tuning of the World* does not explore the implications of noise and the harmful use of sound intentionally distributed unjustly and unfairly. That some acoustic communities, and soundscapes, are disproportionately filled with noise is not conceived of as a specific problem to be addressed. However, noise is environmental harm that is distributed unequally across geographies and communities. Noise is an environmental hazard that is unequally distributed, making it an environmental justice issue. The *Tuning of the World* misses this important dimension of the relationship between sound and society. However, I think the book does capture something important for those working at the intersection of justice and the environment. Sound is an environmental good. As an environmental good, sound is often overlooked in discourses about environments and justice. It is at the intersection of justice, environments, and sound that this chapter unfolds.

Sound is an environmental good; like other environmental goods, it is unequally distributed. Black, Indigenous, Brown, and those with less power are subjected to harmful anthropogenic noise while wealthier, whiter areas have access to the beneficial sounds of natural environments. Like other environmental toxins, noise is disproportionately "dumped" on communities, which are

predominately Black, Indigenous, Brown, and poor (Sobotta et al. 2007). Further, many academics and researchers of environmental justice have failed to adequately engage with noise as an issue of justice, if it at all. In urban environments, "noise" is a cultural weapon used by gentrifiers to displace the cultural soundscapes of historically Black, Brown, and Asian Pacific/Asian-American neighborhoods. In my view, the absence of sound in the environmental justice literature reveals that there is still quite a bit of distance between environmental justice as an academic discipline and environmental justice as practiced by the lived experience of communities on the ground (https://noiseproject.org/).

The lack of scholarship exploring sound in the environmental justice literature contrast with literature on noise as an environmental issue. The Tuning of the World has been foundational in generating broad interest in the harm done to the environment by noise. Several academic sub-fields within the environmental sciences have taken up noise as an environmental problem worthy of study. In particular, sub-disciplines in the environmental sciences and acoustic ecology continue to address the environmental aspects of the problem Schafer outlined many years ago. This chapter addresses the humanistic side of the problem Schafer outlined many years ago, thereby adding a new dimension to academic discussions on the soundscape.

This chapter is broken into three sections. In the first section, I recount the approach Schafer and conservationism took to save the soundscape and move closer to eliminating the environmental harm of noise. Schafer argues for a unique form of preservationism ethics that advocates changing the acoustic habits of people and institutions of society. To achieve this, he developed a whole program called acoustic design. Acoustic design is a political, epistemological, and social project that will alter the relationship we have with sound in society. For Schafer, the music of the society is mirrored in the social habits, laws, and customs of the people and the state (Schafer 1993). Thus, acoustic design is akin to a social movement, which would have downstream

effects in other spheres of society. Conservationism deploys an environmental management approach to saving the soundscape. They view the soundscape as an environmental resource that is of significant ecological value. In their view, noise damage to the soundscape can be eliminated or reduced with forms of environmental management in combination with newer forms of environmental technologies. Injustices that occur through the soundscape are not addressed by Schafer or conservationism.

    Therefore, in the second section, I show why merely addressing the environmental damage created by noise pollution leaves vulnerable large segments of the population to the harm of environmental noise. I argue that the acoustic design program fails to address the colonial frameworks that continue to license the destruction of natural soundscapes by extracting natural resources and spreading noise. In particular, acoustic design is silent on whether the formerly colonized will have the power to resist locating society's unwanted sounds in their neighborhoods or lands. Ecocentric conservationism views the soundscape as an environmental resource. However, they fail to acknowledge that the soundscapes of Black, Brown, Indigenous and poorer nations are already "dumping" grounds for noise pollution. Environmental laws, regulations, and agreements have not been enough to deter industry from destroying the soundscapes of various peoples in society. In short, both frameworks leave environmental injustices operative in the lives of formerly colonized peoples. Therefore, we need an environmental justice framework that leaves neither the environment nor people vulnerable to noise.

    Not all environmental justice frameworks are capable of securing justice for both environments and people, given that some are anthropocentric. In the third section, I argue that anthropocentric environmental justice is inadequate because it leaves vulnerable non-human soundscapes. Ocean noise pollution is a growing threat to aquatic life, ecological sustainability, and human food systems. An anthropocentric environmental justice framework fails to justify the end of

ocean noise since it is predicated on harm to humans. I suggest that we adopt Indigenous environmentalism as a starting point for dealing with global noise. Indigenous theories are grounded in responsibilities and reciprocities. These value systems do not incorporate harm; rather, they are grounded in maintaining our interdependent relationship with all parts of the ecosystem. I argue that it is Indigenous environmentalism that meets the justice needs of all entities, in particular, non-human soundscapes such as the ocean.

Designing the Soundscape

Schafer's original work, The World Soundscape Project, sought to highlight the threat to natural soundscapes in Western societies due to the rise in anthropogenic noise. The project showed that the natural sounds populating the Vancouver soundscape were slowly dying out. Since then, the number of soundscapes threatened by anthropogenic noise has grown immensely. Even soundscapes where humans do not live are threatened by anthropogenic noise levels (Weilgart 2007). Anthropogenic noise is everywhere. Bullet trains create noise across the various geographies in Europe. There are thousands of flying vehicles that move noise across the globe on a daily basis. Major cities are noise hubs, with everything from the population density to the materiality of the structures within contributing to high levels of ambient noise. Even more rural, natural environments across the globe are facing threats of exogenous noise through corporate resources extraction. Noise is such a dominant feature of many first-world geographies that quiet is now an environmental commodity. The company Quiet Parks International sells "quiet experiences" because "quiet places are quickly becoming extinct" (https://www.quietparks.org/quiet-experiences). Their mission is to save "quiet for the benefit of all life." The commodification of quiet confirms the theory that global soundscapes are in danger. Natural soundscapes are under such threat that some scholars argue they are an endangered species (Jensen and Thompson 2004).

The threat of noise to natural soundscapes is a problem. While the immediate cause of the problem is noise-producing technologies, Schafer also believed that society is unintentional in its regard to sounds and soundscapes. Western societies do not cultivate relationships between sound and society. Therefore, many members of Western societies have developed listening practices that accommodate "sonic garbage." The buzzing, dinging, chiming, whizzing, and the electric "humming" sounds are ambient sounds of daily life. These, and other sounds of technology, are part of the acoustic milieu that unintentionally cultivates a theory of sound in the general population that fails to distinguish between edifying sounds and noise. People have been sonically attuned to loud, powerful, and far-reaching noise (Schafer 1967). They have been desensitized to the individual and environmental damage of such sounds. The acoustic practices of western societies continuously erode our sonic sensibilities. Though Schafer attributes the erosion of the soundscape to a loss of sonic sensibilities, he does not seem to attribute blame to any particular entity. In my view, this is due to the determinism in his theory. Schafer's work attributes the current noise crisis to the Industrial Revolution. The technologies arising out of the Industrial Revolution *necessarily* led to the current noise crisis.

I think Schafer recognizes a *necessity* in the cause of the global noise crisis. Thus, it is largely irrelevant to allot blame. Schafer is deterministic about the soundscape, not fatalistic. He believes that the soundscape's destruction can be stopped, even reversed. It takes cultivating a new acoustic sensibility. Redeveloping these sensibilities requires that society, and its members, be intentional about what sounds populate the acoustic milieu, the source of those sounds, and how they cultivate the sonic sensibilities of people. In order to preserve natural soundscapes, Western societies need to develop an intentional, active relationship with the soundscape. Schafer argues this requires a new acoustic ethic.

Schafer argues for changing the sonic sensibilities of society writ large. The individual listener's habits will be improved by creating social, epistemic, and material listening conditions that generate new ways of hearing the world. This process is called *acoustic design*. Acoustic design is a prescriptive process that intentionally creates an acoustic world in which natural soundscapes are not only preserved, but individuals are capable of hearing the majesty of the natural world. The theory behind Schafer's project is that the world is an infinitely long music sheet, which people must be trained to actively design and decide what "notes" should appear on it. As he states, "I mean by acoustic design is to regard the soundscape of the world as a huge musical composition…which sounds do we want to preserve, encourage, multiply?"(Schafer 1993). The core principle of acoustic design is balance. In Schafer's view, Western soundscapes are a cacophony of unwanted and random sounds. Therefore, soundscapes are in need of a composer that can order and structure these various sounds into a harmonious chorus. This can be done by tuning the soundscapes, and acoustic design is how Schafer proposes tuning should be done. It is because acoustic design tunes the world soundscape that it views it as a process. The ultimate goal of Schafer's project is return balance to the Western sonic experience. His vision is one of societal change through the ground-up production of better listeners.

In practice, acoustic design is a prescription for creating better listeners and sonic spaces. The first part of the program is removing the noise from the soundscape. This requires understanding sound in the "relationship to life and society." Composers are uniquely qualified to mine this relationship to locate and remove the destructive sounds in the soundscapes. Schafer is aware many composers lack the interdisciplinary knowledge to do such a task, but "academic training in fields such as "acoustics, psychology, sociology, music, and a great deal more besides" will make them capable. As such, composers are uniquely qualified to design this new aural culture as they are "architects of sound" (Schafer 1993).

Indoor spaces are also part of the acoustic design program. Modern indoor soundscapes such as offices are filled with noises from small electrical hums from lighting, vents, and machinery. Larger objects such as fans and exhaust systems also discharge large amounts of noise. Homes are also filled with appliances and gadgets that produce noise. That noise is prevalent in these spaces signifies they require tuning as well. These indoor environments help desensitize how society hears. Thus, tuning indoor sonic spaces must be part of acoustic design. Schafer thinks acoustic design programs instituted by architects will create modern spaces that eliminate noise from indoor soundscapes. If composers are architects of sound, then actual architects are "architects of sonic space." The knowledge of how sound refracts or reflects off different surfaces and building designs can change how much indoor noise is heard. Architectural design choices, including the space, material, and shape of a building or room, can positively or negatively influence acoustic habits. Indoor spaces, like outdoor spaces, need tuning. Architects, like composers, are not the only people tuning the world. Schafer believes acoustic design is a job for all people and all acoustic communities. Composers and architects are only special contributors, "rather a matter of the retrieval of a significant aural culture, and that is a task for everyone" (Schafer 1993).

The idea of acoustic design is that it would free natural sounds of outdoor and indoor soundscapes from obscurity. These soundscapes are often obscured by industrial noise. In order to address the industrial noise, more noise in the form of "white noise" is added to the soundscape. In a world with an intentional acoustic design, people could hear the natural sounds in outdoor soundscapes. Natural sounds of indoor soundscapes would be audible. "Floors creak, timber snaps, radiators crack, furnaces groan" would be audible (Schafer 1993). Acoustic design and Acoustic designers are the keys to fixing a "tone-deaf" world. Schafer pins his hopes for a better, more natural-sounding world on transdisciplinary acoustic professionals that will join the ranks of governments, non-profits, and private businesses with the power to reshape the relationship

between sound and society. "The soundscape is no accidental byproduct of society; rather it is a deliberate construction by its creators." (Schafer 1993) Acoustic design aims to literally tune the world into a better, more natural acoustic state. In doing so, those who can hear the world will benefit in myriad ways, including physical and mental health. For Schafer, the upstream effects of a harmonious acoustic world that will be reflected in the social, political, and ecological systems that people live in (Schafer 1993; Kelman 2010). Schafer's solution to the problem of noise in the soundscape is to target its creators. Other approaches, such as conservationism, attempt to address noise by developing strategies to ensure soundscapes continue to support the habitats where we live, work and play.

Conservation and the Soundscape

Schafer advocates for an approach to eliminating noise and improving the soundscape that is both social and ecological. Conservationism views issues with the soundscapes as a more traditional environmental problem. Conservationism is a school of thought that seeks to ensure the continued availability of the world's natural resources through sustainable management of these resources. There are many different variations in thought within the conservation movement. One theoretical variation of conservationism is ecocentrism. Ecocentric conservationism attributes "intrinsic value to habitats supporting life, as well as all living beings, including humans" (Kopnina and Washington 2020). Simply put, nature is the main entity with *intrinsic value*. One way to think about intrinsic value is that it identifies entities that meet a threshold for conceiving just or unjust actions regarding that entity. In short, entities with intrinsic value can are deserving of justice. Soundscapes are part of the habitats that support life and therefore are also deserving of justice. Ecocentric conservationism is one way to understand why soundscapes are deserving of justice. Soundscape research explains how noise makes hinders soundscapes from supporting life.

Soundscapes can support or detract from the health of an environment in several ways. One way the soundscapes can detract from life is by harming human health. The article *Soundscape Conservation* explores some of the ways this is done. Chronic exposure to soundscape noise damages hearing over time. It has negative cardiovascular effects in adults, including hypertension and fatigue. Soundscape noise can disrupt sleep cycles affecting mental health; stress from the noise is associated with decreased task performance. In children, "chronic noise have a higher likelihood of reading deficits and declines in other academic tasks" (Dumyahn and Pijanowski 2011). Noise also prevents people from accessing the benefits of soundscapes. For example, some studies have shown that natural soundscapes reduce stress and have other therapeutic uses (Alvarsson et al. 2010). Extended exposure to noise can deny access to the benefits of soundscapes while actively harming human health. The harms of chronic soundscape noise are not experienced only by humans.

Noise in the soundscape harms animals, wildlife, and ecosystems. The soundscape serves as a vehicle to move sounds throughout space. Vocalizations are the mechanism by which many animals communicate with another and hear other animals. The soundscape is an essential communicative resource for animals. Chronic noise in the soundscape might mask an animal's ability to hear threats or locate prey. Animals that operate in social groups might find communicating normally problematic. For example, mating calls can go unheard because noise within the soundscape is masking that specific sound. It has even been shown that insect pollination cycles can be influenced if an area is too noisy (Francis et al. 2012). Other sounds, such as those produced by the environment, provide animals with relevant information about their surroundings or terrains they want to avoid. Thus, the soundscape is acoustic information that extends beyond communication. Soundscapes serve as essential sources of communication and information for animals and wildlife. These are critical life support services for animals and ecosystems. Noise polluted soundscapes threaten humans, animals, and ecosystems.

For these reasons, noise in the soundscape is something to be addressed, and conservationism has a set of tools to do so. Noise in the soundscape is an environmental threat. Conservationism aims to ensure that soundscapes support the health and life of the ecosystem and all entities within it. Conservationism achieves these ends by using traditional environmental planning methods. Dumyahn et al. "argue that the conservation of soundscapes can benefit by following basic principles being applied to the conservation of biodiversity"(Dumyahn and Pijanowski 2011). Using the four principles of biodiversity, they develop a conservation plan for maintaining the world's soundscapes. From these principles, a taxonomy is derived with which to identify unique types of soundscapes. The taxonomy is used to understand how specific types of soundscapes support the functioning of ecosystems and the humans and non-human entities within that ecosystem. With this knowledge, conservationistsconservationists can create environmental strategies that ensure the soundscape continues to support local, regional, and global ecosystems.

Conservationism views an environmental management approach as a long-term strategy to ensure soundscapes continue to support the habitats and ecosystems on which all life depends. Ecocentric conservationism, like Schafer, offers ways to save the soundscape from exogenous noise. However, both lack critical engagement with colonial histories that continue to destroy the soundscape. In the next section, I argue that ignoring colonialism will inevitably lead to unsuccessful attempts to save the soundscape.

<center>**Criticism of Conservationism and Schafer**</center>

Schafer and Dumyahn et al. offer compelling ways of thinking about why the world's soundscapes should be protected and how to accomplish the task. I have separate critiques for Schafer and conservationism; however, I think both identify the wrong cause of what's destroying the soundscape. They both construct the environment as deserving of justice but fail to see how the soundscape has been used to carry out environmental injustice. By not viewing the environment as a

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vector of injustice, and therefore fail to meet the justice needs of the environment and people, particularly those denied social, political, and economic power. Schafer's praxis of acoustic design is a universal approach to eliminating noise and enhancing the soundscape. There are two problems with acoustic design. First, such an approach does not account for power differentials created by the histories of colonialism. This is relevant because, for many communities, soundscapes are part of their cultural heritage, including political norms (Reed 2019). Schafer ignores that unequal representation, access, and participation is a core feature of environmental governance. Acoustic design lacks any recognition for the cultural dimensions of the soundscape, and it does not even consider how those might be violated. Historically, the power to control one's environment has not been afforded to Black, Brown, Indigenous, and others. Acoustic design assumes universality in acoustic values, which is another form of domination. Schafer is aware that colonialism has culturally "pulverized local sound cultures." Yet, he offers no explanation of how acoustic design will rectify existing power imbalances to ensure that soundscapes do not further environmental injustices.

Secondly, in my view, Schafer misconstrues the cause of the rise of noise pollution and the demise of the global soundscape, which leads him to wrongly target individual knowers to save the soundscape. Schafer thinks that most people do not have the necessary acoustic knowledge to improve the soundscape. That is why composers and architects are so valuable to his method of acoustic design. Schafer targets the production of the soundscape with a critical mass of acoustic designers that will improve the soundscape. However, the current destruction of the soundscape is the result of the unending extraction of natural resources by industrialists. By locating the solution to global noise crisis in knowledge systems, Schafer obscures the role of industrial actors in destroying the soundscape. Industry is responsible for destroying soundscapes by expanding its extraction of natural resources. Schafer seemed well aware of the problem of industry, acknowledging "that

industry is the cause of the noise." He noted that the increase in noise was a byproduct of the Industrial Revolution, stating, "Increase in the intensity of sound output is the most striking characteristic of the industrialized soundscape." The "increasing" is fueled by the extraction of natural resources, which supply industry with the resources needed for continued growth. The growth of industry has continued to destroy the global soundscape since the industrial revolution. Industry needs more and more natural resources in order to produce, which inevitably leads to the destruction of the entire global soundscape. Schafer acknowledges the problem of growth, claiming, "Industry must grow; therefore its sounds must grow with it" (Schafer 1993). However, acoustic design does not address the growth of industry. Schafer completely ignores the role of industry in his solution. Industry is a central cause of the proliferation of noise and the loss of natural soundscapes across the globe. Acoustic design, bizarrely, leaves in place the economic driver of soundscape loss. That industry is a central problem is also overlooked by conservationist approaches.

Conservationism broadly, and Dumyahn et al., specifically, argue that the best way to ensure the safety of global soundscapes is to prioritize nature in our value systems and ensure soundscapes are maintained and monitored to ensure they support the ecosystem. Conservationism focuses on managing the soundscape but generally does not address industry, the growth of industrial noise, and the correlating destruction of the soundscape. Dumyahn et al. do not address the broader problem of industrial growth and environmental noise. However, some conservationists argue that models such as degrowth, and the reduction of economic activity, as a way to address industrial damage to the soundscape. Such theories do not necessarily require polluter nations to stop polluting, only reduce their production and consumption. Thus, degrowth does not stop noise pollution or the destruction of the soundscape. It only slows the damage with the promise of ending it in the future.

There is another problem with conservationism, namely *environmental racism*. Environmental racism is "any policy, practice, or directive that differentially affects or disadvantages (whether intended or unintended) individuals, groups, or communities based on race or colour" (Bullard 1993). Noise pollution does not deviate from patterns of dumping other environmental toxins caused by environmental racism. Degrowth does not change the logic of environmental racism that makes minority neighborhoods and countries legitimate spaces as toxic dumping grounds.

Ecocentric conservationism as an ethical framework is not equipped to address environmental injustice at the intersection of the cultural, social, political, and environmental conditions. For example, the police have been known to turn soundscapes into weapons against those protesting injustice through the deployment of sound cannons, also known as Long Range Acoustic Devices (LRADs). LRADs are sonic projectile devices that emit sound loud enough to cause physical trauma. Protesters and journalists sued the New York City Police Department (NYPD) for using the LRAD, which induced painful migraines during the protest and after. The NYPD turned the soundscape into a trauma-inducing weapon, and there are several other instances of law enforcement using LRADs against protesters, water protectors, and journalists (Urbina 2009; Newman 2014; Estes 2019). Ecocentrism leaves marginalized communities vulnerable to injustices in which the environment intersects with social, political, or other structures of society.

Schafer and ecocentric conservationism fail to present theories of justice that are able to accommodate the justice needs of the soundscape. However, their theories leave marginalized peoples subjected to injustices. Schafer does not address how acoustic design will not impose soundscapes on historically marginalized peoples. Conspicuously, he does not address the role of industrial growth in polluting and destroying the soundscape. Conservationism attempts to address the growth of industry by advocating degrowth. However, degrowth does not stop noise pollution or the loss of the soundscape. It will only reduce growth over time. Since degrowth does not stop

pollution, industrial polluters will still dump noise in the most vulnerable communities. In addressing industrial growth, conservationism still leaves marginalized communities vulnerable to pollution. Further, ecocentric conservationism cannot address environmental justice issues that intersect with social or political justice issues. Issues of environmental racism or weaponization of the soundscape against political protesters are outside the scope of ecocentric conservationism. In the next section, I outline why environmental justice offers a better approach to meeting the justice needs of marginalized peoples and environments.

Environmental Justice and The Soundscape

Soundscapes are environmental goods. It is because soundscapes are environmental goods that issues of environmental justice can arise. In this section, I articulate why the soundscape is an environmental good and how they are sources of environmental injustice. I argue that environmental justice as an ethical framework is capable of meeting the justice needs of soundscapes and marginalized people. I then address criticisms of ecocentric conservationism, which claim that justice movements, including environmental justice movements, are rife with anthropocentricism (Kopnina and Washington 2020). I concede that some forms of environmental justice are anthropocentric. However, the validity of the criticism does not extend to all theories of environmental justice. I end this section by advocating for Indigenous environmentalism.

The Environmental Protection Agency defines environmental justice as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies" (https://www.epa.gov/environmentaljustice). Environmental justice arose as a movement against the racist and unjust practices of siting toxic chemicals in neighborhoods and residences of minorities. A landmark moment in the development of environmental justice from activism to a movement was a report, *Toxic Waste and Race in the United States*, which found that race

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had a significant correlation with the location of toxic waste and "communities with greater minority percentages of the population are more likely to be the sites of such facilities" (Lee 1987). The report highlighted how environmental decision-making processes, enforcement, policy, law, and other institutions reflected the subordinate status of various populations within the United States and worldwide (Bullard 1993). In the 1970's and 1980's, activism around environmental injustices was buttressed by existing activism on issues of racial and economic inequalities. Explicit attempts to merge the environmental movement with social justice movements gave rise to what we now call the Environmental Justice Movement (EJM)(Lee 1987; Bullard 1993; D. Taylor 2014; Sze 2020). Since then, the EJM has grown through activism, academic scholarship, legal cases, and governmental policy into the umbrella concept of Environmental Justice (EJ) (Taylor 1989; Sze 2020). As EJ grew, it broadened the scope of issues within its purview. It also expanded the frameworks that it deployed. For example, Pena argues that Latine environmental justice activists highlighted the limited scope of EJ on environmental toxins, and environmental racism included "targeting communities of color for displacement" (Peña 2003). Indigenous scholars introduced new ways of thinking about our relations/responsibilities to nature, future persons, elements, and non-human animals (McGregor 2009; Whyte 2018). This chapter again broadens the scope of EJ since it has not engaged with sound, soundscapes, and noise as a justice issue. Sound and soundscapes are environmental goods and therefore can be sources of environmental injustice. The limited scholarly engagement on sound and environmental justice is buttressed by on-the-ground activism, which shows why noise pollution and the destruction of the soundscape are an issue for environmental justice scholars.

Environmental noise, the unwanted sounds that invade where we live, work, and play, is a justice issue because noisy soundscapes are an environmental harm that is unequally distributed across society. Like other environmental toxins, histories of racism and colonialism create conditions

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in which noise is disproportionately "dumped" in the neighborhoods of Black, Indigenous, Brown, and poor people. I call the act of siting noise in these communities *noise dumping.* I define noise dumping as the intentional (or unintentional) locating of noise producing structures, events, or activities in disempowered communities. Noise dumping deprives these communities of accessing any soundscape benefits, including reducing physical and mental stress. In addition to denying these communities environmental benefits, environmental noise is known to cause tinnitus, loss of hearing, and possibly deafness. In urban cities across the world, noise is linked to increased stress and cardiovascular problems like hypertension (Nandi and Dhatrak 2008; Tajik et al. 2009). Noise dumping is an added long-term health risk to communities with existing environmental health concerns due to environmental injustice. The few studies done on racism in the distribution of environmental noise have shown inequities along race and income axes (Casey et al. 2017; Collins et al. 2020). These studies are supported by some of the available scholarship on environmental injustice and noise.

In *Aviation Noise and Environmental Justice: The Barrio Barrier,* Sobotta et al. argue that racism and procedural injustices led the city to make economic decisions to not reduce airport noise in a nearby Latine neighborhood. Environmental justice literature has long shown procedural injustices are a mechanism by which environmental toxins, in this case, noise, are distributed. The city's intentionality was made clear when a consultant firm hired by the city had given options "that could substantially lessen the noise impact on neighboring communities, particularly in the high-percentage-Hispanic areas west of the airport" (Sobotta et al. 2007). The city's process for assessing the impact of noise did not fully include those most affected. The noise assessment was managed by a mayor-appointed board composed of the city council and a planning advisory committee, which held all the power throughout the process. Residents were only allowed to give testimony during mandated hearings (Sobotta et al. 2007). In the end, the city chose to lessen the noise impact only on

the white communities adjacent to the airport, citing cost concerns as the reason for not doing the same for the Latine community. Sobotta shows that procedural injustices are relevant to noise assessment processes, and these injustices leave racialized communities disempowered in environmental noise decision-making processes. In *I Keep The Land Alive*, Tshaukuesh Penashue, an Indigenous activist and member of the Innu Nation, successfully defended her people against the violent use of sound produced by the North Atlantic Treaty Organization (NATO) military flight training over Innu lands. NATO flew about fifty flight exercises per day with jets flying low enough to break treetops (Penashue 2019). The jets created loud sonic booms causing physical trauma to village residents and made some cultural practices difficult to engage in. For example, the random changes in soundscape noise made hunting, which is an essential form of Indigenous cultural knowledge passed to children, extremely difficult (Watt-Cloutier 2018). In this sense, the soundscape supports cultural habitats. We can think of cultural habitats as the environmental conditions, including values and beliefs, which are necessary for cultures to survive. Thus, the battle to end low-level flying was for environmental *and cultural* reasons (Penashue 2019). Penashue's environmental activism, rooted in Innu environmental traditions, and histories of resistance to settler colonialism, show that soundscape is related to several forms of injustice. Environmental injustice is just one. The works of Sobotta and Penashue show that the soundscape, like other environmental justice issues, intersect with social and political aspects of our lives and communities. Penashue, in particular, makes visible a cultural dimension of the soundscape that is central to activism in communities. These issues show why the EJ scholarship needs to move beyond noise as a pollutant and understand sound as an environmental good.

Communities banned from using the soundscape in culturally relevant ways are an injustice that's cultural and environmental. Soundscapes are cultural insofar as they are co-constructed by or participate in relevant cultural activities of a people. Sounds are critical parts of culture, requiring

access and use of the soundscape. Thus, soundscapes are an environmental resource that supports various cultural practices. Understanding soundscapes as cultural makes visible forms of cultural domination that manifest through access, use, and policing of the soundscape. One example is the imposed changes on the soundscapes in neighborhoods undergoing gentrification. Gentrifiers restrict or eliminate the sounds they culturally define as "noise" within the soundscape through the use of local sound ordinances, environmental policy, and law enforcement (Ramírez 2019). Gentrifiers use dominant cultural norms about "noise," which are typically encoded in rules, ordinances, and local laws to control cultural sonic productions within the soundscape. Their cultural power is derived from their ability to use the state to enforce rules, ordinances, and formal definitions of "noise," which are different from informal meanings or rules used by the existing community. Such was the case with a local drumming group SambaFunk!. SambaFunk! Frequently performs drumming in a local public park to "revitalize drumming and dance practices of the African diaspora to alleviate health issues in Black and other diasporic communities" (Ramírez 2019). The drumming became a problem when a gentrifier requested SambaFunk! stop their drumming because they lacked a permit. A permit was not needed for the drumming session, but the neighbor threatened to call law enforcement if the drumming did not stop. The incident, which spiraled further into physical contact, eventually led to law enforcement giving the members of SambaFunk! citations. The policing of specifically cultural sounds is not an isolated case (Ramírez 2019). Gentrifiers in various contexts deny long-time residents access and use to the soundscapes of their neighborhoods. These instances show that the soundscape is a community resource and that unfair limiting of access or denying of use is a justice issue. It is an environmental justice issue because the fair access and use of the public environmental good, which is the soundscape, is being denied to some people based on their cultural sonic productions. Environmental justice is slow to

move beyond a paradigm that is pollution centered. Rather, focusing on sound, not noise, should be central to any environmental analysis of the soundscape.

Despite the lack of engagement by environmental justice scholars, the theories that arise from EJ scholarship are capable of offering some tools to address the injustices in the soundscape. Traditional tools of environmental justice, such as increased participation and recognition of different knowledge, offer ways to address the procedural injustices articulated by Sobotta. However, Penashue's issue of low-level flying is more complex and poses challenges for certain strands of environmental justice theories. This is in part because the low level affects non-human animals and harms the cultural practices of the Innu. In addition, ecocentric conservationism argues that many justice movements, including some environmental justice movements, are anthropocentric. Despite the importance of environmental justice, it is true that there are some frameworks that are guilty of anthropocentrism.

In its most basic formulation, anthropocentricism can be thought of as placing humanity above other animals, nature, or other entities within a system of values. In practice, many of the arguments of anthropocentrism emphasize human traits such as reason, emotion, or language that justify the inferiority of animals and nature. Humans are viewed as having intrinsic value on the basis of humans having these capacities, which is why they are at the top of the hierarchy. Having intrinsic value is unique status in the world, which allows such entities to be considerations of just and unjust actions. Since animals or nature do not have these capacities, they lack moral status and, therefore, have no obligation to consider whether actions are just or unjust towards them. Thus, things that would be considered unjust to humans and therefore could not be done to them could be done to non-humans, animals, or nature. There are some people who believe unequivocally that human beings have intrinsic value and that no other entities do. That belief will lead to all decisions prioritizing humans and humanity. This is sometimes called a 'strong' version of anthropocentricism.

There is another view of anthropocentricism that is of greater relevance to our discussion, which is 'weak' anthropocentricism.

A weaker version of anthropocentricism is still committed to a hierarchy in which humans are at the top. However, the gap between human and non-human entities is malleable. To what degree are other entities different, and does that difference justify their being only of use-value to humans are given strong consideration. These questions serve to ground whether other entities are deserving of justice and what is the scope of said justice. Weak anthropocentricism leaves open the possibility for non-human entities to experience injustice, be included in environmental decisions, and in some cases, be viewed as having intrinsic value. It is in the ambiguity of weak anthropocentricism that some environmental justice frameworks operate.

Environmental Justice arose out of environmental hazards that were dumped in Black, Indigenous, Latinx, and other communities lacking forms of social or political power. Given that the catalyst for environmental justice was harm to humans who were already marginalized, there is anthropocentricism in its roots, and perspectives in some environmental justice reflect this as the movement developed into various strands to accommodate distinct legal, political, historical, and geographic contexts. Some frameworks have moved beyond anthropocentrism, while others have not. In light of its history, some theories of environmental justice frameworks would necessarily be anthropocentric, given their focus on marginalized people. Ecocentric conservationism is correct to claim that justice movements, including some environmental justice frameworks, are anthropocentric. However, I do not believe this is wrong, as racialized environmental injustices continue to be a problem. National and even international attention have been on issues such as the Flint Water Crisis, food apartheid affecting racialized communities, and other racially induced environmental justice issues. In a world where race is still a mechanism for environmental injustice, I

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do not think that it's incorrect for some of the frameworks under the umbrella of 'environmental justice' to be anthropocentric.

Yet, I admit that the forms of justice required to save the planet and end various forms of violence, including racial oppression, cannot be rooted in anthropocentricism. While it might be necessary and not definitively incorrect for some theories of environmental justice to be anthropocentric, it is not enough. We are all interdependent on other entities within the ecosystem. If that interdependence eludes justice frameworks of any kind, then it leaves spaces of violence that, in my view, will ultimately metastasize to once again include race, gender, sex and sexuality, geography, land, language, ability, and the many other tools of oppression that were supposedly disposed of. All entities within the ecosystem must have all their needs met, be given access to the conditions under which their unique capacities will develop, and contribute their unique talents to co-creating futures in which all existence will continue.

Not all environmental justice theories are capable of accomplishing such ends. However, not all environmental justice theories are NOT capable of accomplishing such ends. There are environmental frameworks that move beyond anthropocentricism, like some Indigenous or Africana environmentalist justice frameworks. These frameworks are not anthropocentric. They have different assumptions about the nature of reality, the principles that govern our ecological relationships, and to whom we are ecologically responsible. In these environmental frameworks, the gap between anthropocentric environmental justice frameworks and conservationist frameworks inadequately addresses environmental injustices against marginalized peoples. In the next section, I argue for approaching ethical issues pertaining to the environment through an Indigenous environmental lens. In particular, I show how Indigenous environmentalism is the way best to address ocean noise pollution because it accommodates the justice concerns of humans and the ecological concerns of non-humans.

Indigenous Environmentalism and Marine Soundscapes

Discussions about the soundscape and noise pollution almost never incorporate aquatic soundscapes, in particular the ocean. Like other soundscapes, noise levels in the ocean have become a threat to marine life and the larger ecosystem (McCarthy 2001; Kunc et al. 2016). There are some frameworks of environmental justice that might limit its scope because of anthropocentric views. However, some Indigenous theories of environmentalism arise from practices, histories, and relationships with the environment. These ideas are rooted in traditional environmental knowledge that has been amassed throughout the centuries and passed down generationally. Indigenous worldviews begin by understanding there is a fundamental relationship to the environment. The term "environment" includes concepts and entities that far exceed any Western definitions (McGregor 2009). The "fundamental relationship" is expressed as a kin relationship. Thus, the environment as a concept is more inclusive and is in a direct familial relationship with humans. The core principles of some Indigenous environmentalist frameworks are designed to recognize all entities through relationships that put us in direct interdependency. Not all Indigenous environmentalism reflects these worldviews. This work specifically draws on the knowledge and histories of Anishinaabe Indigenous traditions. However, I want to acknowledge similar worldviews in the traditions of Indigenous peoples in Western and Southern Africa while maintaining these traditions remain in tension due to differences in historical colonialism and geographic particularities (Chemhuru 2019).

Kinship relations are practices that actively sustain all our relationships, including those with the environment. Whyte (Potawatomi) explains the scope of these relationships, "Anishinaabe kinship relationships connected, via reciprocal responsibilities, humans with other humans, humans with non-humans, whether spirits, plants, animals, or elements" (Whyte 2018). The fulfilling of our reciprocal responsibilities results in the health of ecosystems and ensures the environment does its

fundamental work of supporting all life on the planet (McGregor 2012). Protecting the environment, including elements such as sound and water, enables the environment to bear gifts like food or a soundscape. When we do not protect the environment, responsibilities go unfulfilled, and the result is the ecological crises happening across the world. The flint water crisis, the #NoDAPL movement, and increasing rains and droughts are some of the ways in which people are harmed or endangered when reciprocal responsibilities are not fulfilled. Being in an interdependent relationship with the environment means that harming the earth will *always* result in harming others (Maracle 2018). Thus, the Anishinaabe tradition grounds the just treatment of all entities of Creation. The current ecological crises show there is a moral imperative to honor the relations that we are entrusted with. Maintaining the relations is how entities, human and non-human alike, strengthen our bonds with the planet and each other. Every being on this planet is locked into this interdependence, and fulfilling our duties to the planet is how Anishinaabe traditions advocate for ending these crises (McGregor 2009). The ocean soundscape is in crisis as well, and I think the Anishinaabe traditions offer the best solution to that problem. The principles of interdependence justify the protection of the ocean soundscapes and marginalized peoples simultaneously by linking them together in single relation.

Every entity on the planet has an environmental relationship with the ocean. The marine ecosystem provides a vast amount of services for various entities in the world. Marine ecosystems provide jobs, are source material for medicines, food for humans and non-humans creates breathable oxygen, and so much more. From an Indigenous, specifically, an Anishinaabe environmental framework, what western science calls' services' the ocean provides are actually '*gifts' the ocean gives* to humanity. These gifts, in turn, produce a reciprocal responsibility in which humanity expresses its gratitude by ensuring marine ecosystems are sustained. This relationship allows for marine ecosystems to give more gifts, which in turn allows humans to give more 'gifts.'

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This cycle of gift giving can be broken in many ways. One concern in this paper is noise pollution. The one way that is important for this chapter is that we are failing to keep the ocean from being polluted with anthropogenic noise. To understand why noise is a threat to marine ecosystem services, we must first understand how those marine soundscapes are constructed.

Marine soundscapes are quite different from those above water for a variety of reasons. Two reasons, water density and temperature, affect speed, distance, and force of noise in marine soundscapes. Water is about eight hundred times denser than air. The density means molecules that carry sound have very little space between them. The smaller gaps between molecules allow sound to move faster from molecule to molecule. Thus, the speed at which sound moves underwater is increased. The density of water explains why sound can travel further underwater. It should be noted that the depth of the body water is relevant here. More shallow waters are less dense than deeper waters. Thus, the same sound will travel a further distance in deep water than in shallow water (National Research Council 2003). Water temperature also affects the movement of sound. Molecules vibrate more at higher ocean temperatures allowing sonic energy to travel faster than in colder waters. Water density and temperature are just two reasons why underwater soundscapes are unique. These are distinctive features of marine soundscapes that cause anthropogenic noise to be a unique problem. I identified these two factors only to make clear that the differences between marine soundscapes and other soundscapes do not minimize the complexity of marine soundscapes. Also, note that different bodies of water will have distinct, even changing soundscapes due to things like size, geographic location, time of year, temperature, and ocean currents. Marine soundscapes are not static. How a sound will move in a given body of water is specific to that body of water and influenced by many factors.

Some of the noise in marine soundscapes is anthropogenic. However, there are many other sounds that populate marine soundscapes. In addition to human-generated sounds, there are natural,

biological, and geological sounds in marine soundscapes. Geological activity, such as underwater earthquakes and rock formations, create sounds in marine soundscapes. Natural events like waves and thunderstorms are few that create sounds in the ocean as well. The most familiar sounds are probably the biological sounds emitted from marine life. Whale songs, dolphin chirps, and fish schools are among the many biologically produced sounds (National Research Council 2003). Marine mammals use sound to acquire the information necessary to survive. One way anthropogenic noise causes harm is by disrupting the communicative activities of marine life. I'll briefly review two ways anthropogenic noise negatively affects marine soundscapes and marine life. The first is *acoustic masking* (Farina and Gage 2017). Acoustic masking is when one sound makes another sound inaudible because both sounds are operating within the same acoustic space. If you're listening to hip-hop music in a room, then someone enters that same room with classical music that is louder to where you can no longer hear your hip-hop music, then your music has been "masked." Acoustic masking makes them inaudible not by silencing them but by overshadowing them. Marine mammals' communication can be masked quite easily. For example, all marine ships emit a unique sound for identification purposes, known as an acoustic signature, when at sea. The acoustic signature is a constant noise source while the ship is on the water, and it can effectively camouflage the communicative activity of marine mammals. Additionally, the design of a ship and the materials used in its construction are sources of noise from a ship. Propellers, engines, motors, or generators are all noise sources from a ship that can mask marine sounds. Acoustic masking thus impairs the use of sound by marine mammals. Second, some anthropogenic noises are so loud they can *cause traumatic injury* to marine mammals. Sonic blasts emitted from military weapons testing are one source of violent noise in marine soundscapes. The trauma can permanently damage their hearing, causing deafness and even brain damage in some whale species, such as the beaked whale (Cox et al. 2006). It is also theorized that blast noise from military weapons causes some marine species to

swim out of deep water into shallow waters to avoid the noise. Shallow waters are functionally a brand-new soundscape for marine life as sound operates differently there than in deep waters, resulting in some marine life being stranded, unable were unable to find their way back from shallow waters.

Clearly, ocean noise pollution is a problem for marine mammals. It is also a problem for specific parts of the aquatic ecosystem as well. For example, marine noise negatively affects coral reefs (Simpson et al. 2008). Coral reefs provide a wide range of services, including being a refuge for other organisms and a habitat for fisheries. Coral fisheries have cultural, economic, and even social importance (Woodhead et al. 2019). Noise pollution has negative effects on reproduction and predator-prey interactions. The worry here is that the long-term sustainability of certain populations risks affecting the larger ecosystem (Kunc et al. 2016). Ocean noise pollution has worried governmental bodies as well. The formation of several intergovernmental regional organizations also shows that noise pollution threatens relations beyond marine mammals.[5] These organizations serve not only to improve scientific knowledge on marine noise pollution but they also create educational materials for public consumption because their broader goal is to raise public awareness of the issue. The effects marine noise has on the larger ecosystem are much greater than detailed here. My goal was just to show that the implications of noise pollution in marine soundscapes extend beyond harming marine mammals. In the case of coral reefs, noise pollution touches belief systems, knowledge systems, and cultural traditions. These are significant environmental *justice* issues that ecocentric conservationist approaches will fail to address. Anthropocentric environmental justice approaches fail to address injustices that happen to non-humans in the ecosystem, which will be incorporated into human-centered environmental injustice, particularly racialized environmental

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[5] See https://accobams.org/conservations-action/anthropogenic-noise/
https://www.ascobans.org/en/species/threats/marine%20pollution

injustice. Ultimately, the trickle-up effects of marine noise pollution will create ever-expanding disruptions to the ecosystem, which eventually will be felt by all of nature. Indigenous environmentalism, in particular Anishinaabe traditions, do not transact justice for marginalized people with justice for non-humans.

More than anything, Indigenous views on the environment move us beyond transactional ways of relating into reciprocal responsibilities, which open possibilities for the kinds of relationships humans can have with our environment. In my view, nothing expresses this more than interspecies relations. The Lummi nation shows another reason how Indigenous environmentalism truly goes beyond justice and moves us into kinship. The Lummi are Indigenous peoples whose territory is between Washington's northernmost coast and southern British Columbia. The Lummi nation has been engaged in several projects to protect their native lands, waters, and the surrounding waters. Each one is a kinship relation that is part of the Lummi family. Among these relations are the Southern Resident Killer Whales, who are native to the water, are an endangered species, and part of the Lummi family. Like other members of any family, The Lummi hold a naming ceremony for the orca near their ancestral village. The naming ceremony is a Lummi tradition that has been done for generations. The ceremony is intertwined with the worldview, and the extinction of the orca threatens a part of Lummi culture. The extinction of the orca would end a cultural practice the Lummi has been done for centuries. The Lummi word for orca, "Qwe' *lhol mechen*," roughly translates to "our relations under the waves." It is essential to note the worldview embedded in the names. "Traditional names connect family members to one another, to ancestors, to culture, and to spirit" (Relyea 2019). The Lummi are struggling against the building of a new shipping terminal, which not only violates their treaty rights, but the noise produced by the shipping vessels is one major contributor to the near extinction of the orca. The relationship between the Lummi and the orcas are disrupted by oceanic noise. Justice, which would be the saving of the orca and the state

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abiding by its treaty agreement, is reciprocal. The relationship between the Lummi and orca shows what justice could look like in a kinship relation and shows how an Indigenous environmental ethics can meet address the loss of the soundscape while resisting environmental racism and environmental injustices.

Conclusion

The Tuning of the World made the global noise crisis and the loss of the world's natural soundscapes an established environmental problem. This chapter sought to establish that soundscapes are used to perpetrate environmental injustices against marginalized peoples, particularly formerly colonized populations. Main stream environmentalist movements have traditionally not recognized how injustice intersects with environmentalism. Proposed solutions to preserve and protect the soundscape continue to lack tools for addressing injustice. The absence of justice makes these proposed solutions to noise pollution and soundscape loss inadequate because they allow harm to befall marginalized populations. Schafer offers a unique approach to solving the growing problem of noise pollution and its destructive effects on global soundscapes. His approach centers on improving the listening habits of society because he views global noise as a social problem. By changing the acoustic sensibilities of society, people will intentionally construct soundscapes that edify human existence. Hence, he develops an extensive program that he calls acoustic design for improving the listening practices of society. Acoustic design seeks to develop the acoustic sensibilities of people by intentionally designing the world, including indoor and outdoor spaces, to incorporate edified listening into everyday experience.

A strand of conservationism, ecocentric conservationism, argues traditional environmental conversation approaches are enough to save the world's soundscape. Ecocentric conservationists have argued that any environmental value system should view the whole ecosystem as the moral agent because ecosystems support the habitats of all life. The ecocentric approach would apply a

resource management framework to other threatened environmental resources, such as biodiversity. This approach views the soundscape as a natural resource; therefore, it is to be managed, sustained, and conserved for future use. Dumyahn et al. deploy technical expertise to categorize the types of soundscapes, measure their unique sustainability needs, and develop policies and tools to ensure the continued health of each soundscape. Ecocentric conservationism argues that the best way to ensure that soundscapes continue to support ecological habitats is to manage them through the use of government policy and academic experts.

Neither of these approaches grasps the ways in which environmental injustice, particularly environmental racism, can create injustice through the soundscape. The soundscape has been a source of injustice in at least two ways. The first is that unwanted sounds, and noise, are directly sited in the communities of Native, Black, Brown, and poor communities. I call this phenomenon "noise dumping," a term meant to emphasize the intention siting of an environmental pollutant, noise, in marginalized communities. One example of noise dumping is the rejection of a city to develop noise barriers to reduce noise from an airport directly adjacent to a Latinx community. The process did not distribute decision-making power to the community and dumped the brunt of the noise on the Latinx community despite an adjacent white community. In another incident, a community drumming circle was forcibly shut down due to gentrifying neighbors complaining of the noise and illegality of the circle. These incidents show that the soundscape is an environmental resource in which noise is not fairly distributed, and access is not equally granted.

The soundscape is not merely an environmental issue; rather, it is an environmental justice issue. Therefore, I think environmental justice, which is a broad grouping of theories and practices that work to ensure equal treatment in the access, planning, and distribution of environmental goods, holds promise for saving the world's soundscape and ensuring justice for marginalized peoples regarding the soundscape. Environmental justice identifies the ways in which issues of social

injustices intersect with issues of the environment to create environmental vulnerabilities that are intricately linked to features of one's social existence. Environmental justice frameworks are capable of meeting the justice needs of people, particularly marginalized people. However, some forms of environmental justice do not include non-humans within its scope of entities deserving of justice. These environmental justice framings would only seek to save the soundscape unless it is part of an anthropocentric injustice. As a result, non-human soundscapes such as marine soundscapes would not receive justice. People, particularly formerly colonized or marginalized people, and the environment, are both deserving of justice. I have argued that the kind of justice needed is one that recognizes our interdependence.

I believe Indigenous environmental frameworks offer a framework for justice that treats all entities as kin. In this chapter, I drew on Indigenous traditions of Anishinaabe, but Indigenous traditions in Western and Southern Africa have significant overlap to draw a similar conclusion as I have without denying differences or tensions. Indigenous theories, specifically the Anishinaabe theory of relations, recognize the 'gifts' that the environment gives. These 'gifts' create reciprocal responsibilities. The gifts we give back to the environment so that it can continue will continue to give back (K. Whyte 2018). From an Indigenous environmentalism perspective, polluting marine soundscapes fail to reciprocate the gifts of the ocean. The result is marine soundscapes will cease to produce gifts. We have a responsibility to maintain the soundscape, and it will serve its role in supporting the flourishing of humanity. However, Indigenous environmentalism expands the very ways justice is constructed. The Lummi nation has maintained kinship relationships with the resident killer whales for centuries. Part of this relation includes naming baby orcas as one would any family member. The entire Lummi nation (which includes the orca) is fighting to control their lands, water, and the observance of treaties. Justice for the Lummi includes the orca because of that specific kinship relation. The survival of both is tied together. The Lummi show how justice is in their

relationship with the orca. They highlight a path to a just future in which environments, humans,

animals, and other entities experience justice together.

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