The Ethnograph:
Journal of
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The Ethnograph

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Acknowledgement

Table of Contents

Letter from the Editors

The 2020 edition of *The Ethnograph: Journal of Anthropological Studies* is pleased to feature student research from a number of anthropological subfields. In addition to individual papers, this year's journal features two Honours Communications from **Teagan West** and **Katie Taher**, highlighting their respective research into medieval skeletal analysis, and the recontextualization of yoga on a university campus.

In this installment, "Best Publication" award winner **Audrey Medwayosh** offers poignant commentary on addiction and loss amongst the Indigenous residents of Vancouver's downtown eastside, melding theory and autoethnography to address the ongoing impact of settler colonialism. This piece subsequently inspired cover art by Dakelh artist **Emily Graceanna Pearson**.

Featuring additional socio-cultural essay submissions by **Aitana McDaniel, Teagan West, Inbar Av-Shalom,** and **Helena Kim**, as well as archaeological papers from **Curtis J. Logan** and **Safia Boutaleb**, *The Ethnograph* remains dedicated to showcasing the highest-quality student research the UBC Department of Anthropology has to offer.

We would like to extend a special thanks to our faculty sponsors, **Dr. Sabina Magliocco** and **Dr. Alexia Bloch**, as well as the team of student editors that have made this project possible. We appreciate each and every contributor that volunteered their time and energy during these difficult times in order to ensure that this collection of undergraduate research was made available to UBC students, faculty, staff and beyond. We are all looking forward to future volumes in the years to come.

Many thanks,

Dominique Bowden

Megan Soderlund

Author Biographies

Inbar Av-Shalom is 4th year undergraduate student from the unceded territories of the Musqueam, Squamish, and Tsleil-Waututh Nations (so-called Vancouver). She is majoring in anthropology and minoring in Spanish. Born to immigrant parents from Israel, Inbar is interested in identity formation—both individual and collective. She is particularly concerned with the construction, presentation, and misinterpretation of identities that occurs across cultural and linguistic translations. Her research interests also include smell and memory, affective atmospheres, authenticity, and care in a myriad of settings.

Safia Boutaleb is a graduate student of the Classical, Near Eastern and Religious Studies Department at UBC in Vancouver, Canada. Her current research centres around socio-economic contributions made by women on the island of Cyprus in the Late Bronze Age. As a young scholar of mixed ethnicity, Safia endeavours to align her academic studies with gender archaeology, a growing subdiscipline which aims at shining a light on historically underrepresented individuals within the archaeological record. By straying from traditional lines of academic inquiry, gender archaeology highlights the many socio-economic contributions made by women, children, the elderly and disabled throughout history.

Helena Kim minored in anthropology at UBC and will be starting at the School of Social Work in September 2020. She enjoys learning about both Indigenous and Korean history and culture, and in her spare time immerses herself in various art forms. She aims to continue learning about different forms of oppression and injustice, so that she can contribute to activism and anti-oppressive work in the future.

Curtis J. Logan finished his BSc majoring in integrated science at UBC, studying immunology, pathology, and molecular genetics. He has always held a curiosity for archaeology, which has led him to pursue coursework in the field, at UBC and abroad. In the summer of 2017, he attended the Slavia Field School for Mortuary Archaeology in Drawsko, Poland, and went on to pursue a Directed Readings course in Paleopathology. This course allowed him to apply his experience working in the UBC Gross Anatomy lab, and as an undergraduate academic assistant in the UBC Faculty of Medicine, in order to critically analyse current issues and literature in paleopathological research.

Aitana McDaniel is a recent graduate from UBC who majored in anthropology and minored in creative writing. She is passionate about mental health, especially in and for youth, and is a loud advocate for the value of self-expression–which is why she gravitates towards flexible mediums like auto-ethnography and poetry. A long-time fangirl herself, she is fascinated by intercultural exchanges within virtual fandom, and looks forward to a future where popular media consumption expands into wider and more diverse cultural arenas.

Audrey Medwayosh is an Anishinaabe student from the Wasauksing First Nation who is in her fourth year of the Anthropology program at UBC. Her academic interests centre around the study of death and dying. Of particular interest are: the decolonization of death for Indigenous groups, social policy on death and dying in Canada, as well as what it means to die a good death. In her spare time she volunteers with the hospice and does beadwork. She is looking forward to a future where Indigenous people have a voice in all facets of "Canadian" society.

Teagan West is a recent graduate of UBC, with an Honours in Anthropology and minor in Anthropological Archaeology. While attending UBC, she was the academic coordinator and archaeology club liaison for the Anthropology Students' Association. She is excited to begin an online diploma in Circumpolar Studies through Trent University, in partnership with the University of the Arctic. In the future, she will be doing a Master's degree in Archaeology, likely in the United Kingdom. She has attended three archaeological field schools, one in Nova Scotia excavating a cemetery at the Fortress of Louisbourg, one in Sicily excavating the bathhouse of a Roman country villa, and one in Ontario excavating a mock crime scene. In her spare time she likes to read and crochet.

Honours Communication

Katie Taher
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Title: "Yoga-power: An ethnographic analysis of the UBC yoga club community"

Supervision: Dr. Patrick Moore

My honours thesis, titled "Yoga-Power: An Ethnographic Analysis of the UBC Yoga Club Community" examines how the practice of yoga is situated within the modern context of the University of British Columbia's Yoga Club, a student-run group providing accessible and affordable yoga classes.

Combining participant observation with, autoethnographic methods of self-reflection and writing, as well as a collection of interviews with Yoga Club executive members, teachers, and practitioners, I investigate how a traditionally Hindu practice is situated within the contemporary context of the university. This project traces the historical developments of yoga, as well as its globalization, while further highlighting Swami Vivekananda's role in popularizing the practice. Through interactive interviews and an examination of the physiological understandings associated with the practice, I suggest that yoga holds affective qualities that are fundamentally linked to flow theory.

Furthermore, by focusing on phenomenological perspectives, I consider how yoga creates perceptible changes in the body's surface, as a result of the alignment of prānāyāma (breath) with āsana (bodily movements). While discussing affect theory and its connection to the flow states associative of yoga, I stress the importance of yoga as a practice, arguing that we do not "do" yoga, but instead, yoga does us. Here, the term "yoga-power" is introduced, which encapsulates the power of yoga in formulating therapeutic landscapes, while further highlighting the affective qualities of the practice that can create meditative states of flow—a sense of place, a lean body, and for many, provide the steps required to reach nirvana, or absolute bliss.

This leads to a discussion of community, and the built relationships developed within the Yoga Club—examining how the practice of yoga can bring the most distant strangers together, to lay

on their backs with open arms and closed eyes. Perhaps most importantly, this thesis considers whether the practice of yoga, specifically as situated at UBC Yoga Club, constitutes cultural appropriation.

Through deliberations with experts at the club, and further examination of previous theorizations discussing intangible cultural heritage and intellectual property, this thesis highlights the importance of intention and integrity within a yoga practice. Here, the practitioner's general understanding of the historical background of yoga and its lineage is vital to ensure the safeguarding of the practice. In the case of UBC Yoga Club, this largely becomes the responsibility of instructors – and generally, with lineage acknowledgements and specific chants, instructors at Yoga Club do largely succeed in honouring the traditional practice, rather than appropriating it.

Fundamentally, this project was developed to examine the ways in which yoga practitioners understand and make sense of yoga, while further questioning the level of appropriation associated with the modern positioning of the practice at UBC Yoga Club. The method of ethnographic analysis has been extremely useful in structuring a cohesive understanding of the ways in which UBC Yoga Club operates, and the general positioning of the practice at UBC. Overall, the findings of this research offer new perspectives of place, community, and the practice of yoga, in a time of increased globalization.
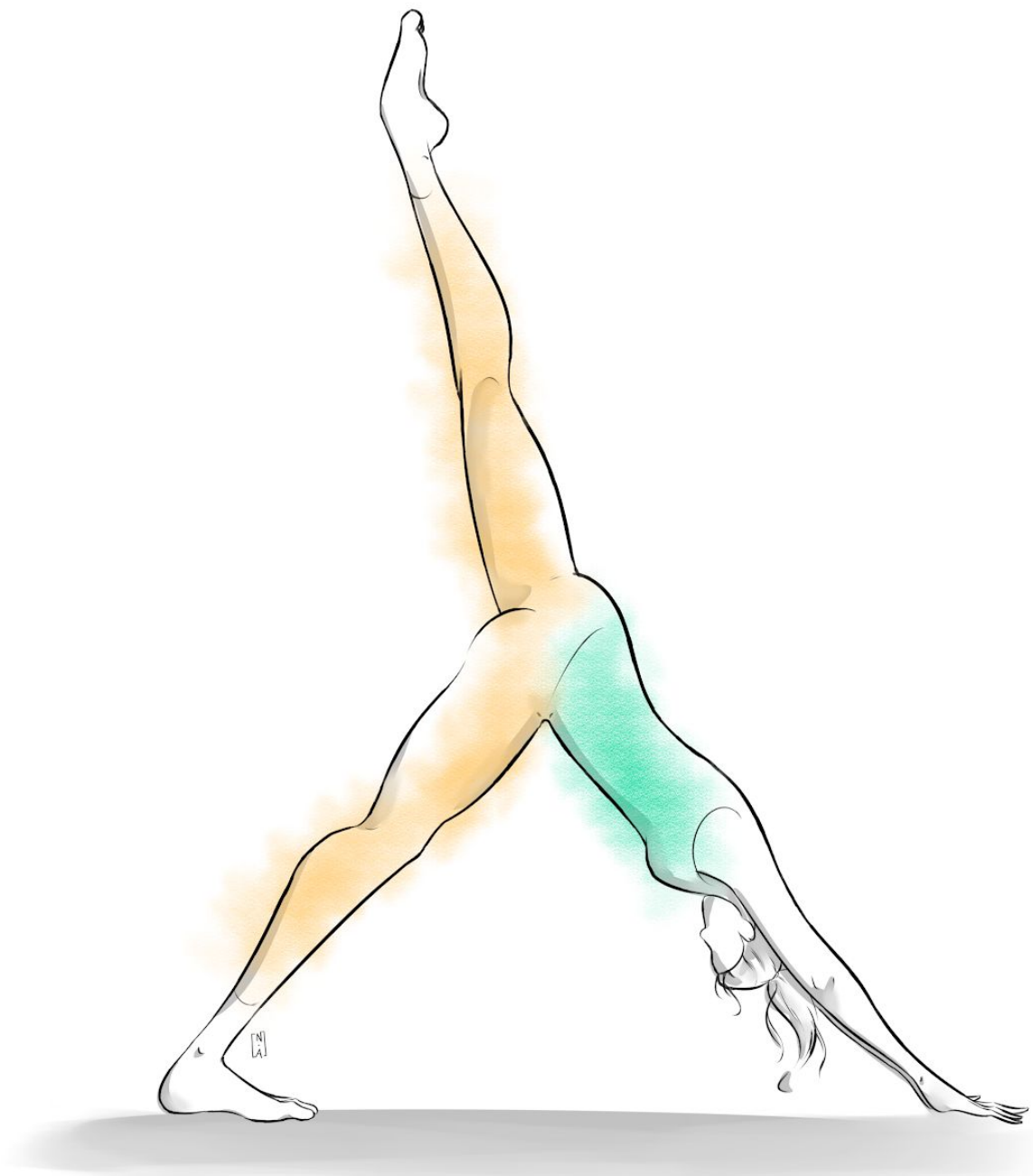
Honours Communication

Teagan West
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Title: "A Skeletal Analysis of Ten Individuals from Medieval Rural Scotland"

Supervision: Dr. Darlene Weston

The focus of my research—conducted at the University of Edinburgh from January to February 2020—was an osteological analysis of a subset of a population. The ten individuals chosen for analysis were from the area of Ballumbie in rural Scotland, and dated to the medieval period (c. 1050-1600).

The site of Ballumbie is located on the east coast of Scotland, just northeast of the city of Edinburgh. The site was discovered during the construction of a housing project in 2005, wherein approximately 200 individuals were excavated from around and inside the area's medieval church, as well as from an older cemetery beneath the church.

The collection was extremely well preserved and complete. Small bones that are not commonly found in archaeological collections were recovered from this site, such as bones from the ear, and distal phalanges of the feet. Two individuals had copper staining on their bones. Skeleton 512 (female, 18-25) had copper staining on her right wrist, and Skeleton 521 (indeterminate, 18-25) had copper staining on their left hand and os coxae.

I created biographical profiles for the individuals, which consisted of estimated age-at-death, sex, and living stature. Findings revealed that this subset of the population represented adults from young to old, both male and female. Age estimation was determined through the analysis of the pelvis, skull, sternal rib ends, dental attrition, and the state of epiphyseal fusion. Three individuals were between 18 and 25, two were between 26 and 35, four were between 36 and 45, and one was 46 or older. Sex estimation was conducted by observing the morphology of the pelvis and skull, as well as collected metrics. There were six males, three females, and one of indeterminate sex.

The stature of these individuals was on average 162.719 ± 3.27 cm for males, 158.910 ± 3.72 cm for females, and 157.180 ± 3.502 cm for the indeterminate individual. Stature was determined

via Trotter's (1970) regression equations encompassing maximum femur length, using the left bone for all calculations.

I also surveyed the skeletons for pathologies. Six out of 10 (60%) had pathologies, including joint disease, congenital conditions, and trauma. Dental pathology was even more prevalent with 100% of individuals having calculus and enamel hypoplasia on at least one tooth. Caries and abscesses were each also present in more than 50% of the population.

Overall, the Ballumbie population is an excellent representation of Medieval rural Scotland. This analysis is a stepping stone to further research of a broader sample, which will ultimately help to determine more about the people and time period.
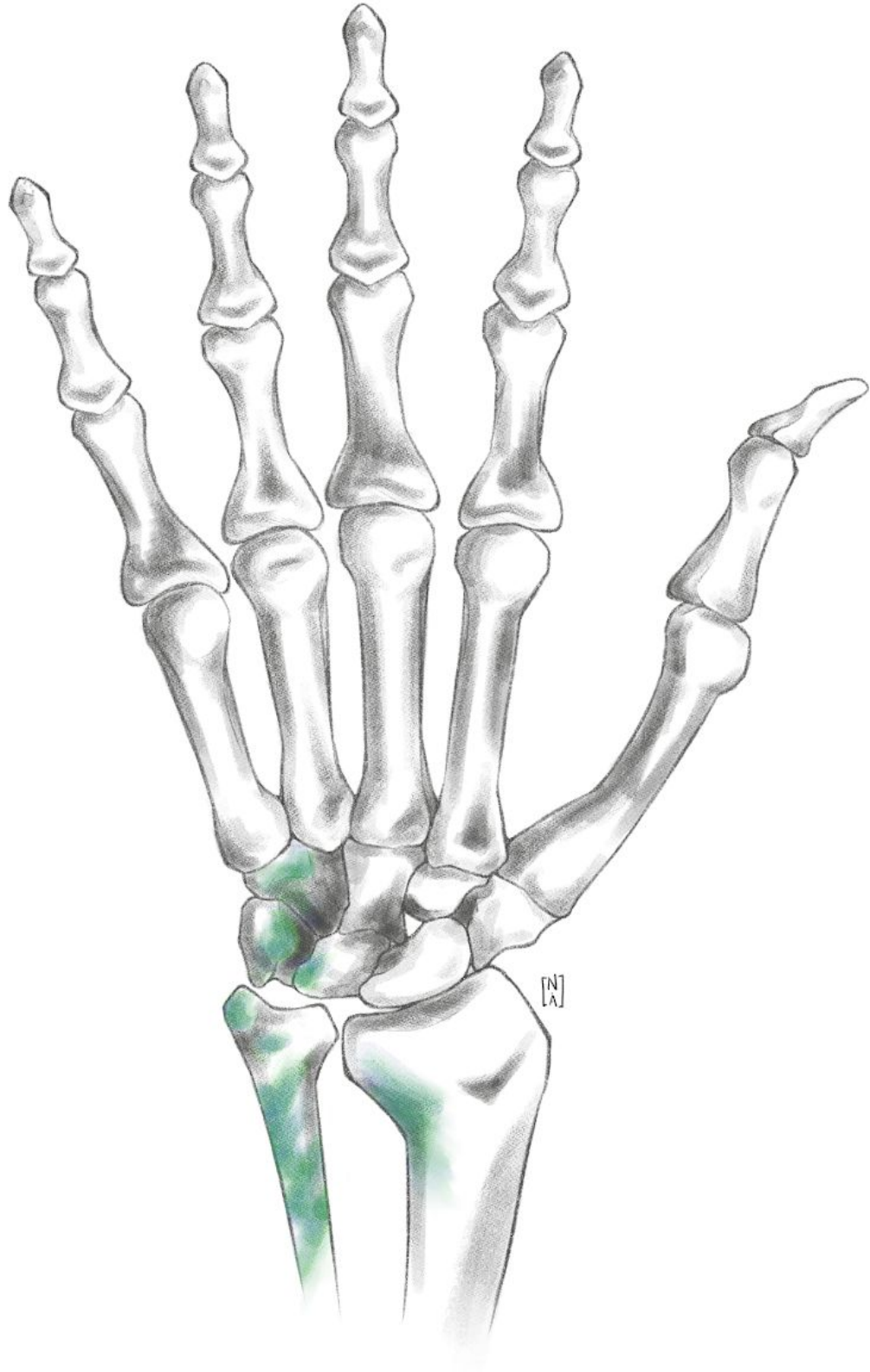
"If I had love I'd take it all day": Fanon, cultural loss, and addiction in the Downtown Eastside

Awarded 'Best Publication'

Audrey Medwayosh
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Abstract: The purpose of this paper is to examine the link between cultural loss and addiction in Vancouver's Downtown Eastside First Nations community. This paper examines the effects of colonial-based attempts at cultural eradication throughout Canada's history. Franz Fanon is used as a theoretical framework to examine the effects of cultural loss on First Nations people, and the high rate of addictive substance use today. Many real life examples, including the author's own experiences, are used in the exploration of cultural loss and addiction.

The history of colonizer-colonized relationships in Canada is one fraught with violence and oppression. Many of the methods used to assimilate First Nations people have been employed by either the Canadian government, or Christian Church delegates under auspices of government. From the implementation of the Indian Act, to the first residential schools and the period in time known as the Sixties Scoop, there has been a clear attempt at cultural eradication of First Nations people and their communities—one which continues today. Many people and organizations have likened these processes to genocide. Faced with the stressful and traumatic consequences of attempted cultural and physical extermination, a disproportionate number of First Nations people have since turned to drug use (Shepherd, O'Neill and Guenette, 2006; Joengblod et al, 2017). Many of these relationships to drugs are ones of dependency, and Aboriginals are subsequently overrepresented in Vancouver's Downtown Eastside among intravenous and non-intravenous drug users.

For those who are not familiar with the area, the Downtown Eastside is a neighbourhood of Vancouver. Populated by the marginalized of society, and with markers of poverty and drug use highly visible in the area, it has been frequently described as the most undesirable area in the city (Burnett, 2014). Ultimately, the strong Aboriginal presence in the Downtown Eastside's drug-using community can be explained as a result of violent cultural loss enacted upon them through government-enforced policy. To support this argument I will be using Franz Fanon's work from The Wretched of the Earth (1963) as my theoretical framework.

The Indian Act, made official in 1876, was created in a bid to gain more control over land rights on behalf of the government. As Lawrence (2003) states, "The Royal Proclamation of 1763 recognized Aboriginal title to all lands not ceded, and acknowledged a nation-to-nation relationship" with the Indigenous Nations already existing in Canada (6). As a result,

government agents were forced to resort to "tools of cajolery, coercion, and bribery" (Lawrence 2003, 7) to get the land they desired. Many of the policies created under the umbrella of the Indian Act were designed to allow government forces to attain as much land as they could by denying it to First Nations people. One of the more infamous policies included the creation of two categories of Indian: Status and Non-Status. Status Indians were, at this time, defined under the Indian Act as meeting their blood quantum requirement of no less than one quarter Indian blood (Lawrence 2003, 9). Such categorizations allowed the government to determine who had the right to be an Indian, and in turn, who had the ability to claim land rights. Additionally, they created a law which ensured that Indian women who married white men were forced to lose their status. Because of these strict guidelines, there were only 350,000 Status Indians left in Canada by the mid-eighties (Holmes 1987, 8). It was also the Indian Act which led to the creation of the Indian Residential School in 1884, making attendance compulsory for all First Nations children.

The purpose of the Indian Residential School was to kill the Indian in the child. The myriad accounts of what happened in these schools by survivors point to the systematic negation of their culture. "Sexual, emotional, and physical abuse was pervasive, and it was consistent policy to deny children their languages, their cultures, their families, and even their given names." (Nagy and Sehdev 2012, 67). Children were taken from their homes and placed in a foreign environment where they were beaten for seemingly small transgressions such as speaking their own language. Similarly, they were, often violently, forced to convert to Christianity, as Christian nuns and priests likened traditional First Nations practices to witchcraft (MacDonald 2019, 80). Among those who attended residential school, 75% report that they experienced sexual abuse, "with physical abuse rates even higher" (MacDonald 2019, Rice 2011). At this time, the Department of Indian affairs is on record stating: "The boarding school disassociates the Indian child from the deleterious home influences to which he would otherwise be subjected. It reclaims him from the uncivilized state in which he has been brought up" (Miller 2004, 195). This attempted eradication carried on into the next century.

The Sixties Scoop refers to a period of time where First Nations children were taken from their biological parents and sent primarily to non-Aboriginal adoptive or foster homes. As residential schools began to close in the 1950s, "children were transferred from one form of institution to another" (MacDonald 2012: 94). Between 1960 and 1990 it is estimated that 11,132 children were removed from their homes, with "the vast majority of these children, some 70 to 90 percent, [going] to non-Indigenous guardian's; (MacDonald 2019: 97). Most of this was justified by the government as beneficial for the children in question, as growing up in their own communities was determined detrimental to their well-being.

Much of the violent colonial oppression mentioned above can be viewed through the framework of Frantz Fanon's The Wretched of the Earth (1963). Regarding the creation and purpose of the Indian Act, his statement: "when the colonialist bourgeoisie realizes it is impossible to maintain its domination over the colonies it decides to wage a rearguard campaign in the fields of culture, values, and technology, etc" (Fanon 1963, 9) is particularly poignant.

This campaign, 'waged', as one wages a war, against First Nations culture is the attempt of the colonialist bourgeoisie to dominate this country's original denizens. This war was waged through the Indian Act, through the inception and execution of the Indian Residential School, and the Sixties Scoop. Under the guise of official policy, the government worked at "declaring the native impervious to ethics, representing not only the absence of values but also the negation of values. He [the Aboriginal] is…the enemy of values. In other words, absolute evil" (Fanon 1963, 6).

The Canadian government, following this logic, suggested that leaving children at home, rather than taking them away to residential schools and only allowing limited contact with their communities, would have a 'deleterious' effect on the child. Indeed, where children were expected to assimilate to European-centric thinking, customs, language, and religion, as a 'colonized subject' they were required "to pawn some of [their] own intellectual possessions" (Fanon 1963, 13). In residential schools, these 'colonized subjects' were no longer allowed to own said 'intellectual possessions'; instead, their language and religion were beaten out of them.

Fanon argues that "the arrival of the colonist signified syncretically the death of indigenous society, cultural lethargy, and petrifaction of the individual" (Fanon 1963, 50). While First Nations societies in Canada have not suffered a complete and total death, there is, undoubtedly, a degree of suffering that has occurred as a result of this colonial regime. Studies, such as Blythe et al's (2006), show that when people are unwillingly separated from their cultures there are many adverse effects. With regard to Canadian Aboriginals, Blythe et al (2006) states: "the erosion of cultural identity and the accompanying loss of self-worth brought about in part through the assimilationist policies have played a central role in the social strife now faced by many families and communities" (227). This 'strife' has taken the form of prostitution, high rates of school dropouts, suicide, incarceration, murdered and missing women, and drug use, to name a few.

It is widely acknowledged that Aboriginals in Vancouver's Downtown Eastside are overrepresented among those who engage in these forms of social 'strife'. The Cedar Project completed a study on intravenous and non-intravenous Aboriginal drug users in the Downtown Eastside from 2003 – 2014. They interviewed 610 participants over this eleven-year time period. During the course of this study, 40 of these participants died. Most of these deaths were related to either suicides or drug over-doses, or suicide by drug overdose. Those participants who used drugs were cited as being 12.9% more likely to die than all other Canadians in their age group (Jongbloed et al. 2017, E1352). The vast majority of these people reported sexual abuse during their childhoods, especially after being taken from their families and put in to 'care' of the government (Jongbloed et al. 2017, E1353). Nearly fifty percent of them cited either one or both parents attending residential school (Jongbloed et al. 2017, E1354). Over half of them stated that they had been taken away from their biological parents (Jongbloed et al. 2017, E1354). Those who conducted the study concluded that "these deaths likely reflect complex intersections of historical and present-day injustices, substance use and barriers to care" (Jongbloed et al. 2017, E1352).

These 'complex intersections' are the result of the colonial government's attempt to erase First Nations culture. Fanon argues that because a colonial regime is "a systematic negation of the other person and a furious determination to deny the other person all attributes of humanity, colonialism forces the people it dominates to ask themselves the question constantly: 'in reality, who am I?'" (Fanon 1963, 250). People who have faced this 'negation' are left divorced from that which connects them to their own cultures and identities and calls into question what these very identities are.

This is made explicit in the interviews found in the CBC podcast, "On Drugs" by Geoff Turner. In 2017 the podcast aired as a series, with some of these episodes focusing specifically on the Downtown Eastside (Turner 2017). However, rather than taking an exclusively statistical approach to its analysis, the episodes employ the use of interviews from various academics, including psychologists, as well as with people who are drug addicts living in the Downtown Eastside. In Geoff Turner's many interviews with addicts, doctors, psychologists and the like, there is one common theme: when culture is lost, addiction often takes its place. Ernie Crey, currently the policy advisor to the Sto:lo Tribal Council and member of the Cheam First Nation states that addiction can be traced back to historical events such as residential schools (Turner 2017). Because of the abuses that residential school survivors suffered: "[they] didn't have what was described as a normal childhood. [They] had a very difficult childhood full of trauma and isolation and grief" (Turner 2017).

Furthermore, Psychologist Bruce Alexander addresses the connection of cultural loss and addiction:

"When a culture is destroyed, addiction and a host of other problems that go along with it become prevalent in a way that's unsustainable and it becomes scary. But to look at it as just a chemical problem in the brain"…"prevents you from having a serious discussion. The problem is not the drug. They could stop using the drug. The problem is that they haven't got anything to turn to and they've got to have something to turn to" (Turner 2017).

In the most poignant and heart-breaking message of this podcast series, one self-proclaimed addict, when addressing his addiction and loss of familial ties states: "it all comes down to with addiction its one or the other, which is love in your life or drugs in your life. You can't mix them up, you can't have both at the same time… and in the end it's one or the other and for me if I had love, I'd take it all day. But I haven't had that yet" (Turner 2017).

Another interviewee, Patrick "The Raven", tells his story of addiction through his own experiences of cultural loss and describes how he ended up in the Downtown Eastside:

"I slip, I fall, and this is where I come. Reason I end up coming down here is because there's a lot of brown faces. I am more accepted here, down here in skid row than anywhere else in our society. That's how I feel inside. Of course, there's all the same maladies of society here as there is out there but I don't have to deal with racism all the time down here. And out there, I do. It's a scary place" (Turner 2017).

The racialization of the issue points to the continued legacy of colonial subjugation. This man would rather be on 'skid row' with the other 'brown faces' because of the inherent or perceived racism in colonial society. As Fanon puts it, this compartmentalized world that Patrick is living in is a result of colonial categorizations of "species" or "race" (Fanon 1963, 5). It is at this division that Patrick determines where his own brown-faced identity belongs amongst those on skid row.

I would be remiss to exclude my own findings through lived experience on this matter. Furthermore, I refuse to discuss the tragedy of First Nations cultural loss and addiction without honouring the struggles my own family has experienced. My father, three aunts, and one uncle were all children who were subjected to the Sixties Scoop. They were taken from their birth parents, and none of us have been able to find any paperwork regarding why this was done. From here, each sibling was placed in a different non-Aboriginal foster-home in close geographic proximity to each other. However, the Department of Indian Affairs dictated that they not be told the identity of the children in said homes. They grew up knowing there were Native children on the neighboring farms, but they did not know that these were their siblings. The traumas that occurred during the course of their adolescence is personal and has been too painful for many of them to disclose, and will not be included here.

What has been shared has been their life-long struggles as a result of this acculturation and division of family. Each one of my family members has lived, lived and died, or lived and been murdered, in Vancouver's Downtown Eastside. Mary-Ann Medwayosh was murdered in 1981 in Vancouver's Downtown Eastside because she was a First Nations woman living and working as a sex-trade worker. My remaining aunts had their own struggles with both drugs and alcohol during their time living there. My Uncle spent his remaining years in a wheelchair, unable to enjoy full mobility and cognition as a result of his alcohol abuse. As I grew up, I watched my father struggle with his addictions to drugs, enduring his physical and emotional violence while simultaneously being shamed about my indigeneity by my fellow classmates. This in turn had a profound and lasting effect on me psychologically, as a child in an unstable home with a tenuous and fluctuating grasp on my people's culture. These issues are clearly, from my perspective, multigenerational and pervasive. I am, however, not alone. I note this in an attempt to attest to the very real effects of violent and enforced acculturation that these aforementioned studies examine.

These anecdotes attest to the ways that, according to Fanon, those who grapple with their identity do so as a result of colonial violence. Furthermore, those who are grappling with their cultural identities are often the ones who are grappling with their addictions to drugs. Many connect their drug dependencies with the traumas they faced at the hands of the Canadian government, including the violent eradication of their culture. While Fanon's work focuses on the violence that colonial regimes impress upon their subjects, his work is also a cry to action.

Fanon argues that the same violence that governed the ordering of the colonial world—which tirelessly punctuated the destruction of the indigenous social fabric, and

demolished unchecked the systems of reference of the country's economy, lifestyles, and modes of dress—will be vindicated and appropriated when, taking history into their own hands, the colonized swarm into the forbidden cities (Fanon 1963, 6). While it is unlikely that First Nations people will violently swarm the 'forbidden cities', we have infiltrated them. We are still here and have not been fully cleansed, as is the aim of the colonizer. We are hoping for a less violent future for ourselves. How this will unfold remains to be seen. However, one thing is certain: we will not be erased.

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The Dim and Dull of Embodiment: SAD in the Wet Winters of Vancouver

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Abstract: In this paper, I explore the phenomenon of Seasonal Affective Disorder (SAD) from an anthropological perspective, contextualized in the urban environment of Vancouver, Canada. Drawing on contemporary theories of new phenomenology, and affective atmospheres, I use my personal experience to deeper explore the ways in which life is experienced through semi-permeable bodies immersed in and sensitive to their open environment. In doing this, I am also arguing for the importance of qualitative, context-dependent analyses of subjective experiences to add to academia's understanding of the nuances and particulars of 'life.' I use an Ingoldian-inspired methodology to highlight the ways in which the mediums of the local climate interact with substances like light, rain, and architecture to produce an all-consuming 'dim and dull' affective atmosphere; which are embodied in my symptoms of SAD.

Introduction

I was twelve years old when I experienced my first bout of depression. Assuming it must be a culmination of my social environment (a tiny K-9 school in rural Alberta) and hormones, my family and I chalked all of my turmoil up to teenage angst. However, after six years it became an undeniable pattern—following me throughout changes on a multitude of levels (physical, social, and political), and even a full province relocation. I began to think that there might be something more than 'teenage angst' to my seasonal drops in energy and emotion. In the summer of 2017, after a particularly overwhelming winter, I decided to visit both the campus counselling and student health services, where my suspicion was confirmed: I have Seasonal Affective Disorder.

Since my initial introduction to Ingoldian phenomenology, I have taken on a philosophical project to use my anthropological background to examine my life experiences as an interaction between bodies and their environment. In this paper, I will be examining something of my own personal experience that I feel anthropological phenomenology can provide insight on; seasonal affective disorder.

Seasonal affective disorder (SAD) is listed in the DSM-V under depression (Parekh 2017). Most often occurring in the winters, SAD is associated with biochemical imbalances linked to changes in one's level of exposure to sunlight, which is why SAD tends to be most common in places that experience larger seasonal variations in daylight hours (Parekh 2017). Despite a recognition by psychologists that SAD is a real phenomenon, results regarding the impact of weather on mood remain inconclusive. Some psychological studies have not been able to find a statistically significant result that supports the idea that weather can affect a person's mood (Mosqueda 2016; Huibers et al. 2010), while some suggest that sun exposure strongly correlates with mental health (Beecher et al. 2016), and that time spent outdoors as well as the

seasons affect the impact weather has on mood and cognition (Keller et al. 2005). Similarly, another study suggests a catch-all scapegoat solution to this question: that there are multiple factors to consider when determining whether or not weather impacts an individual's positive or negative affect, and that within that, there is also large individual variation (Denissen et al. 2008). Considered together, none of these results present conclusive evidence on the topic of weather being able to affect a person's mood and cognitive functioning. What could be missing? My thoughts are that none of these studies, limited by the lab approach of psychological research, have room to explore the complicated affective experience of SAD deeply enough. This is where the affective and phenomenological theories of anthropology can come in to offer an extensive, context-dependent qualitative analysis of SAD.

First, I will begin by conceptualizing the organism in relation to the environment, an essential step in exploring the intimate relatedness of the body and the weather. Then, I will draw on the concept of affective atmospheres, bringing it into conversation with the urban setting where my experience of seasonal affective disorder has always taken place. I take this approach because the complexities and dimensions of the urban environment are not often considered when examining the symptoms of SAD. The urban environment, as a larger matrix of human economy and shelter, is typically designed to provide a more stable, internal environment amongst meteorological variations. Since SAD is related to these seasonal meteorological variations, it may seem strange that this is a setting in which the symptoms of SAD can still occur. However, as anyone would know, weather persists regardless of what we humans do to mitigate its interruptions. This is why I intend to open a discussion of how and why SAD fits into the urban environment.

Light and rain will be the primary substances I examine within this setting. SAD, as the topic, will act as my conduit into a wider conversation about the importance for more qualitative analyses of subjective experience that are explicitly contextualized in an open world of environment-mediated interactions between bodies and atmospheric substances. I want to illustrate the fact that we are never apart from the dimensions of our environment as *inhabitants* of a world that is in constant formation.

Semi-Permeable Embodiment

Before delving into the ways in which something external, like the weather, can affect something internal, like a person's mood, I should first examine how external phenomena become internal phenomena. In doing so, I will need to take on the perspective of a new phenomenologist (and affect theorist) in order to collapse the boundaries between external and internal spaces.

As both a temporal and geographical experience, Seasonal Affective Disorder is subject not only to the specificities of place, but also time. For this reason, I turn to the theory of Doreen Massey, who describes place as an event (Massey 2005). To describe place as an event emphasizes the temporal dimensions that affect the contemporary presentation and experience of a place (Massey 2005). Geographically, historically, socially – place is shaped by time, and by other such phenomena also subject to time. One such temporal phenomenon is that of climate and weather – the process of weathering quite literally shapes place; geographically in how rock erodes and plant life grows/dies, but also socially in how human beings design systems of shelter and activity. Thus, since SAD describes seasonally-dependent changes in mood, a

phenomenological examination of its occurrence must be actualized in a setting where places are as tangible as they are transitory. If the event of place is "in part... the coming together of the previously unrelated, a constellation of processes rather than a thing..." then "this is place as open as internally multiple" (Massey 2005, 141). Taking on this perspective of the "internally multiple" allows me to emphasize the ways in which multiple factors (both internal and external, material and immaterial) weave themselves together to produce an instance of SAD.

Expanding on this, I will be examining these events of place using an Ingoldian framework. According to James Gibson's *The ecological approach to visual perception* (1979), the world is made up of substances, mediums, and surfaces. Taking this idea further, Ingold proposes a set of relational mechanics for these phenomena; it is the interaction between substances (as they occur within mediums) that create surfaces, but it is the medium (especially of air) that affords these interactions and thus where the 'action' is (Ingold 2007). The organism, as an *inhabitant* of this environment is understood to be as much a part of their surroundings as their surroundings are of them. He calls this "the relational constitution of being" (Ingold 2006, 12). The organism, rather than a closed circle in which the 'property' of life is contained, is a network of lines whose paths through the world and its relations to other beings extend outwards from it to create it (Ingold 2006). With this image in mind, the organism is no longer separated from its environment, but embedded within the "domain of entanglements" (Ingold 2006, 14) that comprises the open world of Ingoldian phenomenology. By using this framework in my later analysis, I, as the subject with SAD, am immediately understood as entangled within and subject to the weather and other such substances of my environment. From this perspective, the conditions of my environment, specifically those characteristics of winter, create an instance of SAD symptoms as a part of my whole being, and my life experience.

But how do these external phenomena enter the body deep enough to impact the psyche? If an organism is composed of entanglements with other things (Ingold 2006), how do these relationships actually *affect* the organism, and how do the "lines" connect? For this, I turn to the concept of embodiment. Embodiment theory, coming from the concept of "embodied subjectivity" posited by medical anthropologist Merleau-Ponty, offers an alternative perspective to lived bodily experience that is not based in Cartesian mind-body dualism (Fusar-Poli and Stanghellini 2009). It allows us to consider "human beings neither as disembodied minds nor as complex machines, but as living active creatures, whose subjectivity is "actualized" in the forms of their physical involvement with the world" (Fusar-Poli and Stanghellini 2009, 92).

Ingold demonstrates a hesitance towards the concept of embodiment, and has stated that "inhabiting the open does not yield an experience of embodiment, as though life can be incorporated or wrapped up within a solid bodily matrix" (Ingold 2007, S32). However, embodiment does not necessitate a "closed" system for the solid body. In fact, it relies on the idea that the body, while "solid," is penetrable, and thus open and susceptible to its environment. Embodiment describes how phenomena and the experience of life is actually *felt* in the body, but this does not mean that the body is a closed container in which the 'property' of life is unreachable, and locked away. The embodied experience can be seen as a *multidirectional* relationship between the organism and the substances of its environment, where each interaction is its own event, in its own place (aka, things happen in relationship to context).

This is why, to simplify things, I prefer the term *semi-permeability* when describing the interactive capacity of the body. There are concrete aspects to the body that cannot be reduced

to a set of relational lines the way Ingold suggests, and even though all these concrete aspects interact with one another as Ingold's (2006) "relational constitution of being" describes, placing a frame of focus is necessary to narrow examination to the specific environment the body in question is entangled within. Bodies do *in fact* have boundaries, most things do, but they are only relevant where we, as examiners, draw them. For the human body, skin may be considered a boundary, but the skin itself has pores and is made up of matter that on a biochemical, and quantum level are shifting, changing, fading and becoming. No boundary is an impenetrable, hard line. Skin, then, while a boundary, is like any surface in the Ingoldian sense; its relevancy is momentary only through a series of interactions with other substances. All of these interactions happen within the mediums of a wider atmosphere that the body is *semi-permeable* to. Therefore, the distinctions between external phenomena and internal phenomena, material and immaterial substances, *do* matter; but only in their momentary interactions.

Affective Atmospheres and Ambient Thickness

With this theoretical perspective in mind, I now need to specify the substances of my analysis. The primary medium of this analysis will be air, and the substances (meaning the physical, textured dimensions) within that air may include clouds, rain, light, clothes, eyes, and skin. All of these things will be considered as dimensions and/or elements of an *atmosphere.* Since SAD is a psychological condition, there is another dimension to these interactions; that of cognition and emotion, which is why I will be using the emerging concept of affective atmospheres (as reviewed in detail by Gandy 2017) to capture them all.

It is important to acknowledge the multiplicity of meanings attached to a word like *atmosphere*, which has been reviewed plenty by anthropologists in recent years (Anderson 2009; Gandy 2017). Gandy describes this multiplicity as such: "the word 'atmosphere' can simultaneously evoke both a body of air, or even simply space, along with its prevailing affective characteristics" (Gandy 2017, 354). To develop an understanding of atmosphere, then, "necessitates a closer engagement with the interweaving historiographies of the body, the perceptual realm, and philosophical understandings of what it means to be human" (Gandy 2017, 354). To Ingold, being human means to be an interactive inhabitant of the open world (Ingold 2007). To me, being human means to be a body with affective capacity to engage with and embody the dimensions of our local atmosphere, and environment. The reason I find atmosphere to be a crucial setting for my analysis is because as Gandy says, the affective atmosphere is one with a "persistent material or meteorological presence, either real or imagined, which envelops or unsettles the human subject" (Gandy 2017, 355), and has an ambiguity attached to it that "enable[s] us to reflect on affective experience as occurring beyond, around, and alongside the formation of subjectivity" (Anderson 2009). The polysemic quality of atmosphere allows me to consider SAD in this Ingoldian realm I have just described where weather, a meteorological and material dimension of atmosphere, can invoke a visceral (both physical and emotional) experience of life in the body.

Gordillo builds on the idea of affective atmospheres with his idea of 'ambient thickness' to emphasize the tangible dimensions of the atmosphere that have the capacity to interfere with our daily lives (Gordillo 2018). He explores this in the affective senses of joy, sadness, and frustration in our interactions with the environment, but also views atmospheres as being a part of terrain as a "*pure multiplicity*: an ever-shifting, non-representable aggregation of solid, liquid, and gaseous materialities (that include human bodies and all living forms) permanently

affecting each other as they are entangled in an often-turbulent state of becoming" (Gordillo 2018, 5). His argument for positing the term ambient thickness over atmosphere is that things of the atmosphere, like weather, cease to be only atmospheric when they become embedded in the solid textures of the terrain (Gordillo 2018). I want to integrate this idea of ambient thickness into my own idea because we should not forget the actual, physical textures of the urban atmosphere, since both the material and immaterial have a place in it (as will be demonstrated in the section regarding architecture).

Light and Rain in Vancouver

The affective atmosphere in which my experience of SAD occurs can be described as wet, cold, dim, and dull. The first two adjectives I mention are tangible: the wet, and cold. This is referring to the weather substances of the Vancouver winter; namely, the rain. Gordillo, also describing the Vancouver climate, emphasizes the tactile, more universal aspects of the rain: "the clattering of drops impacting the skin of my face with their wetness and coldness but also the power of this ambient wetness to change the urban rhythm of the whole city" (Gordillo 2018, 8). What he describes first is the rain as a sensation one can feel on (and *in*) their skin; this is the wet, liquid substance coming into contact with the solid, dry one of skin and clothes. The literal substance of the atmosphere then becomes a part of the body – its coldness penetrating the skin as it is read by neurons just under the surface where external and internal meet momentarily – but also in the person's physical weight as increasingly soaked clothing hangs heavier off the body. The second part to the rain described above is its impact on the rhythm of the city. As it rains, and people become wet and miserable, buses crowd with fatigued, irritable people, and the streets crowd with cars carrying fatigued, irritable drivers. Pedestrians step in and over puddles, get splashed, and may knock into someone else with their umbrella, and many, wanting to avoid the politics of proper umbrella manners, forfeit one entirely in favour of a hood, or nothing at all. 'Seasoned' Vancouverites are used to the jagged pace of the city's winter atmosphere as it leaps to and from staggering halts and stops, but to a newcomer, who is already suffering from a lack of vitamin D (when it used to be plentiful), this is an unfamiliar kind of all-consuming climate. It is hard enough, as a prairie kid, to have my circadian rhythms confused by 4:00pm sunsets and my emotional health threatened by the expectation to contribute to society despite blizzards. Now, upon moving to Vancouver, I have had to adapt to a wet, and cold climate that can seep through me as deep as my bones.

Now I will turn to the last two adjectives; dim, and dull. The Vancouver winter involves very little daylight, constant cloud-cover, and the early sunsets of a northern city. These factors interfere with my perception of the physical environment, resulting in a very literal disconnection to it. As is described by Ingold, "the light of the sky is experienced as a comingling of the perceiver and the world without which there could be no things to see at all" (Ingold 2007: S29). Thus, it is hard to feel connected to my physical reality, as a sighted person, when it is difficult to actually see it. However, there is also a figurative aspect to these words; one where my mind, although not literally, feels as clouded as the sky above me. My thoughts become as dark and colourless as the atmosphere, as slow-moving and fuzzy as the rain drizzling around me. In other words, my experience of winter, as a person with SAD, involves a dramatic and emotional internalization of the climatic conditions surrounding me. Because these particular changes occurring inside of me are due to a *lack* of light, it is harder to describe this form of interaction, since it is actually a *lack of an interaction* that I am dependent on. This embodiment is not a case of something of the atmosphere entering my body, but a lack of

sunlight coming into contact with my skin, and my retinas. However, this is telling in its own way. If life is an experience of being immersed in a flux of mediums, made up of momentary interactions with other substances, then a lack of these interactions takes away from the *liveliness* of my experiences. It decreases the positive, affirmative, affective dimension of my environment. I find myself often feeling caught in a limbo during the winters, one where things no longer feel real. It is either that reality itself is suddenly distant from me, or that I am numb to its presence. Psychologists would describe this as the depressive episodes inherent to SAD - but why do they happen? Maybe it happens because I cannot properly *see* what is around me, and so I am not interacting with the substances of my reality with the amount of engagement I am otherwise capable of. To those without SAD, the rain may be enough of a reminder that the world is moving, and the world is alive. But as someone with SAD, for whatever reason, the rain and especially the darkness that comes with it, seems to inhibit my awareness of life's continuity. Instead of feeling pleasantly immersed in a comfortable familiarity, I feel weighed down as though I am melting into a nether realm. In this way, then, I am embodying my physical reality on an affective level where the atmospheric lack of light becomes an embodied lack of connection through my diminished ability to perceive it.

Urban Atmospheres and Architecture

Now that I have gone over the climatic conditions and the respective affective dimensions of my SAD, I want to turn to the strictly *urban* elements of Vancouver's atmosphere that contribute to my experience. In doing this, I am not excluding the weather I described above from this atmosphere. In fact, the North West Coast's rainy climate plays a central role in the way Vancouver has organized itself as an urban environment, but I want to emphasize the *urbanness* of these dimensions.

Describing the urban atmosphere, Gandy (2017) also notes the relevancy of light as an *urban* substance. He argues that "late modernity is marked by a distinctive ecology of light that is inseparable from the affective dynamics of capitalist urbanization" (Gandy 2017, 368). Features of the urban environment include "shifting geometries of perception ranging from the sensory characteristics of direct corporeal experience to the 'manipulated atmospheres' of music festivals, shopping malls, or street lighting" (Gandy 2017, 368). Here he is describing multiple layers to the urban atmosphere; that of the economic, political, social and corporeal realms. Urban environments, which are constructed in this context of overlapping dimensions, manipulate space to create atmospheres that encompass both the emotional and material dimensions of life, which makes the urban atmosphere similarly multi-dimensional.

There is another important aspect to the urban setting that must be considered. What distinguishes the rural from the urban is not only the heavy concentration of people in one locality, but its technological and architectural features as well. These are the textured dimensions of the urban atmosphere. Cities are often characterized by their skyline, which can include their geographical setting (i.e. coastal, inland, mountainous, etc.) and the overall shapes of their buildings in a matrix of residential, corporate, and industrial areas.

One of the primary reasons for the construction of buildings is to create shelter from the weather. In this, it's possible that architects have tried to make up for this physical separation from the environment by "build[ing] spaces for living that are fully self-contained – where the whole world has been brought inside" (Ingold 2007, S34). Ingold means this as a criticism

because it has created "the illusion of an absolute division between earth and sky" (Ingold 2017, S34). Perhaps this is true, but there is a growing recognition of the importance of our connection to nature in recent architectural analyses. In his article, "Designing the Indoor Environment for People," Derek Clements-Croome (2005) describes architectural features of the work environment that can mediate the effects of this disconnection to nature that the closed office building encourages. Since this is an unavoidable situation in the urban, capitalist setting of late modernity where "people spend about 90% of their time inside buildings" (Clements-Croome 2005, 48), any features of an indoor environment that can alleviate our disconnection to the outside world are paramount.

Because the article is centered on the ways manipulations of space can create a productive environment, he makes the argument that "the indoor environment can enhance people's well-being and hence work performance" (Clements-Croome 2005, 53). Factors that should be considered in architectural design to enhance well-being and performance involve the careful attention to and moderation of sensory stimuli, such as light through the building of windows and quality artificial lighting (Clements-Croome 2005).

I know that for myself, as a student with SAD, proper lighting is one of the most significant features I look for when choosing a productive study space. To give an example, if I plan to study on campus, I gravitate towards the Irving K. Barber library (IKB) or brand-new Life building instead of the Nest. While the Nest certainly has a lot of windows which can allow natural lighting, there is also a lot of empty space that consumes the light coming from outside. Unless you are sitting right next to the windows, the light does not reach you in its full intensity, as too much shade from its other architectural features gets in the way. There is also a lack of quality artificial lighting. The building was admirably designed to capitalize on natural lighting to improve campus sustainability and meet LEED platinum standards (UBC Sustainability), but since it is situated in the temperate climate of Vancouver, this means that for the majority of the winter academic session, very little light shines outside, and even less inside the building. Unfortunately, the average energy-saving lightbulb has a *ra* (colour reproduction) value of 80-85, as opposed to the incandescent lightbulb's 99*ra* and the sun's 100*ra* (Bille 2015, 260). It is possible this slight difference in *ra* is enough to make the Nest's sustainability unsuitable to those with SAD. IKB, on the other hand, has a balanced combination of quality artificial lighting, and large windows, while the Life building relies a bit more on artificial lighting, still with many windows, but is painted in bright colours that have the effect of reflecting and intensifying the light in the building.

All in all, urban architecture, such as that of the office or school building, must acknowledge "that a bundle of impressions and experiences are stimulated by aesthetic, functional and emotional properties of the space" (Clements-Croome 2005, 51). Since the majority of the population spends its time in urban buildings, the material dimensions of the urban environment must be understood as substances that can produce particular affective atmospheres, which can produce particular states of mind. In my case, which is the case I have used throughout this paper, features of the urban and affective atmosphere of Vancouver can either mitigate, or worsen my symptoms of SAD, depending on how spaces have been changed and manipulated by climate and/or architecture.

Conclusion

I recognize that my SAD must have a socially and culturally-shaped dimension to it. Part of this may stem from the fact that in Canada, we are often criticizing the weather, complaining that it is always too cold, or too hot, while simultaneously priding ourselves on the ways we have adapted to it and made our harsh climate livable. However, with this paper I wanted to focus on the experience of SAD in Vancouver as it takes place in an affectively tangible atmosphere. Like Gordillo, I wanted to avoid the risk of "reproducing an anthropocentric, culturalist idealism that downplays the materiality of this [ambient] thickness and especially its disruptive effects on human action" (Gordillo 2018, 11). This is why I concentrated on my individual predisposition of SAD that renders me particularly sensitive to material and immaterial changes in the atmosphere, and makes it easy to embody and make manifest those changes in my cognitive affect and mood. Of course, by doing this, I have left my theoretical argument that weather does in fact affect mood vulnerable to the natural criticisms of subjectivity. Regardless, I think that I have been able to demonstrate that the body's internal dimensions have an intimate relationship to its external environment, which garners more consideration for further, similarly qualitative studies. I have also introduced an anthropological interest in the affective experience of the urban atmosphere, and the value of architectural analyses.

To conclude this paper, I would like to leave one last thought: Especially at a time where climate change permeates our everyday lives, and psychological illnesses such as SAD are prevalent; our relationship to our climate, the terrain, and the atmosphere cannot be ignored. We must consider the world in all its complicated dimensions, as a domain of entanglements where substances *co-mingle* in mediums.

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Tabu, big shots, and kastom: The persistence of traditional shell money in the Tolai society of East New Britain

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Abstract: The country of Papua New Guinea contains a multitude of cultures and languages, all with their own customs. Despite over one hundred years of contact with the rest of the world, the Tolai people of East New Britain have continued to use their traditional money, called tabu. Its uses have evolved since precontact and now exists side by side with Kina, the national currency. Tabu is primarily used for rituals and ceremonies, such as weddings and funerals, but can also be used in a market for day to day purchases. Years of colonial intervention and globalization have distorted tabu and the Tolai people's perception of Big Men, leading to the rise of Big Shots.

Introduction

Many Indigenous groups exert control over specific resources, and dictate their uses and exchange within their societies. These spheres of exchange control what can be traded for, as well as what and what is not an appropriate currency for specific interactions. General purpose money, such as what Western colonial powers use and have often forced upon these same Indigenous groups, tend to disrupt this system. Responses to this introduction differ, with most groups eventually abandoning their traditional forms of money. For this paper, I will be discussing the Tolai people of Papua New Guinea, who continue to use their traditional shell money alongside Western forms of currency.

The Tolai people are a large group with a population numbering around 120,000 people. They live in the Gazelle Peninsula of East New Britain, which is a province of Papua New Guinea (Simet 1991). Initial examinations of the subject would make it appear that the introduction of Western money directly impacted the traditional notions and forms of money that the Tolai used, and while, simplistically, this is true, it is much more complex and intricate than one thing impacting another. The Tolai's continued use of shell money today is a product of over one hundred years of colonial interactions, and the embeddedness of shell money into the fabric of their society. I argue that while shell money remains an important part of the Tolai's society and rituals, it is becoming distorted by Western money and the impacts of globalization. This, combined with shifting understandings of the reciprocal nature of their society, has resulted in the evolution of leaders, as well as the peoples' perception of these leaders.

Terminology

There is some important terminology to note. In the Tolai language, Kuana, the word for shell money is tabu. Some authors use the pidgin version, tambu, but it has the same meaning (Simet 1991). The national currency of Papua New Guinea is kina, and tabu and kina can be used to purchase each other. Another prevalent term is kastom, which is a pidgin term for 'custom', referring to the traditional customs of the Tolai, and many other Indigenous groups in Papua New Guinea. Finally, 'grassroots' are people who live in the villages, and who often resent their kin in towns for not fulfilling their part in the reciprocal exchange (Martin 2007).

Overview of the Tolai and Their Colonial History

The Tolai were one of the first groups in Melanesia to be contacted and have been interacting with Europeans for over 130 years (Neumann 1992b). By the early 1900s, they had been alienated from approximately 40% of their traditional lands (Neumann 1992b), which led to some increased tensions between the Tolai and the colonizing powers. Aside from some missionaries, teachers, and white settlers, the first major colonial power in East New Britain was Germany, from the 1880s to the start of World War I (Epstein 1992). During this time, to encourage a cash economy, it was forbidden to use tabu in transactions with foreigners (Tateyama 2006). Overall, the Tolai were receptive to the changes and infrastructure that the missionaries and Germans brought, and enjoyed a relative advantage over other Indigenous groups that were not in areas of colonial focus.

This changed with the onset of World War I, as East New Britain was occupied by Australian forces and subsequently signed over to Australia in the ensuing peace treaty. Australia's colonial focus was that colonies should pay for their own upkeep. With low budgets, the colony relied on the export of copra and dried coconut kernels in order to fund itself, but the war left prices low and it soon became impossible to continue to run plantations at the same standards as before. As a result, the product deteriorated. All of this led to a feeling of general neglect and regression in the area, and the creation of a strong structure of racial stratification in which the white settlers were superior to the Tolai people (Epstein 1992). Tolai spoke of German occupation positively and resented their treatment by the white settlers during this period of Australian colonization (Epstein 1992).

In 1942 the Japanese military landed and began to occupy the Gazelle Peninsula, and while they initially attempted to create friendly ties with the local people, the Japanese became more desperate, cruel, and reliant on local resources as the Americans cut off their supplies. The desperation of the Japanese increased the local peoples' feelings of neglect. In the post war period, when the Australians were back in power, they implemented more positive policies and sought to increase living standards through the improvement of village agriculture and diversification of the economy (Epstein 1992). An anti-colonial movement, the Mataungan, emerged in the 1960s, and the eventual independence of Papua New Guinea occurred in 1975.

In 1994 the eruption of twin volcanoes, Tarvurvur and Vulcan, destroyed many Tolai villages, agricultural areas, and the provincial capital, Rabaul. It thrust the Tolai into uncertainty and catalyzed shifting social practices of wealth and wealth disparity. This is where my argument begins.

Use of Tabu

Tabu are small cowrie shells on strips of rattan. They can be counted as individual shells or as specific lengths—most commonly, a fathom (Errington and Gewertz 1995). Fathom is the English translation for pokono, and in this case I will continue to refer to it as 'fathom' as to mimic the majority of the literature (Simet 1991). One fathom is approximately the arm span of an adult (Neumann 1992a). These fathoms are then often wrapped up in large coils, called gogo, and sometimes decorated and brought out for display in one's home or for ceremony. Once many, sometimes even up to 100 fathoms, have been added to the coil, it may then be closed and "in this form, the tambu has been effectively withdrawn from circulation; it will not be touched until it is ritually 'cut' and distributed at some funerary rite or similar occasion" (Epstein 1992: 160). It represents more than merely an individual's wealth, but the wealth of his family, clan, and his value and degree of authority within the society. The difference between a man who is listened to and a man who is not, is his quantity of tabu. In the past, tabu would be laboriously made by Tolai specialists but it is now bulk produced in other areas and can be purchased in the local trade stores with kina (Errington and Gewertz 1995).

While kina is still a valid form of currency and is used often in exchange, tabu retains its value for ritualistic purposes. There are two main spheres of exchange in which a form of currency is used, marketplace and ritual, or subsistence and valuables, as Sillitoe (2006) writes. Kina has been relegated to subsistence while tabu can be used in both (Martin 2018).

Tabu's main ritualistic purposes are in the exchange ceremonies associated with marriage and funerals. Marriage is between more than the individual man and woman, but instead encompasses the respective families, clans, and any others who may have contributed to their upbringing or the bridewealth (Simet 1991). Tapu is distributed to all those present and in the family on both sides. A similar action occurs at a funeral. Traditional beliefs state that only upon the cutting and distributing of a person's coils can that person's spirit be allowed to move to the happy afterlife (Epstein 1992).

Keir Martin (2018) has written much about the Tolai, and the distinction between wealth and money in the context of tabu. Tabu is used in situations beyond the marketplace, and its accumulation is a source of pride and honour for the clan and the individual. The only way this accumulation is meaningful, however, is if it is later distributed to followers and kin. Tabu's meaning as a form of currency shifts based on the situation. In ritual it holds more metaphorical weight than in the purchase of household supplies. Martin (2018) contextualizes his argument by discussing the proposal of a tabu bank or central exchange centre. He writes that these proposals are fueled by "the rhetoric that the economic value trapped in tabu needed to be released due to the wider economic crisis" (401). The value of the kina plummeted in the early 2000s, when these proposals were being made, and it was believed that approximately 75% of

tabu was stored away by elder clansmen. It was thought that in using tabu as an alternative to kina, it could stimulate the economy and help to build local infrastructure. There were many opponents, and they argued that the ceremonial and ritual value of tabu meant it could not be a viable alternative to kina. The fear of increasing tabu's economic value is that it would diminish, or even erase completely, its ability to measure other kinds of wealth (Martin 2018).

Rise of Big Shots

The difficulty that has arisen from trying to determine the place of tabu in the globalizing world leads to my discussion of Big Shots. Errington and Gewertz (1995) write, "Shell money was fundamental to the prestige system and to the ordering of social life" (54). Globalization disrupts the system. More Tolai have moved to town, or further away to bigger cities to work, obtain an education, or for other opportunities. The physical disruption as a result of the volcanic eruptions in 1994 have furthered this outmigration, and catalyzed social practices that were emerging through the increase in wealth and wealth disparity (Martin 2013).

It is a well understood idea that reciprocity is the central tenet of most of the Indigenous cultures in Papua New Guinea and surrounding islands. The Big Men of the past collected favours and respect through reciprocal bonds. These bonds would become important and favours would be settled when a Big Man needed the support and resources of the collective, for example, in the hosting of a large feast. Big Men, while at times envied, were also greatly respected. Numerous men were always competing for the title, and once achieved it had to continue to be earned or it would be lost. This kastom has remained central to village society, but those in those in town, who are often wealthier than their grassroots relations, have developed what Martin calls 'possessive individualism' (2018). This possessive individualism tries to separate kinship ties and the related responsibilities from their lives in town. Grassroots villagers have criticized their wealthier relatives for not assisting them more, while the wealthier relatives resent the demands of their grassroots kin (Martin 2013).

Much of Martin's work (2007, 2010, 2013) discusses the disappearance of Big Men and the rise of Big Shots that resulted out of these shifting wealth related social practices. Big Shots are accused of having forgotten their moral obligation to the community (Martin 2013). Many have accumulated tabu through morally dubious ways, by purchasing it from other areas that produce it, or by attending ceremonies and rituals where tabu is exchanged even when they have only tenuous connections to the people undergoing the ceremony. They seem to believe that they are upholding kastom on their own when they return to their home villages to host large events. In actuality, they are the hosts only because they are the only ones who can afford to do it (Martin 2007).

The emergence of the role of Big Shot in Tolai society is as a position of privilege and wealth with negative moral implications. The adoption of a new term represents ongoing social change as new practices are becoming possible while old ways disappear. In Martin's (2010) view, the term "marks a particular negative moral evaluation of these possibilities" (2). Being labeled as a Big Shot is a distinct othering that separates Tolai along wealth and cultural boundaries in a way not seen before, especially not with Big Men (Martin 2013). This shift in

local leaders has led to a distrust in and a dislike for the current governing class and reflection of fondness for colonial powers, where, even though no one was very rich, at least everyone was taken care of. The following quote seems to sum this up, and is applicable in and beyond Papua New Guinea to many former colonies,

"In a neo-liberal global political economy, the post-colonial state is frequently unable to provide the kind of educational, social or infrastructural services that were provided in the colonial era, and the political elite have a shrinking pot of resources to access in order to play Big Man politics at home" (Martin 2010: 18).

The demand on the wealthy kin quickly outstrips the actual wealth and income that they have.

Discussion

Using his case study of the Tiv people of Nigeria, Paul Bohannan (1959) discusses the impact that Western money has on Indigenous groups. He dedicates numerous opening paragraphs to the economic definition of money. Money serves three purposes, according to economists; "it is a means of exchange, it is a mode of payment, it is a standard of value" (491). A fourth use is acknowledged by Bohannan, which is that of the storage of wealth. Bohannan (1959) creates a distinction between general purpose money, which can be used for all of the above purposes, and special purpose money, which is restricted in what purposes it can be used for. He concludes that, "Money is one of the shatteringly simplifying ideas of all time, and like any other new and compelling idea, it creates its own revolution" (Bohannan 1959: 503). The result of that revolution is the widespread adoption of general purpose, or Western, money and the eventual disappearance of special purpose money. Robbins (1999) argues that this is clearly not the case in Melanesia, and that "Melanesians who, highly valuing exchange, are predisposed to grasp with little difficulty the local possibility for money to serve as an instrument in the creation of social relations" (82). Melanesians have allowed and incorporated new forms of currency into their spheres of exchange, and altered their understandings to ensure the survival of the system as a whole.

Through colonial and missionary contact the Tolai were irreparably changed. The Tolai have been trying to regain aspects of their culture that were altered through contact, but their identity itself has changed. It now stems from three spheres: government, Christianity, and local customs (Neumann 1992b). The first two spheres are derived from the teachings of the Fijian missionaries during early contact (Neumann 1992b). As all cultures shift and change over time, the Tolai cannot be expected to remain static by remaining as they were at the point of contact; they would have changed as a group, perhaps more subtly, even if they were never contacted. In Dalton's (1999) discussion of the impact of colonization and missionization on Indigenous groups, particularly that of his case study, the Rawa of northeastern Papua New Guinea, he talks about culture's capacity for change: "that cultures and traditions are always and everywhere inventions […] and that their productive creativity synthesizes indigenous and foreign elements and thus maintains their authentically local character, even where "traditions" are produced oppositionally [sic]" (68). The definition of culture is that it is always changing and the Tolai are trying to find the balance between kastom and Western influences.

The emerging idea is that tabu is an ethnic and national symbol of the Tolai. Its equality with the kina means that "at the village level nearly all other goods can be bought with kina can also be bought with tambu—which makes tambu in that sense the 'truer' of the two currencies" (Neumann 1992a: 186). It has a sacredness and a spiritual aspect when it is used in ritual (Simet 1991). It has become a form of communication for the Tolai, to convey the most intimate of experiences, life and death, the mundane and the extraordinary. Their ability to incorporate the kina into their lives while still maintaining the value and ubiquitousness of the tabu creates a feeling of superiority. In other words, "Tolai shell money expresses a superior ethnic identity within the national-cultural framework of PNG as well as a superior cultural identity vis-à-vis 'the West.' And by the same token, so to speak, Tolai shell money expresses a moral superiority over Papua New Guinea state-issued currency, which is no more appropriate than European money in enabling 'enduring social relationships.'" (Foster 1999: 224). Western, or government, money does not have the meaning embedded in it the same way that traditional currencies do.

This feeling of superiority is brought to a personal level in the book, Yali's Question, by Errington and Gewertz (2004). A group of Mari people from eastern Papua New Guinea were brought to visit the Tolai to learn from and absorb their developments and infrastructure. Their Tolai guide who had been living with the Mari helped to set up a sugar plantation. He was of the belief that "Tolai traditions, particularly their possession of a shell currency with many of the attributes of Western money, predisposed them to success within a modern world" (Errington and Gewertz 2004: 204). The Mari were in awe of the living conditions and wealth that the Tolai seemed to live in.

A wealth of tabu is traditionally accumulated through the back and forth of reciprocal ties within one's village and between clans. Big Shots, however, often purchase their tabu from a supplier or the trade shop, or through tenuous relations at rituals. They are not participating as they are expected to as members of the Tolai (Martin 2013). The development that the Mari were so in awe of has led to precisely the conditions that created Big Shots. They stem from increasing globalization, and money-making opportunities in towns and cities.

Use of Shell Money Beyond East New Britain

The persistence of shell money is not something restricted to just the Tolai. There are many groups in Papua New Guinea and the surrounding islands that have used shell money in the past, and it persists in some of these groups to the present. I focus here on the Kwaio people in the mountains of the Solomon Islands. In their language, shell money is called kofu (Akin 1999). Their use of their shell money differs from that of the Tolai. They do not allow kofu to be used freely as a mode of exchange. There are very exclusive spheres of exchange in that Western money is used for economic exchanges, while kofu is used exclusively for rituals and ceremonies. The Kwaio do not give the same meanings to all forms of currency and they do not consider them interchangeable as the Tolai do. They see kofu as a symbol of their agency and their values while the Solomon Islands dollar, the government currency, is seen as a harbinger of economic exploitation (Akin 1999). The Kwaio prefer kofu because it is something that they have control over, "not only because they make it themselves, but also because they believe they understand

what gives it value. They contrast this with the vulnerability they feel when confronting the cash economy with its rampant inflation and other mysterious behaviours" (Akin 1999: 109).

The Kwaio's strict regimentation of the two currencies they interact with provide a foil to the Tolai's tabu that is interchangeable with kina in the marketplace. It is clear that both groups value their traditional currency over the government currency. A difference lies in their comfort with the government money as they have different levels of contact through the colonial period.

Conclusion

Tabu is used throughout daily life and is integral to Tolai society. The accumulation of tabu is a source of pride and honour for the clan and the individual, but the only way this accumulation is meaningful is if it is later distributed to followers and kin. The Tolai are adept at adapting the meaning of tabu based on its current usage. As Western money was adopted to assist the Europeans in exchange, tabu became more than a medium of exchange and transformed into cultural property and a symbol of the Tolai (Errington and Gewertz 1995). The resulting shift in understandings of tabu and societal roles led to the disappearance of Big Men and the subsequent creation of Big Shots.

In the future, it will be interesting to see if and how the meaning of Big Shots change—if they will remain a kind of social pariah that no one quite trusts, or if they will eventually move into a more respected, or perhaps even more vilified, role as the culture and society continue to change in response to the increasing globalizing world, and the widening global wealth disparity.

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On Doing Being a Stranger: Life as a Third Culture Kid

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Abstract: Third culture kid (TCK) is a term referring to a person who spent a significant amount of time outside their country of origin and culture of their parents. The individual is versed in both cultures but is never fully a part of either. In this paper, the author argues that third culture kids have more trouble forming identities of belonging because their different cultural backgrounds clash when conforming to social norms, thus positioning them in a liminal, undefined space. The author draws on her experiences as a TCK to frame the work as an autoethnography. Although building from an understanding of awkwardness through Kotsko's (2010) work, the author maintains that his argument falls short in the area of identity formation and TCKs. Instead, she re-centres the paper around Anderson's (2009) work on atmospheres as a grounding theory. This leads to a critique of the notion of third culture kids, followed by a proposition of communities of practice as a framework in which to think of TCKs. Rethinking TCK identities as parts of communities of practice attends to contemporary issues regarding identity formation such as globalization and colonialism, accounting for the liminality and transiency of identity in space and across and within borders.

Due to globalization, many children live in countries different from their parents' home countries, with different cultures, languages, religions, and societies. My parents immigrated from Israel a few years before I was born, and I have dual Canadian and Israeli citizenship. I know Hebrew, have been to Israel several times, and when I walk into my house I am completely separate from mainstream "Canadian culture". When people ask me where I'm from, or which culture I resonate with more, my answer is usually neither. Not only is my parents' culture, customs, and language different, their (and my) religion is as well. Living in two cultures allows me to see the world differently, but makes me feel like a stranger to both—and can make many situations extremely awkward. I am one of infinite examples of a third culture kid (TCK).

In this autoethnography, I argue that third culture kids have more trouble forming identities because their different cultural backgrounds increase the difficulty of understanding social norms, positioning them in a liminal, undefined space. In this paper I will define and discuss third culture kids, and theories relating to identity formation and social-spatial navigation such as: Simmel's *The Stranger* (1950), Kotsko's *Awkwardness* (2010), Sacks' *On doing being ordinary* (1984), and Anderson's *Affective atmospheres* (2009). While Kotsko (2010) focuses on defining awkwardness, Simmel (1950) and Sacks (1984) provide a framework for applying awkwardness and identity onto TCKs. Anderson's (2009) work gathers these ideas into a room, explaining their liminality and transient atmosphere in which a TCK's identity might be formed, or contested. This will lead me to critique and propose a reconstruction of the idea of a third culture kid as applicable to their identity formation.

Third culture kid (TCK) is a term coined by Ruth Hill Useem but later reformed by Pollok and Van Reken as:

> A person who has spent a significant part of his or her developmental years outside the parents' culture. The TCK builds relationships to all of the cultures, while not having full ownership in any. Although elements from each culture are assimilated into the TCK's life experience, the sense of belonging is in relationship to others of similar background. (Dewaele and van Oudenhoven 2009, 445)

Dewaele and van Oudenhoven also note that due to TCKs exposure to a variety of cultural experiences compared to mono-culture kids, people often view TCKs as "strangers" (2009, 445). Third culture kids often must navigate and adjust to social norms that are not their learned norms from home. Figuring out which social norms to follow is often tricky and positions the TCK in a liminal space between the cultural norms of two places. This notion can be extrapolated to the presentation of a stranger as the "unity" of wandering and focusing on a focal point, as presented in Simmel's work *The Stranger* (1950, 1). In this case, the focal point refers to the source of identity (not necessarily a literal place). Likewise, a TCK is wandering between cultures, while trying to focus on a focal point or destination for belonging or similarly identity-locking. These liminal spatial relations are explored through the TCK's life. For example, growing up a lot of people would wish me a "merry Christmas," and I wouldn't know how to feel—should I be having a "merry Christmas," and how come everyone I know celebrates Christmas, and not Hanukkah? It made it painfully obvious that not only were my practices different, but *I* was different from the mainstream cultural norm. I still don't know whether to respond with, "you too," "happy holidays," or "happy Hannukah"! This sort of cognitive dissonance points to a larger sense of rootlessness that a TCK might experience, one that complicates an identity constructed—at least partially—around accepted cultural practices.

Paralleling the stranger to a third culture kid, Simmel states that "his position in this group is determined… by the fact that he has not belonged to it from the beginning, that he imports qualities into it, which do not and cannot stem from the group itself." (1950, 1). The identity of the stranger shifts from what they are, to what they are not in relation to the "belonger". In Walters and Auton-Cuff's study (2009), one woman referred to her identity as an *anti-identity*, being formed out of elimination: "the only way we can define ourselves is how we are not" (764). The issue with having an anti-identity is that returning to the passport country (a TCK's parent's country and/or their birth country) can break it down. If a TCK's defining qualities are the differences compared to those in the host country, they are, in turn, the similarities with those in the passport country. On that basis, one's identity as unique is no longer so. While Simmel assumes that the stranger is only a stranger until they return to their country of origin, a TCK is a stranger everywhere . According to Walters and Auton-Cuff's interviews (2009), TCKs find belonging and identity through other TCKs even if they do not share the same host or passport country (767). Perhaps knowing you share these strange experiences with other TCKs diminishes the awkwardness of cultural clashes which increases your sense of belonging.

 In his work, Kotsko (2010) explores and defines three types of awkwardness. The first type, *everyday awkwardness*, is when a "person does something that is inappropriate for a given context" (6). These inappropriate actions stem from violating the everyday rules that govern a society or culture. The second type, *radical awkwardness*, "arises when there doesn't seem to be any norm governing a given situation at all… Most often, this happens because of an encounter between two sets of norms" (Kotsko 2010, 7). At first glance, everyday awkwardness

seems to encompass TCKs experiences when they often violate their host country's established norms by enacting the norms of their parents' culture(s). However, according to Kotsko, radical awkwardness occurs when "two sets of norms" encounter each other, which also seems apt to TCKs lives. Potentially a solution to this confusion, Kotsko defines a third type of awkwardness, *cultural awkwardness*, as arising "when there seems to be a set of norms in force, but it feels somehow impossible to follow them or even fully know them." (2010, 16). He goes on to distinguish the three types of awkwardness as existing depending on the strengths of norms in a place. Whereas everyday awkwardness is the "violation of a... strong norm," cultural awkwardness "accompanies a... weak norm," and radical awkwardness is the "panic brought on by the lack of any norm at all" (Kotsko 2010, 17).

Kotsko's (2010) distinguishing of awkwardness based on a hierarchy of strengths of a given norm complicates the "potential solution" I put forth that TCKs experience cultural awkwardness, as opposed to everyday or radical awkwardness (because TCKs navigate at least two cultures). While social norms may be strong in a society, Kotsko (2010) does not account for the way an individual, in this case a TCK, *feels* the strength of the norm is. This suggests that if a weak norm is the co-requisite for cultural awkwardness, it does not truly encompass what TCKs experience, since TCKs' host countries do not necessarily have weak norms. It appears more as if third culture kids experience everyday and cultural awkwardness, and feel within them that they are on the brink of experiencing radical awkwardness. Let's examine this: Dewaele and van Oudenhoven (2009) note TCKs' need to readjust their social norms and of course regardless of a TCK status, when anyone learns social norms, there are always mistakes which present themselves in the form of everyday awkwardness (456). Likewise, many TCKs struggle to understand the norms in the host country, embodied as cultural awkwardness. If norms are weak in the host country or in the parents' country's culture, there arises a feeling in TCKs that there is no "right" norm at all, which can ensue a panic derived from similar feelings to radical awkwardness. In this case there are established norms, but inwardly, a TCK may feel their duality and opposition against each other as a kind of overstimulation that cancels them both out. This is a potential factor for the difficulty in developing an identity, as "[TCKs] [do] not have the energy to focus on normal developmental tasks such as identity [formation] (Walters and Auton-Cuff 2009, 763).

Similar to feeling all sorts of awkwardness, Sacks' (1984) work on being ordinary can help conceptualize the reason behind the awkwardness many third culture kids experience. To "do" being ordinary, Sacks argues that one has the tendency to do "normal" things in a society (1984, 415). Many TCKs can struggle because they know that "there is an infinite collection of possibilities, of things to do, that [they] could not bring [themselves] to do" (Sacks 1984, 415). For third culture kids, these "abnormal" practices can be "ordinary" within their passport country's or parents' culture. In elementary school I brought kugel - a Jewish pie-shaped dish composed of pasta, cinnamon, and raisins - for lunch, and everyone commented on how weird and completely "not normal" it was. Although a mild example, as of course TCKs can be extremely marginalized for their identities, this is just one way of how I was not "doing being ordinary" properly because I had violated the boundaries of mainstream eating culture. Similarly, it took me years to learn that it is not culturally acceptable in "Canadian culture" to go to a friend's house expecting them to offer you food, while in my parents' culture it is completely normal and rude to do otherwise. These examples of "doing being ordinary" wrong, certainly fit into everyday awkwardness in that there were established norms I was violating, however it was culturally awkward for me in that I felt that there were two negating norms and I was not sure

which one to use. If I wanted to blend in, I could have chosen the mainstream so-called Canadian "norms" over the norms of my parents' culture. On the other hand, I valued and wanted to continue practicing norms from my "other" culture and felt that if I gave them up, not only would I no longer be able to perform those practices, but I could perhaps lose an essential part of my identity (this is an example of a clash that can produce radical awkwardness). Therefore, the intensity of value of the parents' culture perhaps has the ability to either speed up the acculturation process for the TCK or slow it down, altering their identity either way.

A term coined by Silverstein, *language ideology* refers to the "sets of beliefs about a language articulated by users as a rationalization or justification of perceived language structure and use" (Woolard and Schieffelin 1994, 57). Valuing a language negatively may lead to dissociations with it. Instead, the dominant language is employed as it has a perceived increase in economic, political, or social benefits. A TCK living in their host country may want to assimilate by speaking that country's dominant language and believing it is more valuable than their passport or parents' country's language. Guofang Li (2006) conducted a study on biliteracy and trilingualism in children who had immigrated with their parents from China. Her findings suggest that parents' language ideologies significantly affect the children's degree of fluency in Mandarin and Cantonese (Li 2006, 375). Li's findings correlate positive language ideologies with increased language fluency (2006, 375). Many TCKs living in their host country are exposed to their parents' or passport country's culture mainly in the home milieu. Like a language ideology, an individual can have, what I suggest as a negative or positive cultural ideology. I extrapolate Li's findings on the significant effects of parents' language ideologies on their children to suggest that if parents of TCKs have negative cultural ideologies their children are more likely to take to those ideologies and more easily choose the norms of their host countries. By resonating with their host country's culture, TCKs can "do ordinariness" with more ease and less awkwardness.

The section above is not to say however, that assimilation into a host country's culture is more desirable for TCKs than maintaining multi-culturally-influenced identities. Barack Obama is supposedly seen as the perfect example of a "successful TCK: having a global perspective, being socially adaptable, … able to think outside the box and reconcile different points of view. Yet, also somewhat "rootless and aloof" (Dewaele and van Oudenhoven, 2009, 445). In their study, Dewaele and van Oudenhoven used a *Multicultural Personality Questionnaire* as a method in understanding the effects that multiple cultural upbringings have on TCKs. Their results showed that although third culture kids score lower than non-TCKs on Emotional stability, they scored significantly higher on Open-mindedness and Cultural Empathy (Dewaele and van Oudenhoven 2009, 453). Here, Emotional Stability "refers to a tendency to remain calm in stressful situations versus a tendency to show strong emotional reactions under stressful circumstances," Open-mindedness "refers to an open and unprejudiced attitude towards outgroup members and… different cultural norms and values," and Cultural Empathy "measures the ability to empathise with the feelings, thoughts and behaviours of individuals from a different cultural background" (2009, 449). Although navigating multi-cultural norms in a mono-culturally dominant society may be confusing, it can allow a person to understand others more in a way that mono-cultural individuals cannot. Whereas mono-culture individuals or "belongers" connect with others based on "specific differences from merely general features," TCKs or "strangers" can connect with people based on "more general qualities in common" (Simmel 1950, 2). As discussed earlier, language and culture are closely tied, and an example of a "general quality" that TCKs can share is being multilingual, or simply more comfortable in multilingual and multi-accented environments in general. Growing up, my parents taught me

Hebrew in an English-dominated country. Often I would listen to my mom reiterate herself to others in English and watch as their puzzled faces searched for her point. Many times, even today, I step in to be a translator of sorts — not just from Hebrew to English, but from my mom's accented and grammatically nonstandard English, to native English speakers' dialect. As a result, I have gained a capability to understand accented and grammatically nonstandard speech from more places than my friends who speak only English can. Moreover, I have found I am more patient in collaborating to decipher miscommunications that arise from linguistic differences and their accompanying world views. It is likely that a group of TCKs would include a mixture of accents, grammatical dialects, and linguistically-influenced ontologies, and this ability to recognize a wider range of sounds and meaning across languages allows us to understand each other better. When the quality of our communication is not predicated on the rules of a single language, we can communicate with greater ease, and with less anxiety in a multicultural setting than someone who is monolingual, and may rely more on "perfect" and exact comprehension to connect with others. These general qualities which connect all humanity can be more easily seen through someone who has experienced more cultures and therefore a more diverse humanity. The rootlessness TCKs experience consequently serves as a platform to ground them in a globalized world.

Third culture kids experience identity as a free-flowing form. Though they may not want it to be liminal, their identities are often ambiguous and undefined. This is best exemplified through the conceptual framework of Anderson's work, which employs *atmospheres* as the general term to describe collective affects, or "mood, feeling, ambience… tone… [and] society," all which hold opposites and contradictions within themselves (2009, 77). He describes an atmosphere that both weighs down on society with a great force and is simultaneously weightless (2009, 77). Just as different rooms, people, and spaces may contain their own atmospheres, there is a sense of atmosphere in every culture. The duality mentioned above is not necessarily "good" or "bad". Rather, when understood and applied to TCKs, it can help pacify anxieties around and cultivate an understanding of multi, and perhaps contradictory, cultural identities. TCKs can identify simultaneously with multiple separate atmospheres whose cultural norms may oppose each other's. Along with culturally-tied identity markers, the "dimensions of an individual's identity interact… and cannot be taken out of context or separated. Different aspects of identity may be more salient at different times and in different ways, depending on the context of the individual" (Walters and Auton-Cuff 2009, 757). These distinct, emerging, and at times overlapping layers allow TCKs to develop contextual identities which surface at different times and may come to the forefront when they are trying to "blend in". It is in this way that identities can both weigh down a TCK while lifting them weightlessly through spaces.

If identities can flow through spaces, is a focus on nationality-tied identity more detrimental to TCKs in identity building? TCKs are often confused whether or not their identities belong more to their host country or their passport country (Dewaele and van Oudenhoven 2009, 444). Passport countries refer to their parents' country, as often TCKs will be born in one country, gaining citizenship there, but live in one or more other countries the majority of their lives. Many cultures have been historically diasporic, and others have contemporarily spread out due to globalization or colonization. In my case, I am unclear on whether to suggest that my "passport culture" is Israeli or Jewish. Over centuries, many Jews have spread out due to inquisitions and expulsions. Thus far I have experienced a common culture with Jews from around the world, however Jewish culture is not necessarily Israeli culture (my passport country). As a TCK does this mean I have three cultural belongings, or just

two? Another example are deaf, hard-of-hearing people, and CODAs (children of deaf adults). Oftentimes CODAs' parents', deaf people's, and hard-of-hearing people's culture will be the Deaf community, but it is usually also their literal passport country. If the child's "host country" is the same as their marginalized "passport country", are they still considered a TCK? The third, but arguably most prominent example, is Indigenous peoples as TCKs. In Canada, a centuries-long history of violent colonialism has extremely marginalized Indigenous cultures. In this paper I have talked about my experiences of my identity clashing with mainstream so-called "Canadian" culture, however I was not referring to nor did I attend to Indigenous cultures. As Indigenous cultures continue to be erased from settler-colonial Canadian culture, many Indigenous peoples interact with a dominant culture while still maintaining their parents'/ancestors' culture. Not only does the common question apply to whether an individual can be a TCK in their own traditional territories, but another set of questions arises: how many generations of TCKs can there be? Can third culture kids have children who are TCKs even if the parents stay in their "host country"? How many generations does it take for a TCK to acculturate into the original "host country"? I propose that instead of attaching already ambiguous identities to arbitrary and ephemeral national boundaries, that we expand the conceptualization of TCKs as having identities belonging to communities of practice, one that centres the concept of atmospheric identities.

I refer to *communities of practice* as any "aggregate of people who come together around mutual engagement in an endeavor" (Muehlmann 2014, 584). Communities of practice can help TCKs craft their identity through belonging to multiple communities of practice which are not necessarily geographically bound, but may include different cultural norms. Perhaps in their dominant or "host" community of practice, there will still be multitudes of awkwardness, but the notion of communities of practice is less polarising and can accommodate TCKs more contemporarily. Without restrictions of nation-state borders, TCKs' identities can flow as atmospheres without needing to physically be in that location. Third culture kids can subsequently interact with online communities of practice to connect with other TCKs and become a "belonger" to somewhere. Walters and Auton-Cuff found that TCKs "found great comfort and refuge in their other TCK friends and it gave them meaning and identity" (2009, 770). Hannaford's study on TCKs engaging in online communities as a way of belonging suggests that the environment and online opportunities allow third culture kids in digital worlds to "try out different [identities]. These alternative worlds of continuity and belonging… [are] valuable spaces from which TCKs can explore social citizenship and their sense of a known self" (2016, 262). Digital identity exploration is a significant expansion of already-infinite possible atmospheres, and its discussion is beyond the scope of this paper. However, it reinforces my argument that identities can exist exclusive of a physical place, and can be shifted over borders and even rest between them.

Third culture kids may feel the need to marginalize one or more of their cultures when living in a dominant community of practice or "host country". When returning to their parents' country of origin which they dually belong to, they often realize they are a stranger to both countries. Spatial relations which condition human interactions dictate TCKs physical and perceived or abstract proximity in relation to their "host country" while being estranged from their "passport country" and vice versa (Simmel 1950, 1). Trying to form meaningful connections within their society of current situations often results in a milieu of awkwardness as they encounter clashes between cultural norms, and struggle with their presentations of "ordinariness". A third culture kid may try to completely acculturate into the "host country"

based on their or their parents' cultural ideologies, or they may embrace their multi-culturally-infused identities as a means of seeing and relating to others through an amalgam of ways of being and knowing. Exploring identities as a third culture kid can be frustrating, however the acknowledgement of identities and societies as atmospheric and contextually emergent can mitigate the anxieties of creating a static identity. Once identities and spaces are seen as ephemeral and contradictory, a third culture kid has the ability to build their identity around multiple communities of practice. This attends to the myriad contemporary issues relating to nation-state-linked identity formation. As an identity-exploring tool, digital communities of practice have the potential to connect TCKs around the world in order to explore identity formation as a stranger and a "belonger" simultaneously. As I have shown above, the awkwardness and frequent failures to "do ordinary" that are inherent to TCKs' lives can reveal points of potential connection with other "strangers" and reconfigurations of cultural norms. Thus, encouraging the flexibility and transiency of identities through a variety of spatial contexts allows TCKs to ground themselves in multiple culturally-influenced identities (and ways of knowing and being) as they each emerge and dissolve situationally.

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Ongoing consequences of settler-imposed family models: How Indigenous communities handle the dysfunctions of family as a result of forced assimilation and their advocacy for the restoration of social harmony

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Abstract: The general consequences of colonialism in Canada are well-known and well-documented today, from residential schools to Christianization to the ramifications of settler-colonialism that led to the oppression of Indigenous communities in the modern day. Yet what is not as well-known is the abrupt shift from Indigenous family models to settler family models, and how the ramifications of this shift have transferred over to the known issues in Indigenous families today, such as intimate partner violence in all its forms. In this paper, I explore the socio-historical background of this shift in family models, how this benefited colonial settlers to the detriment of the well-being of Indigenous communities, and what options the communities have to deal with the outcomes of this shift today, including federal police intervention and the possibility of Indigenous self-governance.

Indigenous populations across Canada have been nearly irreversibly affected by the consequences of colonial settler-imposed restructurings of various aspects of the Indigenous ways of life. Kinship, sexuality, and family structure have been uprooted and morphed to fit the Judeo-Christian ideals that settlers maintain. The reshaping of ways of living has not been a smooth transition for Indigenous people; on the contrary, forced assimilation into settler ways of life has left little to no room for error for Indigenous populations due to the intense and ongoing assimilation process, and leaving many to suffer the dysfunctions of its effects. The nuclear family model which was forcibly imposed on Indigenous communities replaced the traditional ethical non-monogamous family structure, in which extended family members and kinship ties shared the responsibilities of child-rearing along with the mother. As the nuclear family model is not the traditional Indigenous family mode, as Kim Tallbear (2018) states, perhaps that is why Indigenous families are "failing" to adjust to the settler model (157)—"failure" consisting of single-parent families, disproportionate rates of intimate partner violence, serial monogamy, and early pregnancy. For this paper, I will be focusing on how the settler-imposed family model, and its inevitable dysfunctions, manifest in disproportionately higher rates of intimate partner violence in Indigenous households.

Defining an Indigenous family can be difficult, as there are a multitude of factors influencing the perception of family. Often, traditional Indigenous family models consist of multiple caregivers; one might argue that this creates more of an egalitarian-based allocation of child-rearing responsibilities in comparison to the settler nuclear family model—which typically loads most responsibilities onto the mother. Sherry Ortner (1996) explains that the settler-imposed view of women as having second class status was largely due to the idea that

women were closer to nature than men, and therefore lesser citizens. This social role led women to their confinement to the domestic family (31). A survey by Tam et al. (2017) found that 67% of participants defined an Indigenous family as ambiguous, and that 60% of participants associated Indigenous families with the terms "fluid(ity)" and "transient" (249). In contrast, the nuclear family model has a strict definition: the nuclear family consists of two parents, ideally one man and one woman, in which the woman bears most of the responsibilities of child-rearing and the man is responsible for bringing in a steady income to provide for the family.

The reason behind the forced imposition of the nuclear family model onto Indigenous communities by the settlers, as Kim Tallbear (2018) states, is Christian moralities linked with state structural enforcements—or the "the linking of marriage to property rights and notions of good citizenship" (146), in which property rights were not given unless a monogamous man and woman were in a legally binding marital union. The colonial state tied a woman's economic well-being to men who had the legal right to control property, reducing Indigenous women to property rather than autonomous individuals. This is contrasted with Indigenous gendered hierarchy in domestic spheres, in which women had occupied positions of authority and controlled property themselves. Kim Tallbear mentions that children were also effectively tied to the man just as women were, rendering them properties of the man of the household (Wilbur & Keene, 2019). In order to bypass these authoritative positions that Indigenous women in Canada once held, the colonial state targeted these women in order to transfer the "surplus" of the land, ideally towards European or Euro-American settlers, who were already accustomed to the nuclear family mode (Holmes & Hunt, 2017, 7). Thus, Kim Tallbear reframes settler-imposed monogamy by calling it "compulsory monogamy" (Wilbur & Keene, 2019), to highlight the forced assimilation that Indigenous communities were made to undergo in order to conform to the newly-established colonial settler nation.

Dysfunctions in the family take form, as previously mentioned, in cases such as early pregnancy, single-parent families, serial monogamy, and intimate partner violence. Holmes and Hunt (2017) state that "family violence in Indigenous communities cannot be understood outside of the deep connections to 'the historical experience of the community'" (17), and they elaborate by explaining that the reason behind this perpetuating intergenerational trauma is the disruption of culturally-specific roles in Indigenous communities and families as a key factor in contemporary family violence:

"In northern Canada, a shift occurred from an egalitarian society where 'men and women shared equal power in the subsistence economy, to the post-colonial society. Aboriginal men struggled with imposed patriarchy amidst a socio-economic downturn as women became the main wage earners" (Holmes & Hunt, 2017, 21).

Circling back to Kim Tallbear's (2018) reports of a once gendered hierarchy, in which women held the authoritative position in a household before the introduction of heteropatriarchy by the colonial settlers, we can interpret Holmes and Hunt's claim by examining how Indigenous men struggle to upkeep the contemporary hierarchy in which replaced the traditional egalitarian domestic structure. Indigenous men struggle to upkeep said hierarchy in light of contemporary Indigenous women reassuming hierarchical positions—those typically reserved for men in the settler-imposed heteropatriarchal family structure, in which the patriarch is responsible for providing the family with a steady income. This struggle to maintain their position of authority occasionally takes form as physical control—which may

consist of physical violence, as well as other forms of abuse, such as emotional, verbal, or spiritual abuse.

Furthermore, as Sherry B. Ortner (1996) would interpret, this struggle for power between a man and wife in a household may reinforce patriarchal ideals of putting women in a more subordinate position, because "culture (*i.e. every culture*) at some level of awareness asserts itself to be not only distinct from, but superior to nature, and that sense of distinctiveness and superiority rests precisely on the ability to transform — to 'socialize' and culturalize' — nature" (26-27, emphasis added). I find this interpretation of the patriarchal gendered hierarchy to be exclusive of Indigenous cultures, as Indigenous cultures around the world are generally known as having a great deal of respect for nature, and intertwining the functions of nature into their ways of living. As such, Indigenous family violence can be understood "as an effect of the devastating land-based impacts of colonialism", which stripped Indigenous people away from nature and forcibly "civilized" them through Christianization and urbanization of their lands (Holmes & Hunt, 2017, 25). By imposing Euro-American culture onto Indigenous peoples, settlers have in this way contributed to a dissociation from nature, and thus the dysfunctions present in many contemporary Indigenous lives (i.e. substance abuse as a result of this disconnect).

Because historical oppression was imposed on Indigenous communities, violence and oppression have become normalized and internalized within individuals, families, and communities. As the oppressors obscure the perceptions of the oppressed, the oppressed are taught to reject identifying as the oppressors' opposites and to liberate themselves from suppression, and instead to do everything in their power to "adopt an attitude of 'adhesion' to the oppressor" (Freire, 2005, 45-46). Historical trauma, such as residential schools, have been linked to intimate partner violence and alcoholism, and others have linked colonization and historical oppression to the imposition of violence and deterioration of traditional support systems as well as the devaluation of women (Burnette, 2016, 357). As Paulo Freire, a Brazilian advocate of critical pedagogy, says, settlers tend to transmit cultural myths that portray themselves as superior and Indigenous folks as inferior, making them more vulnerable to violence (Freire, 2005, 45). In addition, men in some Indigenous communities believe that violence, alcohol abuse, and patriarchal societal arrangements imposed by colonial settlers are products of colonial disruption (Holmes & Hunt, 2017, 28). These findings strengthen the previously discussed findings which state Indigenous men struggle to maintain the settler-imposed heteropatriarchal hierarchy which keeps women at the bottom tiers of society.

It is critical to note that women who are victims of intimate partner violence are *not* passive victims. Many seek intervention, support, and coping strategies in light of the intimate partner violence they experience. One of these coping strategies involves legal intervention, which does not always come so easily accessible to Indigenous women, or may not be an appealing option. Until as recently as the 1960s, intimate violence was not viewed as a public issue or as a matter for criminal justice intervention in Canada, and the fact that intimate partner violence typically occurred in the domestic sphere rendered it invisible to the public gaze, and was seen as a private matter to be left in the hands of the victim and abuser (McGillivray & Comaskey, 2004, 84). Intimate partner violence was regarded as commonplace, tolerated, encouraged, and at times even *legalized* as a necessary part of the husband's domestic role, rendering the victim's efforts to escape their abusive environment futile. Perceptions of victims of intimate partner violence played a major role in how criminal justice was sought out,

as "police perceived the victim's continued contact with the abuser as implying consent [...] and often experienced women's reluctance to carry charges forward" (McGillivray & Comaskey, 2004, 88). Thus, alongside the distrust that many Indigenous communities have for the RCMP or local police forces, as a result of experiences of historical oppression at the hands of the RCMP, the layer of distrust that police have for victims of intimate partner violence makes it even more difficult for Indigenous victims of intimate partner violence to use the criminal justice system as an avenue to seek out their own justice and healing. As Sherene Razack (1998) states, male violence was one of the reasons the Native Women's Association of Canada (NWAC) went to court in 1991 to demand the right to sit at the table during the constitutional talks on Indigenous self-government, and argued that their exclusion from the table posed a threat to Indigenous women (63).

Madeleine Dion Stout, a Cree scholar, claims that many Indigenous men commit violence against women "because their 'spiritual compact' with themselves, their communities and their heritage have not been fostered" (Razack, 1998, 65), further highlighting the violent underpinnings that colonialism has on Indigenous communities regarding their safety and well-being. Confronting male domination within Indigenous communities requires an understanding of how settler domination has contributed to the causes and extent of male violence as well as how and where to name the violence. The Ontario Native Women's Association stresses that the lack of Indigenous self-governance corresponds with 82% of respondents who wanted their abusers charged despite their fear of involving Canadian law enforcement in Indigenous family disputes (Razack, 1998, 65). The Canadian Council on Social Development and the NWAC clearly state why they prefer an approach to violence that is community-centred and focused on healing rather than criminal justice: "The Aboriginal victims must deal with the offender or be subject to exile outside the community, from their home, far from close relatives. It is important to realize that the victims and members of the family are victimized again by the system because they must leave their home and community" (Razack, 1998, 66). Thus, Indigenous women are placed in a dilemma which forces them to choose between their personal safety and community, both of which are critical in striving towards healing.

Healing is not only centered around the survivor of intimate partner violence; Indigenous communities and Elders also stress the importance of healing the offenders, in reference to their values in healing wounds and restoration of social harmony. Whatever means they use in restoring justice, the matter is considered finished when the offence is recognized and dealt with by both the offender and the offended. In Indigenous self-governance, punishment is not the goal, but atonement and restoration of harmony (Razack, 1998, 77). This differs vastly from the methods of the federal criminal justice system, in which proportionate justice in the form of punishment is the goal. Indigenous self-governments stress that the offense does not only impact the perpetrator and the victim, but the community as a whole, and so the community deposition continues the humiliation that the perpetrator faces when disclosing the offense until full forgiveness by the victim and the entire community has been achieved. The lack thereof in Canadian government courts of cultural sensitivities when dealing with Indigenous cases is paramount and does not align with the traditional Indigenous process of healing and restoration of harmony, which is also why many Indigenous victims of sexual violence avoid involving Canadian law enforcement.

In addition, Sherene Razack (1998) states that rape trials involving Indigenous offenders and victims are dominated by two narratives: "the savage and the squaw" (69). As Indigenous scholar Emma Laroque explained to the Aboriginal Justice Inquiry of Manitoba:

 "The 'squaw' is the female counterpart to the Indian male 'savage' and as such she has no human face [...]. Such grotesque dehumanization has rendered all Native women and girls vulnerable to gross physical, psychological, and sexual violence ... I believe that there is a direct relationship between these horrible racist / sexist stereotypes and violence against Native women and girls" (Razack, 1998, 69).

The narratives that shape peoples' views on Indigenous men and women as dysfunctional and inherently subject to sexual violence is another mechanism to confirm the colonial dogma regarding the superiority of white settlers.

It is evident that settler colonialism has torn apart Indigenous communities across Canada in a near-irreversible way. The compulsory monogamy that Indigenous communities were subjected to tore apart their traditional family structures, which were based on ethical non-monogamy and communal child-rearing, and as a result took away many of their peer resources—leaving many families with little room for error to conform to the Euro-American nuclear family model. In addition, their displacement away from nature forced them to undergo paradigm shifts, such as conforming to settler-imposed patriarchal hierarchies of society, as opposed to the more egalitarian structure that once formed the underpinnings of Indigenous functions of life. This leaves many Indigenous men forced to comply with the patriarchal hierarchy in less than savoury methods. The communities' lack of self-governance also deters Indigenous victims of sexual violence from persuing a case through the federal law enforcement system, as there is a lack of focus in the restoration of social harmony and atonement and more of a focus on proportional justice in the form of punishing the perpetrator. Thus, we can see that colonialism has permeated every aspect of the Indigenous family—restricting them from being able to access their traditions, as well as framing Indigenous people as "savages and squaws". Ultimately, this has resulted in negative consequences such as family dysfunctions, forced assimilation into settler sexualities, the inability to heal in times of injustice, and most importantly, has shaped settler hegemonies in a way which frames Indigenous people as less than deserving of empathy.

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Paleovirology: A Novel Field of Study Made Theoretically Possible by Archaeological Dental Calculus

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Abstract: In recent years the field of paleopathology has become enamoured with the prospect of utilizing ancient dental calculus samples yielded from skeletal remains, which has kickstarted interdisciplinary research using molecular biological techniques not previously employed in the discipline. While studying ancient infectious diseases can be difficult, and often non-definitive with the use of skeletal materials and written accounts alone, the exploitation of dental calculus in tandem may provide more concrete reconstructions of ancient health experiences. In this paper I outline the use of dental calculus in archaeological investigations of human disease caused by microorganisms, limitations in paleopathological data interpretation, and the lack of attention to ancient human viruses in paleopathological research.

1. Introduction

In recent years the field of paleopathology has become interested in the prospect of utilizing ancient dental calculus samples yielded from skeletal remains, which has kickstarted interdisciplinary research using molecular biological techniques not previously employed in the discipline. While studying ancient infectious diseases such as viruses can be difficult and often non-definitive with the use of skeletal materials and written accounts alone, the exploitation of dental calculus in tandem may provide more concrete reconstructions of ancient health experiences.

Unlike the majority of people in contemporary Western societies with access to dental care, ancient peoples tended to have poorer oral health than today in comparison, accumulating significant amounts of dental calculus in which materials within the oral cavity (ie: food particulates, bacteria, etc.) that can become entrapped preserved, which may prove to be useful to paleopathologists curious about individual and population-wide health experiences of those who lived in the distant past, through dental calculus analysis. For instance, the domestication of agricultural crops, subsistence patterns (Hardy et al. 2009), and medicinal plant usage has been studied through analyzing remains of pollen grains, starch granules (Hardy et al. 2012), and other plant fibers preserved in calcary formations (Henry and Piperno 2008). Further, studies on charcoal and ash have provided insights into the emergence of cooking practices, and textile fibre analysis has confirmed the existence of ancient trade networks in North America (Hardy et al., 2012; Blatt et al., 2010). While this list of previous uses of dental calculus in research is brief, it serves to highlight that it has become an important area of study that is able to provide information about the biocultural development of the human species. Analysis of dental calculus may provide key insights into the lives of ancient people, as it can preserve

ancient biomolecules, including remnants of pathogens, so long as skeletal materials remain preserved for archaeologists to find.

Throughout this paper I will highlight dental calculus and the process through which it forms, as well as studies conducted pertinent to ancient microbes and their relationships with humans. Lastly, I present the argument that while studies of ancient viruses in paleopathology are scarce, and virtually non-existent with respect to dental calculus analysis, it is theoretically possible that the genetic and proteomic remains of ancient viruses may be preserved within dental calculary formations, and that the application of suitable analytical techniques has the potential to change our perceptions of ancient experiences of health and disease.

2. Dental Calculus Formation

Dental calculus, otherwise known as dental plaque, is a yellow-white material composed of an amalgamation of both organic and inorganic components readily found within the mouth (Jin and Yip 2002) [See Figure 1]. The organic component is composed of bacterial plaque biofilms formed by *Streptococcus mutans,* a near ubiquitous organism of the human oral microbiota, as well as other anaerobic bacteria present within the oral cavity (Metwalli et al. 2013). Additionally, the inorganic component is composed of hydroxyapatite, the main constituent of bone, as well as other calcium phosphates, delivered within salivary secretions (Damle 2016). The aforementioned plaque biofilms serve as a matrix for the attachment and embedding of the inorganic components and succeeding plaque deposition (Radini et al., 2017). The cellular walls of bacteria adhering to plaque matrices promptly mineralize, forming the dental calcifications (Lieverse 1999; Hillson 2005). Bacterial metabolites formed by the fermentation of sugars present in salivary fluids and food, cultivate microdomains of increased oral pH, facilitating the precipitation of salivary calcium phosphates and subsequent mineralization of dental plaques (Radini et al. 2017). Additionally, subgingival calculus formation– below the gum line – may appear black due to inclusions of iron, which results from bacterial uptake of iron from hemoglobin encountered during gum bleeding (Buchalla et al. 2004). Dental calculus of either type forms in incremental deposits, resulting in the entrapment of oral bacteria, proteins, food particulates, nucleic acids, and other biomolecules (Haensch et al. 2010; Hardy et al. 2009; Hardy et al. 2012; Henry and Piperno 2008). Supragingival calculus is exposed to potentially abrasive materials that enter the oral cavity causing its removal, while subgingival calculus is shielded by the gingiva and may accumulate through an individual's life following the eruption of permanent dentition.

Due to the anatomical placement of salivary gland ducts within the oral cavity, certain domains experience higher exposure to salivary fluid, which facilitates the deposition of dental calculus in discrete areas. Most commonly, dental calculus above the gum line, or supragingival dental calculus, is observed to accumulate predominantly on the buccal aspects (tooth surface in contact with cheek mucosa) of the maxillary molars, and the lingual surfaces of mandibular incisors. This is consistent with the location of the ducts of the parotid salivary glands, and the sub-lingual and sub-mandibular salivary glands, respectively (Hillson 2005).
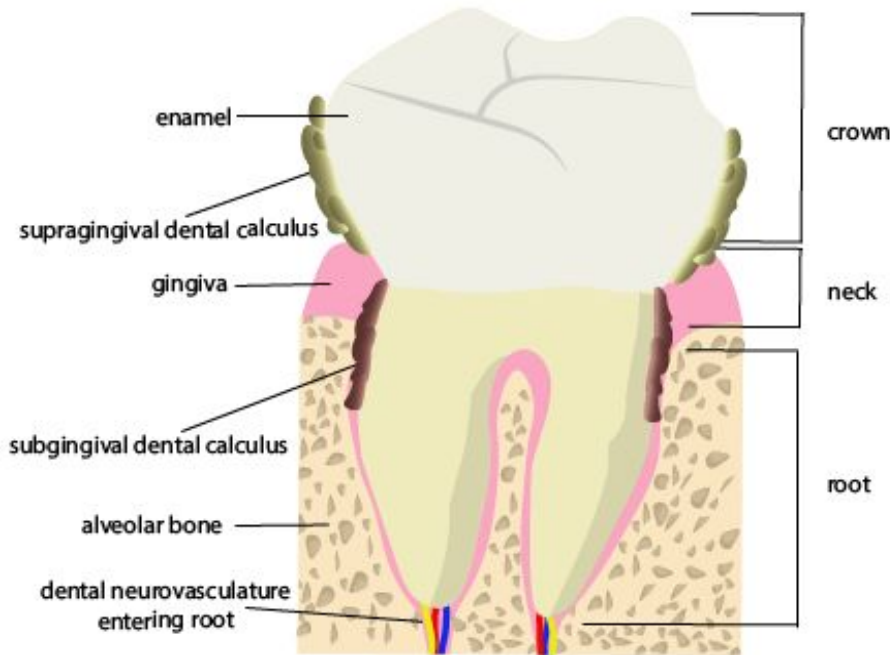
Figure 1. Anatomical locations of dental calculus formations. Supragingival dental calculus can be found above the gingiva (gum-line) on the crown of the tooth. Subgingival dental calculus can be found below the gingiva on the neck and root of the tooth. Illustration by Curtis J. Logan

3. Identification of Microorganisms in Dental Calculus

3.1 Recent Developments

In recent years, archaeological dentition has been proven to be a new window into the history of humanity, by way of preserving genetic material and proteins of both the individual and the associated microbes that inhabited their body during life. For instance, in 2010 Haensch et al. published an article detailing the successful isolation of ancient DNA (aDNA) and proteins of the bacterium *Yersinia pestis*, derived from bone and whole tooth samples collected from individuals buried in a mass grave for victims of the Black Death (Haensch et al. 2010). The implications of this study and other research like it in the field extends our understanding of human disease, allowing observation of host-pathogen coevolution, as well as how the genomes, virulence, and pathogenicity of human pathogens has changed over millennia. Further, it has been estimated that dental calculus contains approximately 200,000,000 cells per milligram (Damle 2016), and as such it has the potential to preserve billions of bacteria per individual in the archaeological record. Since genetic material from ancient infectious agents an individual survived in life may be preserved and maintain analytical viability within dental calculus, paleopathological researchers in some instances may be able to piece together ancient experiences of health. Generally, if a pathogen causes oral lesions, is spread via oral shedding (pathogen progeny release from tissues in the oral cavity) or exists in the oral cavity at some point during its life cycle it may be incorporated into accumulations of dental calculus.

Long-term infections persisting for decades, or throughout the duration of an individual's life, do not always result in the development of disease but may establish a latent asymptomatic infection (Traylen C. M et al 2011). Additionally, our microbiome houses commensal pathobionts, or microbes typically existing as a symbiont (beneficial microorganism)

with the potential to cause disease. These pathobionts may develop opportunistic infections during states of stress or immunocompromisation of the host, such as the case is in tuberculosis and HIV co-infection (Kenneth 1995). Molecular signatures of proteins and genetic material from microbes having established latent or opportunistic infections, or having simply been a constituent of the microbiota, have been isolated from human fecal (Cano et al 2014), skeletal (Rafi et al 1994), and mummified materials (Rollo et al 2000). However, these ancient signatures can be hard to identify since it is difficult to ensure that the microbial remnants isolated are in fact originally from the individual themselves, rather than from the environment or modern sources of contamination. This is an important issue as the majority of ancient biomolecules are subject to contamination and removal from primary context due to the taphonomic processes associated with decomposition of the body and handling post-exhumation. Furthermore, since different anatomical regions decompose at different rates, different areas of the body preserve aDNA and other biomolecules significantly better than others. For instance, microbes spreading throughout the body hematogenously (through the bloodstream) may enter dental pulp or cancellous bone and be relatively unaffected by the chemical degradation associated with the release of degradative enzymes during corpse autolysis (Donoghue 2007). As such, microbes embedded within dental calculus are imbued with the same enzymatic immunity. Recently, archaeological dental calculus has been shown to provide a safehouse for DNA and proteins and has been proven to be able to preserve organic materials, such as the cell wall of the bacteria *Streptococcus mutans*, for up to 12,000 years (Warriner et al. 2015; Linossier et al. 1996). Overall, the genetic sequences of a number of ancient bacteria found on and in the human body have been successfully isolated from dental calculus samples, as previously discussed, bringing about the emergence of a new archaeological field of study.

3.2 A Primer on Methods

Sequencing the genomes of ancient microorganisms would not be possible without the use of a molecular biological technique known as Polymerase Chain Reaction (PCR). Essentially, PCR is used to make millions of identical copies of DNA fragments, which can then be stitched together in order to generate a sequence of a large DNA fragment, and in some instances can be used to reconstruct partial or entire genomes using computer software. Firstly, the DNA present in a sample is isolated and heated such that the two complementary strands comprising the DNA double-helix dissociate. Subsequently, an enzyme known as Taq polymerase (Taq pol), originally isolated from the bacteria *Thermus aquaticus,* which thrives in the extremely high temperatures of volcanic hot springs; is added to the reaction solution (Chien et al. 1976). Taq pol functions to amplify fragmentary DNA strands, so that after multiple cycles of heating and cooling over several hours, millions of DNA strands are generated from the original single fragment. While PCR is typically used in molecular biological research outside of archaeology, it allows researchers curious about the history of humanity in the context of disease to isolate and identify what remains of ancient pathogens.

4. Limitations of Paleopathological Data Interpretation

4.1 Case Study

In this example, Eerkens et al. (2018) attempt to tackle confirmation of what they believe to be a case of bacterial meningitis in an individual found at a prehistoric site in San Francisco, by using next generation sequencing technologies (NGS) of bacterial genetic material extracted from dental calculus samples. The authors present the identified and sequenced genome of

Neisseria meningitidis (N. meningitidis), the bacteria typically causative of bacterial meningitis, and other presumed pathological conditions as confirmatory evidence an individual from had died of meningococcal disease. Such a pathological condition includes supposed endocranial lesions and pronounced meningeal grooves, which they deem to be signature of endocranial remodelling due to severe inflammation of the meninges, resulting from a meningococcal infection. In their article, initially acknowledging the fact that any identification of meningococcal disease on the basis of the "just-forming" endocranial lesions would be purely speculative, the researchers reconsidered osteological evidence upon identification of genomes belonging to other potentially pathogenic bacteria.

Firstly, the interpretation that the oral microbiota identified in Burial #16 as being indicative of the individual having developed meningococcal disease in life (Eerkens et al. 2018) is unfounded. It is universally accepted in the field of microbiology that potentially pathogenic microorganisms (opportunistic pathogens) inhabit the human body and are nearly ubiquitous in all human populations, usually only developing into disease if comorbidities influencing host-pathobiont dysbiosis are present (Rath et al 2018). Positive identification of a pathobiont in dental calculus yielded from skeletal remains by no means provides sufficient evidence to make a differential diagnosis for the purposes of concluding a cause of death. Preservation of *N. meningitidis* within the dental calculus samples of Burial #16 does confirm that the organism existed within the oral cavity of the individual at some point in time during life; however, it alone does not provide sufficient evidence to suggest that the individual died from the particular bacterial infection.

Initially, the researchers found no osteological evidence suggestive of a particular cause of death. However, upon identifying *N. meningitidis* embedded within dental calculus samples, they decided to make alterations of their findings of an absence of osteological disease indicators, and to reevaluate the skeletal remains. Upon such revaluation, the researchers proposed that "just-forming" endocranial lesions and mildly pronounced meningeal grooves, which were initially noticed but disregarded, to be indicators of meningococcal disease. However, even if meningococcal disease was in fact the cause of death, in their article the researchers cite Schildkamp et al. (1996), stating that 73% of patients who are admitted to the hospital following the onset of severe symptoms of meningococcal infection die within two days. Foremost, osteological modification acting as a proxy for disease indication can take weeks to become apparent, even many years as is the case of bony manifestations of tertiary syphilis (French P. 2007), which is significantly longer than two days. As such, modification of the endocranial surface would not be present if the individual had meningococcal disease as the cause of death. Subsequently, regarding the revaluation of skeletal material and reconsidering prior findings to be suggestive of meningococcal disease, conformational bias should be called into question since the researchers only considered probable evidence to be relevant following the identification of additional loosely suggestive findings; those being the existence of other potential pathobionts in the dental calculus of Burial #16.

Lastly, in evaluating the experimental methodology of *N. meningitidis* identification within dental calculus, blind spots in the researchers' foresight become apparent. As previously outlined, dental calculus formation occurs continually, with the outermost aspect of calculus formations being most recently incorporated. Thus, following the reasoning of archaeological stratigraphy, the outermost dental calculus inclusions, including bacteria, genetic material and proteins, would have been incorporated more recently compared to inclusions embedded in deeper layers, formed prior. By "scraping" and "prying" off dental calculus samples from the

teeth, and further converting the samples into a homogenous "fine powder," the researchers destroyed the spatial relationships between bacterial remnants in different layers of calculus. Since the researchers believe *N. meningitidis* to be the cause of death, it follows that the bacterial genomic material would be found in the outermost calculus layer. Unfortunately, since such spatial relationships were destroyed during sample preparation, evidence that could pinpoint the what time at which in the individual's life the bacteria were in the oral cavity was lost forever. Further, the sterilization process used to eliminate contaminant DNA present on the sample surface would have destroyed aDNA incorporated into the calculus periphery incorporated at or around the time of death, erasing traces of the pathogen required to make the assumption that the pathogen infected the individual around the time of death, and thus could be the putative cause.

While the evidence put forth in the publication in question is interesting considering that it provides the first documentation of *N. meningitidis* in ancient samples from the entirety of the Americas, the overall conclusions drawn pertaining to cause of death are fundamentally flawed and call into question possible conformational biases. Overall, while the implications of the prehistoric existence of *N. meningitidis* in the Americas poses new and interesting questions about infectious disease, host-pathogen coevolution, and ancient pre-contact microbiota, claims of the bacteria being the cause of death in the case of Burial #16 should be disregarded until further experimental procedures for confirmation or discreditation of the findings in question are conducted. Seemingly, the researchers constructed a narrative to fit their assumptions rather than demonstrating comprehension of the limitations of their investigation.

5. Viruses in Paleopathological Research

5.1 Introduction to Viruses

Viruses are infectious agents composed of genetic material, either RNA or DNA, their associated structural and non-structural proteins, and potentially a host-derived membrane (depending on the virus). It is also important to note that viruses are not living entities. For something to be considered 'alive' it must possess five general characteristics, including: 1) being comprised of one or more cells; 2) the ability to acquire and utilize energy to carry out essential functions; 3) the ability to produce progeny from a parent(s); 4) the transfer of genetic material from parent to progeny and evolution via changes in the genome resulting from spontaneous mutations affecting fitness; and 5) increase in size and organizational complexity and progress to maturity (Freeman et al. 2015).

In evaluating the fundamental criteria for life, viruses are not considered alive as they are not composed of cells, cannot carry out metabolic processes required for utilization of energy, are unable to respond to the environment, and do not self-replicate or grow as they require host cells to synthesize new fully-formed virions. Louten and Reynolds (2016) have stated that the number of infectious virus particles on Earth significantly outnumbers that of the number of stars in the universe; however, most viruses in existence pose no threat to human health as viruses have adapted to require specific host molecules in order to establish an infection (Louten and Reynolds 2016). Viruses enter their host cells by exploiting viral receptors, which are often species-specific proteins on the host cell surface, specific to the cell type(s) a given virus has evolved to rely on for replication (Louten and Reynolds 2016). Upon engaging these host-situated viral-receptors, the cell envelops the virus particle, allowing it to enter the cytosol where the virus particle disassembles, releasing its genome within the host cell (Louten and

Reynolds 2016). The virus particle then hijacks host cellular machinery and metabolic processes to replicate its genome, assemble new progeny virions, and release these new functional virus particles into the environment to infect subsequent cells (Louten and Reynolds 2016).

5.2 Discussion of Current Literature in "Paleovirology"

Until now paleopathological investigations of ancient infectious diseases have predominantly focused on bacteria, protozoa, and parasitic worms, while largely ignoring human viruses. Though paleopathology is rooted in the past, its retrospective foci proves invaluable in bettering our understanding of our own evolutionary history and could give perspective as to how the viruses that infect us have changed in tandem. Studying the preserved genetic material of viruses can provide insight into the evolutionary history of major groups of viruses infecting humans, including the emergence of genes responsible for virulence and pathogenicity, enabling viruses to cause disease.

Recently, Muhlemann et al. (2018) isolated and sequenced the genomes of 12 ancient strains of hepatitis B virus (HBV) from geographically and temporally diverse sample sets, ranging from approximately 800 to 4500 years old, with the latter being possibly the oldest viral genome identified from human archaeological samples, and possible of any vertebrate (Muhlemann et al. 2018). Several other archaeological viral genomes have been sequenced, including a 350-year-old variola virus (Kayser et al. 2006), 100-year-old influenza virus (Ho et al. 2008), and other HBV genomes spanning 340-450 years old (Bar-Gal et al. 2012; Ross et al. 2018). The relatively old age of Muhlemann's HBV samples demonstrate that viral genomes may be preserved for thousands of years in archaeological human skeletal materials and be complete enough to be used in laboratory analysis.

Additionally, Muhlemann et al. (2018) identified a stop codon in the genome of HBV-RISE387, an ancient strain from a site in Bulanovo, Russia, which is the likely predecessor of strains circulating in Africa, after having migrated from western Eurasia (Pickrell et al. 2014; Muhlemann et al. 2018). To clarify, a stop codon is a sequence of DNA that tells the cellular machinery that synthesizes mRNA, the precursor to every gene product in a cell including proteins, to stop production of the mRNA strand. This stop codon would have resulted in the synthesis of a truncated non-functional HBeAg, an antigenic peptide that is shown to have an immunomodulatory and immune invasion function in modern day untruncated strains. This is important as it means that the ancient strain of HBV in question would not have been able to dissuade innate immune responses in the initial stages of establishing infection (Faure-Dupuy et al. 2017). The identification of this stop codon and understanding how it would have impacted the viral replication cycle and the mobilization of host immune responses broadens our understanding of HBV virulence over the last 4500 years. With it having been demonstrated that ancient viruses can be isolated from ancient human skeletal remains, further investigations will continue to build and reshape understandings of our own evolutionary histories, and those of the viruses that have infected us throughout human evolution.

5.3 Lack of Attention to Ancient Human Viruses in Paleopathological Research

As previously mentioned, the overall body of literature pertaining to archaeological investigations of ancient viruses is scarce. Even so, much of what does exist to date pertains only to virions isolated from mummified soft tissue remains, or observations related to pathognomonic skeletal abnormalities, for example those caused by poliovirus (Waldron T, 2009). However, most viruses that infect humans do not cause skeletal lesions. While it has

been proven that genetic and proteomic materials of humans, animals, plants, and microorganisms can be preserved in dental calculus (Hardy et al. 2009; Ozga et al. 2016; Eerkens et al. 2018); until now no research has been conducted with the aim of isolation and identification of ancient viruses from archaeological dental calculus samples.

As previously discussed, practically any particulate that enters the oral cavity has the potential to become entrapped in dental calculus formations. Many common human viruses exist in the oral cavity at one point or another during their life cycle. This may occur during the initial entry into the body of the host while eating or breathing, or at the end-stage during interpersonal transmission via fluids such as saliva, or those produced by the respiratory tract and are expired while coughing (Grinde and Olsen 2010). Additionally, Epstein-Barr virus (EBV) and human cytomegalovirus (HCMV) are both common causes of infectious mononucleosis, colloquially referred to as 'mono', and are known to infect 95% and 56.7% of the contemporary global adult aged population respectively (Tzellos and Farrell 2012; Lachmann et al. 2018). Both HCMV and EBV initially infect the oral tissues and are also released during oral shedding of the virus (Perera et al. 2010; Cannon et al. 2011); as such, these cases serve to demonstrate that some viruses may exist in the oral cavity and be entrapped in dental calculi.

As previously mentioned, the viral genome consists of either DNA or RNA, and as the hydroxyapatite (HA) found in dental calculus has been proven to bind to DNA sufficiently to maintain its stability, preservation of the viral genome can occur (Brundin 2013). In parallel, with the DNA of a multitude of organisms having been positively identified in dental calculus, it is not an overreach to consider the possibility of dental calculus having the capacity to preserve the genetic material of viruses, or even entire virus particles. With the formulation of appropriate analytical protocols, the study of ancient viruses preserved in dental calculus may emerge.

The possibility of dental calculus having the ability to preserve remnants of ancient viruses, this raises the question as to why no one has pursued such research before. Likely, this is due to three overarching factors: the requirement for the presence of pathological skeletal lesions that are of interest to paleopathologists, discontinuities in knowledge and unfamiliarity of methodologies among paleopathologists and laboratory-based health science researchers, and issues facing current analytical techniques employed in molecular paleopathological research.

Addressing the first issue, paleopathologists are concerned with skeletal remains and the life histories that osteological manifestations of disease tell, as typically these are the only remnants of the human body to survive long-term in the archaeological record, barring extraordinary circumstances such as natural or intentional mummification. However, the majority of human viruses do not result in skeletal lesions, with exceptions being poliovirus causing poliomyelitis (polio), and variola virus causing smallpox; both of which leave pathognomonic osteological signs that can allow for precise diagnosis (Waldron T, 2009). Nonetheless, even if a virus can affect bone, it does not necessarily mean that it will. After the induction of an adaptive host immune response, the production of antibodies tailor-made for the particular pathogen, the virus is eliminated from the host within days to weeks, assuming it is unable to persist as an asymptomatic latent infection (Louten and Reynolds 2016). Thus, human viruses typically do not exist in the body long enough to produce altered skeletal morphology. Additionally, if the virus causes death of the infected individual prior to the appearance of bone lesions or deformities, there are no skeletal indicators that paleopathologists can use in differential diagnosis. Overall, the absence of skeletal indicators of viral infection in

the archaeological record has proven to be a major barrier to understanding viral infections in ancient populations.

Until recently, prior to the emergence of the study of ancient microbes from archaeological samples, the disciplines of paleopathology and microbiology did not cross paths. Establishing interdisciplinary research relationships may have been initially difficult for several reasons. Firstly, when conducting interdisciplinary research there is the issue of jargon. Discipline-specific language usage not common between fields can be cause for confusion, as different fields may use the same term with different associated connotations, or terms may be completely alien to the collaborating field(s). Those partaking in research with members of different areas of study need to first take the time to learn to communicate in the other's academic language to avoid uncertainty. Secondly, there is the underlying issue that most microbiologists do not have the extensive academic background in archaeology to conduct paleopathological research without seeking sources external to their field, and vice versa. Further, with differences in experimental methodologies regarded as standard practice in their respective fields, collaborating researchers in different fields may approach the same problems in different ways, reluctant to diverge from methods with which they have a deep experiential background. In essence, researchers in different fields need to cooperate to comprehend and acknowledge what different disciplines can provide in order to successfully establish functional research partnerships (Pellmar and Eisenberg 2000).

Molecular paleopathological research faces a variety of issues regarding laboratory techniques and protocols. Firstly, any research concerning ancient biomolecules must be conducted in a sterilized cleanroom with laboratory technicians wearing extensive protective gear, otherwise the possibility of contamination with modern DNA sources is inevitable. However, most research institutions do not possess these sorts of facilities. Secondly, unlike the universal primers utilised in polymerase chain reaction (PCR) of eukaryotic and prokaryotic organisms mentioned previously, no such 'universal' primer exists for viruses. While there are primers in existence suitable for whole viral families, only a single viral family could be amplified in a given reaction, whereas universal eukaryotic and prokaryotic primers allow for amplification of any genetic material present in a given sample (Lomakina et al. 2004). The absence of a universal viral primer for PCR means that in order to conduct research with archaeological samples, large quantities of dental calculus must be analysed. However, most individuals do not accumulate sufficient amounts of dental calculus required for analysis, making it impossible to conduct exhaustive analyses to identify all viruses present in a given sample. A lack of a universal viral primer might be remedied with the use of a multiplex immunoassay, a type of analysis that screens for multiple proteins simultaneously, prior to pursuing PCR (Elshal and McCoy 2006). Upon the components of the assay recognising a species-specific viral protein, the remaining solution could then undergo PCR using primers specific to the viral family of the identified protein, rather than having to conduct multiple separate PCR reactions with different primers that likely will not yield results, due to the low probability of the fragment sequences being amplified in a single reaction since there are an estimated 3,600 known viral species (Gelderblom 1996).

6. Conclusion

Recently, the field of paleopathology has become increasingly interested in dental calculus and the insights into ancient infectious diseases, health experiences, and human viral evolutionary histories that it may offer. While numerous publications exist regarding the identification of ancient microorganisms and other biological materials from dental calculus inclusions, research on viruses preserved in archaeological soft tissue and skeletal remains is scarce, and research on viruses preserved in dental calculus is absent entirely. Though viruses are not technically living entities, they do have important relationships with the living and can majorly impact human health. With indisputable evidence that many microorganisms and biomolecules are readily preserved in dental calculus, it should come as a surprise that the study of viruses in paleopathology has just reached inception. Overall, as paleopathologists continue to gain familiarity with – and find new applications for – existing molecular biological techniques, more will be uncovered about the history and development of humanity. As such, while bacteria and other microorganisms continue to gain importance in paleopathology, researchers should begin to make novel research in 'paleovirology' a priority.

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The Formative Years: Looking Into Mycenaean Childhood

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Abstract: The traditional view of an androcentric Mycenaean economy has been challenged in recent years by the growing subdiscipline of gender archaeology, the study of historically under-researched individuals, which has highlighted the diversity of workforces in antiquity. This research paper takes a gendered archaeological approach by outlining the significant economic contributions made by children in the Mycenaean period (1800-1100 BCE), as well as their social status. Through analyses of juvenile job titles inscribed on Linear B tablets, I argue that children were directly involved in a wide range of economic areas including textile and grain production. Shifts in funerary treatment also indicate significant age groups within childhood which impacted their treatment in death and, possibly, in life.

Introduction

Childhood is an undeniably integral stage in any individual's lifetime. This is where early ideas are formed, personal connections are made, and values are shaped. Nevertheless, until recently, children represented a significant gap in archaeological research. This historic absence of study is curious considering the prevalence of juvenile burials, particularly in the Bronze Age Aegean (our period and location of focus), and the significance of children as a social demographic. Upon consideration of the fact that all individuals were at one time children, childhood in antiquity certainly warrants a closer look. This paper contributes to the growing study of the archaeology of childhood by examining the socio-economic contributions made by Mycenaean children through an analysis of Linear B tablets and juvenile burials dating from the 1800 BCE to ~1100 BCE. These two sources of evidence illustrate that childhood was likely divided into a series of age groups which dictated children's integration into society and, crucially, Mycenaean palatial economy.

Defining Childhood

As age is an important aspect of identity, the definition of age-based categories throughout the life-cycle enables a better understanding of how identities were constructed in the past (Baxter 2008, 171). Before we can identify children in Mycenaean material culture, we must first determine at what age Mycenaeans were considered children. The delineation of childhood may seem straightforward; however, it is very difficult to distinguish in ancient societies, particularly prehistoric ones like that of the Mycenaeans. Even by modern standards, childhood is immensely subjective, and an individual considered an adolescent by one society

may be a young adult in another. Mycenaean age groups must therefore be identified through a rigorous analysis of references to children in Linear B tablets and juvenile burial types.

Finding Children in Linear B

The Aegean world in which these Mycenaean children lived was one of politically-organized-states, many of which were governed by palatial administrative centres. Within these centres, archaeologists have uncovered a number of bureaucratic clay tablets inscribed with a syllabic early form of Greek, recording anything related to redistribution and palatial socio-economic function (see Figure 1). The tablets, namely Linear B, cover a period of roughly two hundred years and their content ranges from records of adult and child workgroups to animal counts for feasts. This section focuses on two principle sites for defining Mycenaean age groups, as they hold the largest number of Linear B tablets. The first of these sites, Knossos (see Figure 2), is located on the island of Crete and was originally a Minoan settlement before its administrative centre was overtaken by Mycenaeans, who imposed their regulations on a then heterogeneous population of Knossians. This long history is reflected in both the number of tablets discovered (over 3000) and the Knossian Linear B age system, where, as we shall see, administrators developed a systematic series of age groups related to an individual's employability. The second site, Pylos (see Figure 2), is located in the Peloponnese and was home to more than 1100 excavated tablets. While the archival systems at both sites were remarkably similar, the age records differed significantly; implying the Mycenaeans may have held multiple, regional perspectives on childhood.

Age Distinction at Knossos.

As mentioned previously, Knossos had a distinctively complex age group system. This system appears to be closely tied with both the gender of the individual (which for the purposes of this study will be seen as binary) and their ability to work. We see, for example, the occurrence of the word ko-wa (girl) on 75 tablets at Knossos as well as the word ko-wo (boy). We know these occurrences are intended as age markers because we also see use of the ideograms MUL (woman) and VIR (man) (see Figure 3). These 'boys' and 'girls' are further differentiated into 4 subcategories based on their workgroup training (a concept we will dive into later in this paper). The categories are: 'younger boy/girl', 'older boy/girl', 'under instruction', and 'instructed'. An example of this can be seen on workgroup tablet 'KN Ak 624' where we read:

.1   ri-jo-ni-ja , TA [ ] 'DA [   ]' [

.2   ne di 3 ko-wa , / me-zo-e [

.3   ko-wo , di 3 ko-wo , me-zo-e 1̣[

"Ri-jo-nian women: x DA, x TA …; 3 young women under instruction, x older girls…, 3 boys under instruction, x older boys."

It is good practice to note the brackets in this transcription, as they mark the missing text due to heavy damage sustained by the tablet. The legible portions of the text, however, state in the first line that the workgroup (tu-na-no cloth manufacturers) was made up of 2 Ri-jo-nian (unknown ethnicity) adult women and an unknown (damaged) number of female supervisors (DA, TA). The second line specifies there were 3 young women 'under instruction' and an unknown number of 'older girls'; and, finally, the third line lists 3 boys 'under instruction' and an unknown number of 'older boys'. Unfortunately, the administration's specificity on childhood begins and ends with these four age groups, as we see no further differentiation in the Knossian Linear B tablets.

Age Distinction at Pylos

The Linear B tablets at Pylos also appear to connect age with gender, however their distinctions are less comprehensive than those at Knossos. We see the same ko-wa (girl) and ko-wo (boy) terms as we did at Knossos, however, at Pylos they can be used either on their own or in conjunction with the adult ideogram (see Figure 3) to denote adolescence. We see cases of this for adolescent boys, particularly when they are listed as sharing a workgroup with a younger boy, for example tablet 'PY Ad 694' below states:

pe-ki-ti-ra2-o ko-wo   VIR 4 ko-wo 3

"Four (adult) sons of the carders (women), 3 boys."

This Linear B tablet transcription is listing a woman-led workgroup of wool-carders (pe-ki-ti-ra2) at Pylos who were accompanied by 3 of their young sons (ko-wo) and 4 of their adolescent sons (ko-wo VIR). This is a perfect example of the only two known age groups at Pylos being listed together on one tablet. Why differentiate between people of the same gender in one workgroup? It is possible that palace administrators wanted to keep track of individuals who were on the cusp of adulthood, as once boys became men, they were often separated from girls and their mothers to work alongside other men in a segregated workgroup.

We have established that Mycenaeans recognized childhood as being divided into several, distinguishable age groups and that these age groups were instrumental for tallying economic workers. We have also seen examples of the regional differences in these childhood categories, with Knossos using four categories and Pylos using two. However, we cannot confidently attribute any specific age numbers to these regional age groups. We do not know if a Pylian boy transitioned from a ko-wo to a VIR ko-wo at age 9, 12 or 16. The evidence only illustrates that childhood was, at least in an economic sense, divided up into varying age groups and that these age groups made up the window of time in which a Mycenaean was a child.

Social Implications of Age Distinction in Juvenile Burial

Unfortunately, child mortality rates in prehistory were high, with Katerina Konstanti (2017) estimating numbers as high as 15-30% of the deceased. This suggests that Bronze Age Aegean societies developed standard practices related to juvenile burial. The frequency of these practices has enabled modern examination of age differentiation as represented by variance in juvenile burial practices. I want to preface this topic by clarifying that although, in recent years, research into burial has increased, Mycenaean children are still under-represented in the archaeological record, largely due to the fragmentary nature of their skeletal remains. This fragmentation has contributed to the gap in research previously mentioned of children in the archaeological record. Nevertheless, as we shall see in the following pages, significant observations are still perceptible.

Intramural Burial

Previous studies by Judit Lebegyev (2009) of 280 juvenile burials (aged 0-14 years) have defined a distinctive pattern of child interment whereby age dictated a child's burial location, burial type and burial goods. This pattern can first be observed in infant burials (children aged under 24 months), which archaeologists have noted are almost exclusively 'intramural' (within the walls of a settlement). These intramural burials were often bare, lacking noticeable burial goods and varied in domestic context; with some located near a household hearth, while others were below a staircase or beneath the house floor; yet, all within the domestic sphere. The infants' remains were either arranged in pits, clay vessels, cist graves (see Figure 4), wooden boxes or clay larnakes (chests). Beyond the age of 24 months, around the age of 2-3 years, intramural burial numbers begin decreasing as children began being buried alongside adults in 'extramural' graves (outside settlement walls). In fact, infants below the age of 2 years are rarely, if ever, found in extramural burials, suggesting a stark social differentiation between infants and children over the age of 2. While some scholars have justified this separation as a taboo against premature death, Katerina Konstanti (2017) suggests the different treatment of infants should not be taken as evidence of social inferiority, but rather as a "commemoration of the deceased". She stresses that the inclusion of infants in the domestic space could indicate a coping mechanism and desire to share the world of the living with that of the dead.

Extramural Burial

A second age threshold, that of 5 years, appears to have also existed as the majority of children buried alongside adults in extramural cemeteries had reached the age of 5. Grave Circle B at Mycenae (see Figure 1) and Herakleous cemetery (not far from Mycenae) serve as good case studies for this practice, as they both illustrate differences in grave type based on status and, what are believed to be, age thresholds. Child burial at Grave Circle B consists of: a simple pit grave containing one adult male and one child (5 years), a second simple pit grave containing one child (2 years) and a few simple vases, and finally a "richly equipped" shaft grave containing one child (5 years). Herakleous cemetery at Argos includes a number of burials in which both adults and children above 6 years were interred together in multiple grave types; these were: to the south, pit graves lined with clay, in the centre, simple unadorned pit graves and to the east,

complex cist graves of dry masonry and upright stone slabs. Each region of the cemetery represented a group of individuals unified by their grave type and, for increasingly complex graves (cist graves with dry masonry), their wealth or status.

The data from both sites, when combined with other historical findings, supports a number of conclusions: children aged 2 years or less were not typically buried with adults, children less than 5 years of age were not buried in shaft graves, and children, often 5 years or older, could be buried independently with markers of higher status. Herakleous cemetery's variation in grave type is notable because it clarifies to us that children of 6 years experienced similar, if not identical, burial treatment as adults and their grave type was likely a reflection of status and not their age. Whereas Grave Circle B reinforces the notion that children 2 years or younger were not buried alongside adults and the complexity of their grave type was limited. This gradual burial inclusion likely reflects the increased social integration of Mycenaean children once they passed the age of 2 years. Konstanti argues the threshold to have been a very conscious choice, saying that, "the second year of an infant's life is characterized by an increasing tendency towards independence". She believes the connection between the 2 year threshold and burial inclusion can be further proven through the emergence of deciduous teeth in children at this age, as it denotes a transition from infant to child. Whether or not dental maturation had an impact on burial treatment, it is certain from the burial patterns that the ages of 2 and 5 years held significance in a child's life and subsequently their death.

Individuals which deviate from the observed patterns outlined above often represent examples of a child's inherited wealth influencing their burial type. A research article by Georgina Muskett (2009), for example, outlines a series of Mycenaean burials to determine childhood rites of passage in Aegean antiquity. The burials listed do not always adhere to the burial types noted earlier and describe graves containing, "fifty individual items, including a group of ceramic vessels of various forms". While these findings are certainly impressive, Muskett makes no mention of the children's age and looks exclusively at elite burials, which do not accurately represent the average treatment of deceased children. Moreover, she estimated at the gender of the children buried based on their funeral offerings; an undertaking that is best avoided due to the problematic nature of assigning gender to ancient and inanimate objects. Although exceptions exist, hierarchical societies like that of the Mycenaeans, include disparities of wealth which are reflected in complex burials and can interfere with the overall perceived treatment of deceased children.

Children's Economic Contributions

Having established the existence of Mycenaean age groups, it is important to address the economic ramifications of age distinction in the palatial context. Referring once again to Linear B tablets, we can begin to answer the following questions: what occupations were Mycenaean children working in and what role did their age group play in their work?

Workgroups

 As mentioned previously, Linear B tablets recorded anything related to the palatial economy. This included lists of men and women, some of whom were high ranking officials, but most having belonged to various workgroups. Tablets from Knossos and Pylos, for example, make reference to a combined 7000 people, 2000 of which were women. It is here that we must look, because any children mentioned in the tablets were always accompanied by adults, usually women. In fact, Barbara Olsen (2014) has stressed that there are no occurrences in Linear B anywhere of children being under the care of working men, leaving childcare entirely in the hands of the working women. Thus, reviewing women's workgroups, we find that they did include both adults (women) and children of various ages and sexes. The following table was compiled from a selection of workgroups at Pylos that serve as interesting case studies for not only the diversity of children's jobs but also for the age groups listed:

Number	Workgroup	Age Group	Sex	Number of Workers
1	*Meletriai* (flour-grinders)	MUL ko-wa ko-wo	Female Male	7 adult women 10 girls 6 boys
2a	*Pektriai* (wool-carders)	MUL Ko-wa Ko-wo	Female Male	7 adult women 4 girls 4 boys
2b	*Pektriai* (wool-carders)	VIR ko-wo Ko-wo	Male	4 adolescent boys 3 boys
3a	*A-ra-ka-te-ja* (spinners)	MUL Ko-wa Ko-wo	Female Male	21 adult women 25 girls 4 boys
3b	*A-ra-ka-te-ja* (spinners)	VIR ko-wo Ko-wo	Male	30 adolescent boys 9 boys
4a	*Histeia* (weavers)	MUL Ko-wa Ko-wo	Female Male	9 adult women 4 girls 3 boys

4b	*Histeia* (weavers)	*VIR ko-wo* *Ko-wo*	Male	5 adolescent boys 2 boys

Note. This table was compiled using data from Olsen (2014) p. 30-77. The data came from transcriptions similar to one observed previously on page 5 under the section 'Age distinction at Pylos.'

In this table both male and female children at Pylos are listed alongside women in various textile roles and one food production role. As we do not know the specific ages of these children, no conclusions can be made as to what extent they were physically able to participate in the work. However, funerary evidence demonstrates children aged at least 5 years appeared to have been treated similarly to adults. With this in mind, we may speculate that, if a ko-wo or ko-wa in one of these workgroups had reached the age of 5, they would have been seen as a productive member and therefore recorded by palatial administrators. The table also shows a number of adolescent males who share a workgroup role but are notably segregated from the women and girls. This is where the purpose of age groups really came into use, as Mycenaean palatial workgroups very rarely included both adult men and adult women. Although not seen in the above table, the exclusively-male workgroups in the tablets are listed as the sons of the women in the corresponding female workgroups. To make this clear, each workgroup has been assigned a number: the wool-carders of 2b were the fully-grown sons of the wool-carders in 2a, the spinners in 3b were the sons of the spinning women in 3a, and finally, the weavers of 4b were the sons of the women in 4a. Interestingly, young boys are seen listed alongside the adolescent sons in the male workgroups. Olsen (2014) has suggested that the number of "adult and adolescent" sons in workgroup 3b, for example, could be explained by its long existence and gradual inclusion of the spinning ko-wo from workgroup 3a. As previously stated, we do not know the age of the ko-wo in workgroups 2b, 3b and 4b, and it is therefore possible that they were already on the cusp of transitioning into VIR ko-wo.

Children held many positions across specialized workgroups beyond those listed above. These included (but were not limited to): ri-ne-ja ("flax-workers" and/or "linen-workers"), a-po-ko-wo-ko (horse "headband-makers"), ra-pi-ti-ra2 ("stitchers"), a-ke-ti-ri-ja (woven cloth "decorators"), re-wo-to-ro-ko-wo ("bath-pourers"), and "nurses". In addition, there is evidence that the tablets on which these archives were recorded may have been manufactured by children. Chrysanthi Gallou (2010) states that recent analysis of palm prints found on Knossian clay tablets revealed they were flattened by children who she believes were likely scribal understudies; meaning they themselves were preparing to one day become administrative scribes.

Children's Rations

Children's age groups were not only recorded for sex segregation, they were also instrumental in the palace's allocation of workgroup rations. Studies have shown that often

Mycenaean workers, particularly low-level ones, were entirely reliant on palatial rations for sustenance. Linear B tablets from Pylos have been an invaluable resource for further insight into the palace's systematic measurements for these rations, as tablet 'PY Ab 578' below demonstrates:

.a   GRA 2 T   4   TA

.b   pu-ro , pe-ki-ti-ra2   MUL   7 ko-wa 4 ko-wo 4 NI 2 T   4

"At Pylos, 7 women wool-carders, 4 girls, 4 boys: wheat 230.4 l., figs 230.4 l., 1 TA".

Although this particular transcription is challenging to read, the tablet has recorded the rations for a modestly sized Pylian 'wool-carder' workgroup composed of one adult supervisor, 7 adult women, 4 girls and 4 boys. The inscription reads that the group had received 24 T units of figs and wheat, with each adult woman receiving 2 T units and each child receiving 1 T unit. This means that, at Pylos, regardless of their sex, children belonging to workgroups received one half of the food ration allocated to one adult woman. We also know from other tablets excavated at Pylos that working men received the same ration amount as working women. This is not to say there was no discrimination in Pylos' central administration, however it does clarify that both working sexes received equal rations.

Although the Linear B tablets have provided us with a number of insights into the working lives of Aegean children, their limitations must be acknowledged. The archive's purpose, when created, was not to document the daily itinerary of a child. The tablets only included human life when it was directly relevant to the palace's economic function. This makes retrieving further detail on family dynamic or age transition from them difficult, if not impossible.

Conclusion

We have looked extensively at varying Mycenaean systems of age identification from 1800 BCE to ~1100 BCE. Beginning with the identification of constructed age groups, we established that there existed a series of age thresholds in both palatial and funerary contexts. We then explored the social implications of these age groups related to burial, determining that children's integration into adult Mycenaean society was a gradual process involving a series of crucial milestones (notably reaching the ages of 2 and 5 years) which were intended to guide children from helpless infants to helpful members of society. The Linear B tablets demonstrated that children were not seen merely as people needing care, but also as fellow contributors to the economy and future specialized workers. This does not, however, mean children were pawns in an economic system; as we saw with intramural burial, the loss of an infant or child was devastating and family likely buried their kin close to home as a method of coping. Integration into the community appears to have been the goal for people growing up in Aegean antiquity

and while we are still unsure at what age children became adults, the measures taken to delineate phases of childhood can be seen as encouraging stepping stones that guided children to socio-economic integration.

Figures

Figure 1 - Linear B clay tablet from Knossos. Note translated inscription:
"Poros: 20 rams, 72 ewes at Phaistos. 8 old rams."
(1910,0423.2 British Museum Online Catalogue) https://www.britishmuseum.org/research/collection_online/search.aspx

Figure 2 - Map of Bronze Age Aegean. Note Knossos (Crete) and Pylos (Peloponnese) (Olsen, 2014, p.x)

Figure 3 - *MUL* ideogram ('woman', left), *VIR* ideogram ('man', right) (Olsen, 2014, fig. 2.1, fig. 2.2)

Figure 4 - Example of a 'cist grave' (pit with stone-lined walls). Note this example contains adult remains. (Moutafi & Voutsaki, 2016, fig. 3)

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