6

DOING ETHICS WITH COD

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I'm the guest of my friend and two men I've just met from Nain, the most northern settled town in Labrador, Canada. It's my first time fishing for Arctic char. I'm excited. I'm here because I'm a scientist and I need fish guts, plus I love fishing. But when I look around the boat, there is no fish bonker—that wooden stick you use to bonk the fish over the head. Uh-oh. How do you kill the fish? I throw out my line carefully, so that I don't catch anyone. The men are catching char after char, throwing them over their shoulders into the fish boxes and casting out again without looking back. The fish suffocate. When my friend catches her first fish I ask if I can kill it. She nods. I grip the fish between my knees and I cut its throat, sawing and sawing away. My borrowed knife is dull. The skin is unexpectedly thick. Shit, shit, shit. I'm doing a bad job. The char is bleeding and bleeding but is still alive. I cut deeper and deeper, past its gills. Still alive. Shit. Past its eyeballs. Its head is nearly off. Still alive. I am covered in blood and black flies. I throw the char in the fish bucket, where it bleeds out. Shit. The next time my friend catches a fish I cut deeper and faster. Still not good. She lands a third fish. I feel sick. I am going to have to keep sawing away like a shitty idiot. The boat driver interrupts his casting to pick the fish out of my hands by its tail and whack its head against the side of the boat. Dead. Thank god. I start catching fish and whacking them. Though only mine and my friend's. Turns out, you don't slit a char's throat. You have to whack char. I really need to add that to the lab protocol (figure 6.1).

We are members of Civic Laboratory for Environmental Action Research (CLEAR), a feminist, anticolonial marine science laboratory. Through our handling of fish, dull knives, specimen bags, and intestines, we find that we must be accountable to these things and their worlds in ways that don't always show themselves when we are theorizing at our desks. Indeed, understanding accountability in practice is a core strength of making & doing as a methodology in STS as "a mode of scholarship that involves attending not only to what the scholar makes and does but also to how the scholar and the scholarship get made and done in the process" (Downey and Zuiderent-Jerak 2017, 225). Intervening in material processes in the world as feminist and anticolonial scientists means that we engender specific relations and thus specific obligations.

6.1 Arctic char caught in Nain, Canada, 2016.

These obligations come from where we are from, including our Métis, Kablunangajuk, local settler, and come-from-away settler positions. These obligations also come from our research, both as scientists and as STS scholars, as feminists and as anticolonialists. Yet as you may have anticipated, these obligations are sometimes at odds with one another. Thus, our obligations and relations are often compromised, meaning we are beholden to some over others, and reproduce problematic parts of dominant frameworks while reproducing good relations at other scales. Compromise is not a mistake or a failure—it is the condition for action in a diverse field of relations (Fortun 2009 is a key STS text that articulates and grapples with this concept). To imagine otherwise is to subscribe to "*Terra nullius*, the coloniser's dream," which, Raweyn Connell writes, "is a sinister presupposition for social science. It is invoked every time we try to theorise the formation of social institutions and systems from scratch, in a blank space. Whenever we see the words 'building block' in a treatise of social theory, we should be asking who used to occupy the land" (2007, 46). CLEAR's field of action is not a blank slate. We understand that any act of resistance is "partly implicated in the very systems of oppression they set out to oppose" (Man 2006, 98), inadvertently reproducing parts of the system while challenging or changing others. This compromised, emplaced terrain is where we make and do relations and where we struggle to do them well according to the values of equity, relationality, humility, and reciprocity outlined in feminist, anticolonial, and Indigenous thought. These ethics—efforts to mind our relations in a compromised field—are difficult, imperative, and the topic of this chapter.

There was a specific way that people in that boat in Nain were catching and killing char, and those methods came from their relations. The lab member's (strained,

evolving) methods to kill fish by slitting throats and whacking heads came from her obligations to her father, who taught her to catch and kill fish quickly; to her Elder, who taught her about good relations in general (including keeping a sharp knife); to her friend on the boat, who invited her to her home in Nain; to the men on the boat, who invited her onto the boat; and to the fish, who died. She killed her and her friend's fish, but not the men's. That was *not* her place. One of the men, accountable to his guest, showed her how to bonk the fish on the boat. The men had other obligations, too, that made them throw the char in the box as fast as they could—they had to fill freezers (theirs and other people's) in a place with acute food insecurity. Perhaps. Our lab member was a guest, so this is her speculation. The point is that different relations make different obligations, which engender different methods. This is not relativism but is a deep specificity based in place and the relations to which we are accountable.

STS concepts such as assemblages, materiality, vibrant matter, interspecies, and agency are all fundamentally relational, articulations of "understanding[s] of relatedness" (Mol 2010, 257), in which two or more beings (humans and otherwise) are inextricable from one another's influence, action, and world making. These concepts help us operate "against the implied fantasy of a masterful, separate actor, [because] what is highlighted is the activity of all the associated actors involved" (Mol 2010, 256). Feminist STS scholars such as Helen Verran (2001), Michelle Murphy (2015), Karen Barad (2007), Donna Haraway (e.g., 2013), Lucy Suchman (e.g., 2002), and Astrid Schrader (2010), among many others, extend STS concepts of relationality to argue for response-ability and accountability in these nonmasterful, enmeshed relations. In a different but sometimes overlapping intellectual tradition, Indigenous thinkers argue that "relationality is . . . an ethical stance that requires attentiveness to the responsibilities that come with a declaration of being in relation" (Donald 2012, 535). Both feminist STS and Indigenous thought agree that things are *constituted* by these relations rather than preexist them. In Indigenous thought, obligation is a key way to describe that constitution. We follow these threads of feminist STS and Indigenous thought to understand that relations, ethics, and obligation are synonymous, and we aim to enact that understanding while making & doing marine pollution science.

CLEAR's efforts to attend to our obligations are worked out and formalized in protocols. When we say protocol, we call on its meaning in both science and ceremony to mean "the manner in which one approaches each and every element in our space" as a manifestation of our values and goals (Keali'ikanaka'oleohaililani 2014, 77). In a scientific laboratory, protocols are the scripts you follow to keep your controls controlled, your science replicable, and your findings valid. Step 1: tie back your hair and put on gloves. Step 2: rinse the sieve three times. Step 3: rinse the outside of the specimen bag in water before placing it in the sieve. In all these actions, you're looking out for contaminants that might creep into your sample. Protocol also refers to guidelines for conduct during ceremony: bring the hosting Elder tobacco (loose

cigarette tobacco will do, but leaf tobacco is better) in a red cloth bundle; present it in your left hand, and let the paarantii kaayash ooshchi take it from you. Don't put it in their hands—it's a gift and it must be accepted. In both science and ceremony, protocols reinforce and perpetuate what is meaningful and right in an activity (Whyte, Brewer, and Johnson 2016; Tallbear 2014). They are enactments of our values and guiding principles, and they instruct us in how to reproduce what is good. Sometimes they are prescriptive, and sometimes they are about the maintenance of everyday life and well-being, but they always point you in a good direction and serve as an orientation. Our orientations that we inscribe in our protocols are the values and theories articulated in feminist, Indigenous, and anticolonial movements and thought (key among them are Ahmed 2017; Arvin, Tuck, and Morrill 2013; Chavolla 2007–future; Kimmerer 2013; Grande 2015; Murphy all years–future; O'Brien 1993; Todd all years–future; Tuck and McKenzie 2015; Tuck and Yang 2012; Smith 1999; and Wilson 2008).

As many STS researchers have shown, scientific research cultures reward individualism (Ross 1992; Man 1999), heroism and machismo (Carey et al. 2016), and frontierism (Tilley 2011), in addition to consistently privileging white, male bodies and knowledges (Murphy 2006). Like most other forms of academic research, science assumes access to land as a resource for knowledge, a core impulse of colonialism (Coulthard 2014, 7). CLEAR is committed to Western science and its ways of knowing—we are marine scientists!—but we are not committed to all values that undergird and reproduce the dominance of science over other forms of knowledge and many of its practices and assumptions, including entitlement to land. It makes for an uneven terrain.

CLEAR does research on marine plastic pollution, particularly those plastics ingested by animals caught for food by rural and Indigenous peoples (e.g., Liboiron et al. 2016). In the province of Newfoundland and Labrador, Canada, this means we work mainly with Atlantic cod, as well as Silver hake and Arctic char (including that char from the introductory story). We are aligned with other fish-oriented people who understand how "human-fish relationships represent a whole host of social, cultural, and legal-governance principles that underpin life" (Todd 2014, 218; Todd 2016, 2017, 2018; Price 2007; Hoover 2017; Fox et al. 2017). This chapter follows fish into our laboratory, where their gastrointestinal contents are turned into data and then brought back into the world as scientific research. We choose key moments when practices matter in terms of navigating accountability and good relations. These moments are told as storied memories by various lab members. Here, as elsewhere, research is not inherently good (Murphy 2006; Deloria 1969; Smith 1999) even when it is trying very hard to be good. Creating and testing feminist and anticolonial research methodologies in science that foreground good (accountable, obliged) relations is the main goal of CLEAR. These are our stories of staying with that trouble.

LESSON ONE: RELATIONS ARE COMPROMISED (COLLECTING SAMPLES)

Scientists have argued that the vast majority of marine plastics—93%—are smaller than a grain of rice (Man et al. 2014). This means many animals, from whales to plankton, can ingest them. For the authors, as for many marine scientists, the problem with animals ingesting plastics is not that they might choke or otherwise be harmed by the plastic polymers, although we've seen this happen occasionally (Rochman et al. 2016). The problem is that plastics absorb hydrophobic (oily) chemicals (Rochman et al. 2013a). You've seen this if you've ever stored chili or curry in a plastic container and then can't scrub the orange color out of the plastic—the plastic has absorbed the oily tomato sauce. In the ocean, there is less tomato sauce and more industrial chemicals such as flame retardants (like PCBs), pesticides (like DDT), and heavy metals (like methyl mercury), all of which scientists have found concentrated on marine plastics up to one million (10^6) times more than the surrounding water (Teuten et al. 2007). When animals ingest plastics, these chemicals can move from the plastics into the animal's tissues (Rochman et al. 2013b, 2014), where they can accumulate and biomagnify in the food web (Teuten et al. 2009). This means that those at the top of the marine food web are at the greatest risk of exposure (Man et al. 2016). That's where we eat.

These preceding statements are scientific, culled from research designs, published work, and conversations with our fellow scientists. As STS scholars such as Lorraine Daston (e.g., 2007) who study objectivity have taught us, these sources are not perfect vessels of truth so much as ways to construct worlds and realities. But those worlds are not settled and monolithic. They are our main building blocks as scientists, and they can be curated, arranged, and taken up in a way that reflects our obligations to emplaced relations. In Newfoundland and Labrador, marine mammals, birds, and fish are a mainstay of diets for rural and Indigenous communities, often communities with high food insecurity (Nunatsiavut Government 2017; Lowitt 2013). This makes rural and Indigenous people more likely to be exposed to industrial chemicals via plastics because of their social, economic, geographic, and cultural location (Man et al. 2016). We orient our scientific facts to this concern. Charlie remembers,

> During the recreational food fishery, when people in Newfoundland can fish legally, we go to the wharfs where people are filleting their fish and ask for the fish guts. Sometimes commercial fishers are also at these docks, and we ask them as well. We get guts from hundreds of fish this way every season. This approach to data collection aligns well with our commitment to accountability and to good relations. Legally, cod must be gutted on the wharf and cannot be processed at sea. Fishers, both commercial and recreational, typically discard the guts into the sea around the wharf, keeping the tasty fillets, cod cheeks, and britches. So our data comes from something that has to be processed on the wharf, is not normally used by humans, and would have been thrown away. This is good.
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> But in our second year of data collection on the wharfs around St. John's, someone else wanted cod guts. We are bagging and tagging the pile of fish guts on the table in front of us, gathered from a group of fishers that have landed fifteen fish. An old woman approaches us.

Her accent is thick and we have trouble understanding what she says at first. She wants the cod guts. She wasn't interested in the guts for scientific purposes. She didn't want to know how much plastic the cod had ingested. Instead, she wanted to use the cod carcasses to make a soup or a broth. We thought the cod carcasses and guts were waste, but clearly that is not the case for everyone. We were surprised and taken aback. What had seemed such an ethically uncomplicated way of collecting data had suddenly become deeply complicated. How could we take food away from someone in order to generate data in our lab? Taking food away from someone to produce data on marine plastics didn't align well with our commitment to good relations.

This case might not seem like a hard one to maneuver—we can spare a few guts. The fish and fishers are generous that way. Moreover, if our research focus is on food justice in the province, then saving guts for food instead of science is a direct way to contribute to that focus. It would enact good relations.

But it is a little more complicated than that. One of the ways feminist STS has thought about the pairing of relations and ethics is through theorizations of care. We can understand care as a mode of attention that gathers and holds things together, thickening and multiplying how things are related (Puig de la Bellacasa 2011), supporting a way of research "whose import will no longer be to debunk but to protect and to care" (Man 2004, 232). Some STS feminists have argued for ethics of care as relational entanglements based in practice (making & doing) rather than only in theory, including how we acknowledge and respect our situated relations even when those relations are not the ones we desire or choose by our own designs, such as suddenly being in relation with a woman on the wharf who wants your guts (Murphy 2015; Martin, Myers, and Viseu 2015).

At the same time, Michelle Murphy reminds us about the histories in which care marks out certain bodies as sites of intervention. She warns us that acts that are often framed as benevolent gestures of care in fact maintain power relations, including colonial ones (2015). Any impulse to think about our relations to fish, fish guts, fishers, women on wharfs, and science as one of care is complicated by this reminder. We did not care for the woman on the wharf by giving her guts—that would be deeply paternalistic, first by assuming that we *could* care for her and second by framing ourselves as benevolent gift givers of what she needed and what the fish already gave. More likely, we interrupted her carcass collection and made her day more difficult. Perhaps she was caring for us, these scientists ruining perfectly good food. Nor did we care for the guts. We were careful with them, but we also took them. We took them away for our own uses, our own desires and goals, benevolent as they may be. Calls to rearrange technoscience in terms of care or concern, Murphy writes, are often framed as "a romantic project that tend[s] to emphasize the liberating potential of a politics of positive feeling. It tend[s] to avoid addressing the ongoing, painful and extensive forces of racism or colonialism that do not disappear with good intentions or by constructing spaces where such forces are not keenly felt by privileged subjects" (2015, 720). The woman on the wharf interrupted our privileged subjecthood.

And so it is our obligation to address "the ongoing, painful and extensive forces of racism or colonialism" in our practices.

In our case of encountering the woman on the wharf, attending to colonialism means we notice that we had unproblematic access to fish guts as a resource for the taking, taking them away from their land and emplaced relations. Colonialism is a structure that ensures ongoing access to land as resource (Coulthard 2014) for colonizers and settlers, including access to soil, water, air, fish, and their guts for science. The issue is not that there are more than enough guts to go around, or the generosity of the fishers who give us guts, but the assumption of access and that our access precludes other access, uses, and relations (Whyte 2017). If the woman who wanted the guts had not been there, the guts would probably have gone into the water, to crabs and sculpins. What would an anticolonial sample collection be in this case? Not collecting? Asking politely? Learning that "politely" in this context might mean including the crabs and sculpins?

We're working on that.

LESSON TWO: RELATIONS ARE NOT ENTANGLEMENTS (DISPOSING OF WASTE)

We take the guts back to our lab; open them up; look for plastics and count, weigh, and measure those plastics; and then we archive the plastics in pretty glass vials. There are stories about these processes, but we want to focus on scientific practices that often don't receive attention (following Puig de la Bellacasa 2011). Once the guts are emptied of their contents, what do we do with them? Initially, following university health and safety protocol, we incinerated them as hazardous waste, the same treatment as for all other animal tissues used in scientific studies. We are committed to expanding how fish are known in a university setting, not only as samples but also as food, political citizens, and grandmothers, so we petitioned the Institutional Biosafety Committee to reclassify the guts as food rather than biohazardous waste, which they granted readily. One of the things about compromised fields is that you find allies everywhere, often in unexpected places. We aren't the only ones at the university trying to do good relations (la paperson, 2017)! With the Institutional Biosafety Committee's support, we can put our guts in the dumpster, as though food scraps. But this option did not seem particularly feminist or anticolonial in terms of enacting equity, reciprocity, or humility (you don't put your kin in a dumpster!), so we held a lab meeting (the first of many) to consider the problem. After the meeting, Edward went away thinking about what to do:

> I asked my Elder about sharing animal guts. After several moments he shared a memory starting in his childhood. It was my memory as well, and undoubtedly the same memory his Elder kept. When I was young, I was told to take what remains over to feed the dogs, or the birds in the summer months, and these other ones to another place so that the mice might

enjoy them. Some were left to be reclaimed by the waters and all that lived below them and some to go into the ground. As the memory travels through the generations, the only difference was how much there was to take. There was no such thing as waste. All was consumed by us, the animals we shared the land with, or the land itself. Everything is in movement. Even things that were still were gone by morning. Spreading around what remains ensures that they are shared efficiently and that no remains are piled to the point of contamination. And while the delicacies found in entrails have been forbidden to me because of PCBs and other things from away, the remains still have purpose in the larger whole. They are part of sila and keep me, my Elder, and my Elder's Elder buoyant.

In this story, the relations are spread out across many beings, and obligation comes with those relations. These relations are not synonymous with "relationship" or association. In much Indigenous thought, relations do not arise from association or processes (Watts 2013). This makes Indigenous STS different from the relational accounts of Actor Networks, matters of concern, and care we described earlier. As the Anishnaabe and Haudenosaunee STS scholar Vanessa Watts argues, models of relationality such as those represented in Actor Network Theory, or the parceling of humans and nonhumans as distinct but relating entities in multispecies relations, "removes the *how* and *why* out of the *what*" of relations (2013, 24). It divides epistemology from ontology (and certainly axiology, or ethics), even if they remain intimate. In these theories of relations, "objects, actants, or beings in the world may have an essence or an interconnection with humans, but their ability to perceive is null or limited to instinctual reactions" (24). In these relations, "humans are responsible to land the way an owner might be responsible for a pet" (29). Not cool, says Watts. That sounds like a violent type of care, says Michelle Murphy. Okay, we say. We believe you.

Put another way, in much Indigenous thought, ontology, epistemology, standpoint, and axiology are different expressions of the same thing (Wilson 2008; Walter and Anderson 2013; Chilisa 2011). The *what* is always already a *why* and a *how*, which is another way to say "obligation." *This is what we mean by relation*. Shawn Wilson argues that "the shared aspect of an Indigenous ontology and epistemology is relationality (relationships do not merely shape reality, they *are* reality). The shared aspect of an Indigenous axiology and methodology is accountability to relationships" (Wilson 2008, 7). In a cosmology based on relationality as obligation, "right or wrong; validity; statistically significant; worthy or unworthy: value judgements lose their meaning. What is more important and meaningful is fulfilling a role and obligations in the research relationship—that is, being accountable to your relations" (77). As scientists, researchers, members of communities, and people with land relations, we have certain roles and obligations to fill when we are left with a bag full of fish guts. We do not choose those obligations. They are already there. Perhaps you could say that they choose us, like kin. Protocol is supposed to help you maneuver those obligations.

Now we bring our guts back to the water and share them around, back to the sculpins and crabs. It's called a repatriation protocol rather than a disposal protocol.

But we keep working on it, because relations are in movement, as the Elder said, and we are not done. There are still years, probably generations, of work to do on this protocol. Is it okay to return char guts from Nain to the Gut in St. John's? Is it okay to return a freezer-full at once? What sort of ceremony should we be doing to help with the orientation, if any?

LESSON THREE: RELATIONS ARE UNEVEN AND INCOMMENSURATE (GIVING CREDIT)

There are relations between the humans in the lab as well. One of the concrete ways that CLEAR foregrounds our obligations to each other and to equity is in our author-order protocol (Liboiron et al. 2017). We are obliged to recognize, celebrate, and support one another to succeed in our chosen professions, which means publishing in traditional scientific venues, and we aim to do so equitably and with humility. Norms for naming and ordering authors in the environmental sciences give most credit to the first author, who is understood to have guided the research in terms of ideation and labor, and the last author, who is understood to have mentored all authors. Because credit is not even, author order matters. At the beginning of the chapter we said that making & doing brings ethics into view in a way that sitting at your desk may not. But we are still in relation at our desks, writing. We are still intervening in lives through writing, and so it is a place for ethics (see Smith 1999; Deloria 1969). We're sure this is something that readers have experienced. Our author-order protocol, described in the following, is meant to travel and be helpful to readers who we know are compromised as we are, in a field where publishing, value, and equity are not always aligned (our citations are an experiment in a similar effort).

CLEAR's author order protocol foregrounds equity, by which we mean attending to the uneven social locations of lab members, rather than equality, which would involve treating all lab members the same. First, we work to recognize forms of labor that are usually left out of scientific articles, such as cleaning, organizing meetings, and other care work. Here we are indebted to feminism's insights into unpaid domestic labor and STS scholars such as Maria Puig de la Bellacasa (2011) for bringing those ideas into scientific practice. Second, we consider people's social locations. For example, junior CLEAR members, often undergraduate students, may never be on a paper again. Women, people of color, Indigenous people, people with disabilities, and people from low-gross-domestic-product countries are most likely to be overlooked in merit-based awards, pushed out of science, said to complain too much, and have their ideas stolen (Smith 1999; Ahmed 2017; Todd 2018; and our own experiences). When authors are considered to be equal in terms of labor, these folks are bumped up in author order in terms of equity. CLEAR's author order process occurs through a lab-wide consensus achieved during facilitated lab meetings (the full protocol is in Liboiron et al. 2017). Emily recalls:

I'm in the lab with fourteen other lab mates, seated around a table that's topped with baked goods to nourish our bodies while our brains attempt to decide the author order of our newest plastic ingestion study with silver hake. We're listing types of labor involved in the project so we can be sure to credit everyone who has been part of it. The list includes collection work gathering the fish, processing samples, writing, editing, organizing meetings, cleaning up, and grant administration. Now we're adding another one. All fingertips reach skyward and wiggle: jazz hand consensus around the table. This is how we show agreement. We've all agreed that dying is a form of labor and it is worthy of a star—meaning it is among the most important forms of labor in this project. Labor means authorship credit. Max, who's facilitating, adds "Fish" and a star-like scribble to the list of potential authors on the whiteboard, because fish are the ones who did the dying. I grab an extra granola cookie.

Including dying as a form of value-adding labor puts "dying" alongside "cleaning" and "editing" on the list of scientific activities. It's a lopsided list. This is the thing about relations: they are uneven, even incommensurate, in how they add value, how they give and take, sustain and sacrifice. Sometimes people understand reciprocity—one key characteristic of good relations as they've been taught to us (Dorion and Flamand 2011)—as a barter in which one good practice is met by another of commensurate value. But if we take equity and Murphy's work on feminist care seriously (2015), we know reciprocity will always occur within and across deeply uneven social locations and histories. If we extend this relation to fish that die for food and science, then the idea of reciprocity as parity is off the table entirely—an equal trade leaves everyone dead or hungry. Robin Wall Kimmerer writes about the combination of reciprocity, obligation, and unevenness in relations: "If I receive a stream's gift of pure water, then I am responsible for returning a gift in kind. An integral part of a human's education is to know those duties and how to perform them. . . . Humans have the capacity for gratitude. This is among our gifts. It's such a simple thing, but we all know the power of gratitude to incite a cycle of reciprocity" (2013, 116). We can never match the generosity of water or of fish, but gratitude is part of our obligation to those relations. Moreover, fish likely don't care about author order. Or at least the value of authorship does not accrue to them the way it does to a human lab member. But relations are not about value parity—they are about obligation.

Even in these uneven relations between fish that died and lab members, there is compromise. In the end, the fish in Emily's account were not included as authors in the final submitted scientific article (see Liboiron et al. 2018). We left them off the author list because we still need to be published as scientists, which means following the norms of science in which only humans are considered authors. But we still wanted to show gratitude, so in the acknowledgment section we thank "Susan Fudge and Laura Wheeland for coordinating the Celtic Explorer survey trip, and M. Bilinearis for their personal sacrifices to the project." The Latin name for silver hake is *Merluccius bilinearis*.

But what about this chapter? We can finally give fish author credit for the work they do because we're publishing in an edited volume on making & doing! Our

editors don't care if we have fish as authors. It was an exciting lab meeting. Max took notes:

The lab discusses putting the fish as first author. A lot of people are for that. People are excited, there is wiggling in seats. But then the tone changes. Charlie asks, "What relation are we setting up if we gift the fish authorship?" Nicole tells a story about being interviewed as a Newfoundlander for a book and how she would never want to be coauthor on that. Charlie tells a story of a professor who published a student's term paper, and though the prof gave the student author credit, the student did not give consent to be published or be an author. Elise talks about how survivors elevate their cultural status by obituarizing the dead, using the names of the dead as capital. Taylor says, "Giving the fish author credit is in the spirit of the paper," but as a group, we come to realize it is also wrong according to the lessons of the paper. "So," I ask the group, "how do we want to credit the fish, then?"

We have an obligation to the fish for their part in our learning, but we are reminded of Murphy's lesson that care can also be violent. Authors are obliged to their papers. The gift of author order would oblige the fish to the paper in a way that is out of place, without consent, trying to make commensurability where there is none. We must meet our obligations to the fish in other ways. We decide to acknowledge them as teachers, and all our teachers, in a space that is less than author credit but more than a traditional end-of-the-paper and often unread acknowledgment. You can see our compromise on the first page of the chapter, in the endnote, and in the author biographies.

LESSON FOUR: TENSIONS AND COMPROMISE (KILLING, TALKING, BRAIDING)

I told one of my friends about the disaster of trying to kill char in Nain. He laughed. He spoke about his first moose kill and what a disaster it was. When you're learning, you can't do good relations well. You're not good enough at it yet. The animal suffers, you suffer. Blood is everywhere. Your teacher pretends to be looking somewhere else. But this is learning. It is not possible to be in good relations without this learning.

I was giving a talk about CLEAR's feminist science at a university reputed for its progressive politics. It hosted one of the most alienating Q&As I've ever been invited to (except for that time in that philosophy department). One question stood out. A woman asked me to share my failures in the lab. I asked what she meant. She said, "I want you to be more vulnerable." I obliged her. Later, I was furious. Furious for the question—asking me to be more vulnerable, standing at the front of the room as a small, Native woman whom academia and dominant science are built to erase, trying to work where there are few roadmaps. I was furious no allies in the room stepped in to intervene, despite their rhetoric of allyship. But mostly I was furious at myself for obliging instead of burning that house down.

In braiding sweetgrass—so that it is smooth, glossy, and worthy of the gift—a certain amount of tension is needed. Any[one] with tight braids will tell you, you have to pull a bit. Of course you can do it yourself—by tying one end to a chair, or by holding it in your teeth and braiding backward away from yourself—but the sweetest way is to have someone else hold the end so that you pull gently against each other, all the while leaning in, head to head, chatting and laughing, watching each other's hands, one holding steady while the other shifts the slim bundles over one another, each in turn. (Kimmerer 2013, ix)

We hope our stories show that a dedication to good relations, in or out of science, is fraught, ongoing, and emplaced. This is why methodologies of making & doing are well suited to theorizing ethics-as-obligations-as-relations. Some people will call these politics (and we agree), but we prefer to call it obligation, because it favors a scale and specificity of action that has to contend with whether and how to kill a fish while being a guest on a boat in Nunatsiavut with a dull knife. Politics might accidently miss that scale.

The three stories that open this final lesson are about different ways of approaching the ongoing task of obligation to relations in an uneven terrain. Some look more like what we've been calling compromise, in which there are no good options available and we must pick our way through the less-than-ideal landscape, whereas others are more about the conditions of building a livable world together with others, but they all share the same seed. In all cases, ethics are a lot of work, and it's in the doing.

CLEAR's work, which takes up lessons from feminist STS and Indigenous scholarship, has solidified two ideas for us that may be useful for other scholars. First, relations, ethics, and obligations are best enacted as synonymous. This brings together epistemology, which is a way to talk about ways of knowing; ontology, which is about "the conceptual nature and relational classification of objects and beings" (Brighten 2011, 52); axiology, which is a way of talking about values and goodness; and standpoint, which names the relationality of personal and collective experiences, histories, and social standing that is foundational to feminist standpoint theory. All four happen simultaneously, so the what, how, and why are the same thing (Chilisa 2011; Watts 2013). Although STS scholarship increasingly refers to relations (a search of English-language articles in *Social Studies of Science*, *Science as Culture*, and *Science Technology and Human Values* returns 295 articles with "relations" or "relationality" in their abstracts), the term is rarely paired with ethics, obligation, and axiology as a necessary bedfellow (of those 295 texts on relations, 19 had "ethic" in their keywords list). We argue that relations and ethics are always and already the same things.

Second, we have worked here to describe and texture relations and what they are, an act we hope other STSers take seriously when they talk about relations. That word flies around a lot at conferences, but it's hard to know what it means. Relations are never in the abstract. They are specific. We've argued that they are not entanglements but are part of ontologies; they are not processes but are orientations to obligations; they are uneven and incommensurate; they are ongoing and emplaced; they can cause harm or be in good standing. Most importantly, from our positions as feminist and anticolonial scientists, relations are compromised. Being in good relations is about maneuvering the "discrepancies, ambiguities, and paradox" of being a feminist and anticolonial in a Western scientific laboratory and "trying to force fit the world into available political ideologies" (Fortun 2009, 51). Compromise does not refer to acts that are wrong or damaging, although it could. It means that, because we are in diverse, multitudinous, simultaneous, thick relations and thus in

contrasting, aligned, and incommensurate obligations, we are always meeting some obligations while not meeting others. It is about the choice to continue to slit the throat of the fish with a dull knife, even though it is shitty. It is about taking the incommensurabilities of giving author credit to fish seriously.

EXPERIMENT ONE: CITATIONAL RELATIONS (THE REFERENCES LIST)

CLEAR is part of a growing movement to build a better world by citing it (Ahmed 2013; Ahmed 2017, 14; Gaztambide-Fernández, Tuck, and Yang 2015; Mott and Cockayne 2017). Citations are locations. They situate us as scholars in terms of disciplinary habits, techniques, and lines of inquiry and, of course, enact relations. Our references list is an attempt to disrupt the disappearances and erasures that sustain the patriarchal and colonial infrastructure inside and outside the university, to build good relations in writing. Welcome to our experiment! You may have noticed as you read that we are following radical-shit-disturber Sarah Ahmed when she says, "I adopt a strict citation policy: I do not cite any white men" (2017, 15). Max remembers:

> Reading that sentence in Ahmed about not citing any white men. I nearly dropped the book. I remember thinking: you can do that? Then . . . how do you do that? I tweeted something about it to scientists, and the responses were, like: "do you mean the lead author, or all authors?" Scientists are so practical—right back to protocol!

Ahmed clarifies that not citing "any white men" is not about defining which individuals are white and men—you're in, you're out—but that "by white men I am referring to an institution. . . . I cite those who have contributed to the intellectual genealogy of feminism and antiracism, including work that has been too quickly (in my view) cast aside or left behind, work that lays out other paths, paths we can call desire lines, created by not following the official paths laid out by disciplines" (2017, 15). CLEAR is engaged in several experiments in citational politics, and this is one of them. Here, we richly cite "those who have contributed to the intellectual genealogy of feminism and antiracism." To a lesser degree, when we invoke those who write for and reproduce Institutions, we have cited them as such, using "Man" in parenthetical citations, collectively accruing to "Man, White" in the reference list, regardless of their gender expression.

The final step of this experiment is that we have not ordered our citations alphabetically but according to whom we owe a debt of gratitude, arranging them the same way you feed Elders and teachers first at a feast. This arrangement is our "thank you" list to some of those who have fed us and whose shoulders we stand on. Thank you.

CONTRIBUTIONS

Max Liboiron collected stories, coordinated lab meetings, and did the majority of the writing and theorizing. Emily Simmonds conducted literature reviews on feminist

STS and care and on Indigenous STS. All other authors contributed the first-person narrative stories around which this paper is built and put trust in the lead author. All authors were involved in editing. All our teachers precede and exceed our learning, writing, making, and doing.

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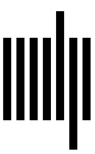

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