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INDIGENIZING AND DECOLONIZING FEMINIST PHILOSOPHY

Uprooting Narratives: Legacies of Colonialism in the Neoliberal University

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Abstract
Two intertwined stories evince the influence of colonialism on Western universities. The first story centers on a conflict about wild rice research between the Anishinaabe people and the University of Minnesota. Underlying this conflict is a genetic notion of biological identity that facilitates the commodification of wild rice. This notion of identity is inextricably linked to agricultural control and expansion. The second story addresses the foundation of Western universities on the goals of civilization and capitalist productivity. These norms persist even in diversity efforts through a focus on individualized notions of difference rather than socially contextualized and politically significant identities. The tendency to produce both knowledge and knowers as commodities results in the alienation, individuation, and abstraction of objects of research and researchers themselves. Decolonial change demands that we learn the specific histories of our universities and disciplines, break disciplinary boundaries, and contest commodification in knowledge production.

In the introduction to her book, *Reshaping the University: Responsibility, Indigenous Epistemes, and the Logic of the Gift*, Sámi scholar Rauna Kuokkanen issues the following call:

> It is up to the academy to do its homework and address its own ignorance so that it will be able to recognize and give an unconditional welcome to indigenous peoples' worldviews and philosophies. But before the academy can recognize the gift of indigenous epistemes, it will have to profoundly transform itself; it will not be enough merely to include indigenous epistemologies (that is, indigenous systems of knowledge or ways of knowing) in pedagogies and curricula. First and foremost, the academy will have to acknowledge that it is founded on very limited conceptions of knowledge and the world. (Kuokkanen 2007, 2–3)

This article is one attempt to answer that call, by addressing the connection between a narrow way of looking at biological identity, the continued colonialist forces at work in academic research, and attempts to diversify and decolonize universities. The authors

are (among many other aspects of our identities) a philosopher of European, Jewish ancestry, raised in the US, and a Mexican biologist of Spanish ancestry. We have come together to write this article out of a shared concern about the continuing influence of colonialism in US universities, our sense that university diversity efforts are superficial at best and often exacerbate damaging colonialist imaginaries, and our refusal to accept the disciplinary divisions that play their own role in enabling academics to shirk responsibility for understanding the colonial implications of our environment and actions.

This article has two parts. The first draws on a particular research program at the University of Minnesota[1] to talk about how alienation, improvement, and capitalism are central features of university approaches to research. Research within universities is not a value-free pursuit of knowledge, but is shaped by colonialist values. The history of some seemingly innocuous concepts—in this case, a focus on genetic identity in disputes about wild rice—reveals this. The second part of the article turns from the production of research to address how alienation, productivity, and colonialism are central features guiding the production of researcher*s*.

Although in this article we divide the discussion of knowledge and knowers across two sections, we affirm insights from feminist and Indigenous epistemologies (for example, Collins 1990; Code 1991; Smith 1999/2012) that knowledge is tightly connected to the social location, experience of power, and social and ecological relationships of knowers. We do not think it is possible to neatly carve knowledge away from knowers without political and epistemic costs. A central argument in this article is that alienating knowledge from knowers has advanced the colonial legacy of universities and continues to enable colonial research practices and superficial diversity efforts.

As long as the values of individualism and productivity continue to guide university programs, efforts to increase diversity will remain essentializing, tokenizing, and superficial, and they will not approach decolonization. This is a failure both to serve the diverse communities that universities ought to serve, as well as to produce the kind of knowledge to which many of us aspire. While colonial values stealthily influence universities in these and other ways, "the epistemological foundations of the academy will continue to be constrained as well as exclusionary" (Kuokkanen 2007, 5).

Extraction and Control: The Construction of Genetic Identity

Wild rice (*Manoomin* in Anishinaabemowin; *Zizania palustris* in scientific nomenclature) grows naturally in the lakes and slow-moving rivers of the Great Lakes region of North America. *Manoomin* is a family member to the Anishinaabe people, for whom it is the fulfillment of prophecy that they should migrate west to the place where food grows on water. *Manoomin* has spiritual and medicinal value, and has taken good care of Anishinaabeg, as they have taken care of it—in part through the structures of their legal system, and by reserving rights to wild rice in ceded territories in the treaties of 1837, 1854, and 1855.[2] Anishinaabeg traditionally harvest *manoomin* in pairs by canoe, one person poling the boat through the water and the other gently knocking rice grains off their stalks and into the boat and surrounding water. The grains that fall into the water during harvest, as well as by the force of wind and rain, reseed the lakebed and ensure growth for future seasons (Minnesota v. Mille Lacs Band of Chippewa Indians 1999; Walker and Doerfler 2009; Preserving the Integrity of Manoomin in Minnesota 2011).

Early European settlers in Minnesota and the larger region recognized the potential value of wild rice as a crop. They identified Anishinaabe harvesting and management practices as evidence of laziness and lack of civilization. This attitude persisted as

early non-Native growers attempted to persuade the Minnesota State Legislature to fund research into the domestication of wild rice. In a report to the state Legislature in 1969, shortly after a robust breeding program had begun at the University of Minnesota, the Iron Range Resources and Rehabilitation Commission stated: "If the Indian is to be raised to a level of equality, respectability and become a self-supporting part of the Minnesota economy, it is a criminal neglect to let him waste his heritage and make no effort to better the one natural resource that is uniquely his" (Edman 1969, quoted in Kokotovich 2014).

Following many years of ignoring Anishinaabe requests that the research stop, and resistance to requests for communication, some in the university community began attending to the conflict. In 2006, an ad hoc committee of University of Minnesota faculty and staff and Anishinaabe community members was formed, with the intention of protecting wild rice and improving the relationship between the University and the Anishinaabe (Preserving the Integrity of Manoomin in Minnesota 2011; Kokotovich 2014).

In spite of sponsoring five symposia and creating many more opportunities for listening through committee meetings, deep fissures between these communities remain. Some of the difficulty repairing this relationship comes from the lack of power of those interested in repairing it. For example, despite a general understanding among committee members and symposium participants that wild rice breeding research should stop, the Minnesota State Legislature appropriated $450,000 in 2016 to fund a new faculty breeder position (H.F. No. 2749 [Minnesota 2016]). The committee was powerless to stop this legislation. Even from areas somewhat more insulated from the larger forces of economic development, conceptual norms impede understanding and make real relationship repair difficult.

In a previous article, I (Melanie) suggested that incentives within the university for treating knowledge about wild rice as a commodity are one reason for continued miscommunication between university scientists and Anishinaabeg, even when both parties are interested in or at least open to the possibility of reconciliation (Bowman 2017). I suggested that scientists' insistence on defining wild rice solely on the basis of its genomic information has played a significant role in the commodification of wild rice. In this article, we evaluate that suggestion by tracing the role genetic identity has played in the alienation, extraction, and domestication of agricultural crops. We argue that genetic identity is not the only (nor the best) scientifically valid notion of biological identity. Here we make explicit the connection between the history of genetics and colonial enterprise. We then develop this historical analysis to explain the tight connection between colonial expansion and the role of universities in the US. Understanding the causal relationship between colonialism and US universities creates firmer ground from which we can critique the continued colonial treatment of knowledge and knowers within contemporary universities.

Geographer Noel Castree, in a review of contemporary literature on commodification, lists alienability, individuation, and abstraction as three essential features of commodification. He defines alienability as "the capacity of a given commodity, and specific classes of commodities, to be physically and morally separated from their sellers" (Castree 2003, 297). In the case of wild rice, this has meant separating the rice from its cultural and ecological context. The domesticated varieties of wild rice (whose name becomes an oxymoron) are grown in paddies and harvested with machinery after the paddy is drained at the end of the growing season (Fabricant 1985). Domesticated wild rice varieties have been produced through crosses and artificial selection to minimize the seed normally lost to wind and rain in a process called

seed shattering. This increases yield, though it also increases susceptibility to the fungal pathogen *Bipolaris oryzae*, which has led to the use of pesticides and the success of California in growing these domesticated varieties over that of Minnesota (Johnson and Percich 1992). Importantly, separating the wild rice from the lakes means that it can be privatized and separated from public lands and reservations. The rice can be readily alienated, owned, and sold.

Related to alienability, individuation is the demarcation of an object separate from other things to assign a specific value. Individuation "involves a discursive and practical 'cut' into the seamless complexity of the world in order to name discrete 'noun-chunks' of reality that are deemed to be socially useful" (Castree 2003, 280). Defining rice in terms of its genetic identity allows for the separation of rice from its complex relational nature: it makes an object that appears independent from the ecological and cultural context in which *manoomin* exists. Wild rice varieties can then be defined as discrete entities that can be measured and assigned monetary value.

This focus on genetic identity enables the abstraction of the rice in "a process whereby the qualitative specificity of any individualized thing (a person, a seed, a gene or what-have-you) is assimilated to the qualitative homogeneity of a broader type or process" (280–81). The processing of paddy-grown rice also contributes to this abstraction: whereas hand-picked wild rice is traditionally hulled, winnowed, and roasted in small batches, paddy rice is processed industrially in big batches (1854 Treaty Authority). This genetic and processing uniformity is evident in the rice itself: traditionally harvested wild rice kernels are varied shades of brown and green, but paddy rice is homogeneously black and shiny. This homogeneity has the effect of making cultivated wild rice easily identifiable to consumers. In these ways, genetic identity has been instrumental in the commodification of wild rice and other crops. Genetic identity allows for these crops to be alienated from their cultural and ecological context, it provides a standard to assign value, and it enables researchers and agricultural companies to own, control, and "improve" varieties for the purposes of mass-production and increased yield.

One might argue that even if genetic identity is useful in making wild rice a commodity, this is merely coincidental. Perhaps scientists use the concept of genetic identity because it makes the most sense biologically. Individual units do play an important role in biological theories: we count individuals in ecology and conservation biology to determine the relative proportions of different species or measure population growth, we track the lifetime of individuals to describe developmental changes, and, in evolutionary biology, we are interested in knowing what entities are capable of evolutionary change.[3] The concept of genetic identity provides a way to separate individual entities and group them within kinds. Species divergence over time is reflected in the increase in genetic differentiation across species, and genetic material is maintained relatively unchanged across generations. Furthermore, changes in genetic information over time enable us to keep track of evolutionary change.

However, we argue that: (1) relying on genetic identity can be problematic because it obscures social and ecological context and developmental complexity, (2) genetic identity is not the only biologically valid conception of identity, and (3) the history of genetic identity cannot be separated from a desire for control, domestication, and productivity. We will argue that it is no coincidence that a genetic notion of identity is useful to make biological entities fungible.

Genetic Identity Obscures Social and Ecological Context and Developmental Complexity

Genetic identity is the notion that the information in our DNA reliably determines differences among groups or organisms, and that genetic information itself might be the only information (or by far the most important piece of information) needed in the definition of a group or individual. It is common to see genes described as "blueprints" or "programs" that carry all the information needed in the making of the future organism. But, although it is common to talk about the gene for X or Y trait, and to imagine that a particular sequence of DNA in our cells is responsible for those traits, most traits with a genetic component are the products of a multitude of genes and their interactions, and the causal relationship between genes and traits is often varied.[4]

From a biological perspective, the main problem with the notion of genes as programs or blueprints and as the main determinants of biological identity is that it obscures the ecological and developmental relations of biological individuals. Because this notion confers too much agency to genes in shaping the organism, it has been widely criticized by biologists and philosophers of biology (for example, Lewontin 2000; Oyama 2000; Moss 2003). As Lenny Moss argues, it confounds two different meanings of the word "gene" by carrying the historical legacy of preformationism into the molecular basis of inheritance and the nature of DNA (Moss 2003).

Moss argues that the modern idea of the gene is connected historically to preformationist ideas: the view of development as the unfolding and growth of previously fully formed parts or organisms. The *analgen* was considered to be a particulate form of inheritance carrying a preformed version of morphological traits. Ironically, the term *gene* was introduced by Wilhelm Johannsen to remove the preformationist potential previously assigned to the *analgen*. Johannsen wanted to separate the units of inheritance (genes) from the morphological traits (phenotype) that were developmentally and historically contingent (Moss 2003).

However, although geneticists at the time recognized the relevance of Johannsen's distinction, genetic experiments were advancing in controlled settings like Thomas Hunt Morgan's laboratory, where flies were being alienated from their complex environmental context for better scientific understanding. In this setting, development was an unnecessary complication that hindered the study of genetics; eliminating development in the theory reified the model of genes determining morphological traits. Moss argues that in addition to simplifying experimental analysis, Morgan had another reason to set aside developmental themes—his research benefited from funding associated with rising commercial interests in agricultural genetics (Moss 2003, 37). Thus, though the term *gene* was intended to make more room for the role of development and ecology, the desire to control and the abstraction away from ecological and developmental complexities led to the reification of the preformationist meaning.

Genetic identity conflates the sequence of DNA with the construction of the organism. "The condition for having a gene for blue eyes or a gene for cystic fibrosis does not entail having a specific nucleic acid (DNA) sequence but rather an ability to predict, within certain contextual limits, the likelihood of some phenotypic trait" (44). Genetics does not tell us anything about the ecological functions and interactions of an organism (and even less about its sacred and cultural value). As the geneticist Richard Lewontin argues, the organism is not just the medium by which internal (genetics) and external forces interact; the organism is constantly constructed in these interactions, and it is, at the same time, constantly transforming its surroundings (Lewontin 1983).

In the case of wild rice, genetic association studies (looking at genes associated with particular phenotypes) can suggest regions of the chromosome associated with variation in shattering (Kennard, Phillips, and Porter 2002), but not even the whole genome of wild rice can determine its relationships within the lakes and within the Anishinaabeg. As John Pershell of the Water Quality Research Department of the Minnesota Chippewa Tribe said after reading a recent patent to produce wild rice hybrid seed (Foster and Zhu 1999): "Nowhere did it mention anything about the wild rice being wild or coming from somewhere" (cited in LaDuke 2007).

Because of the historical conflation of preformationist and molecular definitions (and, as we will argue below, motivations of commodification, control, and the "betterment of society"), genes are often interpreted to have much more agency than they actually have. In the times of DNA testing with simple online ordering kits, it is common to see genetics at the center of biological, ethnic, and even national identities.[5] Genetic identities themselves (or at least knowledge about genetic identity) are increasingly commodified and commercialized; packaged in pretty boxes and graphical interfaces: "for only $99 you can learn a more complete story of you" (Ancestry.com). By sequencing a series of variable sites in our genomes, companies claim to be able to tell us our true history: a percentage of ethnic compositions that make our DNA.

What would it mean for me (María) to get results with a significant percentage of English or German DNA? As my family history tells it, my great-, great-grandfather was probably the abandoned offspring of a bourgeois German or Englishman who managed steel mills in the Basque country in the nineteenth century. This DNA test would say that I am not Mexican because of my European ancestry: my four grandparents left Spain as children, refugees because of their parents' labor union efforts during the civil war. It would not say anything about how my grandparents renounced their Spanish citizenship because Mexico was their new country, the one that gave them asylum. It would not explain anything about the places I grew up, the food I eat, or the people who form my community in Mexico and in the US. It might say a bit about the privilege I have in Mexico because of my light skin, but only within the additional context of Spanish colonization of Mexico. It would not make a distinction between the original Spanish colonizers, later immigrants taking advantage of the colonial structure for their capitalist ventures, or those who, like my ancestors, were exiled for their struggle against the monarchy and in favor of better labor conditions, yet still benefited, as their descendants continue to benefit, from colonial legacies.

As these notions of genetic identity reduce ethnic identity to geographical origins and population-genetics histories, they obscure relationships that we have with places, food, and people. Importantly, these notions are often in conflict with Indigenous ideas of identity. Science and technology scholar Kim TallBear (Sisseton-Wahpeton Oyate) argues:

> Indigenous peoples themselves also privilege biological connection to ancestors (alongside connection to land), but they have evolved a more multifaceted definition of "indigenous" that entangles political self-determination and mutual networking for survival in a global world. … For them, indigeneity is much more complex than biological relations alone. In addition, for indigenous peoples, location is not simply an aid to tracking the movement of human bodies and relationships of markers. Rather, indigenous peoples understand themselves to have emerged as coherent groups and cultures in intimate relationships with particular places, especially living and sacred landscapes. (TallBear 2013, 510)

The conflict between these genetic notions of identity and more holistic ones is more than a disagreement about ways of interpreting the same thing; it has a larger role in colonizing processes and attitudes: "For indigenous peoples all over the world, racial identities such as 'Indian blood' are woven into colonial fabrics that seek to impose oppressive versions of 'Indigeneity' on Indigenous peoples" (Meissner and Whyte 2017, 152). Furthermore, scientists and universities have disproportionate power, and the narratives they tell often inform policy and livelihoods: "[i]n arenas in which indigenous people and scientists are invested, scientific activities are often granted exclusive jurisdiction over knowledge production, with indigenous contributions and critiques understood as 'political' superstructure" (TallBear 2013, 510).

Conflicts of identity between scientists and Indigenous communities not only result in the dismissal of Indigenous narratives of origin as mere superstitions, but also serve as a way to alienate land in colonial efforts. At the end of the nineteenth century, Dr. Albert E. Jenks, professor of anthropology at the University of Minnesota, and Dr. Ales Hrdlicka, curator of the Division of Physical Anthropology at the Smithsonian Institution, traveled to White Earth Reservation in Minnesota to determine which Native people were "competent" and therefore had the ability to sell their land.[6] Using "blood quantum,"[7] they determined that a large percentage of White Earth Anishinaabeg were "mixed-blood" and thus their lands could be sold. But for the Anishinaabeg themselves, tribal membership was based on culture and ways of life, rather than biological relationships alone (Beaulieu 1984; Doerfler 2015). The ghosts of racism in biology and the use of biological identity for appropriating land from Native Americans remain present in current discussions about the identity of wild rice. At the center is an assumption that identity can be reduced to genetic information.[8]

Genetic Identity is Not the Only Biologically Valid Conception of Identity

One of the central conflicts between the Anishinaabe and the University of Minnesota stems from the efforts to cultivate, domesticate, and control wild rice. Although not all of the wild rice research at the University is directly related to the domestication of wild rice, the University has too often violated the trust of Anishinaabe communities. For scientists, even those who want to assist with reconciliation, it is often assumed that miscommunication stems from the lack of scientific understanding on the part of the Anishinaabeg. Anishinaabe activist Winona LaDuke describes how, at an International Wild Rice Association meeting in Reno, Nevada, Raymond Porter, an extension agent from the university, suggested that tribal criticisms of wild research had been based on part on misunderstandings: "[h]is essential argument, presented in graphic form is that the more the Native community understands about modern science and plant genomics, the more the community will be happy with the research" (LaDuke 2005, 181). It is common among scientists to assume that all science is empirical truth, and so misunderstandings can go in only one direction (that is, Native non-scientists failing to understand science).[9] Biologists in these conversations seem to assume that the only way to look at identity and to understand problems with wild rice is through genetic identity. In response to Native concerns that domestication changes *manoomin*, scientists claim that paddy-grown rice is still the same rice because it is not substantially different from the wild rice that grows in the lakes; the scientists further argue that Native Americans themselves have, through years of ricing and movement across lakes, changed the rice *in the same way*.

Underlying these claims is the assumption that what makes wild rice what it is is its genome, not its life history, ecology, and historical interaction with Anishinaabeg. Even within the scope of Western biology, this assumption of genetic identity is not warranted. Biological identity is constantly being reworked and discussed, most recently in light of the realization that human development, immune systems, and even some of our brain functions are shaped by our microbiomes (see, for example, Foster and Neufeld 2013; Mohajeri et al. 2018). Philosopher Ellen Clarke, for example, reviews at least thirteen different properties that scientists have used to define the identity and individuality of biological entities (Clarke 2010). Biological entities never exist in isolation; genomes make sense only in their developmental and ecological context. To isolate the genetic effects, we compare organisms that have been reared in the same controlled environments, but DNA alone does not generate phenotypes. Organisms express different genes and whole phenotypes in different environments, and the functions and activities of organisms depend on their ecological context. Furthermore, organisms constantly transform their environment and affect the ecology and evolution of other organisms. For example, as corals grow through the close partnership between the coral and photosynthetic organisms called dynoflagellates, they form complex, rigid structures that enable other life forms like fish to grow, hide from predators, and reproduce.

There is no correct single definition of biological identity. Different biological questions require different conceptions of identity and individuality. Ecosystem ecologists often focus on nutrients as they move across the environment, irrespective of genetic or even taxonomic differences. Community ecology models, in contrast, attend to the identity of species and populations in terms of their resource-consumption and effects on other populations or species. In different environments (or conditions) the same genotype could have a very different function or identity. Even in evolutionary biology, the fitness of an organism depends on the environmental context.

We are not claiming that Indigenous notions of identity can be mapped perfectly to any of these notions; Western scientific notions of identity already begin by separating subject and object, biology and culture, in ways that go against Indigenous epistemologies (Wilson 2008; Geniusz 2009). But we do claim that scientists can choose among different notions of biological identity, and that—even within the paradigm of Western biology—there are accounts of identity that privilege relationships and ecologies more than the focus on genetic identity allows.

The History of Genetic Identity Cannot be Separated from a Desire for Control, Domestication, and Productivity

Genetic information is privileged as a property-conferring identity, and in certain ways this makes sense: genetic information is an important factor in shaping phenotype, it provides stability of kind across generations, and within a single individual it tends be fairly stable (despite mutations that occur in parts of the body other than the germ line). However, as we have argued above, genes are not the only markers of biological identity, and a focus on genetics alone can obscure the importance of development, ecology, and culture, and the ways in which organisms do not exist already as defined entities, but are constantly being defined in relation with their surroundings.

The increased dominance of genes as the main markers of identity in the twentieth century cannot be separated from a desire for increased control and productivity in the lab (for example, more control over outcomes and simpler results to interpret) and

outside the lab (for example, increased control over agricultural varieties and the eugenicist desire to engineer society through "rational breeding"). As historian of science Phillip Thurtle argues, inheritance "supplied the instructions that standardized each organic being, ensuring continuity between the generations. For the geneticists, it was this stored repository of information that offered the greatest promise for future biological control" (Thurtle 1996).

Genetics, especially its rapid expansion in the US, was tied to the expansion of agriculture and the desire to increase productivity (Rosenberg 1967; Kimmelman 1983; Thurtle 1996). By the end of the nineteenth century, the US had taken most Indigenous lands and with a series of land-grant laws made these lands available for agricultural expansion and research (Cochrane 1993; Key 1996; Saount 2014). By the late 1890s, every state had an agricultural experiment station, and much of the land that would eventually be turned into agricultural fields was being cultivated (Rosenberg 1967; Cochrane 1993). The rapid expansion of agricultural lands and labor shortages caused by the Civil War led to an increased demand for machinery, and agricultural mechanization rapidly expanded west (Cochrane 1993). By the beginning of the twentieth century and the rediscovery of Mendel's laws,[10] there was great interest and promise in using genetics for more efficient experimental breeding (Rosenberg 1967).

The rise of genetic identity was tied to capitalist development and the desire to commodify nature. This is captured in the words of Willet M. Hays, a prolific breeder and the first faculty member selected for the University of Minnesota's new Minnesota Agricultural Experiment Station at St. Paul:

> As science, inventive genius, constructive skill, business organization, and great market demands at home and abroad have pushed forward things mechanical, so should ways be found of improving these living things which serve as machines for transforming the substance of soil and air and the force of the sun's rays into valuable commodities. … As a general policy it would seem wise usually to have the ownership of valuable new plants and animals created by joint public and private effort vested at the earliest possible period of their distribution in private ownership. (Hays 1905, 197–202)

Hays founded the American Breeders Association (ABA) in 1903 to finance large breeding efforts and establish closer collaborations between scientists working on heredity and plant and animal breeders. In his opening speech convening the organization, he is clear about the importance of heredity for agricultural development and the importance of collaboration between breeders and scientists within universities (Hays 1905). But together with his capitalist ideals, what comes through is a colonial arrogance that takes all knowledge as means of control. In his own words: "It [the American Breeders Association] has thus recognized that the wonderful potencies in what we are wont to call heredity may in greater part be placed under the control and direction of man, as are the greater physical forces of nature" (Hays 1905, cited in Thurtle 1996).

This spirit of control was, at the beginning of the ABA, tightly connected with the betterment of society, through both economic improvement and eugenicist ideas of "betterment" of the genetic makeup of the population (Rosenberg 1967). In the words of the biologist and eugenicist Charles Davenport: "Eugenics is the science of improvement of the human race by better breeding. … The eugenical standpoint is

that of the agriculturalist who, while recognizing the value of culture, believes that permanent advance is to be made only by securing the best 'blood'" (Davenport 1911, 1).[11]

Genetics provided a promise for control and "betterment," but from the beginning, work in the laboratory and fields showed the complexities of inheritance. Thomas Hunt Morgan, for example, criticized Davenport and the eugenicists for their simplification of inheritance (Thurtle 1996), and breeders' varieties would often develop into "rogues," untrue to type (Charnley and Radick 2013). Despite the problem of rogues, Mendelian genetics was instrumental in establishing new varieties of crops that could be marketed as an independent, and more or less standardized, product for a few generations (Charnley and Radick 2013; Radick 2013). Thus, Mendelian genetics provided an additional tool not just for breeding, but for alienation and abstraction in the making of commodity crops.

This connection between genetics and the commodification of crops is nowhere as clear as in the case of hybrid seeds. Hybridization was a new method of breeding invented around 1910 and was based on theoretical advancements in genetics. Hybridization in genetics describes the genetic exchange between two different populations (due to crosses between individuals of the different populations). Evolutionary biologists often think of hybridization between two species, and geneticists or breeders often think of hybridization in terms of two variants or inbred lines. A third notion of hybridization, and the one used here, is the particular breeding protocol to produce hybrid seeds. In the case of the hybrid corn, this domestication technique is based on the double-cross of four inbred lines. Crops from hybrid seeds decline in quality over the next generation, and the seeds need to be bought again each year. Thus, Jean-Pierre Berlan and Richard Lewontin argue that the rapid expansion of hybrid varieties was motivated by capitalist interests in creating a profitable commodity. They argue that it is not clear that hybrid corn was more productive than other varieties once one accounts for changes in mechanization in fields, and that, though the scientific principles that led to the development of hybridization (in the breeding protocol sense) have since been proven wrong, an alternative paradigm of selection has not been supported because it would not lead to the same profitable seed (Berlan and Lewontin 1986).[12] A similar domestication procedure to create wild rice hybrid seed was patented in 1999 by a California company, based on research done at the University of Minnesota (Foster and Zhu 1999; LaDuke 2005).

In the name of scientific and national "progress," genetic identity has been used to uproot organisms from their cultural and ecological context in the expansion of agriculture in the US and the commodification of crops. Using genetic information as the exclusive marker of identity allows for the alienation of wild rice from the lakes where it grows and from traditional methods of harvesting. It individuates the rice from its complex cultural and ecological context and makes it a discrete entity, and it abstracts the rice by creating a standard that can easily be assigned monetary value. This genetic notion of identity obscures the relational nature of organisms and creates a strong dichotomy between the organism and its environment. But despite the availability of other biological markers of identity, even scientists in conversation with Indigenous peoples seem unable to recognize this pluralism. The values of productivity and analyses of cost/benefit common in science and agriculture create serious barriers to understanding. Progress and agricultural expansion, rather than decolonization, are the priorities of the university. Even while efforts to increase diversity on university campuses begin to flourish, universities continue enacting these colonial values.

Constraining Epistemology: Liberal Domestication of Diversity

Universities have at least two central goals: to create knowledge and to educate people (that is, to create knowers). And just as colonialism—including genocidal violence, enclosure and appropriation, and capitalist productivity—influences the production of knowledge, so too does it influence the production of knowers. We have argued that alienating wild rice from its ecological relationships and essentializing its genetic identity are research choices that reflect the goal of producing knowledge that is commercially viable. These are not the only scientifically defensible choices, and their dramatic social and political consequences give good reason to pursue alternative perspectives (Longino 2004). Yet the incentive to produce wild rice as a commodity appears to have outweighed these concerns. Likewise, in this section we will argue that in the process of producing graduates and disciplining researchers, the goals of productivity and improvement that shaped universities in the first place continue to create an environment that is inhospitable to Indigenous people and values, as well as to other people and epistemes subjugated through colonialism.

Colonial Foundations

Universities have long articulated their educational goals in terms of colonial improvement; the 1650 charter of Harvard, the first university in the United States, which calls for the perpetual sustainment of the college in order to "conduce to the education of the English and Indian[13] youth of this country, in knowledge and godliness," repeatedly uses "advancement" to describe its goals. More than 200 years later, the 1862 passage of the Morrill Act funded the first land-grant universities by donating federal land to states for the creation of those universities. There is some debate about whether the main intention of the Act was about education or the "disposal" of land resources owned by the federal government (which were taken from or ceded under duress by the Native people living on them), but both goals were centered around productivity:

> The government needed revenue and the best way to produce revenue was to increase prosperity, which could be best accomplished through increased agricultural production. The new colleges would promote agricultural education, which would lead to increased agricultural production, thus increasing national prosperity out of which the needed revenues would flow. (Key 1996, 214)

The excerpt above comes from a larger discussion about the importance of economics (as opposed to, or as the driving purpose of, education) in the creation of land-grant universities. Whereas we see this as evidence of the centrality of colonial expansion in the creation of land-grant universities, the author mentions the existence of Native people only once (citing a federal ordinance), and frequently refers to the land in question as unoccupied. This is one poignant example of how, "Having participated historically in the displacement of indigenous peoples, today's universities reflect and reproduce epistemic and intellectual traditions and practices of the West through discursive forms of colonialism" (Kuokkanen 2008, 14). At the beginning of the US higher education system, as in our histories of it, the erasure and alienation of Indigenous people is prominent.

The Incommensurability of (Neo)liberal and Indigenous Research Paradigms

As a consequence of the goal to improve individuals and societies according to Enlightenment values, universities produce both knowledge and knowers as

commodities. This focus on commodifying knowledge and knowers, as well as the processes (alienation, individuation, and abstraction) and concepts (including the neat distinction between knowledge and knower) that enable it, is antithetical to Indigenous ontologies, epistemologies, and research methodologies. Though there is enormous diversity among Indigenous peoples, one common characteristic of Indigenous worldviews is that they center relationships and accountability to relationships. In *Research is Ceremony*, Cree scholar Shawn Wilson notes that "There is a common thread of thinking that runs through [dominant research paradigms]. This commonality is that knowledge is seen as being *individual* in nature. This is vastly different from the Indigenous paradigm, where knowledge is seen as belonging to the cosmos of which we are a part and where researchers are only the interpreters of this knowledge" (Wilson 2008, 38).

The conflict between Indigenous methodologies and the standard demands of Western universities can create serious barriers for scholars attempting to do work that serves Indigenous communities. Sometimes academics are able to negotiate a middle path in which they can succeed within academia and maintain ties and accountability to their communities of origin, or communities that have a stake in their research. Other times, the incentives and structures of academia make this impossible. Wilson recalls some by-no-means-unique occasions when this conflict took a toll on Indigenous researchers:

> I attended the thesis defenses of two Indigenous students in Brisbane. … Both presentations went very well, and all the Indigenous people in the audience (academics and members of the communities where the research was conducted) thoroughly enjoyed the way the research was presented and perhaps more importantly, appreciated the work that had been done. I later found out that both of these scholars, who had done such great work, were heavily criticized for their research methodologies by the dominant system academics on their panels. Both had attempted to use methods that were reflective of the Indigenous communities where they were working. Each had to spend much of their time and effort in the re-writing of their theses in justifying their Indigenous-based research methodologies through mainstream theoretical arguments. (30)

This conflict has also arisen in the context of wild rice research: when the Nibi-Manoomin committee was alerted to the Minnesota State Legislature's funding of the new breeder position and sought a way to add community outreach to the job description or to find some other way to minimize harm, a Native committee member affiliated with the university reflected that it would not be possible for someone hired on those terms to work in genuine solidarity with the Anishinaabe community and to meet requirements for reappointment and tenure.

This tension puts scholars practicing Indigenous methodologies into an impossible position that is even more difficult for Indigenous scholars in particular. To this end, non-Native researchers, faculty with tenure, and others who are more insulated from the personal and professional risk of pushing university norms ought to do so. When those of us in Western universities treat Indigenous people and Indigenous knowledge according to the norms of the Enlightenment, or even when we merely fail to challenge these norms, we perpetuate the tradition of colonialism that we have inherited. And lest any of us mistake colonialism for a thing of the past, we should keep in mind that in addition to contemporary land grabs and challenges to Native sovereignty that continue to advance colonial goals, epistemic alienation and assimilation

are central features of colonialism. As Anishinaabe botanist Wendy Makoons Geniusz reminds us:

> Using a variety of assimilation efforts, colonizers have attempted to form indigenous peoples into their own image. It is not just a matter of taking indigenous children away to boarding schools and teaching them reading, writing, and arithmetic. Nor is it just a matter of breaking up tribes and putting individual families onto allotments, or relocating them into cities. Rather, it is a case of trying to assimilate indigenous people so that they will see the world and themselves from the perspective of the colonizer. (Geniusz 2009, 90)

Universities are positioned as central tools for enacting this kind of alienation and assimilation, and because of this, those of us within universities have a special call to undermine these norms of knowledge production. In order to do this, many of us need to work harder to learn the histories of our universities and disciplines. Though both authors of this article had some idea of the colonial foundations (both conceptual and historical) of Western universities, putting the time and energy into understanding some of the specifics has made a tremendous difference in our ability to see, articulate, and challenge these norms. It also helps us to gain an appreciation for those consequences we cannot see, and to listen with greater engagement to the critiques of our disciplines from Indigenous people. Learning the social and political histories of our disciplines (as opposed to merely the intellectual history many of us mistake for history writ large) is something academics are well-equipped—and responsible—to pursue.

Individualism and Diversity Regimes

Even as universities continue to deride and dismiss ways of knowing that do not match Enlightenment virtues, they have expanded the ranks of who is desirable on campus. In response to vocal student activism in the 1960s, universities in the US (often ambivalently) attempted to diversify their communities and the content of the education received and produced.[14] The late 1960s and 1970s saw the proliferation of ethnic and women's studies programs, and affirmative action helped facilitate access to higher education to those it previously excluded. At the University of Minnesota, the first American Indian Studies department in the country (AIS) was created in 1969[15] as a result of Native American activism in the Twin Cities and across the country.

Shifting demographics, as well as the demands of students and faculty, have pushed universities to diversify in order to attract students seeking learning environments that reflect their histories and interests. But, in keeping with colonialist tendencies to dismantle and absorb that which is different, the neoliberal university's diversity efforts have shifted to focus on an apolitical kind of difference in order to attract student-consumers to cosmopolitan centers of knowledge production (Hu-DeHart 2000; Iverson 2007).

Instead, contemporary diversity regimes are often highly individualist, and tend to obscure social relations that give meaning to difference. The university abstracts differences, creating standardized categories of race, ethnicity, gender, sexual orientation, and disability. As Evelyn Hu-DeHart argues, "corporate and liberal multiculturalism consigns the 'other' to recognizable standards of difference but fails to question the power relations that define for the 'others' how and why they are different" (Hu-DeHart 2000, 42). Often, these programs fail to even acknowledge those power relations, instead attributing disadvantage and therefore targeting intervention to individual differences. In an analysis of twenty-one land-grant university diversity action

plans, Susan Iverson observes that "Diversity action plans typically describe people of color as outsiders to the university, disadvantaged and at risk before and after entering higher education, and in this discursive framing, propose strategies aimed at individuals to compensate for deficiencies" (Iverson 2007, 588).

This individualism about diversity can be seen as another consequence of the liberalism that shapes universities, and is also related to the capitalist values of the Enlightenment. Framing diversity in terms of individual difference is a way of alienating diversity from its social and political context, and enables it to be treated as a commodity. "Diversity action plans assert that 'diversity increases educational possibilities' and, to capitalize on diversity, the reports recommend to 'make effective use of all our citizens' and 'take full advantage of educational benefits of diversity'" (600). And when diversity is seen as a commodity, those people that the university can see contributing to their status as cosmopolitan institutions are used for whatever particular characteristic(s) make them "diverse."[16]

Such superficial diversity efforts come about by fetishizing discrete elements of an individualized notion of identity, rather than attending to the ways that identity exists only through theory, and within relationship.[17] Axes of diversity are individuated into "noun-chunks" without their contextual complexity (Castree 2003). To this end, the University of Minnesota's diversity efforts, like many universities', seem to focus more on recruitment of diverse students than on the continued support of spaces like AIS. Even the good intentions of increased recruitment are undermined by discourses of disadvantage that aim to correct the perceived deficiencies of these students by assimilating them to university norms (Iverson 2007).

Substantive support of students (and faculty) recruited with the intention of increasing diversity would involve budgeting appropriately to support the insurrectionist zones that already exist within universities. Many universities have students, faculty, interdisciplinary centers, and departments pushing the boundaries of what research and researchers can look like. We have encountered many of these spaces at the University of Minnesota (nonexhaustively: American Indian Studies; Chicano and Latino Studies; Gender, Women and Sexuality Studies; the Office of Public Engagement; *La Raza*). We should take advantage of these more hospitable zones of universities, even while universities as a whole continue to be inhospitable institutions. Though changing the larger university context is deeply complex, some improvements —like generously funding the sorts of centers described above—are relatively simple; the failure to follow through on them suggests an insincere commitment to diversity or an overriding commitment to individualist and colonialist ideals.

Although we recognize that greater epistemic diversity offers an important corrective to the epistemic vices that accompany social relations of domination, the superficial diversity efforts we often see have this effect only incidentally, and at great cost to the "diverse individuals" invited into inhospitable university environments. It creates serious damage and defeats the epistemic purposes of courting diversity to bring in diverse students, ignore the social and political relationships that give their identities meaning, and then train them to speak the same language, make the same arguments, and draw the same boundaries between what belongs at home and what belongs in the university.

Alienation and Extraction of Knowers

Just as the introduction of physical goods into exchange markets requires their alienation from ecological context, the assimilation of "diverse individuals" into the Enlightenment

norms of knowledge production relies on the alienation and individuation of knowers from their context. This tendency is neither external nor incidental to the purposes of the university. As Linda Tuhiwai Smith says, "One of the concepts through which Western ideas about the individual and community, about time and space, knowledge and research, imperialism and colonialism can be drawn together is the concept of distance. The individual can be distanced, or separated, from the physical environment, the community" (Smith 1999/2012, 114). The experience of alienation within higher education is common and deep, and the ubiquity of this alienation is evidence of the extent to which it is built into the structures of universities as civilizing, extractive institutions.

Often, this alienation is not perceived as a bad thing— objectivity and individualism are valued as ways of fighting bias and parochialism. In the introduction to *This Fine Place So Far from Home*, a collection of essays by academics of working-class origins, Carolyn Leste Law reflects on the costs of these values: "I have suffered a loss my present context doesn't even recognize as a loss; my education *has* destroyed something even while it has been re-creating me in its own image" (Dews and Law 1995, 1). This experience of alienation creates a difficult choice for many within universities: tolerate this loss, or limit your success within the academy. Anecdotally, both authors have known students who turned down academic opportunities they were otherwise interested in because they would require leaving their communities (either literally or metaphorically). In particular, María has frequently heard this concern articulated from students involved with the Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS). Making room for students, faculty, and staff with these values will require making room for their communities as well.

For aspiring faculty, academia requires a kind of physical alienation that is both mundane and deeply affecting: we move homes for college, graduate school, postdoctoral research, short-term teaching, and tenure-track jobs if we are lucky. As with any other commodity, these movements are motivated by the market and the increased productivity of universities through the constant exchange of scholars. This mobility makes it difficult to put down roots, form community, and understand and participate in the politics and culture of so many different locations. And the longer one stays away from a place that was one's home, the harder it can be to go back. So while we gain some community in the process, we also lose friends and have difficulty caring for parents or maintaining relationships with people who have known us and our histories for years, and we retreat into ourselves or our intimate relationships, knowing that we may have to move away again soon as we pursue the promise of stable work.

The alienation from place and community that comes from the institutional structures of the university is more than matched by the epistemic alienation that comes from the often unacknowledged yet strictly enforced Enlightenment norms of knowledge production. Enlightenment notions of individualism, liberalism, and rationalism are powerfully reflected in the sorts of knowledge recognized and rewarded within universities—from undergraduate classrooms through tenure files. Sometimes, knowledge that does not fit these norms just does not fit within the existing structures of the academy. For example, citation can be a problem when one does not share the notions of individuality that permit individual ownership of ideas; norms of citation are not easily molded to fit collective authorship (see Sangtin Writers Collective and Nagar 2006 and Nagar 2014 for examples and discussion of a way around this).

More often, knowledge that does not (try to) meet Enlightenment norms is ignored or treated with contempt when it comes from those who have a historical or cultural

claim to it, though academics without an apparent personal stake can sometimes be lauded for "rescuing" marginalized knowledges.[18] When this kind of knowledge is addressed in the academy it tends to be excavated, decontextualized, and appropriated into Enlightenment contexts. This recalls the "process of systematic fragmentation which can still be seen in the disciplinary carve up of the indigenous world: bones, mummies and skulls to the museums, artwork to private collectors, languages to linguistics, 'customs' to anthropologists, beliefs and behaviors to psychologists" (Smith 1999/2012, 71). The authors uncomfortably acknowledge that although we are attempting to challenge these norms, this article, too, fulfills university interests in extracting marketable knowledge from its complex ecology. It also contributes to our ability to market ourselves as knowledge producers and gives us credibility in the burgeoning collegiate diversity market.

Undermining the Hegemony of Enlightenment Values in the University

Lately (and as evinced by this special issue), more universities and disciplines are turning their attention to what they describe as decolonization. By "decolonization," universities do not typically mean the repatriation of land or active work to restore sovereignty to Native peoples. Therefore, we can assume that in this context, "decolonization" means something either metaphorical or incomplete. This is a point powerfully made by Eve Tuck and K. Wayne Yang in their article "Decolonization is not a Metaphor" (Tuck and Yang 2012). At the same time, because the process of colonization insinuates itself into larger social relations, values, epistemologies, and so on, resisting colonialism in these venues is an important part of the process of building more just societies, even though it is not sufficient for decolonization. As Tuck and Yang argue, the goals of broader projects of social justice may be incommensurable with decolonization, though we think there are some lessons we can draw that are common to these projects.

First, decolonization will not mean the mere incorporation of bodies or epistemologies. This kind of incorporation would not represent a change, but a continuation of colonialist processes of claiming the tangible and intangible resources of the colonized. "Western science and the modern university are notoriously omnivorous, as adaptively capable of fattening on increasingly diverse epistemic diets as neoliberal regimes of multiculturalism are of commoditizing diverse cultures" (Scheman 2012, 486). Mere inclusion can easily result in harm to Indigenous people who study within or collaborate with universities, by alienating them from their communities, languages, and epistemologies, by commodifying their knowledge, by making them feel used merely as evidence of a cosmopolitan institution, and more.

Second, good intentions are certainly not sufficient and are no guarantee that decolonization projects will actually have decolonizing effects. Consider the role that a benevolent kind of love had in facilitating colonialism in the first place. Dawn Rae Davis cautions us to attend to "love's role in the civilizing mission" because "[i]ts rhetoric of benevolence is too near what we have learned is detrimental to feminist practice: the gesture of 'saving' in the name of liberation the very subjects colonialism subordinates through salvation" (Davis 2002, 148).[19] Furthermore, and as we hope the historical analysis in this article makes clear, those of us who have been disciplined within the Western academy are likely to be ignorant of the many and varied ways our disciplines and universities are influenced by and reenact colonialism. Mere good intentions do not correct for this ignorance.

Given the extent to which Enlightenment values structure the university— making it a place of alienation, individuation, and capitalist improvement—movement toward decolonization will require fundamental transformation. Rather than focusing on including more "diverse individuals" within an unchanged institution, we will have to spend time and energy identifying the influence of these Enlightenment values and undermining their hegemony. Given the way the West typically sees these values as the only viable way of producing good knowledge, our call may be read as an attack on reason. It is actually a call to recognize the ways in which colonial expansion and capitalist development distort the production of knowledge in universities in ways that serve those goals. Identifying and undermining the power of those incentives in knowledge production will result in better knowledge by not unduly rejecting knowledge and knowers with other goals.

Of Identity and Diversity and Colonialism

In this article we have told two parallel stories about the influence of colonialism on Western universities. Underlying the conflict around wild rice between the University of Minnesota and the Anishinaabe is a long history of colonial expansion and the development of agriculture. This history shaped the concepts and context scientists use to research wild rice: the concept of genetic identity, though useful for narrow biological purposes, is inextricably linked to the desire for agricultural control and conquest. It allows for the alienation of wild rice from its social and ecological context and the individuation and abstraction required to patent rice varieties. The history also shapes Anishinaabe approaches to the conflict: the long history of using genetic identity to racialize Native people and expropriate land, and the capitalist notions of productivity from which Native management of manoomin appeared a "waste [of] his heritage" speak to the (un)trustworthiness of these concepts and of the university representatives wielding them.

Likewise, the foundation of Western universities—particularly land-grant universities in the US—on the goals of civilization and capitalist productivity continues to shape the way universities treat their occupants. The tendency to produce not just knowledge, but knowers, as commodities results in the alienation, individuation, and abstraction of these knowers from their communities, their languages, and their existing systems of knowledge whenever they are in conflict with the Enlightenment norms of the university. This alienation is the first step toward carving up people, identities, and knowledge as commodities to be circulated on the market. The influence of these norms persists through attempts to diversify universities by pushing diversity regimes to focus on individualized notions of difference rather than socially contextualized and politically significant identities that threaten the status quo of the university. In this way, universities repeat the capitalist accumulation so central to colonialism; they gather up "diverse individuals" and attempt to produce us as producers of knowledge in line with liberal, rationalist, and now cosmopolitan norms.

The parallel telling of these stories is not meant to suggest mere analogy. The wild rice conflict and the superficiality of individualist diversity regimes share the common ancestor of colonialism in university-formation and the central purpose of producing knowledge and knowers as commodities. The processes of alienating, individuating, and abstracting knowledge facilitate agricultural and economic expansion, and more specifically, the production of wild rice as a commodity crop. This kind of knowledge production demands the alienation of knowers from their complex communities as it

separates knowledge from knowers. The assumption that knowledge and knowers are (or can be) separated will continue to undermine diversity efforts. For example, if the University of Minnesota intends to increase Indigenous representation on campus, research on "improving" wild rice as a commodity cannot continue. Superficial, individualized diversity regimes enable university-driven colonialism to persist when they merely give a cosmopolitan facelift to the expansionary, extractive aims that have shaped land-grant universities from the beginning.

These forces are strong and far-reaching, but we do not see this analysis as a reason for hopelessness about change, though pessimism may indeed be warranted. We must remember that change is partial, and acknowledge that even if genuine decolonization is not possible, movement toward decolonization is vital. We are reminded that there are always unintended consequences of our attempts to control and improve plants and society. In the arrogance of domination, wild rice was domesticated with funding from the State of Minnesota for the intended benefit of farmers in Minnesota; instead, California growers have the largest share of the market. It is a similar arrogance to pretend that universities can remain fundamentally unchanged when people of diverse backgrounds and cultures are more and more included. Fortunately for the efforts of decolonization, bringing in "diverse individuals" even as instruments of cosmopolitanism often results in significant activism and real change. A path toward decolonizing universities requires humility and willingness to listen. It requires our institutions to be porous and receptive, and it requires us to examine and undermine the hegemonic Enlightenment values of our disciplines to lay more fertile ground for decolonial change.

Notes

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1 We wish to note that, though a significant amount of our story will revolve around the University of Minnesota, we do not think it is exclusively *about* the University of Minnesota. We are writing within our context, with the understanding that the history and conclusions have implications across the broader system of Western universities.

2 Kyle Powys Whyte has argued that one of the central roles of Indigenous knowledges is to inform Indigenous governance practices. This argument is meant to discourage scholars from appropriating Indigenous knowledge for unrelated purposes (Whyte 2018).

3 As the evolutionary biologist David L. Hull puts it: "If selection is a process of differential perpetuation of the units of selection, and if organisms are the primary focus of selection, then we had better know which entities we are to count" (Hull 2001, 17).

4 A good example of the complexity of genetic inheritance and the association between genes and phenotypic traits is eye color. What is commonly described as resulting from the "gene for blue eyes" is due to a reduction in the production of pigments in the eyes, whereas the development of brown eyes involves a higher production of pigment (melanin). Production of melanin in the eyes is controlled by different interacting genes; blue eyes can result from a particular variant of the gene OCA2, reducing the production of a protein involved in the maturation of melanosomes, or by a variant in the gene HERC2, leading to a

reduced expression of OCA2. In addition, over 300 different genetic variants have been associated with eye-color variation, and differences in these combinations produce an immense palette of eye colors. Further, mutations during the development of an individual, or other changes of expression, can result in different pigmentation of right and left eyes within a single person (White and Rabago-Smith 2011). Finally, as Mazviita Chirimuuta argues, color is itself relational and exists in the interaction between (in the case of eyes) the structure of the iris, the expression of pigment, the light environment, and the perception of the observer (which in turn has been developed in response to particular social, ecological, and evolutionary contexts) (Chirimuuta 2015).

5 Following the Human Genome Project, several countries have generated genetic databases of their populations (for example, Silva-Zolezzi et al. 2009; Gudbjartsson et al. 2015), and though the main motivations for these projects are to develop targeted medical solutions, the justifications for them reinforce the separation between populations living within political borders. As an example, projects of Mestizo genomics in Mexico and Brazil have been criticized for reinforcing national identities and a strong Mestizo/Indigenous dichotomy (Wade 2017).

6 Following the Dawes Act, which divided up Native lands into individual allotments, federal Indian policy held that "Full-blood Indians and minors were considered legally incompetent and were by this definition unable to sell their allotments" (Beaulieu 1984, 282).

7 The concept of blood quantum derives from biologist and eugenicist Francis Galton's theory of fractional inheritance. It suggests that socially significant traits are inherited based on the proportion of ancestors with those traits. The concept has been applied differently for different political purposes in the US: the one-drop rule for African-American identification means that black racialization becomes indelible, whereas the one-quarter rule frequently used for Native identification decreases "the number of people they [the federal government] have political and financial obligations to" (Doerfler 2015).

8 Naomi Scheman makes a related argument in the context of biomedical research and treatment. She argues, "for research findings to be applicable outside the laboratory, 'in the wild,' knowledge is needed about the relationships from which the objects were abstracted, knowledge typically unavailable to the researchers unless they are respectfully—sustainably—engaged with the diverse communities from which their objects of knowledge have been abstracted and into which they will be reinserted. In addition, objects of knowledge are, as such, constructed in part by the relationships into which they enter in the research setting, and the re-emergence of those objects into the (rest of) the world bears the traces of those encounters" (Scheman 2014, 170).

9 It should not need to be said that many indigenous scholars, activists, and community members have a very nuanced understanding of genetics (and its history in relation to the oppression of Native American peoples). In addition, many Indigenous communities in the US are actively considering or already using DNA to determine tribal membership (see, for example, the website of genetic resources for American Indians and Alaska Natives from the National Congress of American Indians, http://genetics.ncai.org/about-us/, TallBear 2003; and Doerffler 2015). In this, as in many other cases, it is common for people who hold a stake in scientific research to develop expertise that rivals that of scientists. Steven Epstein, for example, details the expertise that gay activists developed at the height of the AIDS crisis (Epstein 1996).

10 After Gregor Mendel published his findings in 1866, not much attention was given to his results in the context of evolutionary theory, until in 1900 Hugo deVries, Carl Correns, and Erich von Tsckermak all published their independent rediscoveries of Mendel's laws with their implications for inheritance.

11 Davenport was the director of the Eugenics Society of Cold Spring Harbor, conceived as an offshoot of the ABA (Thurtle 1996).

12 Hybridization as a breeding protocol was based on a particular explanation of the biological basis of hybrid vigor (that is, the better performance of a hybrid over its inbred parents). At the time, there were two models to explain hybrid vigor: the "Mendelian model," which posed that hybrid vigor was due to favorable genes overriding the effect of their unfavorable counterparts), and the "East and Shull model," which was the theoretical justification for the hybrid method and stated that hybrids benefited from physiological stimulation of carrying pairs of unlike genes. These different explanations have different consequences for the best breeding alternative. The Mendelian model implies that the best way to improve crops is to select the seeds from the most productive plants and use those seeds to start the next generation (an activity that can be performed by the farmer in her field); the East and Shull model requires a large breeding program and crossing multiple combinations given that two very bad inbred lines could produce the best hybrids (Berlan and Lewontin 1986).

13 Soon after its founding in 1636, Harvard was in financial trouble. The Society for the Propagation of the Gospel in New England granted funds to the college on the condition that they house and educate local Native students in Christianity. The hope was that the students would proselytize in their home communities (Peabody Museum, n.d.). The College educated five students, and one graduated. The building was torn down in 1698, and the Harvard Crimson states that no Native students were educated at Harvard until three centuries later (Baena 2011).

14 The ambivalence continues: on our own campus, a collective of graduate students that was formed to push for more substantive commitment to diversity—particularly to replace the tenure lines that had been eliminated from the Chicano and Latino Studies program—was seriously punished by the university (which initially pressed criminal charges) for staging a sit-in at the university president's office; at the same time, some of the leaders of the organization were awarded presidential honors for their activism. They declined.

15 The first with autonomous departmental status (American Indian Studies 2019).

16 The strange locution "diverse individuals" is often used. Far from a recognition that we all contain multitudes, I suspect this phrasing comes from a tendency to think of marginalized students and faculty purely in terms of what they contribute to the university's diversity goals.

17 It is beyond the scope of this article to advance a picture of relational identity, but for some examples, see Mohanty 1997; Moya 2001.

18 For an example of this tendency, consider a recent article from the publication of the Yale School of Forestry and Environmental Studies, *YaleEnvironment360*. The article applauds the resourcefulness of researchers who make use of Indigenous knowledge so they can "*discover* more about everything from melting Arctic ice, to protecting fish stocks, to controlling wildfires" (emphasis our own). This type of engagement may be an improvement over ignoring Indigenous ways of knowing, but the language of discovery and condescension throughout presents non-Native academic researchers as the meaningful interpreters of Indigenous knowledge and diminishes the contribution of Indigenous peoples themselves (Robbins 2018).

19 For an example of "benevolent" federal Indian policy, see Cathleen Cahill's *Federal Fathers and Mothers*, which details the history of the US Indian Service, the precursor to the Bureau of Indian Affairs (Cahill 2011).

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