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Moving Bodies: Sovereignty, Science, and Indigenous

Ontology in the Poetry of Heid Erdrich

A thesis submitted in partial satisfaction

of the requirements for the degree Master of Arts

in American Indian Studies

by

Ryan Joseph Rhadigan

2013

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ABSTRACT OF THESIS

Moving Bodies: Sovereignty, Science, and Indigenous
Ontology in the Poetry of Heid Erdrich

by

Ryan Joseph Rhadigan

Master of Arts in American Indian Studies

University of California, Los Angeles, 2013

Professor Mishuana R. Goeman, Chair

Indigenous peoples throughout the world have a difficult, tenuous, and troubled relationship with science. Despite positivist commitments to scientific value-neutrality, empirically produced knowledge about the social and natural world is inherently political and politicized, and indelibly linked to statecraft, empire, and colonization. Yet, contrary to popular misconceptions, indigenous approaches to science are not exclusively oppositional, though invasive and non-consensual scientific research practices certainly warrant opposition from indigenous communities. This thesis applies interdisciplinary methods from science and technology studies, critical legal studies, and literary analysis to demonstrate how contemporary Ojibwe poet Heid Erdrich uses poetry to illuminate the

complicated cultural, ethical, legal, and political nodes connecting science and contemporary indigenous lives. Through close readings of several of Erdrich's poems, the following chapters demonstrate how Erdrich challenges mainstream legal and scientific discourses by activating and appropriating scientifically-conversant metaphors to create emergent narratives of indigenous mobility, identity, and generational continuity.

The thesis of Ryan Joseph Rhadigan is approved.

Angela R. Riley

David Delgado Shorter

Mishuana R. Goeman, Committee Chair

University of California, Los Angeles

2013

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ACKNOWLEDGEMENTS

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INTRODUCTION

Indigenous peoples throughout the world have a difficult, tenuous, and troubled relationship with science. Despite positivist commitments to scientific value-neutrality, empirically produced knowledge about the social and natural world is inherently political and politicized: scientific knowledge is indelibly linked to statecraft, empire, militarization, colonization, as well as contemporary neoliberal mechanisms of cultural, economic, and geopolitical control.¹ The knowledge produced through scientific research is neither universally relevant, nor beneficial. What is productive, helpful, or conceptually liberating for some may come at the expense and disadvantage of others. For many indigenous peoples, scientific research is connected to recent and remembered experiences of oppression, exploitation, and dehumanization. As Maori scholar Linda Tuhiwai Smith explains: “From the vantage point of the colonized...the term ‘research’ is inextricably linked to European imperialism and colonialism. The word itself, ‘research,’ is probably one of the dirtiest words in the indigenous world’s vocabulary...it stirs up silence, it conjures up bad memories, it raises a smile that is knowing and distrustful. It is so powerful that indigenous people even write poetry about research.”² The active legacy of distrust that Tuhiwai Smith discusses can be traced to histories of invasive and non-consensual anthropological and archeological study, as well as blatantly racist and colonialist scientific pursuits like craniometry—where medical researchers attempted to prove white-supremacist assertions of racial superiority through the collection and measurement of non-white and indigenous skulls.³ Yet, the distrust also saliently

connects to contemporary problems like gene patenting and biopiracy, which disproportionately affect indigenous groups who are often targeted for research due to their relative “genetic isolation” from other populations, and purposefully sought out for their sophisticated botanical and medicinal knowledges, and the high levels of biodiversity of flora and fauna that remain intact on indigenously stewarded lands.⁴

Legal disputes over scientific usages of Native American blood samples and DNA, like the recent out-of-court settlement between Arizona State University and members of the Havasupai tribe in 2010,⁵ demonstrate how scientific research practices and scientific investigator actions continue to verify and renew indigenous groups’ misgivings about research. In the ASU-Havasupai dispute, Havasupai community members alleged multiple counts of wrongdoing after discovering that blood samples collected by ASU researchers for the stated purpose of diabetes research had been used—without the community’s prior knowledge—to conduct additional studies related to inbreeding, schizophrenia, and the Bering Strait migration theory.⁶ Many Havasupai donors felt violated and deceived after learning that their samples had been subjected to such kinds of potentially stigmatizing research, and alleged that consent would not have been acquired if they had been fully and adequately informed about how the samples could be used. However, Therese Markow, one of the ASU principal investigators who used Havasupai samples for her own research on schizophrenia, and provided sample access to other ASU and non-ASU researchers for projects unrelated to diabetes, characterized the Havasupai community members’ reactions as “hysterical,” and defended her actions by explaining that she was “doing good science.”⁷

Markow's responses to the objections of the Havasupai community are emblematic of broader rhetorical modes and strategies operating within the scientific community. Science is frequently understood and represented as an objective and value-neutral practice that collectively benefits all humans. To produce scientific research is to work toward a common and universal good: to endure short-term costs or setbacks for long-term societal gains. Markow recalls and appeals to such discourses when she explains her actions as "doing good science." Conversely, those who are critical of scientific practice or opposed to certain forms of scientific research, are necessarily ascribed a partisan stance: that of being "anti-science" and putting personal and political considerations ahead of the common good. Yet, as the ASU –Havasupai conflict illustrates, certain forms of research have very different social and political consequences for different groups. While knowledge produced about the Bering Strait migration theory using Havasupai DNA samples may contribute to general scientific knowledge, it also becomes part of a political and governing body of biological and anthropological evidence that can be utilized by the state to determine who or what qualifies as indigenous.⁸ Such forms of evidence, Dakota scholar Vine Deloria Jr. makes clear in *Red Earth, White Lies*, work to constitute the very notion of "Nativity" and have very real material consequences for indigenous land claims, political statuses, and rights of self-governance.⁹ In the context of the ASU-Havasupai dispute over genetic materials, Kim TallBear and Jenny Rearden explain: "The view that genetic knowledge of human evolution is an objective neutral good that benefits all and not a particular kind of knowledge that fits within a particular way of living and enacting the world in effect denies indigenous people such as the Havasupai the right to control their own genomic

resources and identity.”¹⁰ TallBear and Reardon argue that contemporary scientists are usurping indigenous property interests and laying claim to genetic materials under the banner of scientific “research rights,” justified through color-blind and universalizing logics that portray scientific knowledge as value-neutral and equally beneficial for all.¹¹

While TallBear and Reardon’s critique is strong, perhaps strident in the eyes of some, it does not constitute an “anti-science” affront to empirical scientific methods, nor a denigration of scientific knowledge itself. Rather, as the authors plainly state, their goal is to highlight “constitutive links between whiteness, property, and the human sciences” in order to “improve relations between indigenous peoples and those who study them,” and enhance indigenous involvement and governance in science and technology.¹²

Echoing the call of many other indigenous and non-indigenous voices, both in and outside of the sciences, they appeal not for an end to scientific research, but for an improved and democratized scientific practice: not an “other science,” but a “relevant science.”¹³ The sustained efforts of Native American scholars like Kimberly TallBear, Gregory Cajate, Vine Deloria Jr., and Rebecca Tsosie demonstrate the importance of bringing Native standpoints to academic, political, and legal conversations concerning science and technology. Similarly, the collective writings of Native American authors like Gerald Vizenor, Simon Ortiz, Leslie Marmon Silko, Daniel Heath Justice, Stephen Graham Jones, and Sherman Alexie, who have all at some point, and to varying degrees engaged with the content and genre conventions of science fiction,¹⁴ testify that—contrary to popular misconceptions—science and indigeneity are not antithetical.

My aim in the following chapters is to demonstrate how one Native American author, contemporary Ojibwe poet Heid Erdrich, uses poetry to illuminate the

complicated cultural, ethical, legal, and political nodes connecting science and contemporary indigenous lives. While Erdrich's poetry keeps a steady and unflinching eye on science's close relation to ongoing structures of colonization¹⁵ and neoliberal mythologies of color-blindness and value-neutrality, her work also compellingly delineates connections between recent and emerging scientific modes of thought, and enduring indigenous ontologies of interrelation and reciprocity. In Erdrich's latest 2012 collection of poems, *Cell Traffic*, she engages these issues at the conceptual and microscopic level of cells, chromosomes, and DNA, lending credence to Osage literary scholar Robert Warrior's claim that "[p]erhaps the greatest lesson of Indian poetry is that it has often shown us how tradition is able to live on in new written forms, but that it doesn't have to dress up in beads and feathers in order to be powerful."¹⁶ Erdrich writes about subjects ranging anywhere from Facebook and CT brain scans to indigenous skeletal remains and sacred sites. She works collaboratively to write translation poems that shift between English and Ojibwe language in order to highlight linguistic differences and tensions. As poetry critic Dean Rader says of Erdrich's work: "I know of no other contemporary poet whose poetry is so firmly rooted in indigenous cultures but so thoroughly pushes mainstream aesthetic envelopes."¹⁷

Heid Erdrich (b. 1963) is a member of the Turtle Mountain Band of Ojibwe. She is one of seven siblings born to an Ojibwe mother and German-American father, and was raised in Wahpeton, North Dakota, where both parents were teachers at a Bureau of Indian Affairs boarding school. Heid's maternal grandfather, Patrick Gourneau, was the elected Tribal Chairman of Turtle Mountain Band of Chippewa in the mid 1950s, and played an instrumental role in preventing the termination of the tribe's federal recognition

status after House Concurrent Resolution 108 was passed by Congress in 1953.¹⁸ Heid attended Dartmouth College as an undergraduate and received Masters degrees in poetry and fiction from Johns Hopkins University. Two of her sisters, Louise and Lise, are also published and celebrated authors. Three of Heid's other siblings work for Indian Health Services in various communities and roles, including her youngest sister Angie, who is a pediatrician in Sisseton, SD; her brother Mark is a pharmacist.¹⁹ Heid is uniquely equipped for her writing since she and her siblings have long occupied the fertile crossroads of literature and medical sciences. Heid has published four collections of poetry: *Cell Traffic* (2012); *National Monuments* (2008); *The Mother's Tongue* (2005); and *Fishing For Myth* (1997). Heid also works as an independent scholar and educator, directs an Ojibwe language publishing press, curates contemporary Native American art exhibits, and has recently been working collaboratively in the medium of video to create "poem films."²⁰ Heid currently lives in Minneapolis, Minnesota—a city known to have a large and active Native American population, and a vibrant Native arts scene.

In my analysis of Erdrich's poems, I strive to remain attentive to both the poems' formal literary qualities and their broader discursive impacts as rhetorical texts that directly engage with political, legal, and scientific discourses. Following the work of religious studies scholar Greg Johnson, my argument is rooted in an understanding of legal-scientific disputes as discursive and rhetorical fields where the ability to construct persuasive narratives is primary to the success of indigenous resource protection and repatriation efforts.²¹ As Johnson points out in the legal context of the Native American Graves Protection and Repatriation Act (1990)²², approaching repatriation processes by analyzing how rhetorical claims are constructed is an important step in shifting

repatriation scholarship from “law’s objects and the objections of law to the power and persuasion of narrative.”²³ Furthermore, I take seriously Anishnaabe poet Kimberly Blaeser’s directive that all Native American poetries are “entangled in the military and political histories of this continent” and must be read with “the symbolic embedded awareness of contested histories.”²⁴ Blaeser clarifies and continues in different terms: “The poetry of indigenous America has both literary and supraliterary intentions. Any examination of this canon must then entwine itself in the same system of relationships from which the art arises.”²⁵ In the case of Erdrich’s writing, becoming entwined means reading and tracing the scientific and legal texts or concepts she positions in her poems, within, alongside, and against the formal, linguistic, and aesthetic characteristics of her work.

I am also interested in the ways that Erdrich’s poetry as a creative endeavor conveys emergent ideas, sensations, experiences, or theories that may otherwise remain inarticulate. Influential cultural studies scholar Raymond Williams argues that such formations of practical consciousness—what he calls “structures of feeling”—do not have to be classified, defined, or rationalized to exert real and palpable pressures on social experiences and actions.²⁶ I want to join with scholar of Native American literature Mark Rifkin²⁷ in documenting and highlighting some of the ways that Native American literature—poetry in my specific project and framework—articulates emergent structures of feeling, particularly as those ideas relate to indigenous identities, social relations, and political assertions of sovereignty and self-determination. I am especially interested in exploring how poetic elements or qualities like prosody, compression, wordplay, and intertextuality, expand the poet’s expressive range and enhance the poem’s ability to

convey emergent ideas. Dean Rader argues that poetry's unique qualities make it especially suitable and attractive literary genre for Native American writers:

Native writers seek the poem because of the poem's ability to fuse disparate elements: present and past, poetry and prose, the lyric "I" and the communal "we." Because of the inherent contingency of poetry, it is the genre that most completely and most thoroughly mirrors Native oral potential and Native worldviews. In other words, Native poetry might just be the best possible genre for expressing Native American concerns in a way most closely connected to Native ways of being in the world.²⁸

My work will draw attention to the ways that Erdrich's poetic engagements not only reflect Ojibwe ontologies and epistemologies, but work to create, renew, and reinvent Ojibwe worldviews and lifeways with each word, line, stanza, and page.

Following the lead of Native American literary scholars such as Jace Weaver, Craig S. Womack, Robert Warrior, and Elizabeth Cook-Lynn²⁹, I will approach Erdrich's texts from the critical standpoint of Native American literary nationalism. Nationalist approaches to Native American literature are generally grounded in two major ideological conceits: First, since Native writers produce texts within specific tribal (national) contexts, scholarly analysis and interpretations of those texts should accordingly strive for cultural-specificity (i.e.: Ojibwe literature should be interpreted through the unique lenses of Ojibwe history, politics, culture, and worldview). Other frames of analysis or applications of critical theory can be useful in facilitating a robust and close reading of a Native American text, but tribally specific frames of analysis should assume a primary role. Second, tribally specific literary interpretation recognizes Native American texts as part of larger national bodies of literature, and therefore emphasizes the importance of conducting analysis that is accountable to the national goals, political struggles, and tribal sovereignty of American Indian nations.

By approaching literary analysis from the critical standpoint of literary nationalism I seek to interpret and analyze Erdrich's literary work through historical, political, and intellectual frames that are specific to Ojibwe communities and reflect Ojibwe political concerns, aesthetics, and worldviews. I also seek to remain attentive to overlapping and intersecting modes of social, political and legal valuation or devaluation (based upon categories of gender, sexuality, tribal enrollment, language proficiency, etc.) that not only go between tribal communities or gender categories, but also split such groups or identities from within.³⁰ Dakota-Ojibwe literary scholar Scott Richard Lyons argues the importance of engaging tribal nations as they currently exist by intentionally avoiding discourses of assimilation and authenticity, and questioning the application of "peoplehood" paradigms that, while politically useful, can function to exclude large portions of the populations they seek to theorize and represent.³¹ Heading Lyons' charge, I approach Erdrich's poems as they "actually exist," not as compartmentalized or idealized products of a static and essentialized ethnic.³² Erdrich's work is deeply grounded in Ojibwe histories and worldviews, but her writing is also conversant with less quintessentially Native topics such as scientific research and canonical American poetry. Following both strands is important to understanding and appreciating Erdrich's work. Additionally, my hope in applying nationalist frames of analysis is not to separate Erdrich from larger pan-tribal and indigenous literary traditions, but rather to highlight the particular ways her poetry participates in social and political issues of transnational significance. Erdrich's work, while distinctively Ojibwe, is very much a part of broader indigenous intellectual traditions. In my analysis, I attempt to make these connections apparent without erasing real differences and distinctions

between indigenous groups and cultural practices. For this reason, I intentionally, perhaps exhaustively, identify all indigenous scholars by their national and cultural backgrounds.

The chapters that follow breakdown accordingly: Chapter one demonstrates how Erdrich applies concepts and terminology linked to biogenetic theories of fetal/maternal microchimerism to express contemporary Ojibwe identity, explore Ojibwe ontology, assert the value and validity of felt or embodied forms of knowledge, and trouble scientific practices of epistemological eliminativism. My analysis in chapter one incorporates several poems from Erdrich's 2012 *Cell Traffic* collection, but focuses primarily upon the poem "Microchimerism." Chapter two analyzes several poems from Erdrich's 2008 collection *National Monuments* to explore how Erdrich articulates concepts of Cultural Property law in her poems. Through close readings of legal literatures and Erdrich's poems, I demonstrate how Erdrich participates in broader discussions about the strengths, limitations, and appropriateness of asserting cultural claims through Euro-American legal frameworks. I argue that Erdrich's poems expand commonly understood notions of property and ownership, and advocate for an extralegal ethics of corporeal dignity, and a more democratized practice of scientific inquiry. In chapter three, I juxtapose two of Erdrich's poems, one from *Cell Traffic* (2012) and another from *The Mother's Tongue* (2005), to demonstrate how Erdrich engages with scientific discourses of food emerging through the field of nutritional epigenetics, and expands mainstream understandings of human-food sociality by asserting the continued importance and validity of indigenous ontologies of interrelation. Finally, I connect Erdrich's poetry with tribal and pan-indigenous social movements that aim to decolonize indigenous diets and enhance group self-determination by altering local practices of food

production, preparation, and consumption. Through the collective analysis of these three chapters, I hope to provide a detailed and contextualized—though far from comprehensive—image of Erdrich’s poetic skill, aesthetic range, and sustained ethical engagement with some of the many intersecting legal, political, and scientific discourses impacting contemporary indigenous lives.

Introduction Notes and References:

¹ See Laurelyn Whitt, *Science, Colonialism, and Indigenous Peoples: The Cultural Politics of Law and Knowledge* (Cambridge: Cambridge University Press, 2009).

² Linda Tuhiwai Smith, *Decolonizing Methodologies: Research and Indigenous Peoples* (New York: Zed Books Ltd., 1999), 1.

³ See Jack F. Trope and Walter Echo-Hawk “The Native American Graves Protection and Repatriation Act: Background and History,” in *The Future of the Past: Archaeologists, Native Americans, and Repatriation* ed. Tamara L. Bray (New York: Garland Publishing, 2001), 11.

⁴ See Rebecca Tsosie, “Cultural Challenges to Biotechnology: Native American Genetic Resources and the concept of Cultural Harm,” *Journal of Law Medicine And Ethics* 35, no. 1(2007): 396-411. See also Debra Harry, “Indigenous Peoples and Gene Disputes,” *Chicago Kent Law Review* 84, no.1 (2009): 147-196.

⁵ *Tilousi et al. v. Arizona State University et al.*, CV 2004-0115 (Ariz. Superior Ct., Coconino County 2004); *Havasupai Tribe of Havasupai Reservation v. Arizona Board of Regents*, 204 P.3d 1063 (Ariz. App. Div. 1, 2008). See chapter two for more discussion of the ASU Havasupai conflict.

⁶ See Katherine Drabiak-Syed, “Lessons from Havasupai Tribe v. Arizona State University Board of Regents: Recognizing Group, Cultural, and Dignitary Harms as Legitimate Risks Warranting Integration into Research Practice,” *Journal of Health and Biomedical Law* 6, no. 1 (2010): 175-225.

⁷ *Ibid*, 196.

⁸ Jenny Reardon and Kim TallBear, “‘Your DNA is Our History’ Genomics, Anthropology, and Whiteness as Property,” 53 *Current Anthropology* 53, no. 1(2012): 239.

⁹ See Vine Deloria, Jr., *Red Earth, White Lies: Native Americans and the Myth of Scientific Fact* (Golden, CO: Fulcrum Publishing, 1997).

¹⁰ Reardon and TallBear, “Your DNA is Our History,” 240.

¹¹ *Ibid*.

¹² *Ibid*, 233.

¹³ Isabelle Stengers, “Diderot’s Egg: Divorcing Materialism from Eliminativism,” *Radical Philosophy* 144 (2007): 8.

¹⁴ See Grace Dillon, ed., *Walking the Clouds: An Anthology of Indigenous Science Fiction* (Tucson: University of Arizona Press, 2012).

¹⁵ For a concise discussion of settler colonial structures of invasion, see Patrick Wolfe, "Settler Colonialism and the Elimination of the Native," *Journal of Genocide Research* 8, no. 4 (2006): 387-409.

¹⁶ Robert Warrior, *Tribal Secrets: Recovering American Indian Intellectual Traditions* (Minneapolis: University of Minnesota Press, 1995), 117.

¹⁷ Dean Rader, "The Poetry of Participation: On the Work of Heid Erdrich," in *Cell Traffic: New And Selected Poems* (Tucson: University of Arizona Press, 2012), xi.

¹⁸ HCR-108, which initiated the "termination era" of federal Indian policy, stated Congress's intent to revoke the federally recognized status of American Indian Tribes and abolish Congress's federal trust responsibility to those tribes. For information on Patrick Gourneau, see "The History and Culture of the Turtle Mountain Band of Chippewa: Contemporary Leaders Part 1," *North Dakota Studies*, accessed May 4, 2013, <http://www.ndstudies.org/>.

¹⁹ See Sarah T. Williams, "The Three Graces," *Star Tribune*, February 4, 2008, Books. <http://www.startribune.com/entertainment/books/15083971.html?refer=y>

²⁰ See Heid Erdrich's website, <http://heiderdrich.com/>.

²¹ Greg Johnson, "Narrative Remains: Articulating Indian Identities in the Repatriation Context," *Comparative Studies in Society and History* 47, no.3 (July 2005): 480-506.

²² 25 U.S.C. §§ 3001-3013. For a full discussion of Native American Graves Protection and Repatriation Act (NAGPRA) see chapter 2.

²³ *Ibid*, 484.

²⁴ Kimberly M. Blaeser, "Cannons and Canonization: American Indian Poetries Through Autonomy, Colonization, Nationalism, and Decolonization" in *The Columbia Guide to American Indian Literature of the United States Since 1945* ed. Eric Cheyfitz (New York: Columbia University Press, 2006), 184.

²⁵ *Ibid*.

²⁶ Raymond Williams, *Marxism and Literature* (New York: Oxford University Press, 1977), 132.

²⁷ See Mark Rifkin, *The Erotics of Sovereignty: Queer Native Writing in the Era of Self-Determination* (Minneapolis: University of Minnesota Press, 2012).

²⁸ Dean Rader and Janice Gould eds., Introduction to *Speak to me Words: Essays on Contemporary American Indian Poetry* (Tucson: University of Arizona Press, 2003), 11-12.

²⁹ Robert Allen Warrior, *Tribal Secrets: Recovering American Indian Intellectual Traditions* (Minneapolis: University of Minnesota Press, 1995); Elizabeth Cook-Lynn, *Why I Can't Read Wallace Stegner and Other Essays: A Tribal Voice* (Madison: University of Wisconsin Press, 1996); Craig S. Womack, *Red on Red: Native American Literary Separatism* (Minneapolis: University of Minnesota Press, 1999); Jace Weaver, Craig S. Womack, and Robert Warrior, *American Indian Literary Nationalism* (Albuquerque: University of New Mexico Press, 2006).

³⁰ For descriptions of intersectional frames of analysis, which account for overlapping and intersecting modes of racial, gender, sexual, and class oppression, and remain attentive to intragroup differences, see Kimberle Crenshaw, "Mapping the Margins: Intersectionality, Identity Politics, and Violence Against Women of Color," *Stanford Law Review* 43 no. 6 (1991): 1241-1299; Cherríe Moraga and Gloria Anzaldúa eds., *This Bridge Called My Back: Writings by Radical Women of Color* (New York: Kitchen Table Women of Color Press, 1983).

³¹ Scott Richard Lyons, "Actually Existing Indian Nations: Modernity, Diversity, and the Future of Native American Studies," *American Indian Quarterly* 35, no.3 (Summer 2011): 294-312.

³² Lyons suggests that by distinguishing between the concepts "nation" and what Anthony D. Smith calls "ethnie," discourses of tribal nationalism can account for modernization and diversity of experience and shift theoretical discussions from notions of cultural integrity vs. assimilation to more useful political distinctions of ethnicity and nationality. See *Ibid.*

CHAPTER 1

Embodied Migrations: Felt Knowledge, Microchimerism, and Non-Eliminativist Indigenous Approaches to Genetic Science in Heid Erdrich's *Cell Traffic*

Ojibwe Poet Heid Erdrich's 2012 collection *Cell Traffic*¹ engages with issues of biotechnology, genetic inheritance, human subjectivity, and group identity, by exploring issues of corporeality at the conceptual and microscopic level of cells, chromosomes, genes, and DNA. Orienting poems in the fertile rhetorical soil of expanding and contested genomic terrain, Erdrich highlights the ways scientific study and bodily mapping have been employed to assert hierarchical scientific narratives of settler-colonial² dominance and justify settler claims to indigenous lands and bodies.³ Importantly, she articulates and reasserts alternate notions of Native embodiment, community, and relational identity that meaningfully engage scientific discourses while powerfully resisting definition and categorization under the imposed legal, social, and political matrices of the settler state.

Countering notions of spatial and temporal fixity that have long been inflicted upon Native socialities as tools of colonial oppression,⁴ Erdrich imaginatively probes the published findings of contemporary biogenetic science, activating and appropriating scientifically-conversant metaphors and terminology to create emergent narratives of indigenous vitality, mobility, exchange, identity, and generational continuity that resist stasis and defy essentialist categorization. Erdrich's thematic focus upon microchimeric cellular migration, the scientifically documented transmission and reciprocal exchange of cells between mother and fetus, highlights the ways which movement and migration can generate and facilitate reciprocal bonds and notions of identity that stress interrelation

and interdependency, and powerfully remember, renew, and reinvent Native traditions and ontologies.

In the following chapter, I will analyze poems from *Cell Traffic* to demonstrate how Erdrich engages with science and scientific theories of microchimerism to meaningfully connect recent developments in genetic science with ongoing Ojibwe cultural traditions and ontologies. Referencing the writings of Ojibwe authors Gerald Vizenor and Scott Richard Lyons, I show how scientifically documented cellular migration connects saliently to Ojibwe narratives of migration and Vizenor's concept of transmotion. I then focus my attention on Erdrich's poem "Microchimerism" to reveal how Erdrich's poetic exploration of mother-fetus interrelationship asserts the value and validity of felt or embodied forms of knowledge. Additionally, by engaging with the work of philosopher and historian of science Isabelle Stengers, I argue that Erdrich accomplishes her advocacy without reflexively derogating the value of scientific knowledge through problematic logics of epistemological eliminativism. Finally, I contend that Erdrich's poem "Microchimerism" importantly challenges some of the political assumptions and implications of scientific research, while also modeling an openness to multiplicities of practice that resonates deeply with Ojibwe worldviews, and productively fosters a shared sense of intellectual wonder.

"Touch me here and you touch her," Erdrich writes in the poem "Little Souvenirs From the DNA Trading Post."⁵ Erdrich's clever title and poetic premise draw comparison between the intergenerational transmission and exchange of genetic materials, and the narrative and historical locale of the trading post—notorious hubs for Native news, barter, intercultural transaction, and commodity trading prior to and especially after

European arrival in North America. The form of the poem itself, riddled with sentence fragments and font play, reflects themes of transmission, travel and exchange, reading like a mix-match collection of cryptic postcard messages. Erdrich continues: “Touch me here and you touch what she left in me, / what ropes me to her—”(7-8). Erdrich describes the intimate relationship shared between mother and daughter, alluding to the genetic theory of microchimerism, and articulating an alternate metaphysical understanding of interconnection as constitutive of social identity and tangibly experienced through the senses of the body. Erdrich’s repetition of “touch” emphasizes bodily surface or skin, not merely as “that which appears to contain us,” but as queer and feminist cultural theorist Sara Ahmed contends in *The Cultural Politics of Emotion*, a principle site of contact and connection, “where others impress upon us.”⁶ The two women in Erdrich’s poem are connected by exchange of blood and tissue, yet the reciprocity of their relationship both precedes and transcends the measurable transmission of cells, palpably affecting their corporeal experiences. Furthermore, by inviting others to touch her so that they too can experience her connection with her child, Erdrich’s speaker extends the metaphor of interrelation beyond the internal and individuated language of cells and blood, suggesting that relatedness can be interior, but never self-contained. The act of speech itself transcends hereditary and biological assemblages, drawing the listener into the relationship, and alluding to other connections between memory and language, people and place, humans and nonhuman others, which extend beyond the paring of mother and child.

Erdrich further elaborates such connections in the poem “Blood Chimera.”⁷

Describing blood as “the pulse of ancestry” Erdrich continues: “red river surge of time. /

Beyond understanding now: my blood not mine.” (8-9). While Erdrich draws upon scientific understandings of DNA as a molecular blueprint for life, she also directly engages Native political and ontological understandings of blood as a vehicle for culture and memory.⁸ Blood transcends the body of the individual, connecting their unique presence to a collective history of countless others. Even when punctuated by distances of time and space, the intergenerational river-like flow of blood continues to mark and facilitate the transmission of memory to the present moment. Peoplehood and identity are both blood’s expressions and its very substance: “We, my blood,” Erdrich clarifies, “we body and not body. / Other bodies made in me / now make me” (10-12). Interrelationship is not just recorded in blood, body, and cellular traffic, but is constitutive of their very existences. The constant flow and continual exchange of DNA does more than identify the individual; cellular traffic locates their position within a larger web of relationships and materially ties the individual to the rest of the community. DNA also recalls the enduring colonial legacy of blood quantum laws and requirements, which for many Native American groups continue to determine who can be a member of a federally recognized tribe, and relatedly, who is eligible or ineligible for tribal housing, health, and educational services, and subject to tribal legal jurisdiction and the larger legal corpus of federal Indian law.

Erdrich’s use of genetic research on microchimerism as a jumping off point for the exploration of contemporary indigenous identity and interrelation directly troubles prevalent popular accounts which pit science against indigeneity antithetically. Such forms of dichotomous thought not only obscure the co-constitutive qualities of technoscience and socio-political formations, but work to fuel similar and related

dichotomies of nature vs. culture and humans vs. environment that have historically enabled and justified problematic scientific practices that privilege the views of some—particularly European men—at the disadvantage of many others.⁹ Rather than highlight the incompatibility of indigenous practices and Western science, Erdrich’s poems instead draw the reader’s attention to their nodes of commonality and intersection.

In “Own Your Own: Cellular Changes,”¹⁰ Erdrich recounts the events of a minimally invasive laparoscopic surgery performed with “Tiny robot tools” and a “many armed machine” (1,4) by comparing it to the work of traditional healers who “could pull poison from the body / [...] / or arrow points or stone— / never leaving more than a scratch” (7, 9-10). Drawing comparisons between surgery and healing ritual, medical masks and ceremonial masks, Erdrich writes:

When it all goes wrong, we fix it. We give ourselves over in faith.
Blue masks, gas, and a moment’s glimpse
of a many-armed machine shaking rattles
and singing before reaching in me (23-26).

Erdrich describes laparoscopic machines preparing for a surgical procedure in a manner similar to that of traditional healers performing an extraction. For patients seeking a cure, trusting surgical machinery with one’s life, as Erdrich suggests, is no less a leap of faith than requesting care from a healer. By emphasizing these similarities, Erdrich not only highlights commonalities of purpose and practice, but also directly questions the entrenched epistemic rankings of valuation and devaluation that function to privilege Western scientific knowledge over other forms of knowledge.¹¹ Engaging with scientific metaphors and terminology upon her own terms a woman, poet, tribal member, and consumer of medical care and technology, while constellating these metaphors within the personal and collective intersections of Native identity and ontology, Erdrich escapes

reductionist and dichotomous modes of thought to produce a rich and nuanced expression of contemporary Native life.

Erdrich's particular focus upon cellular traffic, blood flow and DNA resonates meaningfully with Anishinaabe intellectual Gerald Vizenor's concept of transmotion. Vizenor describes motion as tacit Native sovereignty: both the natural right to physical mobility within, among, and outside Native communities, as well as the capacity to travel conceptually or metaphysically through the exercise of vision and imagination.¹² The sovereignty of motion is not afforded or conferred to humans through law, or empowered through political relationships that facilitate recognition, but is instead a property of life and a fundamental unbounded "human right."¹³ Transmotion then, implying movement *across* space, time, states of being, or geopolitically claimed territory, represents the palpable, embodied, and rhetorical expressions of motion and sovereignty. Vizenor associates transmotion with creative visions and tribal narratives of emergence, migration, survivance and identity, and notably differentiates transmotion from notions of sovereignty established through treaties and federal Indian law, allowing that "transmotion can be scorned and denied, but motion is never granted by a government."¹⁴ For example, while federal Congressional plenary power and targeted federal policies of assimilation, allotment, termination, and relocation have forcibly dictated where, when, and how Native peoples can move through settler-occupied space, Vizenor argues that motion itself remains tacit and inalienable. Accordingly, though Native *transmotion* can be impinged upon and even prevented, motion—the very essence of movement and migration—is a sovereignty that can never be fully seized, claimed, or bestowed by external forces.

Vizenor's concept of transmotion is also culturally rooted. According to Scott Richard Lyons, movement and migration have long played a significant role in Anishinaabe culture, history, and worldviews.¹⁵ In the introduction to *X-Marks: Native Signatures of Assent*—a chapter that is itself organized around the motif of migrations and removals—Lyons plainly suggests: “If anything can be considered an enduring value for Ojibwe people, it has got to be migration.”¹⁶ Recounting the narrative of The Great Migration, whereby Anishinaabeg peoples traveled westward from the eastern seaboard of North America following the vision of a sacred shell to their present homelands in the Great Lakes region, Lyons emphasizes the centrality of migration within Ojibwe history and ontology. He connects the cultural importance of *monoomin* or wild rice as both a sacred food and staple source of nutrition for Ojibwe people to the event of The Great Migration, and also foregrounds the role that 500 years of travel and migration played in developing distinct and diverse Anishinaabeg communities (the Algonquin, Odawa, and Potawatomi for example), and transmitting/transforming cultural values and practices.¹⁷

Anishinaabe writer Basil Johnston similarly acknowledges the cultural importance of the Ojibwe migration narrative, by recounting its ontological centrality and the important symbolism of the *miigis* seashell within the knowledge, traditions, and ceremonial practices of Ojibwe *Midewiwin* (Grand Medicine Society) practitioners.¹⁸ Migration or journey is also essential to traditional Ojibwe understandings of life and death: when a person reaches the end of their life they must follow the path of souls or “Homeward Road” west.¹⁹ Accordingly, Gerald Vizenor's concept of Native transmotion as sovereignty, while pan-tribally applicable, is deeply connected to Anishinaabe ontologies and epistemologies. Similarly, in the poems of *Cell Traffic*, Erdich's thematic

focus on the migration of genetic materials resonates with Ojibwe-specific cultural significance, gesturing toward the myriad ways that Ojibwe traditions and worldviews are actively lived in the present moment and can be meaningfully articulated through contemporary scientific discourses.

While migration is a celebrated focal point in Ojibwe culture—one that Scott Richard Lyons goes as far as describing as a collective “faith” in migration—not all movement experienced by Ojibwe peoples is or has been voluntary (Lyons differentiates such types of movement through his use of the term “removal”).²⁰ Though migration connects powerfully to the celebrated historical and ontological narrative of the Great Migration, migration also saliently represents the pain, trauma, shared memories, and continually experienced material consequences of colonization, reservations and allotment policies, and the coerced removals and relocations of Ojibwe peoples. Migration stands for the continued difficulties that many Natives living on reservations experience in finding employment and economic security on or near their tribal reservations, frequently necessitating a choice between living within the close-knit social and cultural fabric of their home community, or leaving to pursue employment opportunities elsewhere.²¹

Erdrich’s specific word choice in her collection’s title, *Cell Traffic*, strategically foregrounds the complicated host of historical and cultural meanings that are both produced by and productive of Native—and more specifically Ojibwe—conceptions of mobility and migration. In the “Notes” section of her collection of poems, Erdrich explains that the title both reflects the specific scientific terminology used to describe microchimeric cellular migration between mothers and fetuses, and what she

characterizes more generally as movement: “small units passing back and forth, busy telecommunications, internet chatter and terrorist groups, the sale or traffic in DNA or body parts or bones, indigenesness and ancestral heritage, migration through procreation, and other biological processes.”²² Erdrich’s description not only prominently links processes of movement with indigeneity, but also gestures toward the ambivalence of the words “migration” and “traffic” in the broader context of indigenous struggles to assert territorial sovereignty and protect collective political and cultural autonomy from subsumption in the settler nation-state.

Traffic, with its popular connotations of black-market smuggling and illegal trade, emphasizes the degree to which indigenous populations have not only been adversely affected, but in many cases, principally targeted by dangerous and exploitative practices which gather force and direction with the global onslaught of expanding capitalism. Drug, sex, and human trafficking,²³ theft of natural resources, misappropriation of cultural and intellectual property,²⁴ nonconsensual scientific research practices,²⁵ and the illicit trade of human bodily tissues²⁶ are regularly perpetrated on indigenous lands and against indigenous peoples worldwide. To talk of traffic in the context of indigeneity is to speak to all of these connotations and more. Yet, the sovereignty, power, and cultural significance of motion also remain indelibly linked. Traffic is illicit and nonconsensual transaction, but traffic is also transmotion: the rhetorical and embodied self-determination of tribal narratives of emergence, migration, and continuity. Engaging traffic as thematic motif, Erdrich directly acknowledges the material consequences of continued indigenous regulation under the imposed structures of the settler nation-state, while simultaneously

foregrounding the agency, autonomy, survivance, and continued vitality of indigenous histories, cultures, worldviews, and futures.

In the *Cell Traffic* poem “Microchimerism,” Erdrich interweaves her own lyric lines with italicized text taken from Dr. Judith G. Hall’s 2002 presentation titled “Fetal Determinants of Adult Health,” and a Tufts University profile of microchimerism researcher Dr. Diana Bianchi.²⁷ Writing in a conversational manner, Erdrich engages ideas of microchimerism and interrelation by skillfully modeling processes of connection, discussion, and exchange within the form of the poem itself. Explaining the cellular and metaphysical bonds shared between mother and child, Erdrich writes:

blood river once between you
went two ways, scientists say:

*The waves of fetal microchimerism
are just beginning to break
along the scientific shore (39-43)*

In these lines Erdrich revisits the now familiar metaphor of intergenerational blood flow and juxtaposes it with another water image— one of new “waves” of knowledge breaking upon a developing and expanding “scientific shore.” Alternating the between the personal reflections of the poem’s speaker and her direct invocation of italicized scientific language, Erdrich emphasizes the ways which different practices (scientific cellular research on one hand, and caring for children on the other) lead to distinct bodies of knowledge. Erdrich’s use of italics, often applied in other contexts to distinguish certain words as foreign, further emphasizes these differences. Yet, Erdrich’s use of typographic cues also function oppositely. In drawing attention to ostensible differences between science and indigenous knowledges and ontologies, they notably highlight the overlap and nodes of mutuality between the two. Both recognize deep and fundamental reciprocal

interconnection between mother and fetus, and in both accounts metaphor is used to communicate and qualify knowledge.

Such tactics engage scientific discourse and advocate for non-Western and indigenous knowledges while importantly resisting epistemological eliminativism. Isabelle Stengers describes scientific eliminativism as the impulse to separately regard scientifically produced knowledge as rational truth while dismissing or ignoring all other knowledge claims as matters of opinion.²⁸ Though Stengers admits that eliminativism may have been useful, even historically necessary for Western scientific practices to develop in the face of unified opposition from powers of church and state, she contends that eliminativism is no longer constructive in a contemporary sociopolitical climate where post-Enlightenment political deployments of science for the maintenance of public order have effectively transformed it into a primary tool of capitalist and state power.²⁹ Far from facilitating alternate modes of inquiry that deviate from statist and capitalist agendas, eliminativism's epistemological dichotomy, pitting "rational" knowledge against that which is consequently deemed irrational, now efficiently serves the purpose of supporting hegemonic structures of power.

Rather than denigrating or abandoning scientific practices in an attempt to remedy the situation, Stengers argues instead for a careful differentiation and clear separation of science and eliminativism through a heightened awareness and sensitivity to specific and divergent knowledge producing practices. By recognizing the uniqueness and plurality of *multiple* practices of inquiry, and the profound relationship between one's practice and the questions and answers that one is able to formulate, Stengers asserts the possibility of decoupling judgments concerning the truth of knowledge claims from the eliminative

dichotomy of rational vs. irrational, and instead focus upon the validity, relevance, and relation of particular knowledge claims to the practices which produced them.³⁰

Stengers makes clear that a deliberate turn toward practice should not be mistaken as a form of vulgar relativism where all opinions must be considered equally admissible, but rather should be headed as an open “challenge,” particularly for materialists, to “resist the temptation to pick and choose among practices—keeping those which appear rational and judging away the others.”³¹ Little justification for such basic, reductive, and dichotomist judgmental criteria exists in a world that is complex, dynamic, and plural. Echoing the call of Donna Haraway, Stengers instead contends that alternate “narratives that populate our worlds and imaginations in a different way,” are critically needed.³² Scientific practices, when not tied to the eliminative task of deploying and maintaining public order, can embody a sense of wonder and guide inquiries that produce the kinds of imaginative narratives that help us to interpret and make sense of the world around us, but so too can a vast array of non-scientific practices. By opening ourselves to a multiplicity of practices, recognizing that not all practices are capable of producing appropriate questions or answers for all subjects, and evaluating the truth and value of knowledge claims not through the eliminative dichotomy of rational v. irrational, but instead according to their validity in the context of the practice through which they were produced, a more robust, nuanced, and accurate view of the world is possible.

In “Microchimerism,” Erdrich models an attentiveness to multiplicities of practice and an openness to the validity of divergently formed knowledge claims that shares much with Stengers’s approach to a non-eliminativist materialism. Allowing both scientifically-produced theories of microchimeric cellular migration and felt theories³³ of mother-child

interconnection the textual space and authority to articulate their respective frames of knowledge, Erdrich opens up a site of dialogue where the knowledge claims of different practices can find expression, commonality, and reciprocal exchange. Erdrich begins the poem with her speaker's description of a fetus and the relationship it shares with the woman whose body nurtures and holds it:

Nub of human,
shell pink fingernail,
whether you live
or all unformed
leave her body
she will never
be without you (1-7).

While unmistakably referencing scientific findings of fetalmaternal microchimerism, Erdrich uses imagery and word choice to situate her description within Ojibwe histories and worldviews. For instance, the symbol of *miigis* shell, which is central to the foundational Ojibwe narrative of the Great Migration and Ojibwe *Midewiwin* ceremonial practices, is prominently alluded to in Erdrich's description of the fetus.³⁴ Additionally, Erdrich's implicit focus on movement—from nub to person, shapelessness to form, womb to world, fetus to mother—underscores an Ojibwe cultural appreciation for motion, journey, and migration and connects deeply with Vizenor's concept of transmotion. As the stanza testifies, whether or not the fetus develops to maturity, it will always remain with its mother, sustaining a relationship of tangible reciprocal interconnection, and continuing a journey across space and time. Motion in this sense is continual, intergenerational, and unbounded by metaphysical categories of life and death.

In the subsequent stanza, Erdrich's speaker directly quotes language from Dr. Judith G. Hall's presentation on fetal-adult microchimerism³⁵ to elaborate the reciprocity of mother-fetus relationships:

This, scientists tell us, is literally true:
*...the cells from her miscarriages, her stillborns,
and all of her children... We carry them
for a lifetime. But the cells actually go both ways* (8-11).

Bringing scientific language and theory into contact with Ojibwe ontological understandings of life and reciprocal interconnection, Erdrich resists privileging the authority of one knowledge claim over the other, and instead uses both to narrate and find personal meaning in complex phenomena. The bidirectional transmission of cells described by Hall saliently connects with and supports Erdrich's recurrent appeals to the image of a two-way river of blood as intergenerational carrier of culture, memory, and identity.³⁶ Articulating both claims side-by-side in this manner, Erdrich neither questions the knowledge frames as belief nor discredits them as representational metaphor. She approaches both as ontology known through a particular set of practices.³⁷

In addition to alternating between the articulation of scientific theories of microchimerism, Ojibwe ontologies, and felt theories of mother-child interconnection, Erdrich employs repetition as a formal and stylistic device to artfully convey the content and message of the poem. One of the most immediately obvious uses of repetition can be found in the recurrence and reprise of the poem's opening lines: "Nub of human, / shell pink fingernail" (1). These lines, which begin each of the poem's three sections and playfully evoke the anaphoric repetition of a liturgical invocation, conspicuously imbue the poem with a religious and Christian tenor. Allusions to Christian religiosity are furthered by the poem's tripartite organizational structure, recalling the Christian trinity,

and the thematic centrality of the mother-child motif. Additionally, the refrain “Nub of human, / shell pink fingernail,” when voiced with the slight pause of poetic phrase directed by Erdrich’s use of punctuation (and further emphasized through enjambment), subtly evokes the ubiquitous opening lines of the Catholic Hail Mary prayer. Yet, while Erdrich gestures toward the Hail Mary prayer, her poetic refrain poignantly inverts the prayer’s maternal invocation to one that appeals first to the fetus. Such an inversion highlights the fetus’s unique position as both a recipient of life—a “Nub of Human” dependent on its mother for development and survival—but also a co-producer of personally distinct genetic materials, co-originator of two-way cellular traffic, and co-participant in a wider relationship of exchange and interconnection.

Erdrich’s appropriation of formal and thematic references to common markers of Christian religiosity in a poem about genetic microchimerism powerfully underscore the central role that Western logics of epistemological eliminativism have played not just in scientific discourses, but also in supporting Christian assertions of spiritual, doctrinal, and political hegemony. If, as Isabelle Stengers suggests, early practitioners of Western science adopted eliminativism as a tool for resisting the force and reach of unified church and state opposition, they were ironically employing a rhetorical mechanism that had long-functioned to sustain and protect the very structures and doctrines they were seeking to evade or undermine. Erdrich’s poem, which combines scientific content with religious stylistic and formal attributes, cleverly and powerfully gestures toward science and religion’s shared heritage of eliminativism. Offering followers a single or “true” path to god and eternal salvation, the monotheistic religion of Christianity is in many ways premised and promulgated upon dichotomies (sacred v. profane, good v. evil, reverence

v. sacrilege, salvation v. damnation). Such dichotomies clearly dictate what is considered permissible, and function in the same manner as the scientific dichotomy of rational vs. irrational. Knowledge claims made in either case, when informed by such eliminative dichotomies, inherently and reflexively discredit the authority and validity of any other knowledge producing practices or competing knowledge claims. Colonialist processes of empire building and statecraft fostered and deployed such mechanisms of invalidation to justify conquest, sanction and consolidate imperial power, and assert cultural, legal, and economic hegemony.

As Dian Million asserts in “Felt Theory: An Indigenous Feminist Approach to Affect and History,” the acknowledgement of lived and felt emotional experiences as *valid* personal and community knowledges is not only a critical and necessary part of valuing and engaging with the knowledge claims of a diverse array of Native women scholars, but a principle step in ongoing processes of decolonization within the academy and broader society.³⁸ Placing the lived and felt knowledge claims of embodied maternal experiences side by side with scientifically produced theories of microchimerism, Erdrich models first-hand what it means to take felt knowledges and scholarship seriously, while refusing to prioritize felt knowledge in a way that simply replicates the same epistemological eliminativism that has long dominated scientific and scholarly discourses. Instead, Erdrich’s speaker in “Microchimerism” approaches both scientific and felt theories with a generosity of spirit and sense of intellectual wonder. She demonstrates that genetic research—when approached democratically, and divorced from the authoritarian task of enforcing public order—can facilitate and sustain shared understandings with felt knowledges and embodied maternal experiences. The fact that

many women understood the deeply reciprocal nature of mother-child relationships long before genetic theories of microchimerism were developed, demonstrates the imperative need for what Stengers and others have called a new materialism.³⁹ Gendered and Eurocentric political discourses that derogate felt or embodied knowledges as invalid forms of knowledge must be removed from scientific thought and scientific practices if science is to truly separate from the political burdens of deploying social order and arbitrating truth. Deconstructing the false eliminative dichotomy of “rational v. irrational” knowledge is a primary step toward transforming social and scientific consensus, acknowledging the validity of non-Western and non-scientific knowledges, and pursuing the production of knowledge in a more plural and democratic way.

In “Microchimerism,” Erdrich draws attention to scientific entanglements with eliminativist logic through measured word choice. After establishing the central theme of postpartum mother-fetus interrelationship in the poem’s opening stanza, Erdrich writes: “This, scientists tell us, is literally true”(8). While Erdrich’s use of the phrase “literally true” may at first impression appear to be a straightforward appeal to scientific authority, and by extension, a passive abdication of the validity of embodied maternal knowledge, close reading reveals that it functions in a far more complicated and nuanced way. As an adverb related to the adjective literal, “literally” roughly means to approach, interpret, or reproduce in a manner that lacks embellishment or exaggeration, adheres to facts, and remains faithful to the primary meaning of the term or issue in question.⁴⁰ To state that a thing is “literally true” is to rhetorically double-down on its alleged truthfulness: to imply that the issue or argument at hand is particularly well supported by facts, verifiably accurate, and perhaps even self-evidently valid. Literalness also connotes a connection to

or association with the declared and vested authority of a sacred or religious text. Indeed, the first definition and usage of “literal” listed in the Merriam-Webster Online Dictionary is “according with the letter of the scriptures.”⁴¹ When Erdrich’s statement connecting science to notions of literal truth is approached with both factual and scriptural connotations in mind, the expressive nuance and broader conceptual utility of her specific choice of language becomes more apparent.

First, in noting that scientists have somehow earned, assumed, or inherited the social authority to “tell us” whether or not something is “literally true,” Erdrich highlights the degree to which Western scientific practices and practitioners have become the socially and politically sanctioned arbiters of factual truth in contemporary life. Second, by suggesting that scientific knowledge claims affirm the jointly observed phenomenon of postpartum mother-fetus interrelation as *literally* true, Erdrich cunningly alludes to the scriptural connotations of the word literal, thereby drawing comparison between the authority of scientific knowledge claims and the authoritative position of religious texts and doctrines. Finally, Erdrich’s intentional use of language conflating notions of factuality and scriptural adherence draws attention to Western science and religion’s shared foundations of epistemological eliminativism. Erdrich invites readers to consider how the vested social and political authority of both practices have been achieved and sustained at different times through the use and promotion of exclusionary dichotomies. Yet she also implicitly encourages her audience to imagine and seek out alternative approaches to seeing and understanding the world, which do not inherently or reflexively foreclose other realms of experience or limit modes of potential and possibility.⁴²

In the context of Native North America, the Bering Strait migration theory serves as a quintessential example of the ways that scientific practices, state political interests, and eliminativism coalesce. While the scientific theory posits that the ancestors of contemporary Native Americans migrated to North America from Asia, it directly contradicts numerous tribal histories and ontologies that firmly locate tribal ancestral origins on the North American continent. Regardless of scientific intent, the Bering Strait theory obscures ongoing structures of settler-colonial invasion by depicting Native Americans as one among many immigrant groups who have come to the Americas—however early their arrival on American soil may have been. Politically, the Bering Strait theory poses very real material and discursive threats to Native American groups, whose claims to real property and territorial sovereignty in the United States are linked with state recognitions of Native firstness and aboriginal title. Despite the high political stakes for Native groups, the theory maintains popular credibility and hegemonic political force through a combination of projected apolitical scientific value-neutrality (i.e.: the Bering Strait theory is about understanding “our” collective past, not about the politics of land tenure), and eliminativist distinctions of rational vs. irrational, fact vs. belief. Instead of being represented or understood as a politically volatile conflict of competing knowledge claims, the Bering Strait migration theory is instead commonly portrayed as dispute between religious “beliefs” and scientific “facts.” Accordingly, if Native peoples question the scientific validity of the theory, or criticize its political implications,⁴³ their arguments are frequently discredited as spiritual in nature or “anti-science,” rather than being acknowledged as a critique arising from unique political concerns or different knowledge producing practices. Here, the basic exclusionary structure and reflexively

discrediting utility of eliminativism remains potent and intact, effectively subordinating any contradictory knowledge claims that might threaten scientific and political authority.

While Erdrich poignantly exposes and critiques these structures through the language, content, and formal characteristics of her poem, she also cogently models a productive and responsible alternative to eliminative modes of thought. In “Microchimerism,” Erdrich approaches the topic of mother-fetus interrelationship from a perspective of epistemological pluralism. Though she clearly asserts the value and validity of felt or embodied forms of knowledge—knowledges which have been historically silenced and systematically discredited through colonialist, racist, patriarchal, and eliminativist discourses—her advocacy is accomplished in a manifestly non-eliminative way. Erdrich refuses to derogate or reflexively question the validity of scientific knowledge in her effort to support felt knowledge. Instead, she engages knowledge claims produced through different practices with equal amounts of respect and appreciation, and perhaps most-constructively, a shared sense of intellectual wonder.

One of the more captivating examples of Erdrich’s engagement with both scientific and embodied practices can be found in her rich and dreamlike description of mother-infant interaction occurring at night. Writing in the second-person voice, Erdrich directly addresses both the infant who is the poem’s principle subject, and the reader of the poem:

Vivid dreams in her bed echoed,
a wall away and you felt her,
knew her wakefulness
through the quiet she maintained (22-25).

Though sleeping in separate rooms, the mother and infant described by Erdrich’s poetic speaker remain intimately connected. Both are bound by a mutual awareness of the other

that somehow transcends states of sleep and wakefulness and exerts palpable force and energy in the consciousness of each being. These shared experiences of interconnection, not only confirm the profound physical and emotional interrelationship of the mother and child, but significantly guide and facilitate their daily interactions. For instance, because the sleeping mother feels her child encouraging her to wake, she is able to preemptively exit her bed, navigate the darkness of her home, and begin comforting and caring for her daughter in the very moment that she begins to cry (32-3).

Notably, the mother explains the roots of such connection and intuitive communication by suggesting: “It’s like she is in me, / knows my brain” (27-8). Erdrich’s deliberate repetition of the verb “know” in lines 24 and 28 emphasizes the ontological certainty of the mother’s claims. What the poem’s speaker shares is neither derogated as “view” nor qualified as “belief”: her experiences are explicitly identified and offered to the reader as knowledge. Additionally, Erdrich’s focus on the brain as being central to the mother’s connection to her child—as opposed to the heart, for instance—reinforces the message that embodied or felt knowledge is valid knowledge. Knowledge that is no more or less rational than scientifically produced knowledge, simply different. Erdrich’s description of mother-child interrelationship also powerfully engages scientific theories of cellular migration by alluding to current research arguing that microchimerism can even affect the tissues of the brain. In two recent studies involving mice and humans respectively, genetic researchers have found evidence suggesting that fetal cells and DNA can effectively cross the blood-brain barrier of the mother and remain within the mother’s brain for the duration of her life.⁴⁴

Continuing to recount the aforementioned nighttime reunion of mother and child, and drawing together scientific and felt knowledges even more explicitly, Erdrich's poetic speaker expounds and clarifies:

then you two are one again.

Or more correctly,
you never left:
your cells and hers
flowed back and fourth— (34-38).

Erdrich's stanzas combine imagery of cells and blood flow with powerful evocations of felt knowledge and Ojibwe cultural values of movement and migration. Though Erdrich's language explicitly describes processes of cellular migration, it also poignantly alludes to and critiques the Bering Strait theory of human migration. Referencing the reciprocal flow of cells—a phenomenon that is itself scientifically documented and accepted—Erdrich encourages readers to consider that migrations, including the theoretical migration of Native peoples across the Bering Strait land bridge, are not innately unidirectional. Emphasizing the possibility of bidirectional or two-way traffic, Erdrich advocates and reaffirms tribal knowledges locating Native peoples in the Americas since time-immemorial, while also declining to reflexively denigrate or categorically reject scientific theory. Gerald Vizenor also articulates a similar perspective. Relating the Bering Strait theory to his own concept of transmotion, Gerald Vizenor writes:

The Bering Strait migration theory has been established by the social sciences and embraced in popular culture as the original move of natives into the western hemisphere. There is no decisive evidence to show the actual direction of this mythic migration. The scientific theories are ironic evidence; migration in either direction is native transmotion and sovereignty.⁴⁵

Vizenor decouples the scientific theory from the authoritarian task of disputing Native firstness and priority in the Americas by arguing that any evidence of prehistoric Native migration can actually accentuate a history of Native agency, mobility, and autonomy. Similarly, Erdrich's poetic descriptions of reciprocal flow challenge the problematic political assumptions and corollary repercussions of the Bering Strait theory while refusing to dismiss scientific practices of knowledge production as inherently flawed or invalid in and of themselves.

Erdrich's imagery of two-way reciprocal flow also illustrates mother-child interconnections in a way that resonates deeply with Native American ontological and epistemological perspectives. As Dakota scholar Kim TallBear notes, while Western scientific research and scholarship is increasingly coming to acknowledge and appreciate the profound interrelatedness of many things, similar recognitions have long been a foundational and guiding component of many indigenous worldviews and cultural practices.⁴⁶ TallBear further distinguishes such cosmological understandings by evoking Vine Deloria, Jr.'s concept of an American Indian Metaphysic.⁴⁷ Quoting Deloria, she describes it as "the realization that the world, and all its possible experiences, constituted a social reality, a fabric of life in which everything had the possibility of intimate knowing relationships because, ultimately everything was related."⁴⁸ Tallbear also clarifies that while scientists and Western critical theorists may commonly acknowledge relations between humans and other animals like "dogs, bears, mushrooms, microorganisms," an American Indian metaphysic extends relations beyond humans and animals to incorporate "other 'objects' or 'forces'" such as "trees, stones, thunder, etc." which are also understood to be sentient beings.⁴⁹ Thus, an American Indian

understanding of interrelation transcends Western categorizations of animate vs. inanimate and human vs. nonhuman entities.

Such recognitions of intimate and inclusive interrelatedness are not only significantly reflected in the thematic content of “Microchimerism,” but constitutively shape the poem’s formal and narrative structure. Erdrich’s intentional use of the second-person narrative mode throughout the majority of the poem is a strong example of such influence. Each time Erdrich’s poetic speaker addresses the poem’s subject, she does so through the second-person pronoun “you”: “Nub of human, / shell pink fingernail, she will never be without you.” (19-21). Erdrich’s use of “you” emphasizes and reinforces notions of interconnectedness by openly addressing the reader of the poem, and inviting them to imagine him or herself as the child or fetus. The reader too is part of a mother-child relationship of interconnection. Additionally, “you,” a pronoun that is both singular and plural, deliberately blurs and deconstructs boundaries of self and other, further emphasizing Erdrich’s message that “What makes us /our own sole and sovereign selves / is only partially us” (59-61). By encouraging readers to consider broader relationships of interconnection through both formal and thematic content, Erdrich powerfully engages with Native and indigenous cosmological perspectives that recognize and respect the interrelation of all things.

In addition to engaging with broader indigenous and pan-tribal intellectual traditions, Erdrich’s specific approach to concepts of interrelatedness through symbolic motifs of movement, migration, and reciprocal flow, directly evoke ontologies and epistemologies that are particular to Ojibwe communities. Describing the relationship shared between the fetus, its mother, and its past or future siblings, Erdrich writes:

Nub of human,
your cells migrate,
are found at sites
hurt in the maternal body
and in successive siblings,
even those you never knew,
even those who never knew you (12-18).

In these lines, Erdrich's poetic speaker connects the identity of the fetus and its intimate relationship to others with the physical migration of cellular materials.

Accordingly, movement becomes the primary vehicle through which foundational properties of life, identity, and interrelationship are jointly and productively affirmed and perpetuated. While focus upon the reciprocal flow of cells clearly evokes genetic theories of microchimerism, the primary and constitutive role of movement in Erdrich's stanza powerfully remembers the foundational Ojibwe narrative of The Great Migration.

Erdrich's words also crucially work to renew and reinvent the historical and ontological narrative by actively asserting the continued presence of motion and mobility in contemporary Ojibwe life. Erdrich's clear articulation of the vitality of Ojibwe culture and intellectual traditions, combined with her willingness to openly and generously engage genetic theories of microchimerism, powerfully demonstrate a narrative of generational cultural continuity and tacit Native sovereignty which meaningfully embodies and exemplifies Gerald Vizenor's concept of Native transmotion.

In the final stanza of the poem "Microchimerism," Erdrich revisits the concepts of interrelatedness and epistemological eliminativism with characteristic wit, humor, and inventiveness. After confidently declaring that "[t]he search for God can be called off," since the recent findings of genetic researchers show "masses of genetic material not our own/inside us, always with us, like the soul" (65-66), Erdrich's poetic speaker quickly

recants: “I should not / have said that about God (66-67). The poetic speaker’s retraction and subsequent appeal for forgiveness through the ironically revelatory truism, “Forgive me, I / am not / myself,” (68-70) humorously underscores both the intimate interrelation of all things and the ease with which we often unwittingly and impulsively apply the problematic logics of epistemological eliminativism. In a universe composed of and compellingly understood through profound relationships of interconnection, the folly of appeals to a simplified, unitary, and unpolluted worldview is clear. Divisive and exclusionary modes of thought are both harmful and counterproductive.

Challenging eliminativism in a manifestly non-eliminative way, Erdrich’s poem forcefully rejects the dichotomous privileging of one practice’s authority over another’s, and instead focuses productively upon common recognitions from two separate bodies of knowledge. Whether recounting an intimate nighttime exchange shared between a mother and child, or the specific language of a technical presentation on fetal microchimerism, Erdrich delights in the joy and excitement of knowledge discovery, and ponders the profound sense of humility inspired by the increased awareness of all that one does not or cannot possibly understand. By emphasizing notions of wonder in such a way, Erdrich not only draws a meaningful connection between two distinct knowledge-producing practices, but also reminds readers of the importance of differentiating between scientific practices fairly and democratically mobilized in the interest of human curiosity, and scientific knowledge deployed for the eliminative goal of maintaining political and social order. Holding on to this distinction, and engaging with scientific knowledge upon her own terms as a woman, mother, and tribal member, Erdrich produces a rich and

provocative account of contemporary Ojibwe life and identity, intimate and inclusive reciprocal interrelation, and continued Native transmotion.

Chapter 1 Notes and References:

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² For a description of settler colonialism see Patrick Wolfe, "Settler Colonialism and the Elimination of the Native," *Journal of Genocide Research* 8, no. 4 (2006): 387-409.

³ See Brian W. Dippie, *The Vanishing American: White Attitudes and U.S. Indian Policy* (Lawrence: Kansas University Press, 1982); See also Suzanne J. Crawford, "(Re)Constructing Bodies: Semiotic Sovereignty and the Debate over Kennewick Man," in *Repatriation Reader: Who owns American Indian Remains?* ed. Devon A. Mihesuah (Lincoln: University of Nebraska Press, 2000).

⁴ See Pauline Wakeham, *Taxidermic Signs: Reconstructing Aboriginality* (Minneapolis: University of Minnesota Press, 2008); Fatimah Tobing Rony "Taxidermy and Romantic Ethnography: Robert Flaherty's *Nanook of the North*," in *The Third Eye: Race, Cinema and Ethnographic Spectacle* (Durham: Duke University Press, 1996), 99-126. See also Anne McClintock's discussion of the imperial tropes of "panoptical time" and "anachronistic space" in Anne McClintock, *Imperial Leather: Race, Gender and Sexuality in the Colonial Contest* (New York: Routledge, 1995), 37-40.

⁵ Erdrich, "Little Souvenirs From the DNA Trading Post" in *Cell Traffic*, 36.

⁶ Sara Ahmed *apud* Mark Rifkin, *The Erotics of Sovereignty: Queer Native Writing in the Era of Self-Determination* (Minneapolis: University of Minnesota Press, 2012), 34.

⁷ Erdrich, "Blood Chimera" in *Cell Traffic*, 16.

⁸ See Kiowa author N. Scott Momaday's concept of "blood memory" in *The Man Made of Words* (New York: St. Martin's Press, 1997), which I discuss more fully in chapter three. See also Chadwick Allen's discussion of blood/land/memory complex in Chadwick Allen, *Blood Narrative: Indigenous Identity in American Indian and Maori Literary and Activist Texts* (Durham: Duke University Press, 2002).

⁹ These mechanics will be discussed in greater detail in chapter two. See Sandra Harding, *Is Science Multicultural?: Postcolonialisms, Feminisms, and Epistemologies* (Bloomington: Indiana University Press, 1998); Donna Haraway, "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective," *Feminist Studies* 14, no. 1 (1988): 575-99; McClintock, *Imperial Leather* (1995).

¹⁰ Erdrich, "Own Your Own: Cellular Changes" in *Cell Traffic*, 23.

¹¹ See Vine Deloria, Jr., *Red Earth, White Lies: Native Americans and the Myth of Scientific Fact* (Golden, CO: Fulcrum Publishing, 1997); See also David Turnbull,

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¹² Gerald Vizenor, *Fugitives Poses: Native American Indian Scenes of Absence and Presence* (Lincoln: University of Nebraska Press, 1998), 182.

¹³ *Ibid*, 188-9.

¹⁴ *Ibid*, 15, 188.

¹⁵ Scott Richard Lyons, *X-Marks: Native Signatures of Assent* (Minneapolis: University of Minnesota Press, 2010), 3.

¹⁶ *Ibid*.

¹⁷ *Ibid.*, 4.

¹⁸ Basil Johnston, *Ojibway Heritage* (Toronto: McClelland and Stewart Ltd., 1976), 87.

¹⁹ William W. Warren, *History of the Ojibway People* (1885; reprint, St. Paul: Minnesota Historical Society Press, 1984), 72-4.

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²¹ Robbert J. Gitter and Patricia B. Reagan, "Reservation Wages: An analysis of the Effects of Reservations On Employment of American Indian Men," *The American Economic Review* 92, no. 4 (2002): 1160-1168; Stephen Cornell and Joseph P. Kalt, "Pathways from Poverty: Economic Development and Institution-Building on American Indian Reservations," *American Indian Culture and Research Journal* 14, no. 1 (1990): 89-125.

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²⁴ See Angela Riley, "Straight Stealing: Towards and Indigenous System of Cultural Property Protection," *Washington Law Review* 80 no. 2 (2005) 69-164.

²⁵ See Debra Harry, "Indigenous Peoples and Gene Disputes," *Chicago-Kent Law Review* 84 no.1 (2009) 147-196. For information on the recent legal dispute between the Havasupai Tribe and Arizona State University over Havasupai DNA see Katherine Drabiak-Syed, "Lessons from Havasupai Tribe v. Arizona State University Board of Regents: Recognizing Group, Cultural, and Dignitary Harms as Legitimate Risks

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²⁶ See Larry Rohter, “In the Amazon, Giving Blood but Getting Nothing,” *New York Times*, June 20, 2007, accessed September 27, 2012, <http://www.nytimes.com/2007/06/20/world/americas/20blood.html>.

²⁷ Erdrich, *Cell Traffic*, 11-13. Erdrich includes links to both the profile and presentation in the “Notes” section of the book.

²⁸ Isabelle Stengers, “Diderot’s Egg: Divorcing Materialism from Eliminativism,” *Radical Philosophy* 144 (2007): 10.

²⁹ *Ibid.*, 8,10.

³⁰ *Ibid.*, 10, 14.

³¹ *Ibid.*, 10, 15.

³² *Ibid.*, 9.

³³ Dian Million, “Felt Theory: An Indigenous Approach to Affect and History,” *Wicazo Sa Review* 24, no. 2 (2009): 53-76.

³⁴ Later in the poem Erdrich further cements connections to the Ojibwe Great Migration through an oblique reference to rice, a sacred food connected to the important cultural and ontological narrative. Describing the mother’s growing awareness of connection to her fetus through food, Erdrich writes: “She should have known / when she craved avocado, salmon, sesame, / and cursed the invective against sushi.”

³⁵ Erdrich identifies her use of source in the author’s notes for *Cell Traffic*. See Judith G. Hall, “Fetal Determinants of Adult Health,” *Medscape Education*, accessed September 27, 2012, http://www.medscape.org/viewarticle/432305_2.

³⁶ See “Microchimerism” lines 39-40 and “Blood Chimera” lines 8-12 as discussed above.

³⁷ Kim TallBear, “Why Interspecies Thinking Needs Indigenous Standpoints” *Cultural Anthropology Online* (March 2012): 4, accessed September 27, 2012, <http://www.culanth.org>.

³⁸ Million, “Felt Theory,” 54.

³⁹ See Stengers, “Diderot’s Egg,” 10. See also, for instance, Karen Barad, *Meeting the Universe Halfway: Quantam Physics and the Entanglement of Matter and Meaning*

(Durham: Duke University Press, 2007). For a sense of the multiple directions new materialisms can take, see Rick Dolphijn and Iris van der Turin, eds. *New Materialism: Interviews and Cartographies* (Ann Arbor: Open Humanities Press, 2012).

⁴⁰ “Literal,” Merriam-Webster Online Dictionary, accessed October 1, 2012, <http://www.merriam-webster.com/dictionary/literal>.

⁴¹ *Ibid.* The first definition of “scripture” in the Merriam-Webster Online Dictionary reads: “the books of the Bible—often used in plural.” Scripture, thus not only commonly connotes texts of a religious nature, but often refers specifically to the Christian Bible. See: “Scripture,” Merriam-Webster Dictionary, accessed October 1, 2012, <http://www.merriam-webster.com/dictionary/scripture>.

⁴² For a detailed ethnographic account of how Ojibwe linguistic categories reflect Ojibwe epistemic practices and worldview, see A. Irving Hallowell, “Ojibwa Ontology, Behavior, and Worldview” in *Contributions to Ojibwe Studies: Essays 1934-1972*, ed. Jennifer Brown and Susan Elaine Gray. (Lincoln: University of Nebraska Press, 2010), 535. In one part of the classic article, Hallowell describes how stones are allocated an “animate” grammatical category in the Ojibwe language, yet not all stones are universally understood to be living. Rather, circumstance, experience, and personal testimony are all epistemic considerations used to decide whether particular stones exhibit animate or inanimate properties; while some stones are determined to be animate, others are determined to be inanimate. Hallowell contends that application of the animate grammatical category keeps open the potential for new knowledge and experiences with stones, and prevents cognitive foreclosure: “It leaves a door open that [Western] orientation on dogmatic grounds keeps shut tight. Whereas we should never expect a stone to manifest animate properties of any kind, under any circumstances, the Ojibwa recognize, a priori, potentialities for animation in certain classes of objects under certain circumstances.”

⁴³ See Deloria, *Red Earth, White Lies*, 1997.

⁴⁴ XW. Tan, H. Liao, L. Sun, M. Okabe, ZC. Xiao, GS. Dawe “Fetal Microchimerism in the Maternal Mouse Brain: A Novel Population of Fetal Progenitor or Stem Cells Able to Cross the Blood-Brain Barrier?,” *Stem Cells* 23 (2005):1443–1452; W. Chan, C. Gurnot, T. Montine, J. Sonnen, K. Guthrie, J. Nelson, “Male Microchimerism in the Human Female Brain,” *Plos One* 7, no. 9 (2012): e45592. doi: 10.1371/journal.pone.0045592.

⁴⁵ Gerald Vizenor, *Fugitives Poses*, 185.

⁴⁶ TallBear, “Why Interspecies Thinking Needs Indigenous Standpoints,” 2.

⁴⁷ *Ibid.*, 2.

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⁴⁹ *Ibid.*, 5.

CHAPTER 2

Sovereign Bodies: Science, Indigenous Rights, and Cultural Property Law in Heid Erdrich's *National Monuments*

In an author's note at the end of her 2008 collection of poems *National Monuments*, Ojibwe Poet Heid Erdrich explains that her creative inspiration for the work began with a desire to address representations of indigeneity in celebrated "monuments" of canonical literature; yet, her collection ultimately transformed into a wider exploration of indigenous peoples and the sacred spaces they might consider "national monuments."¹ Erdrich admits that while her poems about indigenous national monuments initially focused upon landscapes and cultural sites like the sacred geological formation Lakota peoples call Mato Paha², "her poetic eye shifted quickly from endangered mountains" to the human body itself³. She cites her interest in the body as poetic subject as principally related to the contradictory social values ascribed to it: the human body is revered as an inviolable "sacred space" in many religions and cultural worldviews, but conversely treated as "a location, a site, and a text to scholars" who argue that invasive acts are necessary and justified in the greater pursuit of knowledge.⁴

Yet, in the global sociopolitical context of indigenous peoples, lands, communities, and nations, where scientific knowledge has often serviced and sustained European structures of colonization and oppression⁵, the critical questions engendered by scholarly-scientific justifications for bodily transgressions are: What knowledge is produced through potentially intrusive research? To what purposes will the knowledge be deployed? And who ultimately stands to benefit from the knowledge? Erdrich confronts these difficult political and ethical considerations with measured amounts of political

realism and personal ambivalence. She is disturbed that the remains of an ancestor were crushed for scientific testing, but also “uncomfortably” fascinated in a more abstract sense by the range and specificity of information deduced through practices of forensic anthropology.⁶ While Erdrich acknowledges such ethical and intellectual complexity, she generally laments how otherwise commonly accepted thresholds of corporeal inviolability get lowered, deemphasized, and delegitimized with the passage of time. Erdrich explains: “The rules in place to protect our bodies when we die simply do not apply to anyone who has been dead long enough.”⁷ Accordingly, the emotional distance afforded by time allows practices of forensic investigation, which might otherwise be deemed morbid and ethically objectionable, to pass as socially acceptable and ultimately justifiable means to achieving “necessary” and “universally-beneficial” ends.

The temporality of the deceased is one of several compounding factors that compromise indigenous peoples’ abilities to protect their own bodies and the bodies of ancestors from potentially invasive or exploitative scientific research practices, as well as the volatile social and political implications of non-consensual scientific investigation. Conflicts and tensions emerging through ongoing structures of settler colonial invasion⁸—whereby indigenous lands and sociopolitical entities are forcibly and systematically internalized within nation state socialities and political structures—continue to play a salient role in shaping indigenous engagements with scientific research.⁹ Many Native Americans have overtly criticized the settler-colonial dynamics that often influence and underpin scientific research involving indigenous peoples and communities.¹⁰ While some Native American activism has focused upon petitioning and transforming the scientific community directly, other efforts have pursued change and

remedy through law¹¹. U.S. cultural property legislation such as the 1990 Native American Graves Protection and Repatriation Act (NAGPRA)¹² has begun to address the concerns of Native American groups by facilitating tribally requested repatriations of Native American human remains from federally funded museums and research facilities. Yet, while NAGPRA has substantially altered the social, legal, and scientific terrain regarding the treatment and study of Native American human remains, legal protections for living Native Americans' bodies, tangible body parts, and excised bodily materials remain underdeveloped. The contemporary proliferation of genetic research involving indigenous peoples, as well as the deliberate targeting of indigenous populations for certain types of genetic research, have only made the inadequacy of current research protocols and legal protections for research subjects more apparent, and the need for remedy more urgent.¹³ Furthermore, recent legal disputes over non-sanctioned usages of Native American DNA¹⁴ highlight the necessity of improving scientific research practices to ensure that the "free and informed consent" of indigenous peoples is obtained "prior" to conducting research involving indigenous bodies, excised bodily tissues, or genetic materials.¹⁵

In several *National Monuments* poems, Heid Erdrich not only speaks to the highly intimate experience of human embodiment¹⁶, but she also locates the unique and diverse corporeal experiences of indigenous peoples in broader frameworks of cultural, legal, scientific, and political meaning. She directly engages with legal concepts of cultural property in her poems by alluding to interactions between NAGPRA legislation and practices of forensic science¹⁷ as well as openly referencing legal and ethical scientific disputes involving indigenous tissues and bodily materials.¹⁸ Evoking cultural property

law in the language and thematic content of her poems, Erdrich articulates and advocates a social and political ethics of indigenous corporeal sovereignty that both duplicates and challenges existing legal paradigms. By reading Erdrich's poems along and against scholarly and popular discussions within the field of cultural property law, I will demonstrate how Erdrich's poems function both as political calls for remedy and justice through existing legal frameworks, and sites of critical reflection and imaginative deliberation that expand commonly understood notions of property, ownership, and cultural sovereignty, and advocate for an extralegal ethics of corporeal dignity and democratized scientific inquiry.

My argument will proceed as follows: First, I will review legal scholarship on cultural property law, giving special attention to literature discussing how indigenous groups are currently using cultural property law to protect cultural resources, and debates concerning the normative appropriateness of applying legal and economic concepts of property to incommensurable aspects of culture. Next, I will perform close readings of two poems from Erdrich's collection. I will demonstrate how Erdrich engages the complicated and often fraught sociopolitical context of scientific research involving indigenous peoples, and alludes to legal concepts of cultural property within her poetry. Finally, I will close by discussing how Erdrich's poetic engagement with cultural property law recognizes and supports indigenous political struggles to assert legal claim to tangible and intangible cultural resources, while also advocating a more holistic ethics of indigenous corporeal sovereignty.

- I. Indigenous Groups and Cultural Property Law: Normative Critiques and Scientific Engagements

John Henry Merryman, a foundational scholar and internationally renowned expert and in the field of cultural property law, broadly describes cultural property as “objects of artistic, archeological, ethnological or historical interest,” which can be considered “part of” or integrally connected to a certain cultural heritage or national identity.¹⁹ While Merryman’s early definition foregrounds tangible objects as the subject matter of cultural property law, contemporary understandings of what constitutes cultural property are far more capacious, and include both tangible and intangible resources.²⁰ Cultural groups worldwide have used domestic, international, and tribal law to raise claims over a wide variety of resources that the groups feel warrant unique legal protections. Contemporary cultural property claims range anywhere from tangible objects such as artworks, sacred lands, or human remains, to intangible resources like cultural folklore, traditional botanical knowledge, or agricultural techniques. Accordingly, cultural property and the instruments of cultural property law cross and at times complicate traditional economic and legal notions of property, which classify and address property claims through three discrete legal regimes of intellectual property, personal property, and real property.²¹

While some critics of cultural property point to the practical difficulties of applying existing and determinate concepts of property to indeterminate categories of cultural resources, or using legal and economic models premised upon notions of fungibility to protect incommensurable facets of culture, others object to cultural property on normative and ethical grounds. One line of such criticism, clearly expressed in the scholarship of economic and legal theorist Eric Posner, questions the usefulness or desirability of legally regulating cultural property in a way that impacts or constrains its

free-market exchange.²² Posner argues that an unregulated or “lightly-regulated” market—where individuals or groups who value items the most can buy them—ultimately affords the greatest protections for cultural property.²³ Though he acknowledges how cultural property can connect to the history or “dignity” of a people, and why they would desire the protection and preservation of such objects, he rejects the idea that these connections provide cultural groups “any moral right to possession.”²⁴ In Posner’s opinion, cultural property neither warrants nor deserves special treatment or legal protections that distinguish it from other forms of property.²⁵

A second strand of cultural property criticism argues that affording certain groups legal entitlements to cultural property engenders a static, flat, and reductivist view of culture, which fails to account for cultural exchange and hybridity, and unfairly inhibits the free-flow and dissemination of information, ideas and culture.²⁶ Naomi Mezey, for example, argues that the very concept of cultural property is flawed and “contradictory” in that it pairs property, an object “fixed, possessed, controlled by its owner, and alienable” with culture, which according to Mezey possesses none of the aforementioned qualities.²⁷ Mezey associates cultural property with a larger “preservationist stance toward culture” that fails to account for processes of cultural change and negotiation, and “tends to increase intragroup conformity and intergroup intransigence in the face of cultural conflict.”²⁸ Similarly, cultural theorist Kwame Anthony Appiah argues that cultural property —particularly in the case of intellectual property claims—leads to a “hyper stringent doctrine of property rights” that values the interests of owners above all others, and can ultimately stultify processes of cross-cultural exchange and understanding.²⁹ Appiah instead advocates a cosmopolitan approach to concepts of

cultural patrimony, which, while acknowledging “powerful” connections between objects and the cultures that produced them, emphasizes the importance of fostering global connections to these same objects, “not *through* identity but *despite* difference.”³⁰ Placing the value of a globalized “human” identity on par with the maintenance of local cultural identity, Appiah suggests that we must move beyond the factionalism and “property fundamentalism” inspired by notions of cultural patrimony if we are to appreciate and embrace the “human connection” inherent in various forms of cultural creation and expression.³¹

Countering the critiques of Appiah, Mezey, Posner, and others, legal scholars Kristen Carpenter, Sonia Katyal, and Angela Riley, argue that property law is a useful and viable tool through which indigenous groups worldwide can claim and protect their own cultural resources, and advance collective goals of cultural autonomy and survival.³² Carpenter et al. suggest that many criticisms of cultural property “converge on a similar underlying view of property itself as fundamentally defined by ownership” and fail to recognize how concepts of cultural property can “distribute entitlements along a spectrum” and accommodate the interests of both owners and nonowners.³³ Building off of the influential work of legal scholar Margaret Jane Radin,³⁴ Carpenter et al. propose a more robust model for conceptualizing the cultural property claims of indigenous communities: one that recognizes certain objects as inextricably linked to indigenous groups’ collective identities (and therefore warranting unique legal protections); and concomitantly, a model that “challenges [individual] ownership as the fundamental nexus of property interests” by articulating a collaborative model of fiduciary stewardship—where the rights and obligations of protecting and conserving cultural resources are

practiced irrespective of legal title.³⁵ As such, Carpenter et al.’s model rejects outmoded yet popularly conceived property paradigms emphasizing the title holder’s absolute powers of control, alienation, and exclusion, and instead supports a “disaggregated” view of various property rights being shared and distributed between title holders and nontitle holders.³⁶ The authors further demonstrate that the disaggregation of property rights is in fact widely accepted as a “basic tenant of property law” and that many property arrangements—the most familiar being landlord-tenant agreements—distribute rights and obligations among participants.³⁷ Hence, Carpenter et al. argue: “all property rights are limited to some extent, and...judgments about where to place the limits should reflect societal norms and values.”³⁸ Ultimately, Carpenter et al. reason that while assertions of cultural property rights may in some cases vest indigenous groups with absolute powers of exclusion, control or alienation,³⁹ many prominent critiques concerning the normative and doctrinal impacts of indigenous cultural property claims lose force and persuasive influence if interpreted through broader frameworks of stewardship rather than classic ownership-focused conceptions of property.

Given the unique and troubled sociohistorical circumstances of scientific research involving indigenous peoples, there are several ways that cultural property frameworks have been or might be employed to protect the collective interests and wellbeing of indigenous communities, and facilitate the articulation of indigenous claims of cultural harm resulting from unauthorized scientific study and publication, or instances of researcher misconduct. Carpenter et al. note that NAGPRA is perhaps the most quintessential legislative recognition and safeguard of indigenous peoples’ tangible and collective cultural property interests currently codified in domestic law.⁴⁰ Native

American legal scholar Rebecca Tsosie reflects tersely upon the law's novelty and importance, suggesting: "NAGPRA is the first statute to recognize Native legal rights to cultural objects and the first statute to recognize a group entitlement to cultural property."⁴¹ Related, Carpenter et al. contend that NAGPRA, in affording a comprehensive framework for protecting and repatriating indigenous human remains, sacred objects, and items of cultural patrimony as *collective* tribal property, facilitates deeper understandings of the connections between property and group identity.⁴² NAGPRA also conforms to what Carpenter et al. identify as a "property and peoplehood" model of indigenous cultural property, in that it recognizes certain objects as "so integral to and constitutive of" indigenous groups' identities that they warrant special [nonfungible] legal protections."⁴³ The authors also argue that NAGPRA exemplifies the broader stewardship models of property that they advocate, since human remains and funerary items cannot legally be "owned" by anyone, and acts of repatriation are "primarily concerned with reconfiguring custody and possession, not title and ownership."⁴⁴

Vesting federally recognized tribes in the United States with legal powers to regain collective custody and access to ancestral human remains, NAGPRA has substantially altered the landscape of forensic scientific research by affording Native American groups a greater degree of control and consent over how Native American human remains may be handled, housed, or studied. Given the grisly historical record of dehumanization, mistreatment, and commodification of indigenous remains by settlers in the United States,⁴⁵ Native scholars argue that such basic protections are not only practically and ethically warranted, but constitute an important legislative

acknowledgement of fundamental human rights that Native Americans have long been denied through U.S. sociopolitical structures.⁴⁶ While many members of the scientific community recognize the importance of the legislation and have worked to ensure compliance, some scientists oppose NAGPRA on the grounds that it infringes on their own individual rights to scientific inquiry and obstructs research that serves a greater “public good.”⁴⁷ Supporters of NAGPRA counter, however, that the legislation does not patently foreclose all possibility for research involving Native American human remains:⁴⁸ it instead foregrounds Native American groups’ custody of tribally affiliated human remains, and facilitates greater interaction and consultation between Native communities and researchers who wish to study Native remains.⁴⁹ One author explains how increased dialogue facilitated through NAGPRA can potentially balance or reconcile tribal cultural interests with scientific research goals:

Under NAGPRA, museums and scientists work directly with members of tribes in the identification, inventory and possible repatriation of remains. This partnership has actually defused some of the tensions between these two factions, and thus may increase the likelihood of scientists retaining custody of remains where they can convince a requesting tribe such research is legitimate and important.⁵⁰

Accordingly, NAGPRA, when viewed as a corrective legal instrument recognizing Native American groups as the fiduciary stewards of Native American remains, can be understood as a mechanism facilitating the democratization of science and scientific inquiry, rather than a restrictive attack leveled against scientists.

While NAGPRA, as a form of domestic cultural property legislation, affords Native American human remains a certain degree of protection under U.S. law,⁵¹ federal protections for living Native Americans’ excised bodily tissues—frequently solicited by biogenetic researchers for a host of investigative projects⁵²—are undeveloped. Several

authors document the collective cultural and dignitary harm inflicted upon indigenous groups when unauthorized or culturally insensitive research is executed without the free and informed consent of a particular group or community.⁵³ In order to safeguard the interests and collective wellbeing of indigenous groups, and better protect their distinct identities and cultural heritages, some authors advocate conceptualizing and protecting indigenous bodily tissues, and genetic knowledge produced through their study, as cultural property.⁵⁴ Such proposed measures take seriously indigenous ontologies connecting bodily tissues to peoplehood and identity,⁵⁵ and consequently view human tissues as nonfungible properties—intimately linked to indigenous cultural survival, and warranting unique legal protections. Though a cultural property approach to indigenous tissues and genetic materials represents a significant departure from current paradigms of domestic property law in the U.S.—which often treat tangible body parts as fungible “raw materials,” and instead afford the creative labors of scientific researchers far greater legal protections as intellectual property (e.g.: gene patents)⁵⁶—protections for indigenous peoples’ tissues and genetic resources are gaining force and articulation in tribal and international legal instruments, norms, and protocols.

In the United States, for instance, some Native American tribes have responded to the risks posed by unwanted or culturally insensitive research by developing tribal institutional review boards (IRBs).⁵⁷ Tribal IRBs can enhance group control over what types of research take place within the community, and ensure better alignment between research practices and local norms or values concerning the treatment of human materials and appropriate applications of knowledge gained through research.⁵⁸ At the level of international policy, Article 31 of the United Nations Declaration of the Rights of

Indigenous Peoples (UNDRIP) recognizes that “[i]ndigenous peoples have the right to maintain, control, protect, and develop their cultural heritage...including human and genetic resources.”⁵⁹ Article 31 also directs UN member states to work in conjunction with indigenous peoples “to recognize and protect” indigenous rights to cultural heritage and other manifestations of culture.⁶⁰ Though UNDRIP is not legally binding under international law, it does reflect the emergence of international legal norms concerning indigenous cultural property, and is widely regarded as a baseline standard for understanding indigenous peoples’ rights within broader international policy frameworks.⁶¹ The development of tribal and international protocols to enhance protections for indigenous bodily tissues and genetic resources represents yet another way that indigenous groups have strategically embraced cultural property paradigms in order to protect and develop their cultural heritages. Importantly, when such stewardship efforts are viewed through broader disaggregated models of property rights, indigenous claims to genetic resources need not be understood as uniform rejections or prohibitions on scientific research involving human tissues. Rather, as many argue in the context of Native American claims under NAGPA, indigenous assertions of genetic rights seek to broaden and democratize scientific practice by facilitating the development of more respectful, collaborative, and consensual research frameworks.

Having reviewed legal scholarship on indigenous groups and cultural property law, I was able to address some of the practical concerns and normative critiques associated with cultural property. Of course, more could be done to engage the full range of scholarship on cultural property law. Still, by discussing some of the ways which cultural property concepts saliently apply to indigenous engagements with science and

scientific research practices, I can now return to the poetry of Heid Erdrich to demonstrate how Erdrich's poems exploring science, cultural property, and indigenous bodies, both duplicate and challenge current legal paradigms.

II. Cultural Property in the Poems of *National Monuments*

Erdrich directly confronts some of the ethical issues, cultural concerns, and social disputes associated with scientific usages of indigenous peoples' bodily tissues in her poem "Vial."⁶² "Vial" recounts a 1996 incident involving the Karitiana Indians, an indigenous group from a remote area of the Brazilian Amazon, wherein local community members consented to allow a physician to draw samples of their blood in exchange for medicine.⁶³ Building off an epigraph from a New York Times article describing the incident,⁶⁴ Erdrich's poem laments how despite the Karitiana community's good faith and cooperation, the medical assistance pledged by the visiting doctor never arrived. Erdrich succinctly summarizes the inequitable transaction: "Promised medicine, /*Karitiana*, Amazonian /indigenous, offered/blood and got nothing" (14-18). "Vial" also explores the Karitiana community's coincident and disheartening discovery that separate blood and DNA samples, previously collected by a researcher in the late 1970's, were being maintained and distributed by a nonprofit organization in New Jersey, and sold to scientific researchers online.⁶⁵

Erdrich begins her poem with a highly alliterative and assonant description of a captured vial of blood:

Tube of red
like a lipstick
passion's paint,

paid for, yet
unpaid for,
filched like a drugstore
compact pinched (1-7).

Erdrich's word choice in the introductory stanza immediately establishes a connection between the extracted blood sample she's describing, and common beauty products like lipstick, blush, and pressed-powder foundation. Such associations draw attention to the aesthetic qualities of a vial of human blood, and emphasize how notions of beauty and value are not only culturally constructed, but culturally specific. While a vial of Karitiana blood may be valued as data by Brazilian and American researchers, or quantified and commoditized as the "raw material" required for scientific research and experimentation, it represents something far different to members of the Karitiana community. For those who supplied blood samples, the fluid, though disembodied, is still part of them and instrumental to the health of the community. Erdrich reflects these views when she describes a vial of Karitiana blood as a "glass finger"(8). Such imagery suggests that while scientists may view blood as a limitless and renewable resource, to the Karitiana it is non-fungible: once it is removed from the body, like a limb or digit, it cannot be replaced. Blood is necessary for participation in the Karitiana afterlife, and was likely surrendered with great personal expense and difficulty. Erdrich describes the sample in her poem as having been "bled in fear of/the next world wanting/ the body whole/each drop accounted for..." (21-24). The donation of blood represents more than a shedding of cells to the Karitiana, it is a significant loss that is sustained and experienced indefinitely.

Yet, despite the importance of blood to the Karitiana community and its value to genetic researchers, no recompense—medicinal, monetary, or otherwise—is provided for the samples. Erdrich notes how a vial of Karitiana blood is paradoxically "[f]or [s]ale/ to

non-profits/ yet non-bought/non-paid for” (10-13). Erdrich uses the words “filched” and “pinched” at the end of the first stanza to characterize a blood sample’s casual and uncompensated removal from the Karitiana community (6-7). The theft of human blood by scientific researchers, Erdrich suggests through such choices in language, carries as few social or legal consequences as pilfering a small item from a pharmacy (7). While identifiably problematic, such behavior is ultimately justified and pardonable in the eyes of many global observers. The “universal” value and benefit of scientific research, and the unlimited potential for discovery and advancement promised by free and untethered scientific development, work simultaneously to excuse and obscure the illicit provenance of research materials like the Karitiana blood samples. Accordingly, the simile employed by Erdrich in the poem’s opening line, likening a vial of blood to a tube of lipstick, not only highlights how the blood sample symbolizes different things to different observers, but also emphasizes the ways that universalizing discourses, insisting that research always serves a common public good, work to cover and conceal the ways some research practices can cause cultural harm and perpetuate injustice.

While the situation involving the Karitiana serves as one example of how misleading scientific research practices can cause cultural harm to indigenous groups, the incident is unfortunately neither isolated nor exceptional. Salient connections exist between the Karitiana community’s experiences and a highly publicized dispute in the United States involving researchers from Arizona State University and members of the the Havasupai tribe.⁶⁶ In both incidents, indigenous community members allowed blood samples to be taken under certain conditions and expectations; and in both instances, the expectations of the communities were subsequently violated by the actions of scientific

researchers.⁶⁷ However, scientific researchers and authorities involved in both the Karitiana and Havasupai conflicts continue to deny any allegations of wrongdoing, and stress the legitimacy sample collection procedures. For instance, while referring to the Karitiana samples, Judith Greenberg, a director at the National Institute of General Medical Sciences, reasons: “We don’t want to do something that makes a whole tribe or people unhappy or angry. On the other hand the scientific community is using these samples, which were accepted and maintained under perfectly legitimate procedures, for the benefit of mankind.”⁶⁸ Similarly, Therese Markow, one of the principal investigators involved with collecting Havasupai blood samples for ASU has defended her actions by claiming, “I was doing good science.”⁶⁹

In a recent article “*Your DNA is Our History*” *Genomics, Anthropology, and Whiteness as Property*, Jenny Reardon and Kim TallBear argue that while much of the popular media coverage of the Havasupai v. ASU conflict has focused narrowly on issues of informed consent,⁷⁰ “the problems [in the dispute] are at once less tractable and more fundamental.”⁷¹ Rather than directing their analysis on how ASU researchers legally circulated Havasupai DNA samples throughout the research community without obtaining explicit permission from the sample donors, Reardon and TallBear instead emphasize how researchers “adamantly defended their right to engage in this practice” even after being criticized for its questionable ethics.⁷² After closely analyzing many of the scientists’ responses, Reardon and TallBear argue that the dispute belies a larger historical and “structural problem” where non-indigenous researchers feel entitled to claim rightful ownership over indigenous resources and cultural materials for the purpose of producing “knowledge that will [ostensibly] be of use and benefit to all people.”⁷³

While Reardon and TallBear's analysis importantly identifies some of the structural issues that facilitate and embolden scientific researchers' moral claims to indigenous peoples' genetic materials, Erdrich's poem "Vial" effectively communicates the urgency and grave necessity of addressing these problematic social dynamics openly and directly. Without substantive intervention, Erdrich suggests, current research practices and the mistrust that has developed between scientific researchers and many indigenous communities are unlikely to change. In the final stanza of "Vial," Erdrich references the researchers who solicited blood samples from the Karitiana, and hauntingly warns: "When they sell it all, / they'll come back / for more." (25-27). Cultural property concepts, when extended to indigenous bodily tissues and genetic materials, can help to rectify such situations by acknowledging the importance of genetic materials to cultural heritage and identity, and protecting indigenous peoples' stewardship over their own bodies. Whether ultimately codified into law, or used conceptually to structure and facilitate the development of more respectful, collaborative, and consensual, research frameworks,⁷⁴ recognitions of indigenous people's rights to genetic resources as property can help to improve and democratize scientific practices.

A second poem in Erdrich's collection, "Guidelines for the Treatment of Sacred Objects," directly engages with NAGPRA as a form of cultural property legislation that directly impacts scientific research practices.⁷⁵ Though the substance of many of Erdrich's poems in *National Monuments* makes it clear that she supports the legislative goals and intent of NAGPRA, "Guidelines" is noteworthy for its nuanced critical perspective, and at times humorous and satirical tone. In the author's notes at the end of the collection, Erdrich explains that the poem "slightly spoofs" NAGPRA.⁷⁶ She has also

recently used the term “spoof” to introduce the poem at a live reading in Minnesota, explaining to the audience that she finds humor in the ridiculousness of statutory language deliberating and specifying exactly which Native group is able repatriate objects of cultural patrimony, and under what precise terms repatriation can or can’t occur.⁷⁷ Joking with the audience in Minnesota, Erdrich wryly suggests that the poem is about “trying to decide who can repatriate an object... and what you can do if you can’t repatriate an object—how you can make an object feel better.”⁷⁸

The satirical qualities of “Guidelines for the Treatment of Sacred Objects,” highlight how linguistic technicism—technical language or terminology foundational to many legal, political, scientific discussions of repatriation—can at times obscure the broader social and cultural purposes, meanings, and significance of repatriation processes. Technicism is a concept that Ojibwe intellectual Gerald Vizenor brought to indigenous repatriation discussions from the work of sociologist Manfred Stanley.⁷⁹ In his book *The Technological Conscience*, Stanley argues that technological and scientific reasoning, language, and organizational structures have been unconsciously misapplied to other areas of discourse and human action, and collectively threaten human dignity and social survival.⁸⁰ Stanley specifically uses the term “linguistic technicism” to describe the misuse of technological and scientific vocabularies when a given endeavor or activity could be more appropriately described through alternate means.⁸¹ Though Stanley contends that such misuse of language is often unintentional, and arguably results from the slower evolution of language when compared to other social developments in science and technology, he nonetheless maintains that technicist vocabularies have problematically shaped and constrained social norms, values, and perceptions of reality.⁸²

Stanley laments how technicism has transformed human knowledge from being “based around sensuous relations of human beings to an object world” to that which is “conceived in terms of conceptual operations performed upon the world.”⁸³ Such instrumentalist conceptions of reality risk flattening relationships between human and non-human actors by over-emphasizing how humans act upon and give meaning to objects, while simultaneously devaluing or ignoring the ways that objects, as social actors, concomitantly influence or impact humans. By drawing attention to the forms of linguistic technicism that often structure and facilitate repatriation discourses under NAGPRA, Erdrich not only foregrounds some of technicism’s damaging or undesirable consequences, but advocates for a more holistic understanding of the value and importance of cultural property to indigenous communities.

The title of Erdrich’s poem itself: “Guidelines for the Treatment of Sacred Objects” draws attention to the ways which NAGPRA, as a statute, has framed repatriation processes in the language of technicism. Here the terms *guidelines*, *object*, and *treatment*—all to some extent imbued with overtones of scientific procedure and legalism—are conspicuously juxtaposed with the word *sacred*. The contrast in terminology is quickly recognizable to the reader, and provokes a certain ideological appreciation of the humor inherent in such an absurd, though shockingly commonplace collision of seemingly discrete spheres of human experience. If something is sacred, the poem’s title seems to ask, is a codified set of guidelines the most appropriate way to honor, dignify, and reverentially interact with a sacred entity? The very fact that U.S. lawmakers were obligated to establish legally binding guidelines for the treatment of

indigenous human remains and sacred objects, Erdrich implies, speaks volumes as to how corrupted collective understandings of the sacred have become.

The following poem reads like a handbook for an audience well accustomed to following the technical language of an owner's manual, or step-by-step directions printed on the side of a food carton, but less confident navigating matters that fail to offer a prescribed approach or methodology, and instead require self-direction, situational analysis, and ethical deliberation. The speaker of the poem authoritatively leads the poem's addressee through a variety of possible scenarios involving sacred indigenous objects. She provides specific instructions as to how the addressee—presumably a museum curator or staff member—can appropriately interact with the objects. Erdrich's speaker begins: "If the objects emit music, / and they are made of clay or turtle shell, / bathe them in mud at rainy season."(1-3). Such advice not only underscores how a museum's staff may likely lack the cultural knowledge to understand the purpose and significance of a given item, but also demonstrates how holding a sacred item in a museum's collection directly interferes with the ceremonial life of the object, and disrupts the cultural and religious practices of the group it comes from.

Erdrich's poem emphasizes how many indigenous groups intend for their ceremonial items to be used and interacted with daily, not shut away in a glass display case. Erdrich's speaker reflects such notions of stewardship by inviting the poem's addressee to "[p]lay musical objects from time to time," while also reminding them to respectfully "[a]void stereotypical tom-tom beat / and under no circumstances dance or sway" (6-8). The speaker's instructions demonstrate how the stewardship of sacred items depends upon their appropriate and respectful usages, not solely concerns about

conserving the object or protecting it from wear. Notably, the speaker of the poem invites the imagined museum worker to participate in the care of the object, regardless of his or her personal claim to title or ownership. The speaker's instructions suggest that if a cultural outsider is willing to play the musical instrument earnestly and respectfully, such actions might be encouraged and appreciated by the stewarding indigenous group in the absence of their own ability to administer such care. The notions of fiduciary stewardship demonstrated in the poem have far more in common with Carpenter et al.'s model of cultural property, than narrower ownership-centered understandings of property, which critics like Mezey fear will lead to cultural stagnation and intergroup intransigence.

As the examples above demonstrate, the speaker's directions to the addressee often closely resemble a problem/solution pattern familiar to readers well versed in technically oriented texts. Erdrich continues to playfully riff on the recognizable "if x then y" instructional paradigms of guidebooks or manuals, writing:

If the objects were worn as funerary ornament,
admire them verbally from time to time.
Brass bells should be called *shiny*
Rather than *pretty*. Shell ear spoons
Should be remarked as *handsome*,
But beads of all kinds can be told,
Simply, that they are *lookin' good* (9-15).

While replicating the voice, tone and organizational pattern of an instructional document, Erdrich's poem also departs significantly from the representational tropes facilitated through practices of linguistic technicism. The poem's speaker describes the objects as possessors of distinct personalities, emotions, and consciousness. While brass bells desire to be recognized for their unique metallic qualities, shell ear spoons prefer the more aesthetically universal, yet categorically masculine compliment of "handsome." In the

language of the poem, these funerary ornaments are not merely “objects,” but social actors desirous of human attention, interaction and affection. They move beyond their NAGPRA designation as objects of the law, and demand to be interacted with through language that similarly transcends the established boundaries of legalism, and appropriately recognizes their significance within tribally specific ontologies and epistemologies. However, recognizing that these items are funerary ornaments is also critical to understanding how one should interact with them: While the speaker’s instructions for the addressee work to liberate the ornaments from instrumentalist technical vocabularies, they also draw attention to the fact that the museum worker is appreciating and complimenting objects, which the deceased or their community may not have wished for any living person to view. Though beautiful, and even desirous of attention, the ornaments that now call out from a museum display were intended to accompany the dead into the afterlife. Appropriate stewardship for such items, Erdrich suggests, may be notably different from the ceremonial items discussed above, and should rightfully reflect the interests and concerns of the indigenous group to which the object belongs.

Though the satirical and humorous qualities of Erdrich’s poem draw attention to the ways linguistic technicism can at times overshadow important and culturally specific meanings and purposes of repatriation for indigenous groups, “Guidelines” nonetheless underscores the vital importance of NAGPRA as a legislative framework safeguarding indigenous peoples’ tangible and collective cultural property interests. Erdrich reminds readers that the need for specific legal protections for indigenous human remains, sacred objects, and items of cultural patrimony, is acute, and that much of the important work

facilitated by NAGPRA is far from complete. The poetic speaker's macabre advice, encouraging the addressee to "[a]void using bones as drumsticks/or paperweights, no matter / the actions of previous Directors or Vice/ Directors of your institution" (51-54) is unfortunately far more warranted and salient than most readers would like to imagine,⁸⁴ and is emblematic of the significant social problems and structural difficulties that remain. Erdrich also reminds readers that part of protecting indigenous human remains and objects of cultural patrimony from objectifying scholarly and scientific discourse, rests in the conscious management of the very language we use to describe the objects. Erdrich's poem, portraying funerary objects that cry for their mothers and make collect phone calls home after midnight, and bones that vibrate, hiss, mock, and hate hearing the song "Dem Bones," articulates an alternate, powerful, and respectful vision of objects as social actors, decoupled from the increasingly common and often reductive language of scientific and legal technicism.

III. Conclusion

In the poem "Body Works,"⁸⁵ a piece that Erdrich identifies as having been inspired by a traveling exhibit of a similar name,⁸⁶ Erdrich ruminates on the intimacy and sacredness of embodied human experience. Speaking directly to her body, and stressing the constitutive interrelationship of human corporeality and consciousness, Erdrich's poetic speaker entreats: "Beloved body. Never leave me. / Never lend museums / your tissues, triceps, glutes/Do not expose your inner works/ as some corpse did" (3-7). The speaker continues and clarifies her position by explaining that she knows and loves her body well, and wonders what intimacy she and her body have not already shared "that

[she]'d find splayed, / preserved and presented/ upon a platform with expert didactics” (33-35). While such lines clearly articulate a connection between human dignity and corporeality, they also underscore the intimacy of embodiment, and highlight how honoring personal wishes concerning the body is deeply related to social and cultural ethics of respect.

By evoking cultural property concepts in the language and content of her poems, Erdrich importantly locates the unique and diverse corporeal experiences of indigenous peoples in broader frameworks of cultural, legal, scientific, and political meaning. She also articulates a social and political ethics of indigenous corporeal sovereignty that is both rooted in group rights to self-determination, and exercised through indigenous groups’ collective fiduciary stewardship of their own bodies, tissues, and genetic materials as cultural property. Though her poems underscore the value and usefulness of existing legal frameworks like NAGPRA, they also highlight the importance of working with and beyond the current reach of law to pursue lasting and holistic solutions. While consciously unpacking and transforming the terms that structure conversations about cultural property is important (e.g.: differentiating between stewardship and ownership), continuing active and fair dialogues which can foster the development of more respectful, collaborative, and consensual, research frameworks, is also critical. Accordingly, as both the work of Erdrich and many of the authors I have engaged above demonstrate: indigenous groups’ claims to human remains, bodily tissues, and genetic resources as cultural resources do not symbolize a uniform rejection or devaluation of science or scientific research. Instead they represent a clear-eyed acknowledgement of current

problems and injustices, and a pathway to developing a more relevant, inclusive, and democratic scientific practice.

Chapter 2 Notes and References:

¹ Heid E. Erdrich, *Author's Note*, in NATIONAL MONUMENTS 94 (2008).

² See Heid E. Erdrich, *Mato Paha, Bear Butte*, in NATIONAL MONUMENTS 7 (2008).

³ Erdrich, *supra* note 1.

⁴ *Id.*

⁵ See Anne McClintock, *IMPERIAL LEATHER: RACE, GENDER AND SEXUALITY IN THE COLONIAL CONTEST* (1995); Sandra Harding, *IS SCIENCE MULTICULTURAL?: POSTCOLONIALISMS, FEMINISMS, AND EPISTEMOLOGIES* (1998).

⁶ Erdrich, *supra* note 1.

⁷ *Id.*

⁸ See Patrick Wolfe, *Settler Colonialism and the Elimination of the Native*, 8 J. GENOCIDE RESEARCH, 388 (2006); Mark Rifkin, *WHEN DID INDIANS BECOME STRAIGHT: KINSHIP, THE HISTORY OF SEXUALITY, AND NATIVE SOVEREIGNTY* (2011).

⁹ See Jenny Reardon & Kim TallBear, “*Your DNA is Our History*” *Genomics, Anthropology, and Whiteness as Property*, 53 CURRENT ANTHROPOLOGY 233, 238 (2012); see also Sharene H. Razack, *RACE SPACE AND THE LAW: UNMAPPING A WHITE SETTLER SOCIETY* (2002); Curtis M. Hinsley Jr., *Digging for an Identity: Reflections on the Cultural Background of Collecting* in REPATRIATION READER: WHO OWNS AMERICAN INDIAN REMAINS? (Devon A. Mihesuah ed. 2000).

¹⁰ See Vine Deloria, Jr., *RED EARTH, WHITE LIES: NATIVE AMERICANS AND THE MYTH OF SCIENTIFIC FACT* (1997).

¹¹ See James Riding In, *Without Ethics and Morality: A Historical Overview of Imperial Archeology and American Indians*, 24 ARIZ. ST. L. J. 11 (1992).

¹² See generally Jack F. Trope & Walter R. Echo Hawk, *The Native American Graves Protection and Repatriation Act: Background and Legislative History*, 24 ARIZ. ST. L. J. 35 (1992).

¹³ See Debra Harry, *Indigenous Peoples and Gene Disputes*, 84 CHI. KENT L. REV. 147 (2009).

¹⁴ Tilousi et al. v. Arizona State University et al., CV 2004-0115 (Ariz. Superior Ct., Coconino County 2004); Havasupai Tribe of Havasupai Reservation v. Arizona Board of Regents, 204 P.3d 1063 (Ariz. App. Div. 1, 2008). See also Katherine Drabiak-Syed,

Lessons from Havasupai Tribe v. Arizona State University Board of Regents: Recognizing Group, Cultural, and Dignitary Harms as Legitimate Risks Warranting Integration into Research Practice, 6 J. HEALTH & BIOMEDICAL L. 175 (2010).

¹⁵ Declaration of the Rights of Indigenous Peoples, G.A. Res. 61/295, U.N. Doc. A/RES/61/295 art. 32.2 (Sept. 13, 2007).

¹⁶ See, e.g., Heid E. Erdrich, *Body Works*, in NATIONAL MONUMENTS 51 (2008).

¹⁷ See Heid E. Erdrich, *Guidelines for the Treatment of Sacred Objects*, in NATIONAL MONUMENTS 4 (2008); See also, Heid E. Erdrich, *Girl of Lightning*, in NATIONAL MONUMENTS 67 (2008).

¹⁸ See, e.g., Heid E. Erdrich, *Vial*, in NATIONAL MONUMENTS 65 (2008); See also, Heid E. Erdrich, *Kennewick Man Tells All*, in NATIONAL MONUMENTS 59 (2008) (specifically referring to issues surrounding *Bonnichsen, et al. v. United States, et al.*, no. 02-35994 (9th Cir. 2004)).

¹⁹ John Henry Merryman, *Two Ways of Thinking about Cultural Property*, 80 AM. J. INT'L L. 831-832 (1986).

²⁰ See Kristen A. Carpenter et al., *In Defense of Property*, 118 YALE L. J. 1022, 1034 (2009) (referencing Susan Scafidi, *Intellectual Property and Cultural Products*, 81 B.U. L. REV. 793, 812-13 (2001)).

²¹ See *id.* at 1032 (quoting Steven Wilf, *What is Property's Fourth Estate? Cultural Property and the Fiduciary Ideal*, 16 CONN. J. INT'L L. 117, 177 (2001)).

²² See Eric A. Posner, *The International Protection of Cultural Property: Some Skeptical Observations*, 8 CHI. J. INT'L L. 213 (2007).

²³ *Id.* at 221-25.

²⁴ *Id.* at 222, 224.

²⁵ *Id.* at 214. See also Carpenter et al., *supra* note 20, at 1041-43, 1045 (discussing Posner's general critique of cultural property in the specific context of indigenous cultural property claims).

²⁶ See Michael Brown, *WHO OWNS NATIVE CULTURE?* (2003); Kwame Anthony Appiah, *COSMOPOLITANISM: ETHICS IN A WORLD OF STRANGERS* 115-35 (2006); Naomi Mezey, *The Paradox of Cultural Property*, 107 COLUM. L. REV. 2004 (2007).

²⁷ Mezey, *supra* note 26, at 2005.

²⁸ *Id.* at 2006-07.

²⁹ Appiah, *supra* note 26, at 128-30.

³⁰ *Id.* at 134-35.

³¹ *Id.* at 130, 135.

³² Carpenter et al., *supra* note 20, at 1022; *see also* Kristen A. Carpenter et al., 17 *Clarifying Cultural Property*, INT'L J. CULTURAL PROP. 581 (2010) (responding to Michael Brown's criticisms of their article *In Defense of Property*).

³³ Carpenter et al., *In Defense of Property*, *supra* note 20, at 1045, 1029.

³⁴ *See* Margaret Jane Radin, *Property and Personhood*, 34 STAN. L. 957 (1982); Margaret Jane Radin, CONTESTED COMMODITIES (1996); *see also* Sarah Harding, *Justifying Repatriation of Native American Cultural Property*, 72 IND. L.J. 723 (1997) (engaging Radin's personhood theory of property in the context of NAGPRA and the repatriation of Native American human remains and cultural items); Kristen A. Carpenter, *Real Property and Peoplehood*, 27 STAN. ENVTL. L.J. 312 (2008) (engaging Radin's personhood theory of property in relation to Native American land claims and collective notions of identity and peoplehood).

³⁵ Carpenter et al., *In Defense of Property*, *supra* note 20, at 1060-61, 1065-67.

³⁶ Carpenter et al., *Clarifying Cultural Property*, *supra* note 32, at 585.

³⁷ *Id.*

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ Carpenter et al., *In Defense of Property*, *supra* note 20, at 1089.

⁴¹ Rebecca Tsosie, *Cultural Challenges to Biotechnology: Native American Genetic Resources and the concept of Cultural Harm* 35 J. L. MED. & ETHICS 396, 404 (2007).

⁴² Carpenter et al., *In Defense of Property*, *supra* note 20, at 1089.

⁴³ *Id.* at 1046-49, 1089-90 (referencing Radin, *Property and Personhood*, *supra* note 34, at 986-87, 990).

⁴⁴ *Id.* at 1093, 1093 n. 317 (“It is precisely because museums never could have acquired good title to human remains or funerary objects in the first place that NAGPRA has survived Fifth Amendment takings challenges.”).

⁴⁵ See Trope & Echo Hawk, *supra* note 12, at 52-58; Kathleen S. Fine-Dare, GRAVE INJUSTICE: THE AMERICAN INDIAN REPATRIATION MOVEMENT AND NAGPRA (2002); Angela R. Riley, *Indian Remains, Human Rights: Reconsidering Entitlement Under the Native American Graves Protection and Repatriation Act*, 34 COL. HUM. RTS. L. REV. 49, 52-55 (2002).

⁴⁶ Trope & Echo Hawk, *supra* note 12, at 59.

⁴⁷ See Michelle Hibbert, Comment, *Galileos or Grave Robbers? Science, the Native American Graves Protection and Repatriation Act, and the First Amendment*, 23 AM. INDIAN L. REV. 425, 435-39; See also Clayton W. Dumont Jr., *The Politics of Scientific Objections to Repatriation*, 18 WICAZO SA REVIEW 109 (2003).

⁴⁸ Carpenter et al., *In Defense of Property*, *supra* note 20, at 1096 (discussing how the repatriation of an object under NAGPRA is subject to statutory exception for the completion of studies determined to be “of major benefit to the United States”); See 25 U.S.C § 3005(b); 43 C.F.R. § 10.10 (c)(1) (2010).

⁴⁹ Hibbert, *supra* note 43, at 435.

⁵⁰ *Id.*

⁵¹ Many Native American scholars and activists contend that NAGPRA, while providing Native communities an important legal instrument for protecting cultural property, often falls short in delivering the comprehensive protections contemplated in both the law’s letter and spirit. See Carpenter et al., *In Defense of Property*, *supra* note 20, at 1097 (“Even with the law firmly in place and mandated compliance on the part of federally funded museums, many institutions continue to balk at NAGPRA’s directive with little cost or consequence.”); Harry, *supra* note 13, at 163-64 (discussing how DNA analysis has been used as “stop-gap measure to block the repatriation efforts of tribes” despite legislative language stating that tribes may demonstrate cultural affiliation for repatriation through a “preponderance of evidence,” including linguistic, oral traditional, folkloric, or historical forms).

⁵² See Tsosie, *supra* note 41, at 396 (“Scientists have increasingly become interested in studying so-called ‘population isolates’ to discover the nature and location of genes that are unique to particular groups. Indigenous peoples are often targeted by scientists because ‘the relative isolation of the communities ensures minimal gene flow.’”).

⁵³ See Harry, *supra* note 13, at 148-62 (discussing problems arising from medical, behavioral, and population-based genetic research conducted in indigenous communities

or using indigenous people's bodily tissues.); Drabiak-Syed, *supra* note 14, at 216-24 (detailing group, cultural, and dignitary harms inflicted upon members of the Havasupai tribe due to the misconduct of ASU researchers and the limited or misleading use of consent procuring protocols); Debra Harry & Le'a Malia Kanehe, *Asserting Tribal Sovereignty over Cultural Property: Moving Towards Protection of Genetic Material and Indigenous Knowledge*, 5 SEATTLE J. FOR SOC. JUST. 27, (2012) (providing an overview of indigenous peoples' concerns in human genetic research.).

⁵⁴ See Harry & Kanehe, *supra* note 53, at 31-33; Tsosie, *supra* note 41, at 405-09.

⁵⁵ See Drabiak-Syed, *supra* note 14, at 213-15 (discussing the special social, religious, and cultural significance of blood to the Havasupai tribe and many other indigenous groups); Chadwick Allen, *BLOOD NARRATIVE: INDIGENOUS IDENTITY IN AMERICAN INDIAN AND MAORI LITERARY AND ACTIVIST TEXTS* (2002) (documenting the close and constitutive interrelationship of blood, land, memory, and cultural identity as expressed through Native American and Maori literatures).

⁵⁶ Tsosie, *supra* note 41, at 401 (referencing *Moore v. Regents of the University of California*, 793 P.2d 479 (Cal. 1990); *Greenberg v. Miami Children's Hospital*, 264 F. Supp. 2d 1064 (S.D. Fla. 2003)); see also Radhika Rao, *Genes and Spleens: Property, Contract, or Privacy Rights in the Human Body?* 35 J. L. MED. & ETHICS 371 (2007) (summarizing legal protections afforded to the human body and tangible body parts under the distinct regimes of property and privacy rights).

⁵⁷ Harry & Kanehe, *supra* note 53, at 45 (discussing the Cherokee Nation and Navajo Nation's adoption of human research codes and human research IRBs).

⁵⁸ See Tsosie, *supra* note 41, at 408.

⁵⁹ Declaration of the Rights of Indigenous Peoples, G.A. Res. 61/295, U.N. Doc. A/RES/61/295 art. 31.1 (Sept. 13, 2007).

⁶⁰ *Id.* at art. 31.2.

⁶¹ See Harry & Kanehe, *supra* note 53, at 32.

⁶² Heid E. Erdrich, *Vial*, in *NATIONAL MONUMENTS* 65 (2008).

⁶³ Larry Rohster, *In the Amazon, Giving Blood But Getting Nothing*, N.Y. TIMES, June 20, 2007.

⁶⁴ *Id.*

⁶⁵ *Id.*

⁶⁶ See generally Drabiak-Syed, *supra* note 14.

⁶⁷ See *Id.* at 175 (explaining how blood collected from members of the Havasupai tribe by ASU researchers for diabetes research projects was used to conduct research on schizophrenia, inbreeding, and human migration theories).

⁶⁸ See Rohster, *supra* note 53.

⁶⁹ Amy Harmon, *Indian Tribe Wins Fight to Limit Research of Its DNA*, N.Y. TIMES, April 21, 2010.

⁷⁰ See Jana Bommerbach, *Arizona's Broken Arrow*, Phoenix Mag., Nov. 2008, <http://www.phoenixmag.com/lifestyle/200811/arizona-s-broken-arrow/>; Mark Schaffer, *Havasupai Blood Samples Misused*, Indian Country Today, Mar. 9, 2004, <http://indiancountrytodaymedianetwork.com/ictarchives/2004/03/09/havasupai-blood-samples-misused-90065/>.

⁷¹ Reardon & TallBear, *supra* note 9, at 238.

⁷² *Id.*

⁷³ *Id.*

⁷⁴ See *Id.* at 243 (discussing new approaches to DNA sampling procedures and DNA governance such as tribally controlled biobanks and “DNA on loan” concepts).

⁷⁵ Heid E. Erdrich, *Guidelines for the Treatment of Sacred Objects*, in NATIONAL MONUMENTS 4 (2008).

⁷⁶ Erdrich, *supra* note 1 at 95.

⁷⁷ See UMN Libraries, *Heid Erdrich-3rd Annual Pankake Poetry Reading*, YouTube (May 8, 2012), <http://www.youtube.com/watch?v=SW0z99tvjE0/>.

⁷⁸ *Id.*

⁷⁹ Gerald Vizenor, *Bone Courts: The Natural Rights of Tribal Bones*, in CROSSBLOODS: BONE COURTS, BINGO AND OTHER REPORTS (1990).

⁸⁰ Manfred Stanley, *THE TECHNOLOGICAL CONSCIENCE: SURVIVAL AND DIGNITY IN AN AGE OF EXPERTISE* (1978).

⁸¹ *Id.* at xii.

⁸² *Id.* at xiii.

⁸³ Vizenor, *supra* note 77 at 77 (quoting, Stanley, *supra* note 78, at 142).

⁸⁴ See James Riding In et al., *Protecting Native American Human Remains, Burial Grounds, and Sacred Places Panel Discussion*, 19 WICAZO SA REVIEW 169, 179 (2004) (recounting the story of a group of Modoc people who visited the Smithsonian in search of ancestral remains and discovered that the skull of a beheaded group leader was being used by a Smithsonian scientist as a desk ash tray).

⁸⁵ Heid E. Erdrich, *Body Works*, in NATIONAL MONUMENTS 51 (2008).

⁸⁶ Erdrich is most likely referring to “Body Worlds,” a controversial traveling museum exhibit mixing science, education, and spectacle through the display of preserved and dissected human bodies. See Erdrich, *supra* note 1 at 96.

CHAPTER 3

The Land That Bred Us: Food, Epigenetics and Ethics of Human-Nonhuman Interrelation in the Poetry of Heid Erdrich

A notable shift is underway in the life sciences. Technological advancements in the study of gene expression (i.e.: phenogenetics), protein interactions, combinatorial gene coding, and DNA modification have provided scientists a material foundation for a relational understanding of biology.¹ By focusing upon phenomena of exchange and interaction at the molecular level, scientists are rethinking once-popular notions of genetic predeterminism, and rearranging previously established boundaries of organism and environment. Current research in the area of nutritional epigenetics, for example, explores how external or “environmental” factors like food and nutritional input cause tangible and heritable physiological changes in organisms, impacting gene expression (observable as phenotype), as well as processes of metabolic regulation. In other words, food doesn’t merely impact an individual’s observable physical traits—think of the classic adage: “you are what you eat”—but it affects that individual’s internal bodily processes, and can influence traits in their future offspring (think: you are what your grandparents ate). Sociologist Hannah Landecker reflects upon the conceptual power of recent epigenetic findings, suggesting: “This is a model in which food enters the body and in a sense *never leaves it*, because food transforms the organism’s being as much as the organism transforms it.”² Readers familiar with social science and humanities literatures in the areas of science and technology studies (STS), new materialisms, posthumanisms, or animal studies, may note how Landecker’s description of food and

organism intra-action³ saliently connects with critical and analytic shifts presently gaining force and momentum within academic communities.

The act of eating, when viewed through the molecular lens of nutritional epigenetics, is a mutually transformative and co-constructive event: A human cultivates or gathers food, prepares it, consumes it, and is physiologically changed by the act of metabolization. The food substance itself is also transformed through processes of selection, cultivation, and most-literally, digestion. The futures and potentialities of both organisms are socially and biologically entwined—what foundational STS scholar Bruno Latour calls a “collective” or network of human and non-human actors.⁴ Similarly, Landecker identifies how epigenetic understandings of “food as environmental exposure” function as a culturally and historically specific discourse of social and biological interrelation.⁵ She suggests that these scientific discourses formalize and materially situate connections between nutrients and gene regulation, the social and biological body, metabolism and environment, and inaugurate a “molecular politics of eating” for Western subjects, where human health and futurity is linked with social responsibility for one’s food environment.⁶

While epigenetic discourses represent one way that mainstream Western science is increasingly embracing a relational understanding of life by tracing networks and communities of social and biological interrelation, such acknowledgements have long shaped many indigenous worldviews, knowledges, and cultural practices. Dakota STS scholar Kim TallBear draws attention to such realities by playfully questioning: “Is it too easy a comparison to say that Western thinkers are finally getting on board with something that is closer to an American Indian metaphysic?”⁷ While TallBear, highlights

the important ways which contemporary scientific discussions are starting to align with indigenous modes of thought, she also identifies areas where the different intellectual traditions continue to diverge. She suggests that non-indigenous scholars in the biophysical sciences as well as the humanities/social science area of animal studies often promote a vision of life that prioritizes organisms and fails to investigate how elements, commonly understood as non-living (i.e.: fire, water, stone, lightning), may also form social relations with humans and nonhuman life forms.⁸ As a result, some nonhuman others like water, rocks, or in the case of Erdrich's poetry, a particular combination of land and sky in a specific ancestral place, are still not understood as living, even in the most recent Western critical frameworks. TallBear also discusses how recent anthropological trends in "multi-species-ethnography" importantly explore social, political, and economic relationships between human and nonhuman others, and lay the groundwork for meaningful engagement with indigenous ontologies and epistemologies.⁹ However, echoing the call of anthropologist Paul Nadasdy,¹⁰ TallBear reminds scholars involved in such work to "beware of their own discrediting languages" that risk portraying indigenous articulations of reciprocal social relations between human and nonhuman others as "belief" or "metaphor" rather than documented and valid knowledges rooted in local experiences.¹¹ Noting both substantive affinities and fundamental discrepancies between emerging scientific models of relation and many indigenous knowledges and worldviews, TallBear advocates the importance of incorporating indigenous perspectives within academic discussions to develop a more rigorous and multicultural scientific practice.¹² While facilitating meaningful engagement with indigenous ontologies and epistemologies long-suppressed and invalidated within

the Western academy is certainly easier in theory than practice, TallBear suggests that the growing number of non-indigenous scholars arguing a sort of relational ethics is indicative of the potential for instructive collaboration and “the greater scope at this moment in history for bringing indigenous voices to the conversational table.”¹³

In the following chapter, I turn to the poetry of Ojibwe author Heid Erdrich to explore intersections between scientific discoveries and discourses within the emerging field of nutritional epigenetics, and Erdrich’s own complex and nuanced poetic portrayals of human-food interrelationship. I not only to highlight the ways that the current scientific discourse of “food as exposure” connects with indigenous ontologies of interrelation, but also interrogate the various ways that Erdrich, as an indigenous woman and contemporary author conversant in the scientific language of epigenetics, expands and invigorates collective conversations about human and food sociality. To accomplish such goals, I will first revisit the work of sociologist Hannah Landecker in order to demonstrate how nutritional epigenetic research is beginning to impact scientific and popular understandings of food, health, metabolism, biological filiation, and social responsibility. I will then analyze two poems, one from Heid Erdrich’s most recent collection *Cell Traffic*, and another from her 2005 collection *The Mother’s Tongue*, to highlight Erdrich’s personal engagement with food as a poetic subject and active component of social formations, human identity, and planetary relations. Finally, I will conclude by discussing how Erdrich’s poetry participates in broader discourses concerning the decolonization of indigenous diets, and expands mainstream understandings of human-food sociality by asserting the continued importance and validity of indigenous ontologies of interrelation, and articulating such knowledges in

context with broader conversations taking place across conceptual, disciplinary, and cultural boundaries.

In the article “Food as Exposure: Nutritional Epigenetics and the New Metabolism,” Hannah Landecker situates research in nutritional epigenetics within a broader trend of “molecularization” that has occurred over the past century in the life sciences.¹⁴ She suggests that a major thrust in twentieth century biology was the mapping and documentation of subcellular (molecular) functions within the body, and that nutritional epigenetics can be usefully understood as a twenty-first century extension of such research—a molecularization of the environment surrounding the body.¹⁵ Put simply, a central and guiding concern of epigenetic research is “how things outside of the body are transformed into the biology *of* the body, in animals and humans.”¹⁶ Nutritional epigenetic research, for example, “provides a molecular mechanism for connections that have been previously hard to explain” by demonstrating “a direct route by which the molecules that make up food alter or become the molecules that regulate gene expression.”¹⁷ Such research directly problematizes enduring Western epistemic dichotomies of interior v. exterior, organism v. environment, by mapping out relationships of exchange and interconnection that many indigenous groups have long recognized and understood.

Patterns of DNA methylation are one such mechanism that nutritional epigenetic researchers have focused upon, since dietary input/restriction of molecules like folate (or its synthetic counterpart, folic acid) can directly alter DNA methylation processes. Research conducted on inbred agouti mice has demonstrated that heavy DNA methylation can effectively “shut down” certain areas of a mouse’s genome, while

conversely, a lack of methylation can cause a given gene to be expressed abnormally, often in amounts and cellular locations where it would not otherwise appear.¹⁸

Remarkably, agouti mice with almost identical genetic sequences due to generations of laboratory inbreeding, display dramatically different phenotypes (i.e.: fur color, weight, physical appearance) depending upon patterns of DNA methylation established in utero or during early infancy.¹⁹ Such nutritional impacts on gene expression are observable not only in the present generation of mice, but future generations as well since a mother's diet during pregnancy affects DNA methylation in the fetus's genome and DNA methylation in the fetus's reproductive cells. Furthermore, alterations in DNA methylation can also directly impact a mouse's metabolic system, changing the very way that the mouse is able to process food and nutrients in the future.²⁰

In sum, researchers are able to influence gene expression in mice by manipulating the quantity and kind of nutrients consumed by mouse infants and mothers, particularly during key stages of a mouse's development.²¹ Phenotype is accordingly "drawn out" by external environmental influences rather than being "programed" or solely predetermined by genetic code.²² The mouse's early nutritional environment effectively sets the genetic "range of possibility" for the mouse and its future decedents.²³ Landecker clarifies that phenotypic expressions or metabolic alterations influenced by diet are not genetic mutations (i.e.: structural changes in genetic sequence), but instead represent "a change in the *potential* of genes to be expressed in the body."²⁴ DNA methylation, or lack thereof, enables new or different gene expressions from the same intact genetic code. Thus, while epigenetic discourses connecting environmental factors to gene expression have profoundly altered biological thought, they have not fully displaced the logic or politics

of genetics. Much remains at stake both socially and politically, when genetic research and biogenetic paradigms of thought shape popular understandings of identity, heredity, belonging, and futurity—particularly when such categories are used to reference, interpret, and define Native peoples and communities.²⁵ Rather, as Landecker explains, the relational ethics of epigenetic science were developed and exist *in relation* to genetics and not in opposition or supersession of its foundational tenets.²⁶

Additionally, Landecker argues that nutritional epigenetic discourses do more than change how we view internal bodily processes. They alter how we conceptualize relations between categories like nature and nurture, organism and environment, inside and outside, social and biological. They also substantially impact collective and popular understandings of food. The molecularization of foodstuffs attendant with nutritional epigenetic discourses, Landecker suggests, works to blur distinctions between food and medicine—eating and medicating—by proposing that some food molecules, when consumed at crucial times and in certain quantities, encourage desirable gene expressions, while an absence of critical molecules can conversely produce undesirable epigenetic effects.²⁷ Landecker explains how such logics expand the social and relational aspects of nutritional consumption to produce a sort of molecular politics of eating. She describes the more interactive and relational ethics as:

the imaginative act of thinking, visualizing and controlling food as molecules that interact with our internal molecules, with a particular boundary dissolving effect: one's corporeality is much more vividly rendered as continuous with the landscape and the social nature of agriculture through the necessary act of eating.²⁸

By imagining such interactions on a microscopic and sub-cellular level, food producers and consumers are rethinking and reconfiguring the social and environmental values and

impacts of foodstuffs. Food engineering through practices of genetic modification and processed food enrichment and fortification are employed as a means of enhancing the nutritional benefits of certain foods. Similarly, Landecker notes how both consumers and producers have increasingly embraced the idea of “functional foods,” which “are supposed to carry a health benefit above and beyond the nutritive value provided by the caloric content, vitamins or minerals in that food.”²⁹ Common examples of functional foods are foodstuffs marketed as being rich in antioxidants, omega-3 fatty acids, or soluble fiber. Probiotic yogurt, Landecker suggests, is also a prime example of a popular and successful functional food, despite the fact that probiotics are a bacterial culture and not a molecule.³⁰ As interest in the health and medical benefits of food rises, so too does awareness and concern about environmental toxins entering food supplies through pollution, pesticides, and the unintended outcomes of food engineering and modification. Such threats are amplified through the lens of nutritional epigenetics, which suggests that food-gene interactions not only affect the present generation, but are also passed heritably from one generation to the next. The necessary act of ingestion and digestion, Landecker astutely suggests, draw us into rapidly expanding “social, technical and political networks of food production, regulation and consumption.”³¹ The bodies of humans, animals, and plants are all subject to such cycles of relation and exchange, connecting organism and environment, the social and biological, and the past with the future. Nutritional epigenetics describes a unity and oneness that approaches the meaning of the Ojibwe phrase/prayer *indinawemaaganidog* or “all my relations,” which acknowledges that everything in the world is related and interconnected, and nothing falls outside of foundational and originary unity.

Having discussed some of the ways that nutritional epigenetic discourses are transforming scientific and popular understandings of food, genetics, and human-environment interrelation, I will now turn to the poetry of Heid Erdrich to demonstrate how Erdrich engages with epigenetic discourses and expands upon notions of human-nonhuman interrelationship through the subject of food. I will begin with Erdrich's prose poem "Now, Where Was She?" from her 2012 collection *Cell Traffic*.³² "Now, Where Was She?" begins with a description of the poem's female subject "[a]ll curled up in an ergonomic chair, worried for her daughter, wondering if her /mother sat down to wholesome whole grain at that delicate stage" (1-2). The pensive woman in the chair has been reading scientific articles about DNA methylation "forwarded" by her sister, a physician (5). One of the imagined articles, which Erdrich intertextually identifies as coming from a 2002 presentation by genetic researcher Dr. Judith G. Hall, explains:

What Happens in our DNA is all curled up around things called histones. That curling up and turning of the DNA require folic acid. When that egg was created that made you, your grandmother's diet was having some effect on how that DNA was folding and being methylated (7-10).

The italicized technical language³³ of these lines immediately locates the poetic subject in the contemporary historical moment of nutritional epigenetics. Additionally, the disarmingly ordinary and commonplace qualities of the scenario described by Erdrich both implicate and immerse readers in familiar scientific discourses of nutrition, health, biotechnology, and the optimization of life through practices of "human factors" engineering. The subject of Erdrich's poem is never fully identified. "She" could be Erdrich herself,³⁴ a sibling or family member, a purely fictional construct, or a composite of both imagined and (auto)biographical qualities. However, Erdrich's consistent use of the third person pronoun "she" and the possessive "her" imbue the poem with an

ambiguity and imaginative inclusivity that resists closure and draws readers into the poetic mapping of relations. Though the poem traces the subject's DNA and family history to North Dakota, the reader can easily place herself in the position of poetic subject, swapping-out the rural location of the Great Plains for the suburbs of Cleveland, Ohio, the humid swamps of New Orleans, or the graffiti-covered streets of New York City.

Erdrich's female subject sits in an ergonomic chair—furniture designed in accordance with applied principles of physics and human anatomy to maximize user posture and productivity, and minimize bodily discomfort and fatigue. She reads articles laced with technical epigenetic terminology of histones, DNA, methylation, and folic acid. The articles have circulated through various online networks within the scientific community, eventually finding their way to the computer screen located in her home office via her familial connection with “her sister the doctor”(5). The subject is both convinced and skeptical of the science she is reading: she worries about the hereditary impact of her own mother's diet on her daughter, yet she openly doubts the scientific suggestion that “[w]hat happens in our DNA...stays in our DNA”(6). The subject's skepticism alludes to the ways that research concerning the impacts of pregnant mothers' diets, personal habits, and activities on the future health of fetuses have not only expanded and improved collective understandings of health, childhood development, and heredity, but also problematically cultivated a social atmosphere of prenatal surveillance, anxiety, and paranoia. While knowledge about prenatal health and development can be empowering for some mothers, it can also dangerously feed into patriarchal social and legal discourses, which construct women and expectant mothers as reproductive vessels,

fuel prenatal cultures of maternal criticism and over-worry, and subordinate the wants, needs, and desires of the mother to those of the fetus.³⁵

The subject's ambivalence concerning scientific discourses is not only reflected in her reactions to the readings, but her own body language. Sitting "curled up" in an ergonomic chair, Erdrich's subject fails to make use of the chair's good posture, and thus fails to benefit from the chair's intended health and work optimizing effects. She pulls inward onto herself rather than following the chair's carefully engineered contours. The subject sits both literally and figuratively between the regulating and homogenizing scientific discourses of health optimization, and the more personalized and variable pursuit of corporeal comfort. Like her ambivalent reactions to the emailed articles, the woman's alternate use of the chair isn't so much a total rejection of its scientifically purported health-enhancing function—the chair belongs to her, after all. But rather, her positioning within the chair represents the subject's inability or unwillingness to fully or consistently conform to the device's scientifically prescribed choreography. She is a willing and influenced participant to a point. She has acquired the chair and placed it within the interior space of her home study or office. Yet, her body moves according to a different internal logic. Regardless of the health benefits promised through discourses of ergonomics, she finds her own pose and comfort.

The subject's epigenetic question concerning her own mother's eating habits during the "delicate stage" her pregnancy causes the subject to recall old photographs of her mother as a young and beautiful woman. In these mental images, the mother "wears dungarees rolled up, curls glamorous as a NoDak Dorothy whose basket filled with eggs, not Toto dogs" (3-4). The importance of rural North Dakota as both photographic

backdrop for such memories and immersive impactful epigenetic environment is underscored by the combined bucolic imagery of denim, baskets, Dorothy, eggs, and dogs. North Dakota is more than geographical location or descriptor, it is what cultural geographer Yi-Fu Tuan describes as “place”: a site of layered and overlapping meanings, histories, and memories that “incarnates the experiences and aspirations of a people.”³⁶ Family stories and photographs, Hollywood iconography, and popular and genetic notions of inheritance collide in the subject’s mind to produce a vivid, meaningful, and dynamic landscape. Erdrich emphasizes the central importance of place with the oft-quoted and slightly modified *Wizard of Oz* reference, “although truly there was no place like home” (4-5). Rural North Dakota as place and home is an active and affecting agent that is deeply related to the subject’s history, identity and biology: she is as much a part of the North Dakota cultural and physical landscape as it is part of her.

From an epigenetic standpoint, the very molecules of the food and soil are part of her genetic code. The Native mother carries them with her in her histones and the methylation of her DNA. But, North Dakota is also part of her body through memory—indelibly linked to the stories, images, and associations collected in the complexly interconnected synaptic networks of her brain. Influential Kiowa author N. Scott Momaday describes such connections as “the way a man looks at a landscape and takes possession of it in his blood and brain.”³⁷ Such relations, Momaday contends, occur through “the ordinary motion of life” and prevent humans from living in complete isolation or disconnection from the land.³⁸ The relations are embodied and part of a reservoir of deep ancestral experience: what Momaday calls blood memory.³⁹ These internalized relations—like blood, or the methylation that surrounds a strand of DNA—

are passed from one generation to the next. Storytelling rather than ingestion, words rather than of molecules, are the primary modes and instruments of transmission. Mishuana Goeman, Tonawanda Seneca scholar of Native American literature and cultural geography explains how social relations between land and people are both lived and “imagined into being” through acts of storytelling.⁴⁰ Spatially rooted connections to place are layered and palimpsestic: “carefully attended to through words and reconnected to through story.”⁴¹ The act of speech quite literally concretizes and transfers the bonds between land and community from speaker to listener, ancestor to descendant. They live on in the brain and the blood, and the physical spaces of the land that actuate thought, story, and memory. Through storytelling, Goeman poignantly suggests by troping and inverting Momaday’s statement above, the land takes possession of the people.⁴²

By juxtaposing the subject’s vivid mental image of her mother with technical scientific language of histones and DNA methylation, Erdrich’s poem “Now, Where Was She?” encourages readers to consider intergenerational human relations with food, land, and environment through separate, yet overlapping discourses of epigenetics and memory. Both frameworks provide an explanatory mechanism for the embodiment and internalization of factors often viewed as external or discrete from the human body. As such, both epigenetic and memory-storytelling paradigms rearrange popular conceptual boundaries or divisions, and model ethical discourses of human-nonhuman interrelation. Erdrich not only draws attention to similarities between indigenous concepts of blood memory and scientific discourses of nutritional epigenetics through her use of content and imagery, but she highlights broader notions of relation and interconnection through formal characteristics of word choice, punctuation, and structure. One of the poem’s most

immediately discernable qualities is its prose-style formatting and structure. Erdrich's text sits on the page in the form of a single, dense paragraph; there are no line breaks. The author's choice of style and formatting in "Now, Where Was She?" stands in plain contrast to the majority of her other *Cell Traffic* poems, which are mostly written in verse and compositionally arranged through divisions of line and stanza. The seamlessness and continuity of poem's narration, which flows from a description of the female subject to the scientific article she's reading then back again, is visually duplicated by the poem's condensed rectangular form, and the contiguousness of its poetic lines. Erdrich further demonstrates continuity and relationship between poetic lines through her creative use of punctuation. The first six lines of the short twelve-line poem form a single run-on sentence. Erdrich distinguishes phrases in her sentence through the use of relational punctuation like commas, parentheses, ellipses, and a colon, but resists enacting the closure and separation of a period until she is midway through the poem. Erdrich also emphasizes and enhances the poem's structural and thematic unity through her repeated use of the words curl, turn, and fold. Erdrich's poetic subject sits "curled up" in a chair (1). She recalls her mother in "rolled up" dungarees and "curls" (3). The scientific article that the subject reads describes the "curling up and turning" of DNA around histones and the "folding" of genetic sequences (8-10). Finally, in the closing line of the poem, Erdrich returns to the image of her female subject curled in the office chair: "And her little dog, too, curls and turns and folds, warming up to what has happened to grandmother's prairie home histones" (10-12). Describing the movements of the subject's dog in such a way, Erdrich not only draws comparison between the animal's actions and epigenetic accounts of DNA, but she also saliently connects the present moment to the

past by linking the Toto dog iconography from the subject's memories of her mother with the small dog nuzzling at the subject's feet.⁴³

Though Erdrich's 2012 poem "Now, Where Was She?" directly employs the language and terminology of nutritional epigenetics to explore discourses of human-nonhuman interrelation, an earlier poem from Erdrich's 2005 collection *The Mother's Tongue*, "Craving, First Month,"⁴⁴ approaches issues of food, heredity, land, identity, and interrelation from an alternate, yet consonant perspective. Whereas nutritional epigenetic discourses theorize the corporeal impacts of the surrounding environment (e.g.: land, place, pollution) through the nourishing intermediary of food, Erdrich's poem poignantly inverts and rearranges such connections by portraying land and place *as* bodily nourishment. In the poem "Craving, First Month," the poem's pregnant narrator urgently seeks "a certain sky, / the one that rocks the north plains of home" in order to feed herself and nourish her developing fetus (1-2). Her body craves the familiar ancestral prairie landscape with a fierceness and intensity she compares with Rapunzel's mother's storied taste for forbidden plants (6). Ravenous and "wild" as the German fairy tale's tragic figure, Erdrich's narrator swears she "would have paid the witch's price"⁴⁵ to satiate her unusual hunger (6-7). She explains how her "belly rejected everything" early in the first weeks of her pregnancy, and professes a desire to eat only sky and horizon: "Nothing but color and light for my mouth, / streaks of cirrus like pale lettuce—tear a leaf / and taste the clear covering of clouds!" (3-5). These descriptive lines, plump with alliteration and assonance, draw comparison between the aesthetic pleasures of eating and the nourishing qualities of a familiar skyline brimming with vivid colors, shapes, and textures. The narrator's claim that her "belly" rejected all other forms of food, and not her

stomach for instance, emphasizes the mother and fetus's collective refusal of food, and a shared interest in visual sources of nourishment. Rather than attribute such desires to an anatomically specific location, or the well-recognized pangs of first-trimester nausea and morning sickness, the narrator identifies her pregnant belly as a whole—stomach, intestines, uterus, ovaries and fetus—as the corporal site of hunger and craving.

To satiate her belly, Erdrich's narrator drives north with her sister toward the open and flat terrain of the reservation where they share memories, affinities, and familial ties. The sisters drive for hours on a rural two-lane highway, "skimming along" through pastoral landscapes and flooded fields: "We were asea / in the land that bred us. It fed us and we were happy" (10-12). The water and oceanic imagery conjured in the scene not only emphasizes the magnitude and immersive qualities of the landscape, but directly recalls aquatic imagery of amniotic fluid, fetal conditions in the womb, the Ojibwe creation story of the Great Flood,⁴⁶ and biological phylogenies linking all forms of terrestrial and evolutionary life to the once-encompassing waters of prehistoric seas.⁴⁷ Water also has special cultural significance and connection to food among Ojibwe peoples, since the sacred Ojibwe staple food *manoomin*, or wild rice, grows on water.⁴⁸ The sisters move through their ancestral landscape fully immersed; they soak in its nutrients the way that a fetus absorbs, breathes, and ingests the life providing and sustaining amniotic fluid that surrounds it in the womb. They drink in the landscape and are fed on "[t]he rush of passing color like fuel— / waves of chartreuse—mustard weed lapping the ditches" (13-14). They watch as a doe and fawn spring-out in front of their car and move against a field of wheat (16). They eventually reach the reservation and

visit the site of their grandparent's grave. The narrator explains that there, "even the dusty green of the little-leaf sage / [...] / tasted good in my eyes" (24).

Erdrich's vivid description of the sisters' journey suggests how the lived experience of place, the colors, textures, and sounds—what Momaday calls "the ordinary motion of life"—enter the biological body much like food, and find their way into the blood, tissues, and brain as memory. The narrator explains: "That's what I grew my son on, month one. / I went hungry into the flat north / toward the reservation. / I ate it all" (18-21). The narrator experiences her relation to land and place first as appetite and bodily craving, then later through the process of spatial immersion and corporeal satiation. She reconstitutes her bond to place and her commitment to ethics of human-land interrelation through the acts of speech and storytelling. Her words, like particles of whole grain or molecules of folate, are critical to the development of her unborn son:

Here it is, I said to the question mark of a child.
Here's the land we are born from. Here's what made us.
Here's the world that fed us. Here now, you eat too (26-28).

While still in utero, the developing "question mark of a child," is already being prepared and socialized for the world he will take part in. His mother's words, which come at a stage of heightened biological plasticity and environmental openness, serve as a social and epigenetic cue, inducting the fetus into overlapping and interrelated webs of place, memory, culture, and identity. Though Erdrich's poem never explicitly employs scientific terminology like histones or DNA methylation, as she does in more recent work, "Craving, First Month" nonetheless explores notions of heredity and human-environment interaction in a way that eloquently articulates indigenous ontologies of interrelation and saliently connects to contemporary scientific discourses of nutritional epigenetics. The

overlapping and intersection of indigenous ontologies and scientific epistemologies once again gestures toward popular discourses of incommensurability, which falsely and misleadingly pit Western and indigenous systems of knowledge production against one another.

A final poem I will discuss from Erdrich's 2012 collection *Cell Traffic* is "Indigenous Foods Allowed in Utopia." The short three-line poem, which enacts and elaborates upon the proposition of its title, lists the specific food items that will be refused or permitted in an ideal society:

Not beef, not noodles. Not onion, not Smack Ramen. But manoomin—food that grows on water—and juneberries and walleye.

Not milk and honey. But swamp tea, and mmmmm maple!⁴⁹

The approved foods mentioned in the poem—*manoomin*, juneberries, walleye, swamp tea, and maple—are all traditional and celebrated staples of the Ojibwe diet. They are all native foods in the Great Lakes region of North America. Cattle, onions, and noodles, however, were brought to the Americas by European settlers, and connect historically with European arrival, contact, and colonization.⁵⁰ In drawing attention to the historical origins of certain foods, Erdrich highlights the cultural, political, and technological networks that impact food production and consumption, and powerfully shape social relations between humans and food. Erdrich makes the social and cultural significance of certain foodstuffs explicit through her juxtaposition of the prophetic Ojibwe description of sacred *manoomin* (i.e.: "food that grows on water")⁵¹ with the familiar Judeo-Christian imagery of "milk and honey."⁵² While unprocessed, lean, vitamin and antioxidant-rich pre-contact regional foods are embraced and valorized, packaged foods like ramen—

disproportionately high in calories and sodium, yet low in other nutritional values—are refused.

The logics and politics of food choice displayed in Erdrich’s poem engage with broader community, tribal, and pan-indigenous social movements, which aim to decolonize indigenous diets and enhance group self-determination by altering or reestablishing cultural practices of food production, preparation, and consumption. Such measures are a direct response to the ways that indigenous communities throughout the world have been negatively and disproportionately affected by changing patterns of lifestyle and diet brought on through processes of colonization and forced assimilation. Modern Westernized diets high in fats and carbohydrates—and often calorie dense, yet nutrient poor—have led to very high incidences of obesity, diabetes, and cardiovascular disease among indigenous populations.⁵³ In the United States, for example, almost fifty percent of Pimas, an indigenous group in southern Arizona, are affected by diabetes—the highest rate of diabetes found in any population group worldwide.⁵⁴ Similarly, a decade-long study completed in 1999 reported higher rates of cardiovascular disease among American Indians when compared to the general population of the United States.⁵⁵

Meanwhile, a growing body of evidence is demonstrating the health and nutritional benefits of traditional indigenous dietary knowledges and foodstuffs, and challenging the received wisdom of hegemonic Western nutritional paradigms. Scientific studies are showing that culturally and bioregionally-specific indigenous diets produce psychosocial and physiological effects that can both combat and prevent degenerative conditions like coronary heart disease.⁵⁶ In addition to these more easily quantifiable health benefits, many indigenous advocates stress the emotional, psychological, and

spiritual importance of decolonizing diet to incorporate more traditional and culturally meaningful indigenous foods. Dakota scholar and activist Waziyatawin Angela Wilson describes food decolonization as a movement toward “a revitalized relationship with land and its beings” that “is about undoing the negative effects of colonization...and restoring a sense of well-being” to indigenous communities.⁵⁷ Notably, Waziyatawin’s description of food activism connects community health and wellbeing directly to the health and wellbeing of that community’s relationship with land. The two are intimately connected, and both literally and figuratively embodied in the substance of food. Similarly, Tewa scholar Gregory Cajete explains how in many indigenous worldviews, “human life is maintained through constant work, sharing, and relationship with food and other sources of life.”⁵⁸ Cajete describes these relations as “reciprocal compacts” and suggests that when human substance and food substance combine, they join “in a way that is more than physical, it is the survival of the spirit also.”⁵⁹ Accordingly, contemporary social movements to decolonize diet seek not only to improve the physical health of indigenous communities, but to also strengthen the psychological and spiritual wellbeing of groups by affirming the value and validity of indigenous knowledges and lifeways, and improving relations between humans and the environment through food.

Though Erdrich does not explicitly connect the social politics of food decolonization displayed in her poem “Indigenous Foods Allowed in Utopia” with scientific discourses of nutritional epigenetics, compelling nodes of intersection and commonality exist between the two. For example, as discussed above, Hannah Landecker explains how nutritional epigenetic theories have given rise to mainstream notions of “functional foods”—foodstuffs with a health or nutritional value above and beyond

calories, vitamins, or minerals. From both an Ojibwe cultural perspective, and the standpoint of indigenous movements to decolonize diet, the culturally and bioregionally-specific staple *manoomin* (wild rice) can be understood as such a food. Historian Thomas Vennum Jr. explains and contextualizes the deep cultural significance of *manoomin* for Ojibwe peoples, suggesting:

Traditional Ojibway life elevates rice above being simply food for consumption or barter. Stories and legends, reinforced by the ceremonial use of *manoomin* and taboos and proscriptions against eating it at certain times, show the centrality of wild rice to Ojibway culture.⁶⁰

Vennum further emphasizes the multifaceted value of *manoomin* by describing how the act of *manoomin* ricing itself has served as a marker of time and a historical index for important events within Ojibwe communities.⁶¹ Accordingly, *Manoomin* functions not just as a nutritional staple, but also an instrument of memory and interconnection. Each grain of aquatic rice joins together food and water, individuals and community, ceremony and daily life, past and future, body and mind. *Manoomin* is food as memory and food as connection. Thus, Erdrich's poem's call for *manoomin* over ramen is grounded in a host of cultural, political, and ontological factors that transcend standard rubrics of nutritional and caloric measure. While *manoomin* is a "functional food" in the most literal sense of the term, a broader understanding of human-nonhuman interrelation is needed to fully and accurately comprehend its reciprocal social relations with Ojibwe peoples. Such an understanding would not only trace the sociality of human-food interaction through the epigenetic mechanisms of ingestion and molecular exchange, but also account for the ways that food, land, and environment can enter the biological body—the brain and the blood—through memory, storytelling, and the lived experience of place.

In the pages above, I have drawn comparison between discourses of human-nonhuman interrelation emerging through scientific research in the field of nutritional epigenetics, and indigenous ontologies of interrelation, which have long-been a critical component of many indigenous group's worldviews, foodways, and cultural practices. I have looked to the poetry of Heid Erdrich in order to demonstrate how Erdrich not only directly and meaningfully engages with epigenetic discourses, but also the ways that she expands such discussions by highlighting the importance of memory, place, and storytelling as both markers and mediums of social and biological interrelation. I have shown how Erdrich's poems and Landecker's analysis of nutritional epigenetic findings do not separate the social and material aspects of food. Rather, both authors represent the social and material as related and constitutively intertwined. As Dakota STS scholar Kim TallBear once explained before an audience of social and life scientists: "the material and the social are co-constituted. There is no social cream to skim off the top or squeeze from the sponge."⁶² Erdrich's poems deftly demonstrate TallBear's point. They also reiterate TallBear's call for a greater indigenous voice in ongoing discussions of relational ethics by skillfully and poignantly articulating indigenous ontologies of interrelation both along and against the grain of contemporary scientific discourses of epigenetics. Erdrich is at the table and invites fellow readers, interlocutors, and messmates to join in.

Chapter 3 Notes and References:

¹ See Kenneth M. Weiss, “The Phenogenetic Logic of Life,” *Nature Reviews Genetics* 6 no. 1 (2005) 36-45.

² Hannah Landecker, “Food as Exposure: Nutritional Epigenetics and the New Metabolism,” *BioSocieties* 6 no. 1 (2011): 11.

³ Physicist and Feminist philosopher of science Karen Barad suggests using the term “intra-action” as a means of not just rethinking subject-object distinctions, but also matters of causality. See Rick Dolphijn and Iris van der Turin, eds. “Interview with Karen Barad” in *New Materialism: Interviews and Cartographies* (Ann Arbor: Open Humanities Press, 2012), 55. See also Karen Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (Durham: Duke University Press, 2007).

⁴ Bruno Latour, “A Collective of Humans and Nonhumans: Following Daedalus’s Labyrinth” in *Pandora’s Hope: Essays on the Reality of Science Studies* (Cambridge: Harvard University Press, 1999), 174-215.

⁵ Landecker, “Food as Exposure,” 3.

⁶ *Ibid.*, 2.

⁷ Kim TallBear, “Why Interspecies Thinking Needs Indigenous Standpoints” *Cultural Anthropology Online* (March 2012): 2, accessed September 27, 2012, <http://www.culanth.org>. For a discussion of Vine Deloria Jr.’s concept of “American Indian metaphysics” see chapter 1 pp. 20-21.

⁸ *Ibid.*, 3.

⁹ *Ibid.*, 3-4.

¹⁰ Paul Nadasdy studies reciprocal relationships between hunters and nonhuman others in northern hunting communities like the Kulane First Nation in Canada. For an argument advocating the importance of understanding indigenous accounts of hunting as not just metaphorically, but literally valid, See Paul Nadasdy, “The Gift in the Animal: The Ontology of Hunting and Human-Animal Sociality,” *American Ethnologist* 34 no. 1 (2007): 25-43.

¹¹ TallBear, “Interspecies Thinking,” 4.

¹² *Ibid.*, 7.

¹³ *Ibid.*, 7.

¹⁴ Landecker, “Food as Exposure,” 13.

¹⁵ *Ibid.*

¹⁶ *Ibid.*, 10.

¹⁷ *Ibid.*

¹⁸ *Ibid.*, 9.

¹⁹ *Ibid.*, 9-10.

²⁰ *Ibid.*

²¹ *Ibid.*, 10.

²² *Ibid.*

²³ *Ibid.*

²⁴ *Ibid.*

²⁵ See chapter two for a discussion of the complicated stakes of genetic research involving indigenous groups. See also Kim TallBear, *Native DNA: Tribal Belonging and the False Promise of Genetic Science* (Minneapolis: University of Minnesota Press, 2013).

²⁶ Landecker, “Food as Exposure,” 23.

²⁷ *Ibid.*, 19.

²⁸ *Ibid.*

²⁹ *Ibid.*, 20.

³⁰ *Ibid.*

³¹ *Ibid.*

³² Heid E. Erdrich, “Now, Where Was She?” in *Cell Traffic: New And Selected Poems* (Tucson: University of Arizona Press, 2012), 21.

³³ See chapter one for an expanded discussion concerning Erdrich’s use of italicized scientific texts.

³⁴ Heid Erdrich's family is from North Dakota. She is the mother of two children, and has a younger sister Angie who is a pediatrician.

³⁵ In past work, such as "In the Belly of My Baby," from Heid Erdrich's 2005 collection *The Mother's Tongue*, Erdrich has challenged and problematized cultural messages that suggest that mothers must strive to be "perfect" and idealized caretakers. Instead she articulates approaches to motherhood, which can embrace the immense changes that children bring to a woman's life, without forgetting one's past self, or invalidating the experiences of women who chose not to be mothers. See "Heid Erdrich," University of Minnesota Artist Pages, accessed May 1, 2013, <http://voices.cla.umn.edu/artistpages/erdrichHeid.php/>.

³⁶ Yi-Fu Tuan *apud* Mishuana Goeman, "From Place to Territories and Back Again: Centering Storied Land in the Discussion of Indigenous Nation Building," *International Journal of Critical Indigenous Studies* 1 no. 1 (2008): 23.

³⁷ N. Scott Momaday *apud* Goeman, "From Place to Territories and Back Again," 24.

³⁸ *Ibid.*

³⁹ N. Scott Momaday, "On Indian-White Relations: A Point of View," in *The Man Made of Words* (New York: St. Martin's Press, 1997) 51.

⁴⁰ Goeman, "From Place to Territories and Back Again," 27.

⁴¹ *Ibid.*

⁴² *Ibid.*

⁴³ Erdrich's description of the subject's dog "warming up to what has happened to grandmother's prairie home histones" also suggests the active and co-constitutive social role that the dog plays in the interrelated networks of food, land, and memory. For an account of human-canine interrelation, see Donna Haraway, *The Companion Species Manifesto: Dogs, People, and Significant Otherness* (Chicago: Prickly Paradigm Press, 2003). See also Donna Haraway, *When Species Meet (Posthumanities)* (Minneapolis: University of Minnesota Press, 2008).

⁴⁴ Heid E. Erdrich, "Craving, First Month" in *Cell Traffic: New And Selected Poems* (Tucson: University of Arizona Press, 2012), 144.

⁴⁵ In the popular Grim Brother's version of "Rapunzel," Rapunzel's mother and father agree to surrender their daughter at birth to the witch Dame Gothel in exchange for the witch's leniency after she accuses the father of stealing plants from her garden.

⁴⁶ For a description of the Great Flood creation story, see William W. Warren, *History of the Ojibway People* (1885; reprint, St. Paul: Minnesota Historical Society Press, 1984), 54-56.

⁴⁷ Freudian Psychoanalysis, especially the work of Sándor Ferenczi, discusses ontogeneic protopsychic tendencies (the desire to return to the womb or fetal state) and phylogenetic protopsychic tendencies (a desire for all life forms to return to water) as central components of human soma and psyche. For a discussion of protopsychic inclinations in human organs, and a compelling argument connecting psychic mood and physical digestion in the human gut, see Elizabeth A. Wilson “Gut Feminism,” *Differences: A Journal of Feminist Cultural Studies* 15 no. 3 (2004): 66-94.

⁴⁸ *Manoomin* is central to Ojibwe culture because of its role in the Ojibwe historical and ontological narrative of The Great Migration. A prophecy told that Ojibwes must travel until they found the place “where the food grows on water.” Wild rice marked the stopping point of The Great Migration, and the new homeland of Ojibwe peoples. See chapter one for more detailed discussion of the migration narrative. See also Heid Erdrich’s poem about *manoomin*, “First Rice” in *Cell Traffic: New And Selected Poems* (Tucson: University of Arizona Press, 2012), 147.

⁴⁹ Heid E. Erdrich, “Indigenous Foods Allowed in Utopia” in *Cell Traffic: New And Selected Poems* (Tucson: University of Arizona Press, 2012), 94.

⁵⁰ Pilgrims brought bulb onions to America on the Mayflower and planted them as early as 1648. However, local strains of wild onion, *allium canadense*, existed in North America and were collected, used, and consumed by some Native American groups. See “History of Onions,” The National Onion Association, accessed May 1, 2013, <http://onions-usa.org/all-about-onions/history-of-onions>.

⁵¹ See note 45.

⁵² In the Book of Exodus, the Promised Land Israel is described to Moses as a land “flowing with milk and honey.” See Ex. 3: 8.

⁵³ See Michael Milburn, “Indigenous Nutrition: Using Traditional Food Knowledge to Solve Contemporary Health Problems,” *American Indian Quarterly* 27, no.3 (2003): 411-34.

⁵⁴ *Ibid.*, 414. The health disparity for indigenous groups is quite apparent when compared to national statistics: 8.3 % of the U.S. population as a whole is affected by diabetes. See “Diabetes and Prediabetes Statistics and Facts,” National Diabetes Education Program, accessed May 1, 2012, <http://ndep.nih.gov/diabetes-facts/>.

⁵⁵ Milburn, “Indigenous Nutrition,” 414.

⁵⁶ *Ibid.*, 415-18.

⁵⁷ Waziyatawin Angela Wilson, "Decolonizing Indigenous Diets," in *For Indigenous Eyes Only: A Decolonization* ed. Waziyatawin Angela Wilson & Michael Yellow Bird (Santa Fe: School of American Research Press, 2005), 68.

⁵⁸ Gregory Cajete *apud* Milburn, "Indigenous Nutrition," 427.

⁵⁹ *Ibid.*

⁶⁰ Thomas Vennum Jr., *Wild Rice and the Ojibway People* (St. Paul, MN: Minnesota Historical Society Press, 1988), 58.

⁶¹ *Ibid.*, 59.

⁶² TallBear, "Interspecies Thinking," 6.

CONCLUSION

In the past three chapters, I have shown Heid Erdrich's complicated and sustained engagement with ethical, legal, political, and scientific discourses through poems spanning almost a decade of creative output. Erdrich's work importantly highlights threads of commonality and interrelation between emerging modes of scientific thought and indigenous worldviews. Yet, she accomplishes such comparative work without erasing differences, or whitewashing historical and continuing links between scientific practice and ongoing structures of oppression, exploitation, and colonization. Erdrich delights in the wonder, imagination, and explanative power of scientific discovery, but refuses to accept scientific practice as sole arbiter of valid knowledge and moral truth; she shows how one can accept scientific knowledges as valid knowledges, while also rejecting political deployments of science in the interest of state and capitalist power. Erdrich's poem "Microchimerism" underscores such ideas by juxtaposing scientific theories of cellular exchange with the highly political and inflammatory Bering Strait migration theory. By comparing the Bering Strait with contemporary scientific depictions of the maternal womb and showing both as sites of two-way reciprocal flow, Erdrich upsets the commonly accepted unidirectional migration narrative, and usefully decouples scientific theory from the authoritarian and colonizing task of disputing Native firstness and priority in the Americas.

Erdrich's poems foreground indigenous groups' inherent rights to cultural sovereignty and political self-governance, including groups' collective rights to protect and control tangible and intangible cultural resources. Through vivid poetic imagery,

Erdich connects culturally insensitive scientific research practices to indigenous groups' experiences of cultural harm, and helps to make claims of cultural harm legally and ethically intelligible to mainstream audiences. Erdich also expands popular notions of property and ownership through her poems by emphasizing connections between cultural property and group identity, articulating the nonfungibility of certain kinds of cultural property like human bodily tissues and skeletal remains, and highlighting differences between indigenous notions of collective fiduciary stewardship and popularized classical legal paradigms that accentuate the title holder's absolute powers of control, alienation, and exclusion.

Similarly, Erdich's poems about food demonstrate how indigenous ontologies of human-nonhuman interrelation cogently map the various social, cultural, political, and technological networks that impact food production and consumption, and are being effectively mobilized within indigenous communities in the interest of social and political reform. Erdich's poems, like the academic writings and ground-level activism of philosopher and ecofeminist Vandana Shiva, gesture toward the broader relationships between destructive commodity-driven agricultural practices of monoculture, the systematic marginalization of indigenous peoples' agricultural work and ecological knowledges, and legal patents on seeds and other life forms as tools of colonial violence and capitalist exploitation.¹ As indigenous groups' efforts to decolonize food and diet show: rejecting practices of industrial chemical agriculture, protecting ecological biodiversity, and defending the sovereignty of food and seeds from commercial patents, are all principally linked political and anti-colonial projects that depend upon respectful

and sustained democratic engagement with indigenous peoples and indigenous peoples' ecological and dietary knowledges.

Finally, and perhaps most noticeably, Erdrich's poems model what sustained and democratic exchanges with indigenous peoples and indigenous knowledges can and should look like. Her work effectively highlights important ways that contemporary scientific discourses are beginning to align with indigenous modes of thought, yet she also clearly identifies areas where European and indigenous intellectual traditions continue to diverge. Erdrich pushes scientific theories and frameworks that trace interrelation through biological and molecular factors to account for other markers and vehicles of interrelation such as memory, narrative, and embodied experience. The developing "question mark of a child" Erdrich describes in the poem "Craving, First Month," is connected to the ancestral North Dakota land through memory, storytelling, and the curling and turning of DNA histones fueled by epigenetic interactions with food. Erdrich's work routinely demonstrates that the social and material aspects of life, whether conceptualized through indigenous ontologies or scientific models and theories, cannot be separated—they are fundamentally interrelated, reciprocal, and co-constituting.

My work in the previous three chapters can help to bring the discussions Erdrich initiates in her poems to new audiences and new venues of conversation. While my methods of analysis are rooted in practices of literary criticism, I draw heavily from the conceptual and analytic insights of legal scholarship on cultural property and science and technology studies literatures on genetics and new materialisms in order to construct my argument. By actively bridging these disciplinary divisions, I demonstrate how poetry can articulate emergent insights that can be serviceably applied to non-aesthetic areas of

academic inquiry. Furthermore, aligning with the goals of some work occurring within the fields of legal discourse analysis,² rhetorical studies,³ and anthropology of law, my analysis of Erdrich's poetry gestures toward the ways that the rhetorical construction of compelling and persuasive narratives is integrally linked to the political and legal success of indigenous resource protection and repatriation efforts. Stories after all, as Erdrich reminds us, internalize relations between listener and speaker, and induct humans into overlapping and interrelated webs of culture, identity, politics, memory, and meaning. Like cellular traffic, or the methylation that surrounds a strand of DNA, stories are passed from one generation to the next, and exert real and palpable impacts on the lives of those who carry them.

Conclusion Notes and References:

¹ See for example Vandana Shiva, “Democratizing Biology: Reinventing Biology from a Feminist, Ecological, and Third World Perspective” in *Reinventing Biology: Respect for Life and the Creation of Knowledge*, eds. Lynda Birke and Ruth Hubbard (Bloomington: Indiana University Press, 1995), 50-71.

² For example Justin Richland’s case study of the Hopi Tribal Court explores how the narrative and communicative practices of Hopi community members imbue their tribal legal system with localized notions of Hopi tradition and cultural difference, and directly generate and facilitate the development of culturally compatible practices within the courtroom. See Justin Richland, *Arguing with Tradition: The Language of Law in Hopi Tribal Court* (Chicago: University of Chicago Press, 2008).

³ Increasingly, scholars within the field of composition and rhetoric studies are looking to Native American texts as an area inquiry. Dakota / Ojibwe scholar Scott Richard Lyons’s article “Rhetorical Sovereignty” is an important and frequently referenced argument concerning the significance of rhetoric within American Indian communities and the value of rhetorical studies within the field of Native American studies. See Scott Richard Lyons, “Rhetorical Sovereignty: What do American Indians Want From Writing?” *College Composition and Communication* 51, no. 3 (Feb. 2000): 447-68.