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Thesis

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**Value and Practice in a Feminist, Anti-Colonial Marine Science Laboratory**

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That’s Stealing, Settler

It’s 2:40 a.m. early Wednesday morning and my flight touches down in St. John’s, Newfoundland and Labrador. I collect my bags, making note of the taste and texture of the air, so different from Heidelberg, Germany. I hail a cab and make note of the accents heard around me. I arrive at the AirBnB that I’ve rented for the two months of my fieldwork. I am researching researchers researching marine microplastics.

9:00 a.m. Friday morning, I stride into my new field site: the Civic Laboratory for Environmental Action Research (CLEAR). I walk through semi-manicured lawns and gardens full of roses in bloom to arrive at the science building. I enter the foyer and ask a woman in the first office I come to, where the CLEAR lab is. “Just downstairs and to your right, deary.” she says in what I thought was a quintessentially kind Canadian manner.

The building is slightly drab. Brownish hues adorn the walls. The staircase is utilitarian. Downstairs and to the right I see an open door with a large fan propped in it. I peer into the room and make eye contact with the sole occupant. By her bright and ready smile, I assume this is Kaitlyn, the lab manager I’ve been emailing with the past several weeks.

“Lauren.” she says, as if we are old friends and she is happy to see me. “You must be Kaitlyn” I reply, pleased to be greeted in such a comfortable way. During the lab tour, I feel a sense of nostalgia for the coastal ecology lab I worked at a few years prior.

Kaitlyn showed me one sample of plastics she finished yesterday. It’s carefully enveloped in a white coffee filter. She says with incredulity “There were *51* plastic particles in this sample.” She exclaims it in a way that I know is meant to convey “Can you believe such a thing!?” The only problem is, I have no reference for how much 51 pieces of plastic in one sample is. I venture… “Is that a lot?” She replies in the affirmative. She dons a white lab coat several sizes too large for her slight frame and pulls her brunette hair into a loose, low ponytail. She walks me over to the processing station, selects a sample and extracts a coffee filter from a jar gently, so as not to lose the contents. Reverently, she unfolds the filter and presents me with… Nothing. I squint at the white filter and see a tiny blue speck. So, this is the 51 piece sample? Indeed, it is.

All of these observations are data. I’m an anthropologist coming to the lab from my university in Germany to study the scientists who work here. Everything I note down, all of my observations, every interaction is data for my master’s thesis.

Kaitlyn sends me off with an “Onboarding Packet” of sorts. I’ve got a Google drive that has nine items to complete, including reading the living lab manual, watching videos, completing animal respect training and reading lit reviews by previous members among other things. I leave, pleased with my first interaction with the lab. My mind is buzzing with observations, trying to remember every detail, every comment and organizing it in my head.

Over the course of the weekend I had been noting this and that. Fish cakes are a thing here. George St Festival is a huge economic boom each summer. Chatting about the weather is not idle chit chat, but of vital importance to the people who live and work on the sea. All this goes into my mental and then electronic files.

It’s now Monday morning and I’ve got my first meeting with Max Liboiron, the lab director who I organized this research with. The science building is closed due to a power outage. I descend the now darker and dingier stairs to the lab and find Kaitlyn and Max cloaked as two shadow figures lurking in the black maw that is the opening to the lab. My first meeting with Max is short. “No lab today. I’ll see you at the meeting tomorrow.” - Max

Tuesday morning arrives. I’m sitting in the lab cataloguing every interaction, every gesture, every idea discussed as I listen to Max efficiently plow through Natasha, Kaitlyn and Charlotte’s list of items to be discussed. After logistics are attended to, Max settles down in a chair to my left.

“Ok, what do we need to talk about?” she asks. I say, “Let’s discuss our expectations for what I am doing here at the lab.”

We chat for a few moments and she asks, “Have you already been collecting data?” Proud of my work ethic, I reply, “Yes, I have!” She states, “That’s stealing”

…

My brain goes blank. I recognize the words to be English, my mother tongue… Yet, I don’t understand what they *mean* in this context.

“That’s stealing.” Max reiterates, likely repeating her words in response to my vacant face. “You do that again and you’re out. You came in assuming entitlement to extract data and acted in a deeply colonial, imperialist manner. You thought you could come in here and take information from us without our consent. That’s harmful.” Her delivery of this news was not overtly aggressive, nor accusatory. She was explaining the fact of the matter.

“No.” I think at length. “ I’m not stealing. I’m doing research!” I say in my mind. I wasn’t ready to concede that what I had said and done was wrong or unethical. I couldn’t think straight. I felt like I was being attacked and was terrified and angry and defensive.

On the outside I sit, calm, placid. Saying things like, “I hear you. I understand where you are coming from. I see where collecting data without consent is wrong.” I say these things, in the midst of my inner bedlam, as I can still ascertain these are true. And this is something, when all other certainty about my own values, ethics, and moral compass is suddenly suspect. Yes, I can clearly understand that collecting data without consent is ethically harmful, but I’m *going to get* consent... So, it is really *that* bad? I wrote a proposal, so they already know what I’m doing, right?

Amidst all of this, I try to remain present, to sit with this maelstrom and hear Max out. I listen to her tell me my entire career as an anthropologist has been wrong. I watch as my Masters, PhD and career go up in smoke. The last 8 years of my education has led me to be a thieving, colonist jerk who gallivants across the world causing harm and perpetuating violence.

Did Max speak those words? No. But my head was perceiving them as such.

“Here’s what you can do,” Max says, wrapping up my existential crisis with brisk efficiency, “You can issue a formal apology to the lab. That’s why we have a section on apology in the lab book. Then you can ask the lab what they want to do with the data you’ve already collected. I’ll facilitate that meeting so that if you start crying or laughing uncontrollably, I’ll take care of it. I’ll make a container for you. But you do the words.”

Out she walks.

I had two hours to attend to my wounds and craft an apology before the start of the lab meeting. This is how it went:

“Before I dive into the collaborative research I’d like to do this summer,” I take a deep breath “I stole from you. I am sorry.”

I speak for a few minutes about the following:

I acknowledged that I had stolen data. Though to me, the more egregious affront even than the fact of stealing was the fact that I came in assuming entitlement to that knowledge. I claimed what wasn’t mine to claim and didn’t question my methods. That is colonialism as the lab sees it.

The folks in the lab were gracious, humble and forgiving. We proceeded to discuss the matter as a team, they called me in rather than calling me out when I had done them harm. They agreed to let me keep the data I had collected- part of which I used in this introductory story. This is an example of the protocols and procedures the lab has in place for just such difficult situations. It gives a framework for this intentionally orchestrated space to work in alignment with their values. From that lab meeting on, I was a fully functioning lab member. They demonstrated, in that exact moment, the embodiment of the values they hold so dear. The values of equity, humility and justice.

Introduction

This thesis explores the question, how do values inform practise in a science laboratory? I chose to start with the story “That’s Stealing, Settler” that I wrote for CLEAR’s story archive, as it contextualizes my entry into the lab. The end of the story demonstrates my apology and integration into the lab as a lab member and as part of the collective. This story also begins to answer my guiding research question which is, how do values inform practice in a science lab? I draw from thick description, pulling in elements from my daily field diaries that tell the story of CLEAR from my point of view.

My data led me to three main themes: embodied values, heritage and utopia. I analyse how the lab embodied values inform their practices and protocols. These values and practises are influenced by the environment the lab is physically located in, therefore I analyse the role heritage plays in how values inform practise. These two concepts of embodied values and heritage lead me to the final section of exploring how these aforementioned themes create what I term a utopian vision.

My own positionality within this research is in part built upon Kim Tallbear’s explanation of “standing with” (Tallbear 2014) interlocutors. “A researcher who is willing to learn how to “stand with” a community of subjects is willing to be altered, to revise her stakes in the knowledge to be produced.” (ibid 2014) My research is an ethnography of CLEAR that uses auto-ethnographic components. These auto-ethnographic aspects, “… means that hypotheses, research questions, methods, and valued outputs, including historical accounts, sociological analyses, and textual interpretations…”(Harding 1991, 2008; Tallbear 2014) begin from my lived experience.

I chose this method of portraying my results through the act of telling stories in order to demonstrate how narrative plays a role not only in my research participant’s experience. The auto-ethnographic aspect stems from the fact that I draw from my field diary and present my own perception of and response to events.

Anthropology was born from colonialism and seafaring (Helmreich 2011). It wasn’t until the 1980’s that a discipline wide paradigm shift of any magnitude occurred, when anthropologists shifted their views from the “s-word slot”[1] to the “suffering slot” (Robbins, 2013). Laura Nader encouraged anthropologists in the 1970’s to study, “(...) the colonizers rather than the colonized, the culture of power rather than the culture of the powerless, the culture of affluence rather than the culture of poverty” (Nader 1972). These authors have shaped my interest in conducting my research at CLEAR looking into how their values inform practice.

I seek an applied approach to my studies. I am always asking “How can we take this knowledge and apply it in a meaningful way?” Therefore, the action-based and activist research conducted at the CLEAR appeals to my sensibilities. After having conducted my research at CLEAR, I am further convinced that many of the values they hold dear are analogous to my own fundamental principles, such as discussing inequalities or concerns early and openly, creating space to listen to others and reflexivity.

With the idea of feminism and anti-colonialism written into the very ethos of the CLEAR, they can engage in revelatory research. Building from this ethos, I express gratitude for those scientists who came before me.  I can now take the reins and ask, “How can this look different?” How can I proceed with this research with integrity, equality and humility? The members of CLEAR have written on these topics extensively, as seen in their myriad articles such as *Strong Animals: Humility in Science, Community Peer Review: A Method to Bring Consent and Self Determination to the Sciences, Equity in Author Order: A Feminist Laboratory’s Approach* and many others.

I was drawn to anthropology in 2011 for the sheer curiosity of learning how and why those outside of my own cultural understanding live as they do. In the 9 years I have spent in this field, I feel the time is now for the anthropological gaze to turn from the suffering slot (Robbins 2013, Trouillot 2003) towards an anthropological approach to activism. I choose to collaborate with the individuals and communities who seek to actively shape the outcome of our planet’s health as this is a topic I am passionate about.

There are as many ways to learn, teach and be as there are organisms on this planet. Therefore, honoring the concerns of plants, animals and people in any given environments can provide a different way of doing science. Taking a feminist and anti-colonial approach allows us to deconstruct societally unquestioned behaviors, ethos and models.  It is exploratory, inclusive, has clear boundaries, and sheds light on the fact that colonialism isn’t a relic of the past but is ongoing (Liboiron 2017). Feminism doesn’t mean man hating and bra burning but situating science firmly in the arena of equality and accountability (Haraway 1988).

I elected to conduct my research at the CLEAR lab for a number of reasons. I believe academia, business, policy, science and civilians would profit from studies done in a reflexive manner continuing with the trend of turning the anthropological gaze on our own cultures. I am attracted to reflexivity. It is a characteristic I have honed and continue to hone. This deeply entrenched reflexivity is in part, why I am drawn to studying a culture that I am already familiar with and have worked, lived and studied in. This reflexive quality also explains why I chose to write this thesis with an auto-ethnographic trend. As an anthropologist, I can only write partial truths (Clifford 2011) about my co-collaborators. Therefore, this thesis is a hybrid ethnography and auto-ethnography with a great deal of collaboration from CLEAR.

 The intersection of marine science, anthropology and narrative-  rather, how narrative acts as a driving factor in how values inform practice- is relatively unexplored within the anthropological canon. As I elaborate on in the background section of this proposal, a handful of other anthropologists have paved the way for this burgeoning field of combining anthropology and marine science within the context of values and practice. In my project relevant literature review, I encountered few examples of using narrative as a theoretical construct to research a science lab that adheres to specific values (equity, humility, feminism and anti-colonialism) in creating it’s work. The CLEAR lab is highly unique in this regard.

I also chose this study site because it aligns with my own background and skills. Having studied marine biology and anthropology, I aim to provide a proverbial bridge between the two disciplines. Building off the work of Helmreich, Hviding, Brugidou and Clouette and others (see “Background”) in the realm of marine sciences and narrative, I seek to explore anthropology done otherwise (Star 1990) in this thesis.

Ethics

Before commencing my field work, I addressed a variety of ethical concerns. After having completed the Canadian Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans, Course on Research Ethics (TCPS 2 CORE) training at my lab directors request, I identified a number of potential ethical challenges and will discuss how I countered these challenges. One glaring ethical dilemma not addressed was theft. I did not take into account the ethics of stealing data from people without their consent. It struck me as so blindingly obvious that one does not steal, it didn’t cross my mind. Until I did it.

Once I was accepted as a lab member, we had a meeting dedicated entirely to building a collective and individual informed consent form. Max offered me the template used by a film crew that had previously worked with the lab. Off of that, I made a rough draft form that was gone through line by line with the whole lab in a collaborative  process. While I did the TCPS 2 CORE training on my own, the lessons learned were brought to the table at the lab and hashed out together. Cultivating a consent form that resonated with each lab member demonstrates the lab’s values in action.

The ethical questions raised and addressed from the TCPS 2 CORE were as follows:

* Is there a power relationship between the researcher and the participants (e.g. doctor/patient, teacher/student, supervisor/assistant)?

While CLEAR posits itself as an equitable lab, I kept the possibility of power relationships in mind. I was working with a diverse group of scientists ranging in ethnic backgrounds, education level and age. With each participant I may have been perceived as superior or inferior. For example, while interviewing, chatting or working with undergraduate students, I may be perceived to be superior due to the fact that I am a graduate student. However, when working with PhD candidates or professors, I may be perceived as inferior. I countered these potential power imbalances by speaking to them openly, honestly and often. My research led me to believe that the protocol at CLEAR is one of open communication and would support this method.

I would be remiss to omit the power dynamic of ethnographer and the observed. In addition to this historically enacted power dynamic is the fact that I am a white settler of European origins coming from the US to research at a lab with Indigenous members. The dynamic between “settler” and “Indiginous,” however, is outside the scope of this thesis. I have decided to make note of its existence, while also acknowledging that this thesis does not analyse such dynamics.

The lab is a setting in which they recognize that power dynamics are constantly in flux and being negotiated. Considering the heavy role equality plays in this lab, the concept of hierarchies is often addressed. These protocols, for example, of having an apology section in their lab book, ensure that past abuses within the scientific canon are not inadvertently reproduced by the lab or its members and if they are, there is a framework in place to ameliorate the blunder.

* Are there any cultural norms or practices that need to be factored into the recruitment, consent, or debriefing process?

Many of my informants have a strong science background. While I have studied marine biology, I am coming in as an anthropologist. Therefore, I needed to be cognizant of my language, jargon and way of speaking/engaging with informants. As far as recruitment was concerned, I presented my intended study to my fellow lab mates with full disclosure of the potential risks, benefits and expected outcome upon my first lab meeting. I made it explicit that anyone who is involved in my study can, at any time, choose to withdraw or strike their contribution from my records.  I gave each participant the option to read over and sign a consent form that was cowritten between myself and my lab members after being fully briefed on what my study entails (risks vs benefits, scope, timeframe, confidentiality, open access etc…). As is stated on the consent form, I reiterated verbal consent throughout the process with the agreement that consent can be changed at any point. As I expected, the debriefing portion was an ongoing process. Within the consent form we, being all CLEAR lab members, agreed that the thesis and resulting publications would be a collaborative process. Therefore, I developed a rough draft of my thesis and have provided copies to CLEAR in order to get feedback and adjust accordingly. Before I submit my thesis for review by my supervisor, I will receive a full peer reviewed consent from all CLEAR lab members involved.

Another cultural factor to take into consideration is the fact that the lab is that some of the lab members are Indigenous Canadians. With the lab being value driven, equity being a primary value, it is impossible and negligent to omit the fact that the positioning, obligation and accountabilities of Indigenous lab members informs the functioning of the lab. Due to my status as a settler, certain practices and beliefs are not available for my consumption, which is to say there is an ethical barrier to my knowing, practising or construing certain knowledges. I would like to make clear that delving into the intricacies of Indigeneity is outside of the scope of this thesis.

* What are the economic circumstances of the prospective participants?

I did not offer any kind of financial benefit to participating in my study, therefore negating the need to consider the ethics of a too high incentive that might lead participants to make decisions they otherwise would not.

* Could there be any social repercussions to the lab members from participation in this project?

The matter of representation is always at stake when writing about people other than oneself. Due to the fact that I intended to take an embodied, storytelling approach to how these scientists collect their data and produce knowledge, it could be construed as unacademic by certain parties. While blending social sciences and natural sciences is gaining more traction in academia, using stories and auto-ethnography as a medium of transmitting knowledge may be viewed as unprofessional and have deleterious effects upon those involved in the study.

* How can the privacy and confidentiality of participants be protected?

Due to the fact that I worked with a tight knit team of scientists at CLEAR who live and work within a small community of St. John’s, Newfoundland and Labrador, keeping participants identities anonymous is impossible. All participants knew and fully accepted that full anonymity was not guaranteed. Thus, due to the difficulty in keeping informant identities anonymous, I have kept all content shared with me confidential unless explicit consent was received to share. I kept the data secure in a password locked computer.

* What are the foreseeable risks and potential benefits from my research?

The main risk is continuing the history of harm from ethnographic studies of Indigenous populations. This is why I explicitly chose not to focus on the Indigenous aspect of the lab, while still taking note that it is present. Further potential risks are that the population I worked with identify as feminist and anti-colonial. That in and of itself pushes the scientific norm. Depending on how I construe the lab in my writing, they may be perceived as being unprofessional by the scientific community. I may inadvertently portray the lab or certain members of the lab in a light that may bring social stigma to them. To mitigate these potential risks, I have made sure that all participants review my work before it is released to the public view.

Potential benefits of this study are that the scientists may be afforded a different perspective into what they do and how they do it. By collaborating with an ethnographer, my fellow lab members can experience what it is like to see their lab through the lens of anthropology. I curated for CLEAR a repository of stories about how they live, work and play with stories exemplifying various aspects of the lab. They have a written history of what took place in their lab along with this thesis where I more analytically explore some of those stories. There are also psychological and somatic benefits to telling one’s story (Hibbin 2016). While the nature of this research was in no way designed to be therapeutic, the experience of sharing one’s story is often felt to be therapeutic for participants.

Another potential benefit to CLEAR lab members is access to an international audience who will be shown the work they are doing. I will be showcasing their unique processes at play in their day to day work to scholars in Germany. Thus, broadening the audience who may be impacted and inspired by such values at work.

Literature Review

My data presented three main concepts; embodied values, heritage and utopia. I chose these three themes by what came up time and again in my data. After I had coded my raw data, I noticed a trend of people either explicitly talking about embodied values, heritage and utopia or, more often, implicitly alluding to these concepts. In a meeting with Max, she showed me a method of grouping common themes together under an umbrella concept. Using this approach, I found the three main themes discussed in this thesis. The four main theorists I draw from are Edvard Hviding, Stefan Helmreich and Jeremie Brugidou and Fabien Clouette. Hviding explores how values are enacted in a particular bioregion and how marine science engages with local communities. In Helmreichs work, I was struck by how he conveyed the values of the individual researchers influencing their work. Brugidou and Clouette offer a captivating narrative based exploration of oceanic outer-places through the lens of ethnography.

Edvard Hviding is a Norwegian anthropology professor who has worked in the Marovo Lagoon in the Solomon Islands since 1986. He has spent over four years in the field working predominantly on biodiversity conservation efforts in the region. Hviding currently teaches at University of Bergen, Norway, and is the founding director of the Bergan Pacific Studies Research Group. A recent project of his is the “Mare Nullius: Sea Level Rise and Maritime Sovereignties in the Pacific,” which aims “to build new and urgent interdisciplinary analyses of one of the greatest challenges of our time: how Pacific Islanders and their states prepare for and react to the effects and impacts of climate change” (“Mare Nullius?” 2020).

In Hviding’s article, “Knowing and Managing Biodiversity in the Pacific Islands: Challenges of Environmentalism in Marovo Lagoon,” he asserts that the local people’s ethos of the biodiversity of their lagoon is both compatible and incompatible with environmentalists’ desires to preserve and biologists’ desires to measure the Morovo Lagoon and surrounding area’s rich biodiversity. In this case, Hviding argues that the way the ocean is represented to us is how we conceptualize it within the scope of an emotionally driven narrative. How we conceptualize the ocean is how we behave towards it; I extrapolate this to mean that narratives circulated about the ocean influence peoples' material practices towards the ocean. The local people’s representation of Marovo Lagoon is as a provider of sustenance; the international environmentalists’ representation is as a biological treasure to be guarded and protected; the biologists’ representation is as a bio-region rich in biodiversity to be studied and analyzed. Hviding demonstrates the role narrative plays in people’s practices towards their environment.

Stefan Helmreich is an anthropologist who works intimately with marine biologists, his work exemplifies the interweaving of social sciences and natural sciences.  Helmreich’s work in Alien Oceans employs those narratives to connect his readers to the plight of the marine scientist and hence, the ocean. He masterfully weaves prose, quotes, narrative and analyses in his writing.

Another example of literature from which I draw is Jeremie Brugidou and Fabien Clouette. They eloquently portray three distinct milieus of “becoming with” (Wright, 2014) in their piece “Three Times in the Wake: A Narrative Experience of Sensory-Anthropology in Oceanic Outer-Places.” They present three manners in which we, as humans, might experience the ocean: one as a submariner, another a fisherman aboard a fishing trawler, and the last a scuba diver with the French Navy. Each milieu offers a radically different sensory experience of the ocean; each situation is represented to the readers in a different manner. The authors take the readers on a journey through the sensory experiences of living aboard a submarine, and how the semi-fictional characters who present these stories “see” sound, smells, or time all through the medium of narrative.Submariners are the few humans who inhabit this underwater world for weeks at a time, and Brugidou and Clouette seek to understand their sensory experience and present it through narrative.

Moving to the sensory experience of working aboard a fishing trawler, suddenly the ocean’s representation changes. To a fisherman on a fishing trawler, the ocean’s representation is that of a resource to exploit. The fisherman goes out to sea, drops long lines or dredges the ocean floor, collects the desirable fish, and dumps the bycatch. “It’s a shit job, but here on this boat, it’s a nightmare,” (Brugidou and Clouette 2018). The last milieu is a scuba diving mission with the French Navy recovering bodies from a sunken vessel. Here the representation is that of time. “Time takes a different scale, as if one minute here where seven hours up there…the slower I breath, the longer I have down here,” (Brugidou and Clouette 2018).

While exploring these three milieus, the authors have offered academia a new vocabulary and representation of a moving ecology (Brugidou and Clouette 2018). Brugidou and Clouette engaged with multi-sensory ethnography of ocean workers to create social relevance of extreme environments through the use of narrative. In continuation of this concept, I connect the place-based science CLEAR does as being socially relevant to the local communities.

Hviding’s work in Marovo Lagoon analyses the local’s and international community’s understanding of the lagoon, often through the use of narrative, which connects to my research in the fact that I found many lab members to use stories and narrative to disseminate knowledge. Helmreich brings the social landscape of working aboard research vessels alongside scientists by sharing anecdotes of daily life that we can all relate with. Brugidou and Clouette offer three ocean workers’ disparate representations, describe the multi-sensory aspect of each profession, and bring attention to the ocean’s infra-sensitivity and infra-politics (Ibid). Each of these examples of narrative demonstrates how one formulates their conceptions of the world around them in such a way that is relatable.

These three examples demonstrate what anthropology working within the context of the seas and oceans could look like: Hviding theorizing alongside groups contending with sea level rise in vulnerable populations in the South Pacific, Helmreich researching researchers who are exploring ocean microbes and Brugidou and Clouette using sensation to convey an ocean narrative. There are many other authors who have worked with narrative to disseminate the stories of those they study and many authors who engage with the ocean in myriad forms (maritime archaeology, heritage studies, etc…). I hope to contribute to this dialogue by exploring how values inform practice in a marine science lab.

Considering the fact that the lab practices place-based science (elaborated upon later) I elected to focus on the heritage of the surrounding area. Therefore, I draw from heritage studies as well. In his article, *Heritage Pasts and Heritage Presents: temporality, meaning and the scope of heritage studies*, David Harvey makes the argument that heritage is a process enacted in the present with current political/economic/social agendas at play shaping how we perceive heritage and that heritagization is a process. Based on this concept, I briefly look at the political, economic and social context of Newfoundland and Labrador based on primary and secondary research.

I also draw from Harvey, in that he recognizes that "the evolution … of heritage is related to changes in technology and transitions in the experience of place and space, while some more recent developments in the heritage concept are related to burgeoning societal changes connected to colonial (and post-colonial) experience."(Harvey, 2010) Considering the lab that I conducted my research at identifies as an anti-colonial lab, this concept of heritage as a result of societal changes based on colonialism is highly relevant to my research and findings.

I am informed by the work of Mathew Hill in the heritage section as well. From his article *World Heritage and the Ontological Turn: New Materialities and the Enactment of the Collective Pasts* he makes the point that "attention to the ontological dimensions of heritage then, whether understood in terms of assemblages, cosmopolitics, or the semiotics of landscapes… provide fruitful avenues for further exploration of the types of work required to transmit the past in the present." (Hill, 2018) I look at the enactment of Newfoundland and Labradors collective past through examples such as the regatta and George Street Festival. I interweave Latours concept of Actor Network Theory (Latour 2013) in order to analyze how these “assemblage” of actors and actants (both human and non-human) work in concert to produce the particular kind of science done by CLEAR.

By drawing from the aforementioned works, I hope to contribute to the work CLEAR is already doing in regard to weaving anthropological theory and practice into how science is practiced and embodied in a laboratory setting. CLEAR has written extensively on their protocols and practices, as can be seen on the website<https://civiclaboratory.nl/category/blog/>.

Methodology

My field site was the Civic Laboratory for Environmental Action Research (CLEAR) located in St. John’s, Newfoundland and Labrador on the east coast of Canada. I sought to answer the question, how do values inform practise in a science lab? What I already knew was that CLEAR is a values based lab. They have written and published on their methods, practices and protocols. This is one of the reasons I wanted to do my research with them as I had encountered few other science labs that placed such an emphasis on values. What I wanted to know was how those values inform their practices. After having completed my research, I now know that embodying values such as humility and equality result in practices such as their author order meetings or not wearing headphones while dissecting animal specimens. I now know that by enacting place based science by taking heritage into account it alters how they do science. For example, using methods specific to northern regions such as having protocols to break through ice when gathering sediment samples and acknowledging that people come from different heritages with different cards stacked for or against them.

The unexpected finding in my research was a sense of utopia I perceived as a common theme throughout my observation and interviews. I concluded that lab members seemed to think the labs modus operandi was a utopian way to function within the space of a science lab that also had implications of life outside of the lab. Where this research leaves the state of inquiry is with room to further explore how individual positionality within an organization might affect the functioning of the organization as a whole.

In her article, Kim Tallbear states, “If what we want is democratic knowledge production that serves not only those who inquire and their institutions, but also those who are inquired upon (and appeals to “knowledge for the good of all” do not cut it), we must soften that boundary erected long ago between those who know versus those from whom the raw materials of knowledge production are extracted.” (Tallbear 2014) This methodology informs my own process and how I work in collaboration with CLEAR.

I did a single site ethnography focusing on the members of the CLEAR lab. The community I worked with were those who actively work as members of the lab. I made contact and established rapport by working as one of their fellow lab members. In this research, I sought to explore how values inform practice in a science lab. In order to produce the type of contextual and applicable knowledge about CLEAR, qualitative data was the most effective option.

Qualitative data is the standard methodology in the field of anthropology and therefore is the logical approach to answering my research questions. I collected primary data myself and utilized secondary data to provide context for the corpus of knowledge this research is contributing to and to support my findings. My data collection took the form of participant observation, unstructured and semi-structured interviews, focus groups, narratives during daily activities, video, audio recordings, photos and field notes.

I sought to conduct my research at the CLEAR lab for a number of reasons. I was curious about the collaboration of marine biology and anthropology given my undergraduate was in marine biology and my masters in anthropology. As I elaborated on in the literature review section of this thesis, a handful of other anthropologists have paved the way for this burgeoning field. In my project relevant literature review, I came across no examples of using idealism and materialism (discussed in the theoretical framework section) as a theoretical construct to research marine researchers who adhere to specific values (equity, humility, feminism and anti-colonialism) in creating their work. The CLEAR lab is unique in this regard.

I also chose this study site because it aligns with my own background and skills. I have experience working in scientific laboratories from my undergraduate education and internships. I studied marine biology for the first three years of my undergraduate degree and did a three-month internship at the Coastal Ecology Lab at University of Victoria in Wellington, New Zealand. Therefore, I was familiar with the workings of a research lab, the expected behaviors, actions, language and modus operandi. Having studied marine biology and anthropology, I hope to provide a proverbial bridge between the two disciplines. Hviding, Helmreich, Brugidou and Clouette and others (see “Literature Review”) have done extraordinary work in the realm of marine science and anthropology, and I seek to continue research in this trajectory.

The community I chose to work with was unique in its value-driven processes. I was personally and professional drawn towards feminist and anti-colonial studies. In addition to these guiding values, this thesis connects concepts of embodied values, heritage, and a utopian vision for the future in collaboration with the aforementioned values resulting in a more comprehensive understanding of how this particular lab functions.

I was invited into the lab by the director, Dr. Max Liboiron. I had emailed her in the winter of 2018 in regard to both a PhD position and doing my masters research at the lab. The subject of my email was “PhD candidate lacking some qualifications, bringing others” Considering humility is one of the labs guiding factors, Max had mentioned to me that this particular heading caught her attention. She responded promptly and then began a dialogue about what it might look like to do my research there the following summer. After a series of email’s, we arranged a Zoom interview. We discussed ethics predominantly. Max stated, “I don’t care about your academic background. I am interested in your ethics.” She recommended I complete the TPSC 2 CORE ethics training. I did so and it furnished me with a greater breadth of knowledge as far as structuring my research according to ethical standards. After that Zoom meeting Max welcomed me aboard.

Data Collection

In order to fully engage in participant observation and gain an embodied understanding of the working of CLEAR, I became a CLEAR lab member. That meant going through an onboarding process. In my field diary, I note, “I am pleased and impressed by how organized they seem to be for incoming members. I’ve got a Google drive file that has 9 items to complete including reading the living lab manual, watching videos, completing animal respect training and reading lit reviews by previous members among other things.” Each day I was working in the lab, side by side with my fellow lab members. Working in a marine science lab, the day’s activities were varied. One day I might be dissecting a seal gut, from stomach to colon.

A desk with various items

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*Figure 1 Photo by author: a typical work station at the lab*

Another day I may be on the microscope looking through the contents of said seal gut. Yet another day I may be working on an arctic plastics literature review.

From my participant observation I collected over 250 pages of daily fields notes. I conducted nineteen unstructured and semi-structured interviews which all took place on Memorial University campus. I gathered 10 sample narrations, where I asked my participants to narrate what they were doing as they worked in the lab. I recorded 4 focus group conversations with two to three lab members at a time. I was able to conduct interviews with my fellow lab members so quickly due to being a new member myself.  Each interview was recorded both on an external audio recorder and on my cell phone, in case one instrument should malfunction. These interviews resulted in 36 hours of recorded material.

I opted not to take copious notes during the interviews. Instead I practiced active listening and consciously crafted the interviews to feel more like a conversation in order to further put my interlocutors at ease. The unstructured and semi-structured interviews each lasted one hour. I chose to keep the interviews to one hour based on a recommendation from Max. One hour allows enough time for the interlocutor to relax into the interviewing process, yet not so much time they become fatigued. The interviews took place in a variety of settings. Many took place in the lab itself. There was a study room next door to the lab I used that was often empty. I conducted one interview outside and quickly realized that was a poor choice due to the high winds that frequent the region. I interviewed Max and Nicole (a lab member and sociology professor at MUN) in their offices. I held one interview in a library study room and realized that, too, was a poor choice as it was built like a jail cell and echoed terribly.

A picture containing cup, indoor, table, sitting

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*Figure 2 Photo by author: Trawl samples in coffee filters*

Theoretical Framework

In the entirety of the process of writing a thesis, from conducting the fieldwork to the finished product of knowledge produced, I wished to do so in a way that stood in alignment with my own personal values and those of the lab. By drawing from examples of scholars such as Kim Tallbear, Donna Haraway, Sandra Harding and Laura Nader I attempt to build upon their scholarship by situating myself as a settler researching on Indigenous lands, by turning the anthropological gaze upon how science can be conducted otherwise and standing with my interlocutors as I tell parts of their story.

I began my research working through the theoretical perspective of idealism and materialism as written about in *Research Methods in Anthropology* by Professor of Anthropology at University of Florida, Russell Bernard. Idealism, as defined by Russell Bernard, “… stresses the importance of internal states—attitudes, preferences, ideas, beliefs, values—as the basis for human behavior” (Bernard, 2011). Materialism as defined by Bernard, “stresses structural and infrastructural forces—like the economy, the technology of production, demography, and environmental conditions—as causes of human behavior.” By keeping this theoretical framework in mind, I then analyzed my data to discover how values and practise engaged with idealism and materialism within the context of a science lab.

I was signed on as a member of the lab, therefore I started participant observation immediately. From the opening story “That’s Stealing, Settler” I convey the deleterious error in my thought process in regard to collecting data before I had written consent. I had planned to be working in the lab as was fit and observing the actions and behaviors of my fellow lab members. By working alongside my colleagues, I began building rapport. Brene Brown, an American sociologist, explains trust building as a step by step process (Brown 2012). Each party offers a bit of vulnerability that is either accepted or rejected by the other party and accordingly, trust and rapport is built or dismantled. In this way I took an organic approach to gaining mutual trust between my interlocutors and myself. As I engaged in participant observation, I took photos, videos, audio recordings and field notes, with consent.

Once I felt sufficient rapport was gained, which was about two weeks, I conducted unstructured and semi structured interviews with those lab members who were willing and able. What I had hoped to achieve with the interviews was a greater understanding of how values informed practice at their lab and what some of the characteristics of a values driven lab was. In addition to individual interviews, I held focus groups and group interviews allowing the participants to build off of one another’s stories and ideas.

As previously mentioned, I used photos, videos and audio recording to amass data. With these mediums I was able to review and analyze matter I had potentially missed during the moment in which I recorded it. In addition to participant observation and interviews, I also collected data during informal time outside of the lab where I could unobtrusively observe social dynamics, body postures, tone of voice, appearance, vocabulary and gestures.

As is so often the case in anthropological research, my original research question shifted tack once I arrived on my field site. I began my research looking for answers to the following questions:

·           How does the sensorial experience guide the process of knowledge production?

I planned to be focusing on sensations of the entire scientific process. As I engaged in participant observation, I would be cataloguing the taste, smell, feel, sight and sound of the process from start to finish. As Tim Ingold followed German hunters in the field (Ingold, 2007), observing the way they could sense the animals and environment, I intended to observe scientists to see how they sense the process of data collection. My secondary question, geared more directly to this specific lab was as follows:

·           How do their embodied values affect the process of knowledge production?

In addition to seeking the sensorial aspect of the scientific procedure, a follow up question that was guiding my research was how do the values of humility and equity effect the work that they produce? Do these values affect each step of the process? If yes, how? If no, how? Speaking with the director of the lab, she informed me that this question of values is one they frequently engage with. She recommended that I work in concert with the lab members to see if we could find a way to delve into the question in such a manner that doesn’t replicate what they have already done before.

Field site

I was to conduct my research from August 1st, 2019 – September 26th, 2019. I had arranged to stay in an AirBnB rental only a 20-minute walk from Memorial University Campus, where the lab is located. Living in that neighborhood was a wonderful introduction to St. John’s. An insider trick for being a social scientist is to own a dog. In the neighborhood I lived in, many of my neighbors had dogs. We had a beautiful park centrally located where 5-10 of us would meet on a near daily basis to allow our dogs to romp and play.

My neighbor three doors down had a dog that was a similar age and size to Atlas. Many a weekend they would invite Atlas and I on hikes in the surrounding countryside, proud to show off the beauty of her homeland. She, being born and raised in St. John’s, Newfoundland and Labrador, was a wealth of information on the culture of the place and eager to share. I gained insight to a small portion of St. John’s life through my dog and neighbors and I had the opportunity to explore the surrounding area getting a better feel for the context within which the lab is situated.

The lab itself is a single room. It’s a far cry from the high-tech coastal ecology lab at University of Victoria in Wellington, where I interned, that was all glass and steel. This struck me as a humble room with no windows. The large table in the middle acts as the meeting space for their weekly meetings. The walls are lined with large swaths of brown construction paper with lists such as “The world’s most feminist publication would include…” and “How to Love a Microscope”

Text

Description automatically generatedA close up of text on a white background

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*Figure 3 Photos by author "The Most Feminist Science Article" & “How to Love a Microscope”*

There are posters explaining that 90% of marine microplastics are smaller than a grain of rice. A printout of a ‘Spotter’s guide to plastic pollution’. A green sign with a pictograph of eyes being washed over the eye rinse safety station. The shelves are lined with fishing gear, the LADI Trawler to collect surface samples, and jars and jars and jars and jars of plastics that have been processed or need to be processed. All in all, I found the lab to have a humble, inviting atmosphere.

A keyboard on a table

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*Figure 5 Photo by author, Spotters Guide to Plastic Pollution*

Embodied Values

Text, whiteboard

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*Figure 6 Photo courtesy Kaitlyn Hawkins*

Thick Description

Day 8 Field Dairy

*We double glove and set up our workstations. It’s myself, Kaitlyn and Charlotte. We have three plastics bins- the kind you might store Christmas wrapping paper in- long and shallow. Roughly 2.5 ft long, 2 ft wide and 8 inches deep. Within the bins are double sieves. We have a squeeze bottle of water, tweezers and scissors. We plop the tangle of seal guts into the first sieve and begin organizing the innards so we can make sense of what we’re working with. We’ve got the entire digestive tract including bits of what we assumed was the heart, diaphragm, spleen, etc… After much careful deliberation, poking, prodding, water bottle squeezing and discussion, we extract the esophagus, stomach and intestines from the mess.*

*“If I snip here, do you think I’ll cut this unidentified (but assuredly not GI) mass off and get it out of our way?” I ask. “I think so.” Kaitlyn replies. Snip! Once we get the unidentified mass separated, we pass it around, palpating, looking at it this way and that. “Huh. What do you reckon this is?” “Liver?” “It’s the color of liver.” “But it’s so long. And thin.” “Mystery.” “Do seals have an extra organ?” “No idea.” We poke, prod, palpate. “Oh,” says Charlotte (the 11th grader) “That’s probably the diaphragm.” “Oooooh.” Kaitlyn and I say in unison.*

*Let’s discuss the sensorial aspects of dissecting a seal gut. I am pleasantly surprised that for having been frozen, unthawed, left for two days, refrozen, re-unthawed and finally worked on, the guts don’t smell too bad. There is a distinct… wild smell about them. Slightly musky. Ever so slightly fishy, but not overwhelmingly so. A faint tang of metallic blood. What did it feel like? Slippery. Firm. Rubbery. I handled the guts pretty firmly without fear of ripping or tearing. What did it look like? Like a jumble of uncooked ground beef in tagliatelle form. Dark red, purple and brown. What did it sound like? The drip of the water running off our hands and the sample. The gurgle of air bubbles as the squeeze bottle was released and regained form. The slop of guts if it slipped out of your hand and back into the sieve. The crisp snip! Of the scissors as it sliced through the connective tissue. And a lot of chatter among the three of us discussing our findings. What did it taste like? As luck would have it, I had no need to taste the sample, so I am afraid that aspect of the sensory data will remain heretofore blank.*

*“What’s the most efficient protocol for processing this?”  I ask Kaitlyn. Here is what you do. First and most important, make sure you keep track of your ends! I gently set each end of my intestines on the left side of the sieve with the whole spaghetti pile on the other side. Next, lay one end of the intestine over the back of your outstretched fingers, palm sideways facing you, so that the end of the intestine face you laying across your fingers. Position the scissors at the opening and make a vertical cut approximately 9 cm up the intestine in order to splay it open and reveal its gastronomic secrets. Squirt water liberally, yet gently, to clean the section of matter while simultaneously massaging it with your thumb in order to dislodge any matter that may be stuck to the sides. Once the section is thoroughly clean and you have abided by the “Three Rinse Rule” (as the name implies, rinsing the specimen three times) you snip that section off and give it one last rinse with only that strip of intestines in your hand. The other end, you place carefully to one side of the sieve. Squirt, massage, repeat. Now that this 9cm section is thoroughly rinsed and massaged, you can discard it into the large ziplock bag of discarded guts (that we will later repatriate to the land/sea from whence it came).*

*Repeat.*

*For hours.*

*Kaitlyn and Charlotte finish long before me. I am being extra detailed, lest I mess up the entire sample and we have to go on another many thousands of dollars two week seal hunting trip to the arctic to collect another sample.*

*Once we have finished the intestines, it’s time to check it out under the microscope. This is where I feel like a “real” scientist. Lab coat and microscope. Kaitlyn explains how she goes about processing a sieve. “First off, I always look around the edges. You’d be amazed how much collects along the sides.” She explains this as she’s gazing through the microscope, turning the sieve, on angle, in a full circle. “Next, I align the mesh so as to give me a grid to work off of.” She demonstrates the grid pattern of the mesh and how you can use that as a line to follow as you do a U-Pattern search for plastics while simultaneously poking, prodding, palpating and flipping all the yellow and orange mucosal goo. “The plastics always seem to be hiding under something…” she mutters as she pokes, prods, palpates and flips. Once she is satisfied that I’m trained enough for the job, she hands the scope over to me.*

*I settle into the chair and look into the scope. “Whoa! This is amazing! It’s so yellow and orange and mucosal!” 40 minutes later I’m going cross eyed and have forgotten another world exists outside of yellow, orange and mucosal.*

The Lab

CLEAR is a feminist, anti-colonial, marine science laboratory. This means their methods foreground values of equity, humility, and justice. CLEAR uses bell hooks’ definition of feminism. Drawing from the lab book it is stated thusly: “feminism is a movement to end sexism, sexist exploitation, and oppression. (...). Practically, it is a definition which implies that all sexist thinking and action is the problem (...). It is also broad enough to include an understanding of systemic institutionalized sexism. As a definition it is open-ended. To understand feminism, it implies one has to necessarily understand sexism” (hooks, 2000). “Because feminism’s bane is oppression, solidarity with other forms of oppression (race, sexuality, class, etc.) via intersectional feminism is absolutely crucial to feminism. This is why in our lab, we talk about gender, but we also talk about rural living, class, education, and other markers of difference” (CLEAR, 2020). When I discuss feminism in this thesis, this is my working definition. This definition incorporates aspects of idealism by noting sexist thinking and materialism by noting institutionalized sexism.

CLEAR engages in community-based and citizen science monitoring of plastic pollution, particularly of microplastics in food webs. Drawing again from the lab book, I define anti-colonial based on their definition which is as follows, “Fighting against the effects, logics, and structures of colonialism, including relationships with Land that are based on resource extraction for human interests, ways of knowing that exclude non-scientific thought, and/or discourses of discovery and ownership” (CLEAR, 2020). This definition relates to Bernard’s definition of materialism in that CLEAR take’s structural influences into account.  I discovered through sharing stories with one another, lab members used narrative as a way to incorporate idealism into this materialistic definition of anticolonialism. In that same lab meeting we discussed how we might take a more empathetic stance in our world, a lab member asked how to engage with social media in a way that upholds the integrity of the lab. They did so by framing the question within a story.

CLEAR is built from a foundation of social justice enacted via feminism and anti-colonialism. Social justice can take as many forms as the mind can imagine. Here, in this lab, social justice is made manifest through the processes of daily tasks enacted in CLEAR. In this setting it is accomplished though doing what the lab members refer to as “good science.” What is good science? As Max puts it, not being a jerk.

In his book *Alien Oceans*, Helmreich reflects on a statement by the American Society for Limnology and Oceanography (ASLO), which asserts that marine scientists often develop an affinity for water during early childhood, suggesting an emotional attachment to the water. This very human aspect of emoting is taken into consideration and provides space within the ethos of the CLEAR lab, as demonstrated by their sign “If you are heartbroken or sick, go home. Bad days = bad science” as referenced by the above photo. As Portuguese American neuroscientist Antonio Damasio would say, “We are not thinking machines. We are feeling machines who think” (Damasio, 1996). Christopher Graves from the Institute for Public Relations asserts that “All human decision-making depends heavily on emotion. Our efforts to persuade or explain need to be rooted in emotional narratives” (Graves 2015).

As previously mentioned, enacting social justice through feminist and anti-colonial practices can take on many shapes and sizes. I selected the excerpts from my daily field diary to exemplify how the lab embodies these values through thick description. The following day 13 excerpt is from a lab meeting held specifically on the topic of empathy.

*“In our lab meeting today, Max took us through an exercise to build empathy. The question she asked us to consider was, “In what context does this x makes sense?” For example. trying to come up with the reasons something might make sense, such as why the person in front of you is driving so slow.”*

  I found in my research that stories played a role in transferring values of the lab thus influencing decision-making and material practices. I’ll dive into how these kinds of meetings facilitate an embodied approach to doing science “otherwise” (Star 1990). The excerpt from day 8 offers a sensorial example of the daily doings of the lab. From this thick description I will discuss the performed behaviors shaped by the lab’s values, the collaborative mindset fostered in the lab, the concept of repatriation of fish guts and how these all relate to how values inform practice.

Cultivating Safer Space

The lab itself is one room, roughly 20 paces deep and 12 paces wide. The space is dominated by a large table set in such a way that people face one another while seated there. This is where the lab meetings are held. Folks file into the lab, socialize and take their seat. I noted that Max never took the head of the table, rather choosing to sit in a different seat mid table for each meeting. Regardless of where you sat, you had a full view of everyone present. Since Max never took a seat at the head - the socially accepted “person in charge” position - the spatial hierarchy, and as such, the social hierarchy, was flattened. When Nicole or Charlie- two other professors and lab members- were present, they sat themselves among the students as well. They are a heterogeneous, multiethnic, international, group of people ranging from high schoolers to professors.

From those lab members not yet in college to tenured professors, everyone had a valued and equitable seat at the table, both figuratively and literally. Charlotte, the WISE (Women In Science and Engineering) student that summer was seventeen years old and more articulate than most forty year old’s I’ve encountered. In our interview, she spoke to the fact that she had entered the lab anticipating being used as a “grunt” (colloquial term for one lowest in the hierarchy that does the least appealing jobs), ignored or seen as getting in the way. What she experienced was the antithesis. She recounted her first lab meeting- as many lab members did, because it was such a novel experience for many of them- as being revelatory. Since she had just joined the lab, she thought she would sit back quietly, observing and not contribute anything. Lo and behold, Max asked her opinion on the topic at hand and attentively listened while Charlotte offered her thoughts. The experience of having a professor, someone who Charlotte describes as “so much higher up than me,” validate her opinions shattered Charlotte's preconceptions of being “only” a high school student and gave credibility and value to her thoughts.

Dovetailing off this example from Charlotte, I now move into the mental aspect of the lab meetings. They are orchestrated in such a way that each lab member has the opportunity to speak their mind… or not. How this notion of respect was enacted at the lab meetings was through a process some of us may be familiar with called a round robin. In a round robin, a question, idea, concern or query is presented and each person in turn has an opportunity to air their opinions. As Hillary, a lab member in the midst of finishing up her masters at the time of my research explains it as a “one diva, one mic” set up. We go around the table, allowing each person to share their thoughts while the rest of us listen attentively. Max, the director, and often facilitator, of these meetings makes it clear that a pass is acceptable and encouraged if you so choose to pass.

Many folks I interviewed expressed a desire to come up with an articulate, well thought out and meaningful response. The reason being, they valued the opportunity to have a seat at the table, in a manner of speaking. “I felt like I was given an opportunity that I didn’t expect to be given.” Kaitlyn told me in an interview. And having been given an opportunity to be heard at a lab meeting filled with undergraduates, masters, PhD’s and professors, “I felt like I should be able to formulate something concrete because my opinions were given merit and were listened to.” She and others felt the desire to rise to the occasion and exceed their own expectations in order to be a supportive and valuable team member. While many lab members expressed a fear of being seen as stupid at their first lab meeting, it took only one round robin for them to feel more at ease (grant it, it might have taken longer to come to realize one's inherent value within the lab).

A sentiment expressed time and again in my interviews is that CLEAR is a “safer space” in which to be yourself and not be judged. I use the term saf*er* due to the fact that space is in constant flux and subject to change. Carley told me in an interview, “I felt very safe. I knew if I had a question, I could ask it and I wouldn’t be treated like I was silly for asking.”  This fear of judgment is arguably innate in humans. To be judged is to be ostracized. To be ostracized is to die. For the sake of survival, we must not be judged, or we’ll die. At least this is what our basal ganglia tells us (Damasio 2006). CLEAR has managed to cultivate a physical, mental and emotional space where its members feel safe, fully embraced and accepted as who and what they are.

This embodied acceptance allows for greater contribution, for lab members to stretch their own limits, as is often seen at lab meetings when otherwise shy, trepidatious or unsure members pluck up the courage to speak up and are supported in doing so. My research demonstrated that in consciously curating an emotionally safe space for each lab member to feel completely at ease, the lab was able to function in alignment with their values. These values of equity, justice and humility laid the foundation for each lab member to do their best work, as I saw demonstrated time and again. If you refer to the photo at the beginning of this section, you will see the lab rules written out. The first rules is as follows:

If you are heartbroken, exhausted or sick GO HOME. This job is not more important than your health. Bad days = Bad science.

Dismantling the norm

In the example from my thick description, I write about the performed behaviors of the lab members that have been shaped by the lab’s values. Behaviors such as listening to and valuing Charlotte suggesting that it was a diaphragm we were looking at or Kaitlyn’s trust in our abilities. That day we were working with a seal gut. It was certainly my first time dissecting a seal gut and in addition to the stomach and intestines, it came with a whole host of other innards that we had to parse apart. Kaitlyn, Charlotte and I worked in easy collaboration, bouncing ideas off one another to come to a decision on how to proceed at each step, and of course, sharing stories.

In this scenario, we have a curious amalgamation of power hierarchies that could potentially be at play. I am the graduate student coming from Germany to do research here. This gives me an edge, not only by age and education level, but also from my status as an “exotic other”. Kaitlyn just graduated from her Bachelors, and therefore is younger than I and inferior in education level. However, she is the lab manager, thus giving her an edge over me. Charlotte is a high school student, younger than both Kaitlyn and I and early in her academic career. However, she was the one that knew the difference between a seal spleen and a diaphragm due to her background in singing having been taught about the anatomy of the diaphragm. This knowledge gave her an edge over us. Power hierarchies are intentionally dismantled or at the very least explicitly acknowledged, thus placing everyone on a much more level playing field.

It seems to me that acknowledging and verbalizing that people come from different backgrounds and have different cards stacked for or against them is an embodied act of anti-colonialism, feminism, humility and equity. I observed that knowledge production from sources not often credited by Western science, such as from female, or other than heterosexual people, are valued and celebrated in this setting. Each voice is heard, each given merit and each offered space to share their gifts.

A critical component of this open space is delineating hard boundaries. This was exemplified when I stole data during my first week and was under no uncertain terms told that if it were to happen again, I would be kicked out of the lab. Dr. Brown states “the most wholehearted and generous people I know have the strongest boundaries” (Brown 2012). I found the same principle to hold true with the lab. Max later recounted to me that my mistake was charismatic in that it had hard boundaries and clear-cut repercussions. By telling this story to future lab members, it demonstrates how lab values are enacted and how the lab practices their values in a concrete way.

In addition to valuing knowledge from voices historically silenced, the collaborative mindset fostered in the lab is unique from other marine science labs I have worked in. When I worked at a coastal ecology lab in New Zealand, there was camaraderie and a sense of getting along with your colleagues. There was little sense, however, of an obligation to help one another, nor did many people cross-pollinate on projects. Most masters and PhD students worked on their own projects by themselves or within a small team and only socialized in passing. Whereas at CLEAR, it was said and demonstrated to me time and again that they work as a team. When they can, they help one another out. There is always someone in lab able and willing to lend a hand. As Max says, “That’s our job.” Their job is to help and support one another.

Kaitlyn is a stunning example of helping others. She is uniquely skilled at supporting the people in the lab so that they can do their best work. She works behind the scenes, as the lab manager, to make sure lab members get what they need. In the example from dissecting seal guts she taught both Charlotte and I how to dissect seal guts and in no time, sent us off on our own to continue the project. She trusted that we knew what we were doing, furthermore, she trusted that if we didn’t know what we were doing, we’d ask. The lab members I interviewed expressed a sense of always feeling welcome to reach out for help.  I experienced the same. In telling me about her first day at the lab, Carley says “Everyone was very relaxed, and it didn’t feel like it was a nuisance to teach me. They wanted to. It was as if they were proud of the lab and were saying, ‘You’re a lab member now too!’” I observed that being able to ask for help and being willing to offer help go hand in hand with enacting the lab’s values of feminism and anti-colonialism. Another salient example of embodying these values is the lab’s repatriation protocol.

One example of how CLEAR values inform practise is to save all of the fish guts that they have processed in order to return them to the sea where they got them. As I understand it, they do so as a way to honor the fish that gave their lives for the research, to honor the land that supported those fish and to offer gratitude to the land and sea in which we inhabit. This relates to doing science otherwise in an anti-colonial and feminist fashion. Lab members told me stories of participating in fish gut repatriations and expressed how profound the experience was for them. I learned, via their stories, how the lab enacts their values through practices such as gut repatriation.

Another example of their values informing practice is the fact that CLEAR adheres to the ethical code that they don’t do research where they are not invited. Once they are invited, they do their best to enact what they commonly refer to as “good science.” “Being in good relations is what’s important. It means don’t be a dick.” Max told me in one of our interviews. I discerned that in all the lab does, in all of the protocols, processes and deliverables, CLEAR tries to be accountable to all their relations (Wilson, 2008).

I elected to commence the body of my analyses with this section on Embodied Values in order to better situate the CLEAR lab (Haraway, 1988). Beginning with this section creates the context within which the lab operates. With examples drawn from my field notes in the form of thick description, I demonstrated what some of those values look like in an embodied performance. Examples such as the lab meeting discussing empathy, how lab values were enacted during the seal dissection support the assertion that CLEAR is a value driven lab and how narrative often plays a teaching role. Each of the scenarios analyzed provides evidence for how a marine science lab conducts place-based science through a feminist and anti-colonial lens. Situating CLEAR as a place-based lab leads us into how the concept of heritage is engaged with, which will be elaborated upon in the following section. I use the term place-based as is explained on the CLEAR website.

Many of the tools and techniques developed in the south do not work in Newfoundland and Labrador. Our tools and protocols are designed to work in and for the places they are used and to emerge from local issues, landscapes, materials and contexts. We strive to always be accountable to our locale. This also means that our fieldwork observes Indigenous protocols for interacting with plants, animals and other aspects of Land (mainly, these are based in Métis protocols). (CLEAR 2020)

Heritage

A small boat in a body of water

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*Figure 7 Petty Harbor, photo courtesy Emily Wells*

Thick Description

Field Diary Day 16

*Natasha told me a story about cod jigging where her brother almost fell out of the boat and her uncle had to cut the line so his hand wouldn’t get torn off. When cod jigging you have a spool of hundreds of feet of line with three large hooks attached at the end. You toss the line out but if it’s windy and the boat is in choppy conditions, and you get your hand or foot caught in the line, you are going over. And then drug under. And then you’re dead.*

Field Diary Day 33

*Monday was Labor Day. Emily calls me at 10.30 “The weather’s beautiful, the wind calm and there’s no whitecaps- you want to go cod jigging?” She asks “Yes!” After listening to Natasha’s story about her brother almost losing his hand and then almost going in, I was thinking, “What kind of an extreme sport is cod jigging?” Turns out, not so extreme, in calm conditions at least.*

*Once we leave Petty Harbor and drop anchor, Pat (Emily’s father) and Emily launch into motion since they have done this a thousand times. Pat explains how cod jigging works. “We’ve got a weight here, at the end of the line followed by three hooks each with bait on them. The most likely to hook a cod is the lowest one.” The hooks are about the size of my crooked pointer finger. The line is as thick as my pinky finger and bright red. The weight is 1 lb of lead. The bait of choice today is baby squid and capelin heads. The deeper we fish, the bigger the bait because the bigger the cod. The shallower we fish, the smaller the bait.*

*I learned a lot that day. First, you toss the weight and hooks overboard being mindful of where your excess line is and not to get it wrapped around your foot, which can lead to loss of limb. You let the line out over your forearm while your dominant hand feeds the line so it can sink faster. Once it hits the bottom (and let me tell you, it’s not an easy thing to discern for a newbie) you pull it up 3-4 feet and then begins the jigging. All jigging is, is lifting the line in your hand roughly 1 foot up and letting it drop back down at a methodical pace, roughly one lift and lower every other second.*

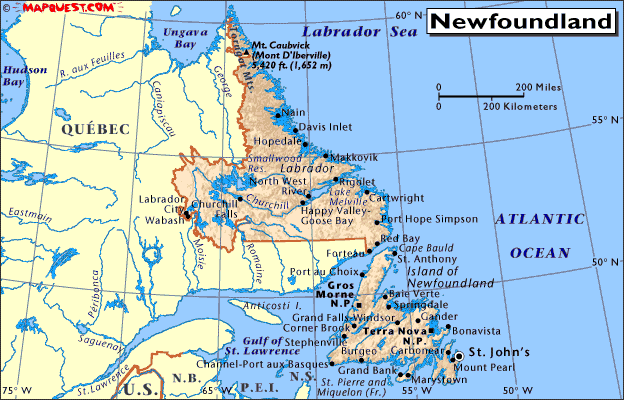
*When you feel the cod take the bait you give it a decisive yank back, thus (in theory) fully hooking the cod and allowing you to pull it up. Once you’ve hooked your cod, what you DO NOT DO (which I found out the hard way) is aggressively pull it up over the side of the boat. That is, hauling the line in, hand over hand, with the line dragging over the side of the hull. The reason being, 1) if you haul the fish in too aggressively it can actually pull the hook all the way through the lip thus losing your fish and 2)if it’s choppy out and the boat suddenly rocks up, thus giving a mighty yank of the hook, it can do the same thing.*

*Here is what you want to do once you’ve hooked your cod: raise your arms over the hull so you are pulling at more of a vertical angle and methodically pull your catch in. If you are fishing deeper than 60 feet or so, halfway up the hauling the swim bladder of the poor beast will overinflate, thus causing it to float, so it can feel as if you’ve lost your catch. But fret not, it’s probably still on. You pull the cod out of the water and quickly into the boat and the VERY FIRST THING I do is whack the poor creature on the back of the skull to kill it instantly. I don’t want it to suffer any more than is at all necessary. Getting pulled by your lip up from whatever depth is trauma enough.*

*By the end of the day I could feel when I hit bottom. It felt like the merest letting up of weight across my palm where the line was sliding. I gaze out over the waves, head aloft, pointed towards the open sea and the wind. Puffins race by overhead. All focus on the line in my right hand as I jig fluidly, up and down. At the tug of my line, I firmly and calmly tug my line deeper into my soon to be catch. From there I say, “I’m hauling one in” to alert my comrades to commence the moral support and cheering. They do beautifully. Halfway up the bladder inflates and it feels as though I’ve lost it, but bringing the line up through my hands, I can feel the drag of the body as I haul it in. I get to the end of the line, my hands soaking wet and cold, I firmly grasp the line in my left hand and with my most accurate, dominant hand deliver a crushing blow to the top of the skull, just where Pat showed me. The cod goes limp and I whisper, “thank you” as I tuck it firmly under my arm like a football and slit its throat to bleed out in the bucket of cod that is steadily filling.*

*Once we have reached our 5 cod per person limit, we return to the harbor. We unload the boat and begin the filleting process. I’ve never filleted a fish in my life. I watch Pat fillet 3 or 4 fish with a few quick swipes of his knife. He teaches me the cuts, angles, pressure and methods for getting the skin off and the bones out. I have a bit of an aptitude for filleting fish and I really got into the spirit of it. For each fish I collected form the bucket, I said “Thank you fish.” I want to recognize that I am consuming a life.*

Field Diary Day 16



*Figure 8 Photo from "Canada- Provicial Map of Newfoundland and Labrador" 2020*

*There is the great divide between the “townies” and the “baymen.” Natasha gave me a rundown of not only what it means to be a townie versus a bayman, but where you might find such individuals. From what I gather, if you are from St. John’s and the surrounding area or Corner Brook and the surrounding, you’re a townie. All other coastal settlements, you’re a baymen. And those in the middle?  They don’t get a cool nickname.*

Day 26 Field Diary

*At the dog park with Atlas today, a fella strikes up a conversation with me. He wanted my whole life story. “Where ya coming from? Where ya been? Why’re ya here? What are ya doing? Oh! Plastics, ay!? Well!” So, then we get into this discussion about plastics. It was fascinating to get a civilian view on plastics.*

*“They’re all assholes, that’s why.” Is his response to the topic at hand of why people litter. “Why do you suppose that is true?” I ask. “I was driving past Bolemans- you know Bolemans, right?- So I was driving by Bolemans, busy intersection, lots of people. Buddy ahead of me in a van full of old people, well, Buddy here, just rolls down his window and throws a whole bag of chips right out the window! Just like that! Cuz he’s an asshole! Plastic is cheap. That’s why it’s overproduced. Only 30% of the world cares. The other 70%, they don’t care. The second and third world countries, they don’t give a shit. They’re just going to keep throwing their plastic bottles into the ocean. They’re not going to change.” The curious thing was, that even as this guy is spouting blatantly bigot ideals towards people outside of Canada... He’s a really friendly fella. Laughing, engaging, wanting to know more about my work. His friend, the more stoic type, chimes in at this point. “I grew up in rural Newfoundland on the bay,” he says, “as a kid, it would be rare to find a piece of netting or fishing line on the coast. I go back home today,” he shakes his head woefully, “the beach is covered in plastic.”*

Narratives of Heritage

I seek to situate the CLEAR lab within the context of St. John’s, Newfoundland and Labrador. I elected to take this approach as it better contextualizes the lab within the rubric of the place-based science they enact. As this research is an ethnography of CLEAR, I am in no way shape or form presenting myself to be an expert on Newfoundland and Labrador heritage. That lies far outside the scope of my research, not to mention would be a gross oversimplification of a complex region. Rather, I wish to paint a picture of what my life in St. John’s looked like, the people I encountered there and the stories I heard in regard to the area utilizing an auto-ethnographic approach to do so. This is in order to better situate CLEAR within a place-based context and to present my perspective of the norms, values and taboos of the surrounding area.

 Furthermore, I would like to make note of the fact that I focus on settler heritage. I choose to do so because much of what I learned in regard to Indigenous ways of being and doing is not for public consumption. Having an understanding of the cultural identity through the lens of heritage in the surrounding area will lend itself to support the analysis of place-based science as performed by the CLEAR lab.

From speaking with my fellow lab members, neighbors, people in my tango group and the people in line at the grocery store, I have come to gather that cod fishing is a deeply entrenched aspect of Newfoundland and Labrador. An excerpt from my field notes from my first week in St. John’s states the following “Over the weekend I was starting to gather just how friendly people are here. Furthermore, once everyone I spoke with learned the nature of my research dealt with cod, they assured me that their freezer was packed with it. It truly is a staple of people’s lives here.” Taking into account this is only representative of the individuals I spoke with, not all of Newfoundland and Labrador.

I use my daily field diary day 16 and 33 to illustrate the importance of cod jigging in this area. Looking at the story Natasha shared with me is a beautiful example of learning from narrative. She tells me about the potential perils of cod jigging and having never done it myself and not entirely sure of what the whole process looks like, I imagine to be a potentially dangerous undertaking.

Brene Brown states that the human brain is hardwired for stories. (Brown 2012) We love a beginning, middle and end. When we hear a story, even if it’s not a particularly well told story, we catalogue that information far more efficiently than if we received the same information outside the context of a story. (Brown 2012, McGregor and Holmes 1999) I connect what I learned of cod jigging from Natasha’s story into my embodied experience of participating in cod jigging with Emily.

As cod plays such a central role in the lives of the people I spoke with in St. John’s, my lab and my own research, it was important to me that I paint a clear and accessible picture of what the actual process could look like. Therefore, I chose to utilize my field notes detailing the ins and out’s of cod jigging. If we look at cod and seals as actors in Latours actor network theory, this scene depicts one phase of how humans and non-humans interact (de la Cadena 2015, Latour 2013). It connects the researcher (me) to the land and sea in a more visceral way, the lab members to the sea and it allows for a brief glimpse into the modern enactment of heritage of seafaring and fishing. Using actor network theory as a framework helps conceptualize the connection from the cod to the seal to the lab to my own research and ultimately, this very thesis.

Actor network theory also encapsulates one way in which CLEAR taps into the heritage of the area by working with local communities to monitor plastic ingestion rates in cod. This is of interest and import to the communities around St. John’s as cod factors into the economy and diets of the surrounding area. In addition to cod fishing, I’ve come to understand through speaking with locals here that hunting is another way people feed themselves and their families. Moose is often hunted in Newfoundland and seal further north in Labrador. In my day 8 field diary I note the following,

*Thursday we were dealing with seal guts, therefore seal blood. I’m told if human blood and seal blood interact you can lose an arm.  Kaitlyn told to me that one of the hunters Natasha went hunting with to collect said guts told her a story of how he had had a cut on his hand and got seal blood into it. He didn’t go to the doctor immediately as he didn’t want to miss work. When he finally went to the doctor his entire arm up to his should had swollen up and he’d lost feeling in it. He had to go on a round of aggressive antibiotics and another medication that doesn’t allow you in the sun, so he ended up missing work anyways and now! He still can’t feel his right arm. Scientists beware.*

This is another example of learning through stories. This information of “don’t touch seal blood without gloves on” settled far more securely in my own mind because it came couched in this exciting tale of hunters out in the ice fields. This story not only teaches safe sample handling techniques, but also imparts aspects of heritage all wrapped up into a brief story.

My day 16 and 26 field diary experts explain how people situate themselves within Newfoundland and Labrador. Day 16 demonstrates me getting a sense of how people identify, learning what it means, at a superficial level, to be a bayman or a townie. Thus, offering one more cog in the wheel of heritage here. Day 26 offers an example of the myriad times I found myself in conversation with a stranger about the nature of my work. The gentleman who thinks that everyone who pollutes is an asshole represents one outlook of the civic community in St. John’s. He asserts that not only is it “second and third world countries that don’t give a shit” but also right here in his very home is he finding more evidence of plastic pollution. His friend, who tells about finding more rubbish on the shores of his hometown helps connect my newfound understanding of what being “from the bay” means. A term I learned from a fellow lab member telling me a story about what it meant for them to be a bayman. Thus, utilizing narrative as a way to teach outsider’s the terms of the region.

Not only was I instructed on the perils of letting seal blood come into contact with an open wound, the importance of keeping your cod jigging spool in order so as not to entangle yourself and potentially be pulled overboard and what a diaphragm looked like but I also witnessed lab members teaching and learning through stories. I observed how the labs values are proliferated through the use of narrative. An excellent example of this was when the topic of moose hunts came up and we discussed what it looks like to hunt in a respectful way. A lab member shared the story of their family hunting and posing for a photo with their kill. How it was expected of them to do so as well and yet they weren’t sure if it was upholding lab values to pose with a kill.

The question posed in the form of narrative touched on the heritage of the region. The answer ensconced in narrative as well touched on the values of the lab. A story was shared about a young man at an event who was speaking about posing with kills and how to do so respectfully. Asking and answering questions through narrative was a practice I observed time and again. In many stories the topic of heritage, that is, customs, beliefs, values and knowledge, arose and was discussed and elaborated upon through storytelling.

History and Heritage

Two big events occurred within my research period. The first of which was the St. John’s Regatta. The latter, George Street Festival. The first weekend I arrived on site was the weekend of the historic St. John’s Regatta. The 7 people I happen to speak with all told me that it is the oldest regatta in North America. A tradition going back 200 years and still going strong, I’m told and later verified on the stjonhsregatta.ca website. In *Heritage Pasts and Heritage Presents: temporality, meaning and the scope of heritage studies* from the International Journal of Heritage Studies, David Harvey states the following, "Since all heritage is produced completely in the present, our relationship with the past is understood in relation to our present temporal and spatial experience." (Harvey, 2010) In St. John’s Newfoundland and Labrador, the Regatta could provide that temporal context that cultivates a sense of identity tied to the water. This heritage appeared to be ingrained in many of the people I casually spoke with in St. John’s during my two months there.

Max had specifically suggested I arrive in St. John’s in time to attend the regatta as it holds such import for the community. It is a civic holiday, so the entire community has off work or school in order to attend. It’s held each year at Quidi Vidi Lake, which lies in the NW quadrant of the city and is in the shape of a long oval running roughly East and West. There is a well graveled trail around its entire circumference that you can walk in roughly 45 minutes to an hour. An excerpt from my day 7 field diary sets the scene.

*It’s not more than eighteen degrees outside but everyone is in tank tops, shorts and sandals. I’ve heard they expect 30-50,000 people to attend the regatta. 4/5th of the lake is surrounded by booths of various sorts. The first thing I noticed was a lot of raffles/gambling type games “Step right up folks! $2 dollars for the chance to win $200!” being shouted by a young man standing on a barrel behind me.*

*I observe the hundreds of tents and booths set up, most selling raffles for a chance to spin a wheel and win money. I believe it’s to raise money for the organization, be it the fire brigade, SPCA etc… and a lot of people are participating. Also, there are a few kids games where you can do a ring toss and win a toy. Back at the lab on Friday, I spoke with Gerard, the janitor who changes our trash every Friday morning and has such a lovely demeanor. He says in a thick Newfoundlander accent, “Me and me wife went to the regatta. Got meself a hotdog. Too many people ye know? But ye know what I saws? I saws a wee little boy, no more ‘an yay tall (he gestures with a flat palm to knee height) walk right up to the ring toss man and you know what he says? He says “on account ‘a I’m so small, and all, can I stand behind the wall?” Well now, the ring man says “Sure son!” So the little guy goes behind the wall and neat as ye like, whoop! (gestures a ring toss) the little man tosses the ring on the pole and says “I’d like me $10 please.”” Complete with a knee slap.*

It was a brief window into the values of the community and their traditions. The regatta was postponed several days until the weather was good enough to hold it. Keep in mind this is a civic holiday so the entirety of St. John’s shuts down. “The Regatta draws crowds of up to 50,000 people annually to the shores of Quidi Vidi Lake. It is widely known as “The Largest Garden Party in the World” because it has been about socializing as much as amateur sport” (Royal St. John’s Regatta 2019) Indeed, I noted in my daily field diary “Only about 10% of the people there are actually watching the rowers, most are chatting amongst themselves or participating in the ring tosses and wheels spins.”

I was surprised to find that many locals I spoke with about the regatta were familiar with its history. It strikes me as common local knowledge that the regatta has been “a natural form of friendly competition among a seafaring people” (Royal St. John’s Regatta 2019) since the 1816. I perceived a sense of pride and cultural identity I observed in the people attending the event and those few I spoke with.

The second big event that took place during my stay in St. John’s was the George Street Festival. I’m told this festival is an economic boon for St. Johns. Newfoundland and Labrador is, according to Edward, my fellow lab member who hails from Rigolet, a small town far north in Labrador, an economically poor province.

While at the festival I casually asked people about their food preferences. I asked a young man I was playing industrial sized Jenga with, “Do you eat cod?” “Yes!” He states vehemently. “I have a freezer full of it at home!” This is one of many opportunities I had to do some good quality deep hanging out. How I define deep hanging out here is spending unstructured leisure time with my interlocutors as was coined by Clifford Geertz.

Stewards of the Land

Another such example of deep hanging out was with a lab member alumnus, Emily. She invited me to go blueberry picking and played the role of the biology guide through the land that she knows and loves so well.

A picture containing holding, sitting, hand, flower

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*Figure 9. Photo by author, finding urchin remains while blueberry picking*

While out, she expressed her fervent love of showing people around St. John’s. She explained that helping people build a more intimate connection and understanding with the land filled her with joy. As we picked blueberries, we discussed concepts such as an honorable harvest, living in reciprocity with the land and expressing gratitude for the abundance it offers. She told me when she picked blueberries, she would collect a handful for herself and leave the next handful “for the Beothuk,” a now extinct tribe that once lived on this land. The last known Beothuk died in 1829 due to settler encroachment (Pastore 1997). To her, this was an act of respect towards the land itself, the people who used to inhabit that land and a manner of acknowledging the heritage of the place. Emily behaved in such a way that demonstrated pride at being from the region. I experienced this pride to extend to a sense of obligation of hospitality towards those “come from away.” While in St. John’s I heard many phrases I have not encountered elsewhere. “Come from away” is one of them. It refers to someone from elsewhere other than Newfoundland and Labrador.

Another example I perceived as pride in their heritage and sense of hospitality, was shown to me by two other lab members, Natasha and Carley. They invited me to a friend’s house for a gathering. They were kind enough to pick me up from my house and, en route to our destination, serenaded me with the Canadian national anthem.

They proceeded to explain some of the nuances of life there in St. John’s, from the phrases to the values. David Lowenthal says that "being clannish is essential to group survival and well-being" (Lowenthal 1998). These women demonstrated their clannish-ness not only by singing in solidarity but extending their clannish-ness to me, a newly minted lab member who was now part of the clan and privy to the intimate knowledge within. They discussed the ins and outs of what it meant to them to be a Newfoundlander: hospitable, kind, rugged and thick skinned to the natural environment.

I highlight these few events in order to bring this notion of place-based science to the fore. CLEAR practices what they deem “place-based science”. What that means is CLEAR focuses on the needs of the communities in the area. Their work would look entirely different if the lab was based in Mexico, or Russia. The fact that it is physically located in St. Johns, Newfoundland and Labrador means that CLEAR sets its sights on what matters there. The climate, social and physical environment and heritage is taken into consideration in every process the lab does.

"Heritage is sanctioned not by proof of origins but by present exploits." (Lowenthall 1998) The present exploits of the lab focus on anti-colonial and feminist science. I cannot make the following assertion, but I wonder based on what I have found in the research if the present exploits, as Lowenthal says, of the lab may influence the current heritage making processes in a more anti-colonial and feminist trajectory? By influencing the lab members heritagization processes towards a more socially just world by enacting the labs values, perhaps it will lead to a slightly more utopian world.

Utopian Aspirations

A close up of text on a whiteboard

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*Figure 10 Photo by author*

Thick Description

Field Diary Day 10

*We had an author order meeting that comprised of myself, Kaitlyn, Max, Charlotte, Edward and John. It was a very cool process to watch. The author order meeting wasn’t just business as usual, it was a more or less an interactive lecture. It was Charlotte’s going away party, so we had all brought a few snacks. We dig in and Max stands next to the white board. She starts by writing down everyone who participated along the left-hand side of the board. “Does anyone here remember anyone else being present?” She asks. No, we reply.*

*Next, we break down what each of these people did. Next to their name she wrote each thing they did. The list included read, write, edit, organize, facilitate, collaborate, community engagement, technical, etc.… and each of these items fit broadly into the following three categories*

*1. Intellectual*

*2. Social/care*

*3. Technical.*

*Once we had established the list of what everyone had done, we went about assigning a value to that action. A difficult and finicky process indeed. Much like awarding the Pulizer Prize to an author, Max pointed out when I asked, “how do you assign value to emotion?”  Max poses, “so what if we lump these four people into the bottom since they did the least amount of work and go from there. Show of fingers?” We all wiggle our fingers in the air as a sign of affirmative. Then, next to every name, she puts a mark of cards stacked against them. That means if you are a woman, Indigenous, person of colour, bi, etc… and also how valuable a publication would be to these people. Are they a professor, who is the “most paper-y”? Following the most paper-y is PhD, Masters, Undergrad, High School. Edward volunteered to be last. No one volunteered themselves to be OVER anyone else. They volunteered each other. Along the entire process we are talking about value, equity, humility, justice. This is what feminist, anti-colonial values look like in action.*

Field Diary Day 20

*CLEAR Lab Meeting Notes:*

*In this meeting we discussed how to engage respectfully with social media in regard to the lab and how to speak about the lab so people can understand what we do.*

*Edward starts the meeting off by thanking Max for the story on empathy she had shared last week.  “Stories are a great tool for teaching and the learning is far more profound.”*

*Max explains that to “incorporate humor into heavy tales about the destruction of our planet, feminism and anti-colonialism” helps to lighten the heavy burden of many of the topics we engage with and makes it more accessible to people.*

*The next question raised was, how do we engage with social media? Folks mention being proud of the work we do at the lab and wanting to share it but not being sure of what is and is not appropriate. We discuss consent, how much information to divulge, what hashtags are appropriate and so on. Max says “If you put #feminism you’re going to get trolled. If you put #feministscience… well, they haven’t quite figured that one out yet.” Exemplifying what it looks like to add a bit of humor to a potential touchy subject.*

*Max continues, “Speak to people so they understand. For example, my mom wouldn’t understand what a feminist lab was.*

*“What? You burn your bras in the lab!?” what her mother might say.*

*“No, mom!” She would reply.*

*“But she would understand it’s a lab that is trying to do good science, in good relations.”*

*At this stage, we’re getting on towards the end of the meeting. Max asks for round robbins of how everybody is doing.*

*“I learn so much every meeting. I grow as a person.” Carley*

*“I want to make sure I post to social media respectfully.” Natasha*

*“I feel much more comfortable know what I can and cannot post” Kaitlyn*

*“I feel so happy to be back. I hadn’t realized how much I missed this.” Hillary*

*“I am reassembling the new information in my mind.” Lauren*

*“Every meeting is great. It challenges and changes my thoughts and I think about it anew.” Jill*

*“I appreciate how this process unfolded and it wasn’t rushed. Co-creating this knowledge takes time. The end product will be far more nourished.” Edward*

*“I like where the lab’s at. This is a good group of people. Thanks for collaborating.” Max*

*END MEETING*

Belonging

It was evident to me from the first conversation I had with Max that there is a strong sense of belonging at CLEAR. “The notion of belonging, or social identity, is a central aspect of how we define who we are. We consider ourselves to be individuals but it is our membership of particular groups that is most important in constructing a sense of identity. Social identity is a fundamental aspect of what it is to be human.”(Marsh 2007) Drawing from this explanation by Dr. Peter Marsh of the Social Issues Research Center in Oxford, I extrapolate how a sense of belonging might be cultivated at CLEAR.

Max, as the director, puts the people in her lab first and foremost. The moment I stepped foot inside the lab Kaitlyn made me feel like an old friend being welcomed back home, as I wrote about in “That’s Stealing, Settler.” It was a juxtaposition to be a “professional outsider,” as one might argue ethnographers are, yet be welcomed into a new lab. Considering my jumping off point with almost the entire lab was me apologizing for stealing from them, it was a rocky start to the nascent relationship.

The lab is an intentionally curated space with intentionally curated people. Drawing from my own mistake of stealing data before I had written consent, I was allowed to stay because I demonstrated the ability to be accountable for my actions and make amends. In my opinion, the people that make up CLEAR have demonstrated themselves to have high emotional intelligence and a deep sense of stewardship towards one another and the lab. These attributes are made manifest by having the tools to hold space, actively listen, respect feelings, brainstorm and work through tough problems together and simply be there for one another. The tools are honed in their daily practices, the weekly lab meeting and the stories they share with one another.

A sense of pride is not to be overlooked at being associated with CLEAR. Members are excited and desire to be a part of the lab for the prestige, the ability to affect change and the progressive science being done there.

The organizational identity of the lab is a curious thing as they have many people from different walks of life bringing their own values to the lab. It is a certain person who is attracted to working with a feminist, anti-colonial lab that is process oriented and values based. While lab members come from different political, social, economic and heritage backgrounds each member shares a common set of values which lends itself to a deeper sense of belonging.

Let’s take one story of belonging into account. Emily ran into trouble with a recent ear piercing. In an interview she shares the following tale:

“My name is Emily Wells, a settler from Conception Bay South, and I grew up in CBS my whole life. My father's from Nova Scotia and my mother from St. John's.” Without skipping a beat, Emily introduces herself thus at the beginning of our interview. Emily is perhaps one of the most authentic humans I have had the great luck to encounter. I ask her about her experience in the lab when it was in the closet. Literally, located in an old storage closet. She regales me with tales of how you could fit two humans, bum to bum, in the closet but add one more and it started to get mighty friendly. She then remembers a story from the post-closet era, aka, where the lab is currently located.

“It was exam week and I think impulsively when I have exams. And I just wanted piercings. I have exams. Give me a piercing.” She shrugs, smiling. She explains how her piercing became infected, but the studio wouldn’t agree to taking it out. In a state of pain and vexation, she arrives at the lab. France and Hillary are there and upon hearing her plight, metaphorically roll up their sleeves and get to work, “We are getting this thing out of you.”

“I have a memory of me with one ear in this bowl of water. And I'm lying on the lab table and the other ear is up. And Hillary is holding my head while France is holding on to my ear and trying to twist the knob of my piercing out. And this all happened in lab.” I am imagining three women dogpiled on the lab table attempting to wrestle this metal from Emily’s ear.

“So, I came in all upset about my ears but then they helped me out.” Simply, eloquently describing the camaraderie she found in the lab. This story expresses the type of belonging that has been cultivated within CLEAR. While the lab is professional and productive in many metrics, they are still human and relate to one another as such. In a time of emotional or physical need, fellow lab members have proven time and again they will rise to the occasion and support one another regardless of whether the issue at hand is directly related to the lab, or like this story, a natural vicissitude of life.

Enacting Values

Both of these examples illustrate what I call the utopian vision the lab has for how science might be done better. Looking at the example of the author order meeting, I attempt to paint the picture of how the lab operates in a day to day basis. Each of my interlocutors mentioned time and again how profound the lab meetings were. “There is a sense of collaboration that is unparalleled to other circumstances I’ve been in.” Lucas, who had recently finished his masters at the time of our interview, told me. “And I’ve been in a lot!” This particular lab meeting was geared towards discerning how to assign the author order of a newly written paper. Contrary to other labs I have worked in, the author order wasn’t dominated by traditional hierarchies. Ie, professor then PhD then masters then undergraduate in that order. Rather, on who did what work and how valuable the lab as a whole deemed that work to be.

I made note that not a single person vied for the lead position. Quite the opposite, Edward volunteered to be last on the paper as he felt he had contributed the least and as a seemingly[2] white, male, PhD candidate he had more opportunity than some of our young Indigenous female lab members to gain authorship on a paper.

Max, as the primary facilitator, had adopted a method of collecting consent from the group in an expeditious manner from the “Shared Path, Shared Goal” handbook distributed by Seeds For Change. The handbook outlines hand signals as a way to help facilitate working meetings towards a consensus (“Seeds for Change” 2020). She would ask a question to the group at large and get a show of hands how everyone felt about it. Waggling your fingers towards the ceiling means “Yes, I agree/consent” Waggling your finger perpendicular to the floor means “I have concerns about this” and waggling your fingers towards the floor means “I’m not having it.” If all fingers waggle up, it’s a go and we move swiftly forward. If even one person does the perpendicular or to the floor waggle, we would discuss the concerns and develop a solution until everyone present consented to move forward. This method takes what is often a highly cerebral activity and brings us back into our bodies, if only for a moment.

I view CLEARs lab meetings as a form of forward thinking, of cultivating a utopia of sorts. In *Future as a Cultural Fact*, Arjan Appadurai states “We need to construct an understanding of the future by examining the interactions between three notable human preoccupations that shape the future as a cultural fact…these are imagination, anticipation and aspiration.” (Appadurai 2013) From what I gather, using imagination for ways to do science better than it is currently practiced, resulted in the particular way the lab meetings are held. Building off of this imagination comes the anticipation of these meetings doing good. A few of my interlocutors made mention of aspiring to bring what they learned from these lab meetings into their own work. Lucas was about to start back at his prior job told me “Working in teams is super important. I’ve been toying with the idea of how to bring the values and techniques I learned at the lab to work. I don’t know the answer to that, but I’ve got two years of being a lab member to rely on.” This strikes me as a lab alum attempting to imagine a better way to conduct meetings in his current work by drawing from, what I consider, the utopian practices of the lab.

 In utilizing marine science as the medium for social justice, CLEAR offers a framework for other science laboratories to follow in their footsteps. Footsteps that, I posit, pave the way towards a future with more equity, humility and justice. It’s in acts such as this author order meeting that the lab actively builds what I gather the lab members view to be a brighter future. Though no one explicitly told me “We are working to build a brighter future by embodying feminist and anti-colonial principles” this is the overall gestalt I percieved.

Max told me in one of our check in meetings that she loves having undergraduates in the lab as often as possible, because “… there are more of them and they haven’t been professionalized into closed mindedness. So if you’re doing anti-colonial, feminist work, they’re perfect.” I view bringing in undergraduates who haven’t yet been professionalized as a tactic to provide a foundation for science done with equity, humility and justice. This strikes me as an effective strategy for circulating the knowledge of how science can be practiced differently.

In the second example I provide from my field notes we discuss how to be a steward of our lab and what it looks like to be in good relations. This excerpt beautifully demonstrates the overall atmosphere in the lab. Working on grim subjects such as marine microplastics in the food web and deconstructing the colonialism inherent in science could lend itself to a grim atmosphere. CLEAR members are able to shed light on these matters while injecting humor where they can and supporting one another. I perceived it to create an atmosphere of camaraderie, awareness and acceptance when lends itself to a utopian environment.

I found CLEAR to be highly innovative. Which in this context I argue that their innovation contributes to the labs utopian vision for the future. I found this innovation to be a by-product of their devotion to “doing good science.” Which, doing good science here simply means being respectful to all of the stakeholders- from the Professors to the inanimate objects that aid us in doing our work, such as a microscope. In a conversation with Max, she explained to me that CLEAR isn’t interested in efficiency.

She recounted a story where they stopped publication for a time because she discovered that how they were being done wasn’t upholding the lab’s values. “It’s a really good example of how success looks very different at CLEAR than it does at other [labs].” Max explained. I gathered that efficiency doesn’t take into account the humans, animals and plants involved in the process. I have experienced how efficiency pushes emotions, values and being-ness to the side for the sake of a timely deliverable. This actively goes against the lived and embodied values of the lab. The lab focuses on doing good science. Good science takes emotions, values and being and doing-ness (a term introduced to me by Edward, a fellow lab member) into account. I observed that good science often does enhance, not only efficiency, but innovation as well.

From Idealism to Materialism

Let me introduce BabyLegs as a case in point. BabyLegs is a contraption brought about by taking the stakeholders needs into account. CLEAR is a place-based science laboratory (Liboiron 2016). Place based signifies that it is situated in a time and place in which to contextualize the science being done at CLEAR. CLEAR would not be the same lab located in New York City or Patagonia. CLEAR is physically placed in Newfoundland and Labrador. Meaning it is affected by and affects that environment. CLEAR focuses on needs in their community. Collecting surface samples from the ocean and waterways that are fished by the local population to monitor it for microplastics is one of those needs. The industry standard surface trawl is called MANTA the cost is thousands of dollars and requires access to boats, technical skills and processing power. BabyLegs is a hand held monitoring device that accomplishes the same goal for a fraction of the cost.

BabyLegs addresses the fact that most people do not have grants in order to conduct environmental monitoring. BabyLegs can be made for less than $15 and can be used without needing a boat or specific tools (CLEAR 2020). This accessibility allows for citizen scientists, often those who are underrepresented in the knowledge production arena (academia within the context of this example) to be present in the discussion of plastic monitoring. As Max puts it, “BabyLegs is built to pivot power” from those who are largely responsible for producing the plastics upstream, industry, government, policy officials etc… to the people who live and work and fish in the environment in question. “The goal of this technology is to make it as accessible as possible so people in remote northern communities can monitor plastics in their fishing and hunting areas” (CLEAR 2020).

The goal was “to delegitimize BabyLegs in the eyes of research office administrators that allowed her stay open source… BabyLegs is a scientific artifact built explicitly to enact politics informed by STS theory. As such, she offers a case study in making and doing.” (Liboiron 2017) This speaks to me of engaging what Appadurai calls the ethics of possibility as opposed to the ethics of probability. “By the ethics of possibility, I mean those ways of thinking, feeling and acting that increases the horizons of hope, that expand the field of this imagination, that produce greater equity in what I have called the capacity to aspire and have widened the field of informed, creative and critical citizenship.” (Appadurai 2013) BabyLegs is one example of how I see that CLEAR works towards a utopian future. By focusing on the ethics of possibility they embody their own values of equity, humility and justice.

The ethics of probability is what, I will assume, we are all more used to encountering. The ethics of probability Appadurai explains as “those ways of thinking, feeling and acting that flow out of what Ian Hacking calls “the avalanche of numbers,” (Hacking 1982) or what Michel Foucault saw as the capillary dangers of modern regimes of diagnoses, counting and accounting.” (Appadurai 2013). The ethics of probability, Appadurai goes to explain, is often connected to a casino capitalism and profits from disaster, insecurity and catastrophe. I view CLEAR to engage in a discourse firmly rooted in hope, thus embodying the essence of an ethics of possibility. This, I assert, cultivates a brighter outlook for the future, a more utopian outlook.

Conclusion

This thesis set out to answer how values inform practice at a science lab. Based on the qualitative analyses of CLEAR lab members it can be concluded that embodying lab values and taking place, in the form of region-specific heritage, into account led towards a more utopian vision for the future of how science can be done in a more socially just way, often through the use of narrative. The values of this particular lab had a clear correlation with the practices, protocols, knowledge production and deliverables of the lab. Through a sense of place, belonging, hard boundaries and imagination for a world more just, CLEAR’s values inform most aspects of the lab’s daily functions. This thesis demonstrates how values directly and indirectly shape practices within the context of the CLEAR lab.

Insofar as my methods are concerned, focusing exclusively on the CLEAR lab limited the breadth of knowledge gleaned on how values inform practice to only one specific lab. However, this approach provides new insight as to how anthropology can engage with marine science, how embodied values are made manifest in a science lab, the role heritage plays in place-based science and how these factors culminate in a utopian vision for a more socially just scientific practice. While this research clearly illustrates that values play a central role in informing the practices of the lab and lab members it also raises the question of scalability. The CLEAR lab had roughly 20 active members at the time of my research and I wonder if their methods of value informing practice is possible to scale up to larger groups and organizations?

To better understand the applicability of these results, future studies might address positionality of individuals within an organization in regards to values, practice, belonging and place. Anthropologists could utilize Latours Actor Network Theory to more comprehensively flesh out the assemblages of actors within a marine science lab and how they relate through values. Further research would be needed to better understand the long term effects of a values based organization.

In asking how values inform practice at a feminist, anti-colonial science lab this research found 3 key themes of embodied values, heritage and utopian aspirations, that arose from the qualitative data. I answer this question couched in Bernard’s theoretical framework of idealism and materialism. Drawing from the literature review presented, the gap this research filled is within the context of a highly specific values oriented lab. This research demonstrates the mechanisms at play within a feminist, anti-colonial marine science laboratory through the anthropological gaze.

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