PATHWAYS

Pathways

University Of Saskatchewan Archaeology and Anthropology Graduate Student Journal

VOLUME 4

FALL 2023

Pathways

University of Saskatchewan Archaeology and Anthropology Graduate Student Journal

UNIVERSITY OF ALBERTA LIBRARY

Contact:
Grace Kohut and Natalya Jones
Editors-in-Chief
Department of Anthropology, University of Saskatchewan
55 Campus Drive
Saskatoon, SK
pathwaysgraduatejournal@usask.ca

Pathways Editorial Board

Letter From the Editors-in-Chief

Dear Readers and Contributors,

We are delighted to introduce the fourth volume of *Pathways.* For four years now, *Pathways* has become an avenue for bright and hardworking students to gain academic publishing experience as authors, peer-reviewers, or through involvement in the editorial team.

This volume contains topics spanning socio-cultural anthropology, archaeology, biological anthropology, and history. This year, *Pathways* has embraced the spirit of interdisciplinary research and collaboration and invited undergraduate and graduate students from an array of disciplines and universities to publish their work. Peer reviewers and authors from Departments of Anthropology, History, Indigenous Studies, Psychology and Health Studies, and Linguistics have contributed their knowledge to this volume of *Pathways*. It has been a great honour to work with the editorial board and authors of this issue and to experience their dedication and growth.

Over the past year we have been fortunate to have many people willing and eager to share their direction, expertise, and time. We thank the continued support from the faculty of the University of Saskatchewan Department of Anthropology, who encourage their students to pursue publication in this journal, as well as the University of Saskatchewan Anthropology Students' Association (ASA) for their financial assistance and involvement. Our faculty advisors, Dr. Angela Lieverse and Dr. Clint Westman, have been vital, offering their guidance and professional insight. As always, we are grateful to the University of Alberta Open Publishing Team for their sharing their expertise with us as well as their support and encouragement throughout our roles as editors. We are indebted to the past Editors-in-Chief whose vision and ambition has enabled *Pathways* to become what it is today and remain available with their assistance for each subsequent volume. Finally, we acknowledge our invaluable team of reviewers whose dedication has contributed to the academic rigour in the articles presented in this issue. *Pathways* would not be possible without the involvement, expertise, and hard work of all those involved.

We thank you for your continued support of *Pathways* and are excited to share our fourth volume with you!

Sincerely,

Natalya Jones and Grace Kohut
Co-Editors-in-Chief

Pathways
Volume 4 | 2023

RESEARCH ARTICLE
Religion and Revolt: The Tithe War in Ireland, 1830-1838

Dasha Guliak
Department of History, College of Arts and Science, University of Saskatchewan

ABSTRACT
Despite the scarce research on the topic the eight-year Tithe War represents an important moment in the development of Irish-Catholic nationalism and a pivotal change in Irish-British relations. This investigation into the Tithe War uses discourse analysis to reveal how Irish-Catholics exerted an intense degree of agency against the Anglo-Protestant ascendancy during a time in which they possessed seemingly little recourses against the increasingly hegemonic powers of the British state. Understanding the importance of the Tithe War helps to develop a deeper understanding of Irish-British state relations within the larger timeline of Irish-British relations into the twentieth century. The Tithe War also demonstrates the role of religious identity in shaping collective action and nationalism. This paper highlights how the violence of war grabbed both media and government attention and led to the gradual disestablishment of the Anglo-Irish Protestant Church in 1869. This short article provides insight into the actions of everyday Irish-Catholics and how their actions led to critical changes in Irish-British relations. It also highlights how the British media and British officials understood, disregarded, and navigated the increasingly hard-to-ignore "Irish problem."

Keywords: Catholic-Protestant, Religious Wars, Tithe War, British-Irish Relations

INTRODUCTION

The Tithe War was a series of violent skirmishes and confrontations in Ireland that represented a crucial moment in the development of Irish Catholic resistance against the growing Anglo-Protestant ascendancy in Ireland between 1830 and 1838. Irish Catholics acted throughout the Tithe War in defiance of the Protestant Church's imposition of tithe collection, which represented an extension of British political and religious authority over Irish Catholic sovereignty (Baker 2009; Burg 2003). While frustrations had increased over the previous several decades, this eight-year period represented a turning point for Irish Catholic collective resistance and civil disobedience. Rather than submitting to conversion or a subordinate place in society, Irish Catholics rallied around their religious and ethnic identity to challenge the expanding Anglo-Protestant hegemony through, what Irish Catholics believed to be, necessarily violent means to exert and defend nationhood, religious identity, and agency.

The Tithe War represents an important reaction to the political, economic, and religious tensions that existed between Ireland and Britain in the early 1800s (Montgomery 1988). The war also provides a glimpse into Irish Catholic nationalism and anti-British sentiments during the mid-nineteenth century. After a brief exploration as to why the Tithe War broke out in 1830, this paper analyzes the British government's view of the War as expressed through print media. My discursive analysis of British and Irish newspapers reveal that British government repeatedly ignored

and put off the Tithe War issue between 1830 and 1834, placing blame on the Irish Catholic clergy while excusing the parishioners' behaviour (Foucault 1975, 1976; Wijsen 2010). However, between 1835 and 1838, the Irish Catholics' continued frustration with the British government forced Britain into passing legislative changes as it was clear to the British government that they could no longer blame the War on the Catholic clergy.

This paper utilizes nineteenth and twentieth century papers accessed through online newspaper archives and supplemented with secondary sources focusing on the surrounding history of the event. The discursive analysis used reveals the ways media constructed ideas of citizenship in empire and how power manifested and was challenged. As demonstrated by anthropologists, the use of discourse analysis to analyze newspaper texts is critical in discovering the cultural creation and experience of individuals within a particular time and place (Bird 2009). Such an analysis, and focus on religious identity, also highlights the power individual bodies hold in disrupting systems of official power (Jordan 2014). This work reflects the sentiment put forth by Max Weber that such research can be used to ascertain the connection between religion, identity, and political action (Lambek 2001). British and Irish newspapers reveal how Irish Catholics, through their collective show of agency in the eight-year-long Tithe War, chipped away at the entrenched Anglo-Protestant ascendency in Ireland and enjoyed a level of tangible change that benefitted Irish Catholics.

RISING TENSIONS, 1801-1829

While Irish-British and Protestant-Catholic tensions date back centuries, this analysis begins with the Act of Union that passed at the turn of the century in 1801 (Dunn 1979; Southcombe and Taspell 2010; Wolffe 1994, 2013, 2014; Smyth 1992, 2001; Brown

2001). The Act of Union (1801) fused together the parliaments of Ireland and Britain and was agreed upon by both parliaments, although the Irish parliament was dominated by Anglo-Irish Protestants and thus did not represent Irish Catholics desires (Montgomery, 1988). The minority Protestant ruling class hoped to better control Irish Catholics after the 1798 rebellion and the agreement clearly resulted from increasing fears of Catholic demands for emancipation (Gibney 2018, 327). In becoming one kingdom and abolishing the Irish parliament, the Act also fused together the Protestant churches of Ireland and England (Montgomery 1988, 15). By incorporating Ireland's Protestant Church into England's, Britain gained more political and social control over Ireland. The Act of Union also limited Irish political power by allowing the British parliamentary system to absorb the Irish political structure (Montgomery 1988, 5). Most importantly for Catholics, particularly Irish Catholics, British Prime Minister William Pitt also promised in the Act of Union to provide Ireland with Catholic Emancipation, which was intended to assure Irish Catholics full participation in politics, professions, and the ability to fully and publicly participate in their religion (Jenkins 1988, 364). However, King George III reneged on Pitt's promise of Emancipation, resulting in the disappointment of many Irish Catholics, but also a great deal of frustration with this infringement on nationhood. The failed commitment to Emancipation meant that the Anglo-Irish Protestant minority within Ireland increasingly dictated Irish Catholics' way of life (Montgomery 1988, 18). Irish Catholics represented most of the population in Ireland and felt that the actions of the Anglo-Irish Protestant churches, in tandem with the British government, represented an overreach of British cultural and political control.

After three decades of waiting, Catholic Emancipation finally passed in 1829 (Jenkins 1988). It allowed Irish Catholics to become

members of parliament as well as hold public offices (Jenkins 1988, 277). However, the bill did not quash Irish nationalism and the "Irish question" remained a worrying issue for Anglo-Protestants (McCaffrey 1968). Many British Protestants felt that no number of concessions would appease the Irish Catholics, and that Emancipation was simply a pretence for destabilizing the Protestant Church altogether (Jenkins 1988, 277). For Irish Catholics, the incomplete and long delayed Catholic Emancipation only further frustrated the population. The protracted time it took to enact Emancipation allowed Protestant-Catholic distrust and conspiracies to proliferate through gossip, newspapers, and governmental rhetoric (Jenkins 1988, 276).

The nearly three-decade-long process of fighting for Emancipation also produced an increasingly politically active Irish Catholic population (Montgomery 1988). Examples of Irish Catholics politicization as a result of Emancipation's failure belong to four major areas. First, the continued collection of tithes by the Protestant Church represented a stark reminder to many Irish Catholics of the control that the Anglo-Irish minority exerted over them. The collection of tithes began in the sixteenth century but became a greater political tool in the late eighteenth and early nineteenth century which caused heightened unrest among Irish Catholics (Bric 1986, 271). Second, Emancipation did not change the judicial system in Ireland and Justices of the Peace remained largely clergy in the Protestant Church of Ireland (Montgomery 1988, 86). Therefore, Irish Catholics felt limited in the possible and effective systemic change that could occur. Third, in contrast to the University of Dublin which served as a seminary for the Protestant Church of Ireland, Irish Catholics in Ireland had no national university of the same nature (Montgomery 1988, 87). The minority Protestants of Ireland held a disproportionate amount of social and cultural capital in Ireland. Finally, Catholic

Emancipation failed to address the issue of land distribution in Ireland (Montgomery 1988). The Church of Ireland possessed nearly 700,000 acres of land, which produced a revenue of about one million sterling pounds each year or around forty-six million pounds in contemporary currency (Montgomery 1988, 86). With many rural Irish Catholics exposed to bouts of famine and poor living conditions, the large amount of revenue produced by the Protestant church represented a major failure in Catholic Emancipation (Gibney 2018, 318). The Catholic Emancipation that Irish Catholics hoped for did not come to fruition in 1829 and tensions continued to proliferate between Anglo-Protestant Britons and Irish Catholics.

Daniel O'Connell, an Irish Catholic seated in the United Kingdom Parliament, echoed these limitations to his largely Irish-Catholic audience (Montgomery 1988, 2). Although he had advocated strongly for Catholic Emancipation, the legislative reality of Emancipation greatly frustrated O'Connell. Primarily, he understood that the Act of Union constrained the success of Catholic Emancipation (Montgomery 1988, 2). He believed that equality and an end to Anglo-Protestant ascendency could only be achieved by ending the Act of Union, and, in its place, creating an independent Irish parliament. Because Catholic Emancipation did not address the Anglo-Protestant hegemony's legal, social, and cultural mistreatments, it failed to provide Irish Catholics with a sense of sovereignty and religious freedoms. O'Connell and his 'radical' beliefs represented a critical voice for Irish Catholics in the British government.

Contributing to their unhappiness was the increased religious fervour on both sides of the Catholic-Protestant divide which marked the religious culture of the 1820s (Montgomery 1988). Religious zeal contributed to growing tensions prior to the outbreak of the Tithe War. A Protestant bible crusade that aimed to convert Catholics

through missionary activities resulted in Protestants utilizing soup kitchens and evangelism to carry on the Protestant Reformation in an attempt to convert Irish Catholics (Montgomery 1988, 4). This attempt to convert using soup kitchens preyed upon rural Irish Catholics affected by famines and poverty, thereby exploiting the power dynamic between the two religious groups. It also reinforced the uneven economic distribution between the minority Protestants in Ireland and the much larger number of Catholics.

While Protestants went on bible crusades and conversion missions, the Catholic clergy in Ireland grew more outspoken against the perceived injustices they witnessed against their faith and their parishioners (Montgomery 1988, 4). These clergy members felt compelled by a sense of Irish nationalism, marked by the two-fold idea of Catholicism and anti-Britishness (Montgomery 1988, 4). The formation of a nationalistic Irish Catholic clergy, when combined with a more politically aware and frustrated Irish Catholic population who witnessed increasing Protestant evangelism created ideal conditions for resistance to form.

THE EARLY YEARS, 1830-1834

Two key individuals who frequently appeared in newspaper discussions during the Tithe War's early years and shared the same last name: Dr. James Doyle and Reverend Martin Doyle (*Courier* 1831, 2). [1] Both individuals supported the resistance of Irish Catholics and called out the repressive aspects of the Anglo-Protestant ascendency in Ireland. Both individuals represented key figures that began and supported parishioners' efforts the War. For the British government and media the two men also represented easy scapegoats on which to blame the War on.

Reverend Martin Doyle was an Irish Catholic priest in the town of Graiguenamanagh in the county of Kilkenny (Montgomery 1988). His refusal to pay his tithe in 1830 began the Tithe War. This small challenge towards Anglo-Protestant authority marked the first act of resistance and set the precedent for other Irish Catholics who wished to take a stand against Protestant imposition. After hearing about Reverend Doyle's defiance, his parishioners similarly refused to pay their tithe. Graiguenamanagh's population contained 4479 Catholics and only 63 Protestants (Montgomery 1988, 100). This population difference demonstrates the unequal dynamic that existed between Catholics and Protestants in Ireland. However, the population difference also meant that Catholics had the upper hand if they chose to unite against the Protestant minority. Reverend Doyle encouraged his parishioners to work together and use non-violent resistance. When authorities came to seize livestock, which was a common punishment for tithe refusal as the livestock could be auctioned off to cover the payment of tithe, the priest's parishioners worked together to prevent the seizure of animals. This event provided the model for future resistant acts. The six hundred soldiers and police sent to seize livestock also highlights the control that the Anglo-Irish Protestant groups exercised over Irish Catholics through the law. The systems of justice within Ireland heavily favoured Protestants. However, the ability for Irish Catholics to resist tithe collection by working together, either preventing the seizure of livestock or refusing to bid on livestock auctions, demonstrated unity within the anti-tithe movement.

Similar acts of resistance occurred throughout Kilkenny County (Montgomery

[1] Newspapers often vaguely referenced one or both of the men. The two men were also distantly related which added to the confusion of writers at the time and current researchers reading these newspapers. For this paper, I differentiate the two Doyle's based on the title, Dr. or Reverend, and make a note when newspapers do not make who they are referencing clear. In these cases, I make assumptions based on the context and year.

1988). Unlike the initial incident in Graiguenamanagh, many others descended into violence. In Newtownbarry, police fired upon and killed twelve farmers and wounded others (Montgomery 1988, 101). Other times peasants and police died in skirmishes (Montgomery 1988, 102-3). A similar, though not preplanned event in Carrickshock resulted in disorganization and confusion (Owens 2004, 36). Within minutes of thirty-eight constables arriving to collect dues, thirteen of those constables lay dead from townspeople throwing rocks, using pitchforks, and other items with the exemption of firearms (Owens 2004, 37). The Carrickshock episode resonated in local history with various poems and ballads composed around the incident (Owens 2004, 39). Other memorial pieces created during and after the initial Carrickshock incident included paintings, banners, and monuments (Owens 2004, 58). One ballad published in an Irish newspaper specified: "Each stalwart hand grasped its weapon: The hurley, the pitchfork, the scythe, For by the blue heaven above them. Those men will no longer pay tithes" (*Munster Express* 1946, 3). Published over a century after the incident, this ballad demonstrates the importance of the event for Irish-Catholic identity. Such artistic expressions of the event rallied resistors and helped the community to make sense of the sporadic and violent events, as well as commemorating the united effort of standing up against the Anglo-Protestant hegemony (*Munster Express* 1946, 3). It also demonstrates an important connection between "connection between religion, language, and poetics" (Lambek 2001, 4). The importance of such works to the Irish Catholics collective ethno-religious identity is evident as they continued to be published well after the period, as noted above. The violence experienced at Carrickshock and the victims being predominantly officers rather than townspeople exemplifies the unified resistance led by rural parishioners characteristic of this war.

The growing active resistance to tithes was met by a similarly increasing determination on the part of tithe owners to collect their dues, furthering the violence (Montgomery 1988, 110). Another uprising occurred in the town of Drumcolloher in Limerick County. The *True Sun* reported on the incident using an excerpt from the *Dublin Freeman's Journal*. The Dublin-based author began, "Whilst…his Majesty's ministers are amusing the empire with the post-Union prosperity of Ireland, his majesty's troops and police are shooting the people…in Drumcolloher" (*True Sun* 1834, 2). The concluding lines stated, "are tithes to be abolished or is the blood of the people to continue to flow for resistance to an impost at variances with their consciousness…justice…and from whose burthen ministers promised relief?" (*True Sun* 1834, 2). Although the period is labelled as "Tithe Wars," the skirmishes were far from formal battles, still brutality remained common. The violence directed towards constables and officers led many of them becoming victims of the Tithe War rather than parishioners becoming victims to police force. It was this use of fierce resistance that brought more attention to the issue. The violent acts that resulted in dozens of deaths forced the British media and government to pay some mind to the war. However, both British institutions refused to take the war seriously and address the systemic causes of the brutal resistance. Instead, media and lawmakers used paternalistic rhetoric and pushed responsibility onto Irish Catholics and their 'intrinsic inferiority' (*True Sun* 1834, 2).

The events of Wallstown in 1832 provides yet another example of the Tithe War's violence that served to stir parliamentary officials' attention (*London Bell New Weekly Messenger* 1832, 2). The town of Wallstown contained "upwards of three thousand Catholics and only *one* Protestant" (*London Bell New Weekly Messenger* 1832, 2).

These numbers serve to highlight the uneven distribution between Catholics and Protestants. Despite such unequal numbers the military entered the town to help defend the parson's legal right to collect tithes. Indeed, "that this legal right of the parson to fleece the many for the sake of the one, was triumphantly vindicated at an expense of more than four persons slaughtered outright…" (*London Bell New Weekly Messenger* 1832, 2). Daniel O'Connell used the violent incident as the proof needed to push for reform. Although O'Connell's efforts failed to bring about immediate success it points towards the impact these affairs began to have in the minds of British officials.

The Irish Catholic clergy played an instrumental role in the Tithe War and the fight for Catholic rights in general during this period (Montgomery 1988). The clergy's involvement appears to build from their connection with O'Connell, who founded the Catholic Association in the 1820s, a period of increased religious sentiment. Most Catholic clergy members joined the association and supported to O'Connell's fight for Emancipation (Montgomery 1988, 155). The association provided Catholic clergy with a sense of community and collective identity based on Catholicism and anti-British passion. Many clergy members who supported Emancipation felt disappointed because it failed to abolish tithes. Anglo-Protestants still exercised control over them through the tithe system (Montgomery 1988, 158). The Catholic Association and the collective identity it helped forge in the 1820s created a collective consciousness that primed clergy members for widespread participation in the Tithe Wars.

Doctor James Doyle contributed the most outstanding example of motivation for parishioners (*London World* 1831, 2). Dr. Doyle published a letter to the Freeman's Journal in 1831 titled "Letters recommending the Introduction of Provision for the Poor" (*London World* 1831, 2). The title indicated the

interaction between religion and poverty between Ireland and Britain. In the letter to the newspaper, Dr. Doyle wrote a scathing critique of the Protestant Church's clergy and tithe owners. He strongly condemned the tithe collection, stating that the tithe's original purpose was to care for the poor but that the Protestant Church did no such thing and thus collected money in bad faith (Montgomery 1988, 164). A large portion of his argument rested on the mistreatment of the poor, which emphasizes how poverty afflicted Irish Catholics. While Britain enacted a series of laws to help those who were destitute, such laws were not expanded to Ireland when the Act of Union came into law in 1801 (Crossman 2013, 3). In July 1831, a debate in the House of Lords was published in a *Courier* newspaper (*Courier* 1831, 2). Lord Farnham, an Irish representative, read aloud part of Dr. Doyle's letter in the House. According to the newspaper, Lord Farnham expressed indignation towards Dr. Doyle's ability to disseminate "such sentiments through Ireland-sentiments which were calculated to effect so much mischief," and stated, "that Dr. Doyle was morally responsible for the very blood which had been shed in the late unfortunate affair in Newtownbarry" (*Courier* 1831, 2). The papers demonstrated that the Lords in the parliamentary system pointed their fingers squarely at Dr. Doyle for the tithe resistance rather than addressing the parishioners themselves or the systemic issues that fostered the acts of resistance in the first place.

More references to Dr. Doyle's writings illustrated that his publications were a contentious topic for the House of Lords. An 1832 edition of the *Albion and the Star* covered an interview from the Lords' Tithe Committee which investigated the ongoing matter in Ireland. The Reverend Samuel Thomas Roberts, an Anglo-Protestant, answered the committee's questions. Concerning the uprisings, the question posed was, "Are you of the opinion, that if this general conspiracy….

had not been resorted to by certain persons…that the tithes would have been paid as usual without reluctance?" (*Albion and the Star* 1832, 3). The "persons unconnected" referred to Dr. Doyle, who became the priest in Graigue shortly before the Tithe War began. Reverend Roberts answered a simple, "Yes" (*Albion and the Star* 1832, 3). The second last question went as follows, "Before these disturbances, did the clergy live on good terms with their Roman Catholic parishioners?" (*Albion and the Star* 1832, 3). Reverend Roberts replied,

> Remarkably. I have been in my parish since the rebellion of 1798, and I never was afraid to into [sic] my parish to meet my parishioners about any business. I never heard any expression from the people showing a disinclination to pay tithe to the Protestant minister till lately – till very lately. (*Albion and the Star* 1832, 3).

For English Lords, Dr. Doyle's inflammatory statements clearly connected directly to the parishioner's rebellious actions.

Newspaper segments reveal that the Tithe War was well-known to English readers. A British newspaper printed a section labelled "TITHES IN IRELAND," indicating that the War captured enough public intrigue and concern to have its own section (*Albion and the Star* 1832, 3). The newspaper's transcript contained only a short preface explaining the Reverend referenced in the Graigue and Kilkenny areas, revealing that the tithe issue was known well enough by the readership to not need explicit explanations of the situation. Both the questions and answers demonstrate a paternal affection expressed by English parliament towards the parishioners, who a member of parliament described as possessing an innocence that the Catholic clergy,

particularly Dr. Doyle, corrupted. Such an interview shows that the government did not blame active resistors on the ground but rather the Catholic clergy that incited and encouraged the behaviour. However, this British view of the Irish Catholic parishioners dislocated agency from the Irish Catholic protestors and reinforced the British view that the parishioners were easily influenced. This interpretation acted to dehumanize Irish Catholics as the British constructed the "Irish Catholic citizen" as weak, easily manipulated, and passive.

The British government could not afford to continue to ignore the Tithe War as violence increased and deaths mounted (*Albion and the Star* 1834, 2). Members in the House of Lords brought potential solutions, prompted mainly by petitions presented by various Lords on behalf of their constituents. These petitions formed the basis for turning acts of resistance into legal changes. However, they were not unique to the Tithe War. Rather, petitions were consistently used in this period to address issues that sprang up such as drunkenness or a want for stricter observance of the Sabbath (*Albion and the Star* 1834, 2). The *Albion and the Star* in May 1834 covered the House's discussion around a proposed Tithe Bill. One line indicated, "The Hon. Member presented three other Petitions, one from a place in Ireland against tithes, another from Rochester against malt duties, and the third from Kingston…in favor of the Labourers' Union Bill" (*Albion and the Star* 1834, 2). The same newspaper also mentioned the debate surrounding the Tithe Bill being delayed and subsequently resumed (*Albion and the Star* 1834). The delay in tithe-related debates may indicate that the issue in Ireland, although an inconvenience to the Church of Ireland and England, was not pressing compared to other petitions, particularly those presented from English counties. The newspapers reflect how Irish issues were secondary to British issues (Gibney 2018, 32). The de-emphasis on Irish

issues served to reinforce the hierarchy between Ireland and Britain. Nonetheless, petitions and resistance on the ground were vital for instituting discussion and change even when the British tried to relegate their priority.

As an Irish-Catholic representative, Daniel O'Connell heavily advocated for Irish Catholics and pressed the issue of the Tithe War in hopes of gaining attention and finding a solution that addressed the root causes of the Irish-British issue (*Albion and the Star* 1834). He was a strong supporter for abolishing the tithe system altogether. O'Connell touched upon the English disinterest in the topic when he told the English members, "if they wished discontent in Ireland to cease they must at least show a disposition to endeavour to learn the state of Ireland" (*Albion and the Star* 1834, 2). He went on and condemned "miserable attendance" of English members on "a question to vitally interesting to Ireland as that of tithes" (*Albion and the Star* 1834, 2). O'Connell also pushed back against the notion that the Tithe War was only the result of Catholic clergy's agitation. Instead, he claimed that it was the result of "hatred of tithes", which began in "1760 when the first war broke out, and in 1763 when the first measure for its repression was passed by Parliament" (*Albion and the Star* 1834, 2). O'Connell's references harken back to the Irish Patriot Party's resistance in the Irish House of Representatives which began in 1760 and Britain's legislative attempts to minimize their efforts (Gibney 2018, 32). It is clear that the English used repressive measures to maintain control over Ireland rather than finding solutions that addressed the underlying ethnic, religious, and cultural disputes. In referencing this history of England possessing and repressing Ireland, O'Connell highlighted Irish Catholics' hatred of the British and the desire for change through any means.

The previously mentioned uprising in 1834 in the town of Drumcollogher in Limerick County stirred a particularly unique response that reflected O'Connell's sentiments (*True Sun* 1834, 2). Unlike articles written by English writers in England, an article written by an Irish author in Dublin exuded more sympathy towards the devastation and growing loss of life that the Tithe War incurred (*True Sun* 1834, 2). The Dublin author expressed displeasure over the growing number of disturbances that grew from the British government's failure to address underlying causes. The author reminds readers that, "disappointed hope often turns into the deepest despair and hence the resistance of the parishioners." (*True Sun* 1834, 2). This commentary mirrors O'Connell's emotional response towards the British indifference in the House of Lords. Irish-based writers expressed sympathy towards Irish Catholic parishioners and their resistance while criticizing the lacklustre response from the British government. These writers constructed citizens who were sympathetic, strong, and resisting the wrongs of the British government.

The passing of the Church Temporalities Bill in 1834 marked a turning point in the Tithe War (Montgomery 1988). This bill represented the British government's first serious attempt to find a solution during the conflict. The bill addressed issues such as abolishing the cess tax, which was a separate tax from the tithe but also disliked by Irish Catholics (Montgomery 1988, 142). The bill also reduced the number of Protestant dioceses (Montgomery 1988, 142). As O'Connell aptly pointed out during a discussion about the bill, "To produce the pacification of Ireland they must altogether end ecclesiastical tithes in Ireland" (*Albion and the Star* 1834, 2). Despite O'Connell supporting this bill he recognized that it was far from comprehensive and that many of the issues Irish Catholics had raised over the years remained unaddressed. With tithe resistances continuing in dozens of counties it was unlikely that a bill which failed to even address tithes would end the War.

THE LATE YEARS, 1835-1838

Despite the Church Temporalities Bill Irish Catholics continued their resistance to tithe collection. They expressed their feelings towards the bill and indicated to Britain that it remained inadequate. As one newspaper pointed out in 1836, "…but Ireland is not pacified, and the tithe-war rages as before" (*London Chronicle* 1836, 2). The Tithe War's final years involved Irish Catholics continued refusal of tithe collections and only paying if they were compelled to through severe legal recourse. In Munster every county withheld half the tithe payments (Montgomery 1988, 143). In many Ulster counties, more than half of the payments were withheld (Montgomery 1988, 143). At this point, the British government became increasingly hesitant to provide support to those trying to collect tithes or act as tithe collectors themselves due to the many deaths of law enforcement that the Tithe War caused (Montgomery 1988, 145). The Tithe War's sustained agitation, intimidation, and demonstration illustrated to the British government that only sufficient change would bring an end to the War in Ireland.

Various newspapers signified the Tithe War's successful protest in various Irish counties. One account of a man in Tipperary described how Walter Brit, a "respectable farmer," saw his eighty-seven sheep seized for public auction to cover his unpaid tithes (*True Sun* 1837, 2). "Having learned of the seizure and threatened sale," the neighbouring counties gathered in preparation for the bid, or lack thereof (*True Sun* 1837, 2). The sale was ultimately a failure with the "sub sheriff" declaring the sheep "unsaleable" because "Previous to that hour the sheep had been driven in, on the back of each the word 'tithes' having been largely and legibly branded" (*True Sun* 1837, 2). When the gathered crowd saw Brit return home with his sheep, they "set up a tremendous shout of triumph," for what the writer of the newspaper described as

"another blow to tithes" (*True Sun* 1837, 2). This event is one example of the many unique methods of resistance employed by tithe resistors and the success they enjoyed.

The steadfast efforts of Irish Catholics who participated in the Tithe War are shown in another 1837 newspaper article (*True Sun* 1837, 1). The paper described Thomas Brooke, a Protestant reverend, who obtained warrants to collect tithes from "several Catholic farmers…in the hope of coercing them to settlement" (*True Sun* 1837, 1). However, the only result was that the Catholic farmers "remain shut up in their houses, afraid to move out to fair or market or any place their business calls them" (*True Sun* 1837, 1). This article showed that tithe protestors often engaged in demonstrations that put themselves and their family in uncomfortable positions while remaining determined to refuse further tithe payments, even when collections came around. Such efforts represent a clear sense of ethno-religious identity and nationalism.

While many newspapers reported on parishioners' successful resistance to tithe collection there were also many reports of less successful resistance (*True Sun* 1836, 2). Under the heading "ANOTHER TITHE PERSECUTION," a *True Sun* paper detailed the various successful collection of tithes by Protestant ministers. One example, written into the newspaper by a Protestant Reverend named Mr. Farelly, poignantly demonstrated a lack of sympathy towards the Irish Catholic tithe-resistors. Farelly stated,

> Execution the other day has come down against him the entire of his cattle has been sold…I tender the Association my solemn assurance that this martyred individual, together with his aged mother and helpless family, reduced from independence and comfort of the farmer, to all abjection and

privations of the merest pauper.
(*True Sun* 1836, 2).

Farelly indicated that, after his failed resistance, the Irish Catholic parishioner faced poverty and the removal of cattle to pay for the tithe. Farelly also revealed that there was some success because these individuals became "martyred" to their fellow Catholic parishioners. Thus, a failed resistance reinforced Irish Catholics' disdain for the Protestant institution and strengthened the need for Irish Catholic political unity.

Another example of successful tithe collection comes from the point of view of an Irish Catholic priest, Reverend Robert Walsh (*True Sun* 1836, 2). This perspective allows for a more sympathetic and humane view of Irish Catholics. Walsh wrote a letter to the *True Sun* on the impact of tithe collections on his church. He stated that his church struggled to collect donations for "chapel repairs and schools" (*True Sun* 1836, 2). He also wrote, "Their families are ruined, and their own health nearly destroyed from their absence from their homes. My heart heaves with indignation for their cruel treatment and compassion for their sufferings" (*True Sun* 1836,, 2). Walsh's letter denotes the suffering of both the church and parishioners at the hands of Protestant tithe collection.

As acts of resistance led to mounting pressure on the British parliament to pass an adequate piece of legislation, many British parliamentarians remained steadfast in defending the Church of England in Ireland during debates. Newspapers recounted the debates around a proposed Irish Church Bill. One such paper revealed an argument between Mr. Young, a Protestant, and Mr. W.S. O'Brien, an Irish Catholic nationalist. The report related to its readers that, "Mr. Young informed the hon. gent. who had just sat down, [Mr. O'Brien] that he was quite wrong with regard to the clergy of the Established Church; they had already made extensive sacrifices to conciliate the people of Ireland…" later adding that he "did not believe that a hundredth part of the people of Ireland were so savagely hostile to the Established Church as presented; the peasantry, grateful for the smallest favours received, had not forgotten the charities of the Protestant clergy" (*London St. James Chronicle and General Evening Post* 1836, 1). The apparent acts of charity that Mr. Young claims were directly contradicted by Irish Catholics' claims of poverty and distress (*The Morning Post* 1835, 3). The disagreement between Mr. O'Brien and Mr. Young encapsulated the competing views between Anglo-Protestants and Irish Catholics. The dedication to the Anglo-Protestant establishment by British members of parliament only served to prolong the Tithe War and aggravate Irish Catholics. The Protestant tithe owners who acted on their legal right to collect tithes only provoked new incidents and renewed resistance within communities. Parishioners' continued resistance after the Church Temporalities Bill gave the British government reason to continue to discuss the issue and move forward with further legislation.

In 1838, the British government passed the Commutation Bill, also known as the Irish Tithe Act (*Courier* 1838, 4). The Bill converted the tithe payment into a fixed rent charge and reduced it by three-quarters (Bric 1986, 282). In theory, this bill hoped to transfer the burden of payments to the landowners, usually Protestants (Montgomery 1988, 151). In reality, the landowners simply raised the rents on Irish Catholic peasants and farmers (Montgomery 1988, 151). The bill ended the war but it did not end the Irish Catholic aversion to the Anglo-Protestant ascendancy and it did not erase the Irish Catholic nationalism that the War cultivated. One newspaper covered a parishioners' meeting in Achill, where they discussed possible resolutions surrounding the tithe issue. They stated,

That we view tithes, in whatever name or shape they may be exacted, as an accrued and unjust impost; and that we feel, in common with our fellow countrymen generally, tithes to be a badge of slavery, alike insulting to the feelings and pride of the Roman Catholics, and disgracefully sustained for the purpose of perpetuating the domination of an intolerance and bigoted faction over the vast majority of her Majesty's loyal subjects in these realms. That we here proclaim our undying and eternal hatred of that blood-stained and odious impost, and our determination to see every legal and constitutional means, for the total and unqualified extinction of the name; and that we shall never be contented, till the voluntary principle be adopted, by which the people will have to pay only the clergy of that persuasion whoes [sic] spiritual services they respectively enjoy. (*London Standard* 1838, 2).

This passage took up nearly an entire column on the page. The orator explained that although the 1838 Act quieted tithe discourse there remained displeasure in what the new rent charge symbolized. The passage above likened such payments to slavery. Armed with the nearly two decades of political activism and demonstration Irish Catholics continued their refusal to remain content with supporting the Protestant established church. With tithes officially abolished Irish Catholics continued to call for legislative changes to repeal the Act of Union (1801) and the disestablish the Protestant Church of England and Ireland.

Irish Catholics viewed the Protestant Church in Ireland as a representation of British control (James 1979, 433). In 1869, the British government passed legislation disestablishing the Protestant Church in Northern Ireland (Montgomery 1988, 155). The legislation removed the Church's connection to the monarch, sold some of its property, and ceased the collection of tithes (Montgomery 1988, 156). It helped to ease relations with Irish Catholics and aided in uniting British Prime Minister William Gladstone's Liberal Party (Fair 1975, 380). The Tithe War resulted in legislation that helped achieve this disestablishment and as such it was the Tithe War that helped chip away at the Protestant Church's control in Ireland. The Tithe War was an important point in Catholic-Protestant relations between Ireland and Britain. These critical eight years exemplify the Irish Catholics' show of agency and tenacity against a powerful Anglo-Protestant ascendancy.

CONCLUSION

As anthropologists Thomas Wilson and Hastings Donnan (2006) suggests, anthropologists studying Ireland should consider "the moral power of the Catholic Church hierarchy; formal, state-sanctioned legal power; and illegal, illicit and subversive forms of power in the hands of those who resist, invert and transform official forms of power for their own ends." (67). This paper has attempted to contribute to that understanding by focusing on how Irish Catholics adapted and shaped their ethno-religious identity and challenged hegemonic power structures. Additionally, tracing the particulars of this religious resistance highlights how the invention and "re-invention of Irish depends to a great extent on…notions of local and national identity" (Wilson and Donnan 2006, 1). As a result, this analysis demonstrated how "individuals and communities find ways to make the immaterial of religious life visible, tangible, visceral, and material. Beliefs are

communicated, morals lived out, emotions expressed, and spirits manifest. The internal is externalized" (Bielo 2015, 78).

Newspapers from the Tithe War reveal the long, drawn-out debate about Irish Catholic "question" and the topic of tithes. However, the issue of tithes represented a much larger problem of prolonged mistreatment and marginalization of the Irish Catholics by an Anglo-Protestant hegemony. As Irish Catholic advocate Daniel O'Connell rightly pointed out, these issues stretched back many years and persisted due to the lack of adequate change on the part of the British government. The English members of the House of Lords remained content to put the cause of the Tithe War on Catholic Clergy, who they considered to be corrupting local parishioners. The profound discontent that existed among the people would not be easily fixed and thus went largely unaddressed in the House of Lords. The Tithe War's unique violence and longevity prompted critical changes in legislation. This represented a striking manifestation of Irish Catholic agency and strength as they forced the British government to view them as more than a rogue state requiring civilization through Anglo-Protestant values. Irish Catholics utilized their advantage in numbers and their shared religious identity to elicit change from the British government. The protests of Irish Catholics forced the British government to address some of the issues plaguing Catholics in Ireland, thereby chipping away at the Anglo-Protestant ascendancy. The Tithe War represented an important step towards freedom from British-Protestant control and demonstrated how Irish Catholics expressed sovereignty through their religious identity in the face of Anglo-Protestant control.

REFERENCES
Primary Sources

Albion and the Star. 1832. "TITHES IN IRELAND." March 13, 1832.

Albion and the Star. 1834. "House of Commons." July 5, 1834.

Albion and the Star. 1834. "House of Commons-Tuesday." May 7, 1834.

Albion and the Star. 1834. "IRISH CHURCH TEMPORALITIES BILL." July 5, 1834.

Courier. 1831. "Imperial Parliament." July 14, 1831.

Courier. 1838. "THE FRUITS OF THE CONCESSIONS IN THE LAST SESSION." November 5, 1838.

London Bell New Weekly Messenger. 1832. "FROM THE WEEKLY DISPATCH OF THIS DAY." September 30, 1832.

London Chronicle. 1836. "TITHE COMPOSITION (IRELAND) BILL." August 13, 1836.

London Standard. 1838. "TITHES." November 9, 1838.

London St. James Chronicle and General Evening Post. 1836. "IRISH CHURCH BILL." June 2, 1836.

London World. 1831. "Tithes in Ireland." July 18, 1831.

Munster Express. 1946. "CARRICKSHOCK." December 27, 1946.

The Morning Post. 1835. "House of Commons." April 2, 1835.

True Sun. 1834. "IRELAND." May 7, 1834.

True Sun. 1836. "ANOTHER TITHE PERSECUTION." October 15, 1836.

True Sun. 1836. "MORE TITHE VICTIMS."

October 10, 1836.

True Sun. 1837. "MISFIRES OF THE TITHE WAR." December 8, 1837.

True Sun. 1837. "THE TITHE WAR." October 24, 1837.

Secondary Sources

Baker, David L. 2009. *Tight Fists or Open Hands?: Wealth and Poverty in Old Testament Law.* Grand Rapids: Eerdmans Publishing.

Bielo, James S. 2015. *Anthropology of Religion: The Basics.* London & New York: Routledge.

Bric, Maurice. 1986. "The Tithe System in Eighteenth-Century Ireland." *Proceedings of the Royal Irish Academy: Archaeology, Culture, History, Literature* 86 (Winter): 271-288. https://www.jstor.org/stable/25506142

Brown, Stewart J. 2001. National Churches of England, Ireland, and Scotland, 1801-1846. Oxford & New York: Oxford University Press.

Burg, David F. 2003. *A World History of Tax Rebellions: An Encyclopedia of Tax Revels, Revolts, and Riots from Antiquity to the Present.* New York: Routledge.

Crossman, Virginia. 2013. *Poverty and the Poor Law in Ireland: 1850–1914.* Liverpool: Liverpool University Press.

Dunn, Richard S. 1979. *The Age of Religious Wars, 1559-1715.* New York: W. W. Norton & Company.

Fair, John D. 1975. "The Irish Disestablishment Conference of 1869." *Journal of Ecclesiastical History* 26 (4): 379-394.

doi:10.10117/S0022046900047734

Foucault, Michel. 1975. *Discipline and Punishment: The Birth of the Prison.* New York: Vintage.

—.1976. *The History of Sexuality.* New York: Vintage.

Gibney, John. 2018. *The United Irishmen, Rebellion, and the Act of Union 1798-1803.* Barnsley, U.K.: Pen & Sword History.

The Parliaments of Great Britain and Ireland. (1801). *Act of Union (Ireland) 1800.* https://www.legislation.gov.uk/aip/Geo3/40/38/data.pdf

James, Francis Godwin. 1979. "The Church of Ireland in the Early 18th Century." *Historical Magazine of the Protestant Episcopal Church* 48 (4): 433-451. https://www.jstor.org/stable/42973720

Jenkins, Brian. 1988. *Era of Emancipation: British Government of Ireland 1812-1830.* Montreal: McGill-Queen's University Press.

Jordan, Mark D. 2015. *Convulsing Bodies: Religion and Resistance in Foucault.* Stanford: Stanford Unviersity Press.

Lambek, Michael, ed. 2001. *A Reader in the Anthropology of Religion.* Malden, M.A.: Blackwell Publishing.

McCaffrey, Lawrence J. 1968. *The Irish Question: Two Centuries of Conflict.* Lexington: University of Kentucky Press.

Montgomery, Thomas. 1988. "The Irish Tithe War, 1830-1838." Ph.D. diss., McGill University. https://escholarship.mcgill.ca/concern/theses/x346d529f

Owens, Gary. 2004. "The Carrickshock

Incident, 1831: Social Memory and an Irish Cause Célèbre." *Cultural and Social History* 1 (1): 36–64. doi.10.1191/1478003804cs00040a

Smyth, James. 1992. *The Men of No Property: Irish Radicals and Popular Politics in the Late Eighteenth Century. New York: St. Martin's.*

—. 2001. *The Making of the United Kingdom 1660-1800: State, Religion and Identity in Britain and Ireland. London: Longmans.*

Southcombe, George and Grant Taspell. 2010. *Restoration Politics, Religion, and Culture: Britain and Ireland, 1660-1714.* London: Palgrave.

Wijsen, Frans. 2010. "Discourse Analysis in Religious Studies: The Case of Interreligious Worship in Friesland." *Anthropos* 105 (2): 539-553. https://www.jstor.org/stable/25734819

Wilson, Thomas M., and Hastings Donnan. 2006. *The Anthropology of Ireland.* Oxford: Berg.

Wolffe, John. 1994. *God and Greater Britain: Religion and National Life in Britain and Ireland, 1843-1945.* New York: Routledge.

—. 2013. *Protestant-Catholic Conflict from the Reformation to the Twenty-First Century: The Dynamics of Difference.* Basingstoke: Palgrave.
—. 2014. *Irish Religious Conflict in Comparative Perspective: Catholics, Protestants, and Muslims.* Basingstoke: Palgrave.

RESEARCH ARTICLE

The Woodlawn Cemetery: Trees of Time, Colonialism, and Privacy

Paris Hanke
Department of Anthropology, College of Arts and Science, University of Saskatchewan

ABSTRACT
This paper begins with a vignette to situate the reader in the landscape of the Woodlawn Cemetery and gain a better context for the analysis that follows. Through primary and secondary research, the Woodlawn Cemetery reveals the ways that temporality, power, and culture are reflected in this deathscape. Historical records of the Woodlawn Cemetery support the argument that temporality is being realised in the landscape in a linear way, here, time is an important part in shaping the landscape. The concept of memoryscapes, which involves spaces of memory, show that the connection of nonlinear time also exists within deathscapes, specifically within the Woodlawn Cemetery. Power is imbued in the landscape of the Woodlawn Cemetery through burials. Burials in this deathscape serve as powerful symbols of control when considering concepts such as necro-colonialism and the establishment of war monuments. Through methods such as walking the land there are other overt displays of power at the Woodlawn Cemetery that reflect the ownership of the land and governance of access imposed by the City of Saskatoon. This paper focuses on how aesthetics are used to manipulate emotions and ease the discomfort of confronting death and create a sense of familiarity for Euro-Canadians. An analysis of the surrounding landscape and changing attitudes toward death through time support the idea that death is not something to be looked upon by everybody as it has been deemed a private affair.

Keywords: Deathscape, Memoryscape, Cultural Landscape, Necro-colonialism, Cemetery, Temporality

INTRODUCTION

A memoryscape, defined by R. Rose-Redwood et al., is a place "of memory – such as statues, monuments, place names, and other memorials" (2022, 449). A site such as this becomes a space of memory; it invites those who visit to remember people and events of the past while being confronted with the future. Woodlawn Cemetery, located in Saskatoon, Saskatchewan, is one such place. Arriving at the front gate there are two large pillars marking the entrance in addition to a second wire gate reinforcing the notion of access, refer to Figure 1. Mature trees, each with a memorial

plaque line for Next-of-Kin Avenue, lead all visitors into the space, as can be seen in Figure 2. Through the trees, grave markers stick out of the snow in organised rows made of all different materials, shapes, and sizes. Smaller lanes begin to split off from the main avenue dividing the area into large sections of grave markers. Next-of-Kin Avenue eventually reaches a circular roundabout with multiple small lanes leading off like spokes on a wheel. Figure 3 shows the section in the centre of the roundabout where columbaria and benches are erected. At this point the grave markers surrounding the roundabout are visibly older,

recognisable not only by the dates but also by the pale sun-bleached look of the stones reflecting the many years they have endured. Dense February snow may be hiding some of the flat markers but the formation around the roundabout is a unique feature of the cemetery as the grave markers are placed in a circle rather than in neat rows found elsewhere in the cemetery. Houses stand parallel to the north side of the cemetery separated by a fence, shrubs and a small alleyway. Along the east side of the cemetery a ditch follows along the edge which is preceded by train tracks and, further down a small hill, is a busy street. During my time spent in the cemetery there was the occasional car parked in a lane, or a small group of people putting tokens next to a grave marker. Once, on a frigid afternoon in early March after two hours of observations, a row of vehicles drove down the avenue led by a car with a single red flashing light on top and a hearse. The funeral procession was short,

consisting of no more than five cars. This event was notable as it was the only time over five hours of observation in February and March of 2023 that multiple vehicles were observed entering the cemetery; on all other occasions no more than two other vehicles present within the entire cemetery.

This paper seeks to explore how a Canadian cemetery, such as Woodlawn, reflects human interactions with the landscape revealing elements of time, power imbalances or displays of control, and cultural perceptions surrounding death. The methods used to analyse this landscape included walking the land, recording people's interactions with their environment, taking photos, examining maps, and secondary research of historical and academic sources through a cultural lens. Using these methods, Woodlawn Cemetery reflects the ways that temporality, power, and culture are echoed in the landscape. Temporality is first examined in its more linear

FIGURE 1: *Next of Kin Avenue main entrance (Photo by author).*

form by reviewing the history of Woodlawn Cemetery and analysing how the past is portrayed in the contemporary landscape. Temporality is then further explored in the form of nonlinear events which include analyses of the cemetery as a memoryscape and a connection of the dead in living time. The following topic that will be discussed is the way in which power is expressed through the landscape. Power is seen in the form of colonial imposition of land that creates deathscapes, forcibly making its presence known through time and space. Power is also seen at Woodlawn Cemetery in the control that is exerted by the City of Saskatoon through access to and within the grounds. The last topic that will be explored is the way culture is reflected through the cemetery. Plants reveal

FIGURE 3: *Roundabout in the Old Blocks at Woodlawn Cemetery (Photo by author).*

important cultural values placed on aesthetics and comfort when being forced to confront death. An expression of fear and privacy associated with death in Euro-Canadian culture is seen in the way that the cemetery is sheltered from view not only by physical barriers but also in the arrangement of houses.

TEMPORALITY

A brief history of Woodlawn Cemetery provides a better understanding of the cemetery and its relationship to power and colonialism. Temporality can be understood from two different perspectives. The first is linear akin to chronology and is described by Tim Ingold as "the A-series, in which time is immanent in the passage of events" (1993, 157) relevant to a discussion of history. The Nutana Cemetery was the first colonial burial grounds established in Saskatoon by the 1883 Temperance Colony (City of Saskatoon, n.d.d). The colony was erected on the east side of the South Saskatchewan River but, once "the railway finally arrived" (City of Saskatoon, n.d.d) in 1889, the population spread to the west side of the river. With the promise of more infrastructure and development, colonial presence in Saskatoon became more pervasive in 1906 and "By 1911 had more than doubled" (City of Saskatoon, n.d.d). Euro-Canadians began to feel the need to have another colonial cemetery built that

FIGURE 2: *Next of Kin Avenue (Photo by author).*

was more accessible to those settling along the west side of the South Saskatchewan River. Travelling to the Nutana Cemetery on the east side of the South Saskatchewan River was considered "very poor and unsafe to use a hearse thereon" (City of Saskatoon, n.d.a) and left colonists missing funerals of loved ones. The distress felt by those residing on the west side of the South Saskatchewan River led to a petition and eventual establishment of Woodlawn Cemetery. Originally built in 1906 next to the Roman Catholic Cemetery, Woodlawn "was transferred to the City in 1918" (City of Saskatoon, n.d.a) but was always considered the official burial grounds to the colonists who settled on the west side of the South Saskatchewan River. The A-series of temporality not only exists in the linear string of events of colonisation that led to the creation of the cemetery but also in the present-day appearance of the landscape.

The physical structure of Woodlawn Cemetery reflects the same A-series of linear temporality when comparing older blocks to newer blocks. Maps of the Woodlawn Cemetery reveal which section contains some of the earliest colonial burials from 1906. This historical section has been aptly named the Old Blocks and has a marked difference in layout compared to other sections of the Woodlawn Cemetery. As can be seen in Figure 4, the layout of the Old Blocks is circular which is a stark contrast to the straight grid pattern in the rest of the cemetery. The grave markers themselves are scattered around the roundabout in the Old Blocks forming a large circle, whereas the rest of the cemetery has rectangular blocks in neat rows and predictable spaces between each marker. There are also crossroads going in diagonals that do not appear in any other areas besides the Old Blocks. One suggestion made by Hite (2011, 1-2) is that a circular arrangement of grave markers might be symbolic of a wagon wheel. Wagon wheels were an important part of colonial pioneer life which existed "throughout the prairie homesteading era, from 1870-1914" (Jackel 2015) coinciding with the establishment of the Woodlawn Cemetery in 1906. If a wheel broke and could
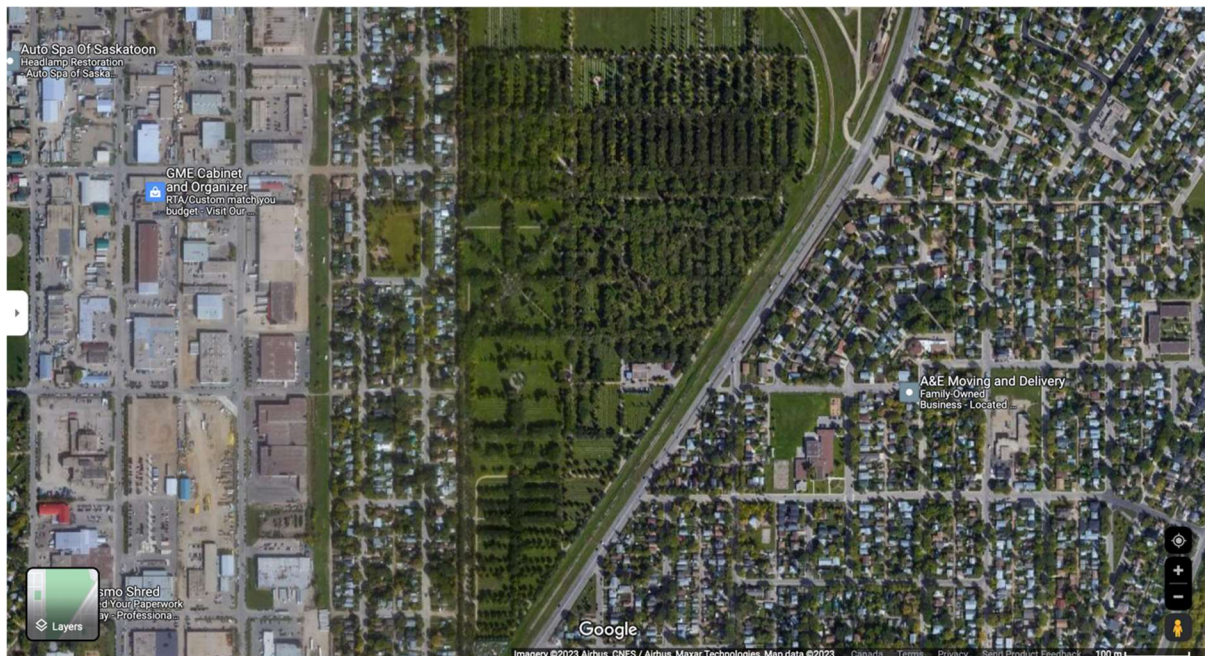

FIGURE 4: *Satellite view of Woodlawn Cemetery. Maps data: Google ©2023 Airbus, CNES/ Airbus, Maxar technologies.*
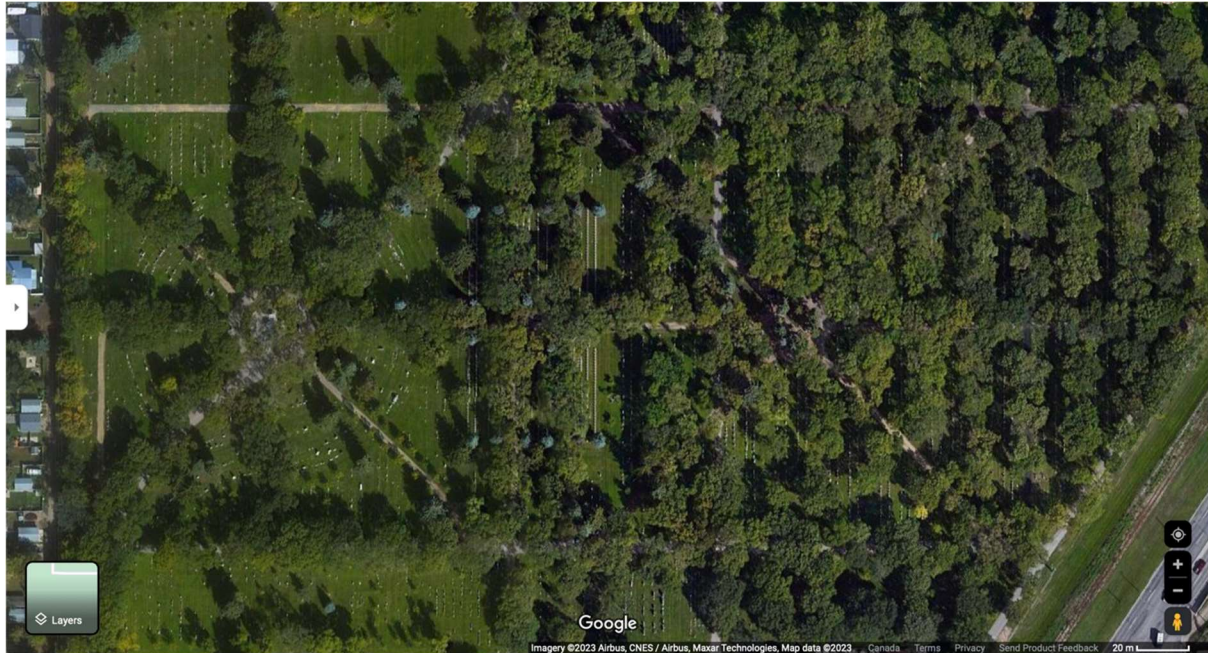
FIGURE 5: *Satellite view of Old Blocks. Maps data: Google ©2023 Airbus, CNES/ Airbus, Maxar technologies.*

not be replaced or fixed "they would end their journey" (Hite 2011, 1); thus, the wagon wheel became a symbol for the end of life's journey. This suggestion seems to be supported by the crossroads in the Old Blocks of Woodlawn Cemetery as seen in Figure 5, which resemble spokes on a wheel. A consideration that could support this hypothesis is the originally planned layout of the older Nutana Cemetery which constituted straight lines and square shaped sections (City of Saskatoon, n.d. e). The choice to construct the Old Blocks with a circular layout and diagonal crossroads resembling a wagon wheel after typical block styles had been considered in an earlier cemetery may reflect a significant colonial symbol. While it has proven difficult to find applicable research on circular patterns of tombstones from the early 1900's, Hite's (2011) proposal alludes to sociohistorical reflections of temporality in the landscape. The idea of the Old Blocks representing pioneer life supports this notion where history exists within the specific formations of the Woodlawn Cemetery.

The second aspect of temporality that will be discussed is "the B-series, in which events are strung out in time" (Ingold 1993, 157) allowing for exploration of the memoryscape and the uniqueness of time in deathscapes. Deathscapes refer to "a wide range of landscape features associated with death and burial" (Barker 2019, 1136), including official and unofficial burial grounds, which additionally invoke memories of the past. Each grave marker represents one moment of the past, every one unique but overlapping with another. This applies to specific people, families, and even events.

The collections of military stones grouped together and the avenues of trees encourage reflection on wars of the past and present. Reflections of the past serve to connect the living and the dead through time and space which reveals the nonlinear aspect of temporality in Woodlawn Cemetery. While a "funeral symbolically removes the individual from linear time" (Francis 2003, 222-223), the grave markers then place them back into the realm of the living. Death involves a certain

cessation of time, a finality in the end of consciousness but there are still rhythms of it present in memory, and even ceremonies, as time does not end, even in death. The act of remembrance places individuals in the past while existing in the present and simultaneously confronting the future. The B-series of temporality is reflected through the landscape of Woodlawn Cemetery in the unique layers of memory that exist within it. There are additionally reflections of time outside of memory which are included in the B-series that relate to the activities constantly occurring within the cemetery.

These rhythms within Woodlawn Cemetery can be described as a taskscape, "an array of related activities" (Ingold 1993, 158), which occur socially. Being present in the deathscape allows for people to feel the presence of others even if they are not readily visible. The dead are present through their respective grave markers and the living through the activities that affect the landscape. Grounds keepers are always changing the landscape, mourners leave evidence of remembrance, and ceremonies occur once or cyclically, drawing in small to large crowds. There are dualities in the rhythms present at the Woodlawn Cemetery where the dead are memorialised through life. Next-of-Kin Memorial Avenue is a unique way in which the dead are represented in physical eternal time. Trees are symbolic of a particular point in time and evoke a bygone past while also being symbolic of the future as they live and endure seasons, years, and taskscapes. These memorial trees are the perfect symbols for time as they are not only representations of the past but also the present, the future, and the cycles of time all at once. The Woodlawn Cemetery is an incredibly temporal landscape due to the many layers of time that exist in this memoryscape. The trees are very important to understanding the Woodlawn Cemetery, not just because of their representation of time but also in the way that they reflect power

dynamics, being living monuments to colonisers who passed.

POWER AND CONTROL

The landscape of the Woodlawn Cemetery is laden with aspects of power which began with its conception. Power here refers to the anthropological definition made by Ronald Niezen as "control, authority, or domination, which involves the ability to influence the decisions and behavior of others" (2018, 2) in this case as it is expressed through the landscape. The trees along the Next-of-Kin Memorial Avenue serve as a living monument to the ongoing "dispossession of Indigenous People from their lands" (Chalmers 2019, 379). Although what is now the City of Saskatoon and Woodlawn Cemetery itself exists on Indigenous lands, these trees symbolise those who passed in World War I, a war that involved Indigenous peoples but whose contributions are often overlooked. Before colonists arrived in 1882 to settle, the land which is now known as Saskatoon belonged to the Métis (City of Saskatoon, n.d.b; Anuik 2011, 11), unfortunately, there is little written on the history of their burial grounds. The Métis were pushed to the outskirts of the community reflecting their "marginal place in Saskatoon society" (Waiser 2017), where they established their own cemeteries such as the Métis Round Prairie Cemetery. The Woodlawn Cemetery has very little information or observable features suggesting Indigenous presence within the cemetery but there is extensive history, plaques, and monuments dedicated to the settlers who established the cemetery. A term brought about by Adam Barker (2018, 1134) aptly refers to deathscapes, such as the Woodlawn Cemetery, as sites of necro-colonialism. While the Woodlawn Cemetery is not the first major colonial imposition on the west bank of the South Saskatchewan River in Saskatoon, it has been one of the most long lasting.

Necro-colonialism not only involves imposing colonial rule on deathscapes, but it imbues the land with culturally specific "complex, meaning-laden landscapes of dead and memory" (Barker 2018, 1134), in this case that of British peoples. Less than 20 years after the establishment of the Woodlawn Cemetery, two settler women, Mrs. Margret Hanson and Mrs. Jarvis, "proposed that a tree be planted along a road through the cemetery, along with a plaque, for each individual killed" (City of Saskatoon, n.d.a) during World War I. Both women belonged to the Imperial Order of the Daughters of the Empire (IODE) whose objective was "promoting its vision of hegemonic British Canada" (Pickles 1998, 195) and uphold British patriotism. The IODE contributed to the oppression of Indigenous peoples by "demanding the assimilation of difference and demanding conformity to the British democracy" (Pickles 1998, 195). The avenue of trees that were planted in the Woodlawn Cemetery, known as the Next-of-Kin Memorial Avenue, was "officially recognized as a site of national historic significance" (City of Saskatoon, n.d.a) in 1994. The nomination as an official site of historical significance is problematic in that it positively highlights a monument that pays respect to and was created by the people who colonised Saskatoon. It is increasingly problematic that there is no mention of Indigenous peoples on Next-of-Kin Memorial Avenue. The Woodlawn Cemetery resides on Treaty 6 territory. During the creation of Treaty 6 and other numbered treaties in Canada, Indigenous peoples "were worried that they might lose their territory to settlers" (Taylor 1985). Next-of-Kin Memorial Avenue is an enduring testimony to their fears being realised. The memorial trees lining the avenue are living remembrance to those who lived and died supporting Canada as a British colony. A monument such as the Next-of-Kin Memorial Avenue "erases Indigenous peoples from the landscape while constructing settler society"

(Chalmers 2019, 379) and a Euro-Canadian history. The Next-of-Kin Memorial Avenue not only reflects the necro-colonialism of the land but also the overarching colonial power that will forever endure through this deathscape.

Power dynamics, such as the imposition of colonialism on the landscape, are also reflected in the management of the cemetery. Power is wielded over the landscape by controlling when it is to be accessed and how people should move through it. The cemetery is under the control and ownership of the City of Saskatoon in addition to being "a member of the Western Canada Cemetery Association" (City of Saskatoon, n.d.c) which comes with its own rules and regulations. While the cemetery is free to visit and open to the public during the day, there are some notions of power placed on the land. One example being that after visiting hours end at 9:00 pm, while the main entrance remains open "the 36th and 39th entrance gates are closed and locked" (City of Saskatoon 2022, 111). There is an authoritative presence discouraging use outside of visiting hours, between 8:00 am and 9:00 pm, through locked gates and posted signage stating no trespassing after hours, as shown in Figure 1. Further, the sporadic appearance of power and control is shown in the construction of borders placed upon the land. Fences and thick brush, to block access, are erected along some edges but other areas have gapped fencing or none at all.

Inside the borders, the space throughout Woodlawn Cemetery, at least in the winter, does not allow for people to easily navigate the property. While the City of Saskatoon upholds the bylaw that states the city is to "provide for an orderly, well-groomed" (The City of Saskatoon 2015, 35) property, the snow builds up throughout the winter and only small lanes to drive cars through are cleared. For those who wish to visit a grave of a loved one they must either make the journey through knee-deep snow or visit from the small road that has

been cleared. Though people are allowed to make their way through the snow to grave markers, it gradually becomes an increasingly difficult task as it builds up and compacts, which many people may not be physically able to accomplish. Notions of privilege become a consideration when the maintenance regulations upheld by the City of Saskatoon allows only those who are able bodied, or own the necessary equipment such as shovels, the ability to visit their desired grave markers. Seasonal maintenance can allow or restrict movement and reflects the way in which control over the land is not only made through borders around the cemetery but also by maintenance regulations. It is worth noting the dynamics of power visible during the winter may differ from what is seen during the summer as snow is a seasonal observation that reflects an authoritative presence in the cemetery. The Woodlawn Cemetery symbolises colonial power which is enforced around and within the landscape. The City of Saskatoon is always making its presence known, through signage, gates, and maintenance, demonstrating who has power over the landscape which allows or restricts access throughout the cemetery. By deciding what is and is not considered orderly, the City of Saskatoon not only has power over appearances and access but also upholds cultural perceptions of what is appropriate in a landscape dedicated to death.

CULTURE

The Woodlawn Cemetery reveals cultural perceptions, attitudes, and behaviours surrounding death in its landscape. The British Red Cross put forward the idea "that graves would be less miserable if they were planted with grass and simple flowers" (Morris 1997, 413) which expanded to the use of other greenery and shrubs. The concept of aesthetic "beautification of the final resting place" (Miller and Rivera 2006, 336) was thought to help to strengthen relations with the dead,

making cemeteries more appealing to visit. Further, by incorporating "elements of the surrounding suburb" (Francis 2003, 226) such as manicured trees and shrubs, the cemetery has created a sense of place that people who live in similar areas would be comfortable leaving their dead and visiting. Emulating the surrounding life to create a more comfortable environment is also seen in the sections of the cemetery that are set up in grid-like patterns to mimic city streets. In addition, these walkways and blocks also serve to eliminate the "need to constantly walk over and among the actual graves" (Miller and Rivera 2006, 336) maintaining that sense of familiarity and comfort so important to Euro-Canadian culture while separating visitors from "feelings of terror and seclusion" (338) from walking past the unknown dead. The choices to display and utilise flora in the design of the cemetery is meant to convey a sense of comfort and familiarity while visiting the dead.

Nature is not only used to comfort those walking among the dead but is also used to symbolise the "victory of life over death" (City of Saskatoon, n.d.a), thus equating death to losing. The view of death as a failure represents the fear that is held within Euro-Canadian culture of death. The cemetery itself is a sacred "site where the living confront the reality of their own death and possibly receive comfort" (Francis 2003, 223) in that others may not let them be forgotten. Contributing to the fear of death is that its ritual is less seen as belonging to the current social, now more "subsumed within the private realm" (Isaac 2006, 31). It has shifted to become a private affair. European immigrants brought new cultural ideas with them to Canada, often involving more "romantic views of death" (Isaac 2006, 31) where it became a more personal experience. As the popularity of religion decreased, the notion of death being a private affair remained. This, coupled with the lowering mortality rates, and death becoming a more foreign concept, left people with

increased fear over their own mortality (Isaac 2006, 32). The landscape of the Woodlawn Cemetery exemplifies the privacy and fear associated with death in Euro-Canadian culture.

The houses bordering the Woodlawn Cemetery reflect the way in which death is not something to be observed by the greater public and to symbolise the separation between the realms of the living and the dead. The fence separating the cemetery and residential neighbourhood is reinforced with thick shrubs and tall trees creating a strong border between the landscapes which can be seen in Figure 6. The border itself signifies the separation of life and death and as phenomena that only exist together within specific shared spaces. If people were to look out into the cemetery, the trees and shrubs shelter the cemetery from sight. Beyond the physical barriers, Figure 7 shows how the houses that stand parallel to the west side of cemetery are all facing away so that the back of the houses, with only a few windows, face toward the cemetery. The landscape of the Woodlawn Cemetery reflects the fear associated with death through nature, and the privacy awarded to the dead through the physical barriers and layout of the surrounding area. Analysis of the Woodlawn Cemetery has shown how culture and Euro-Canadian perceptions of death are reflected in deathscapes.

CONCLUSION

Woodlawn Cemetery is a place to explore aspects of temporality, power, and culture within a deathscape. The landscape reflects temporality in linear and nonlinear ways. From the view of linear time, history reveals Woodlawn Cemetery's historical connections to colonial imposition and how history is clearly reflected in the landscape today. In a nonlinear sense, temporality is then explored through memoryscapes and the unique rhythms of time that exist within the cemetery. Power is first explored in the way that colonial settlers used necro-colonialism to gain control over the landscape by imbuing it with memory. The present-day control and

FIGURE 6: *Border trees blocking houses from view (Photo by author).*

FIGURE 7: *Backs of houses facing the Woodlawn Cemetery (Photo by author).*

ownership over the landscape also reflects power in decisions affecting access and movement in and across the landscape. Woodlawn Cemetery reflects cultural perceptions, attitudes, and behaviours toward death in the choices of plants and organisation meant to emphasise a pleasing aesthetic to deliver comfort in an uncomfortable landscape. Culture is further reflected in the landscape by revealing how perceptions of fear and privacy surrounding death are taken into account and upheld specifically by colonial cemeteries. The use of plants, symbolising the victory of life, and the way that houses bordering the Woodlawn Cemetery face away from the deathscape, give it the privacy that is afforded to death in Euro-Canadian culture. These factors all reflect how landscapes like Woodlawn Cemetery can reveal aspects of temporality, power and cultural attitudes surrounding death when analysed. Moving forward, this work is meant to inspire future research analysing necro-colonialism and

deathscapes in Canada as little work currently exists on the topic (but see Barker 2018; Chalmers 2019; Gambell 2009). With the increasing focus towards reconciling with Indigenous peoples it would be a missed opportunity to not explore and acknowledge how colonialism has been imbued into the land through the dead in ways that may never be undone.

REFERENCES

Anuik, Jonathan David. 2009. "Métis Families and Schools: The Decline and Reclamation of Métis Identities in Saskatchewan, 1885-1980." Thesis, University of Saskatchewan, College of Graduate Studies Research.

Barker, Adam J. 2018. "Deathscapes of Settler Colonialism: The Necro-Settlement of Stoney Creek, Ontario, Canada." *Annals of the American Association of Geographers* 108, no. 4: 1134-149. https://doi-

org/10.1080/24694452.2017.1406327.

Chalmers, Jason. 2019. "Settled Memories on Stolen Land: Settler Mythology at Canada's National Holocaust Monument." *American Indian Quarterly* 43, no. 4: 379–407. https://doi.org/10.5250/amerindiquar.43.4.0379.

City of Saskatoon. 2022. "Cemetery Master Plan." Accessed November 6, 2023. https://www.saskatoon.ca/sites/default/files/documents/2022_02_01_cos_mp_report_final.pdf

City of Saskatoon. n.d. a. "Woodlawn Cemetery History." Accessed March 27, 2023. https://www.saskatoon.ca/community-culture-heritage/saskatoon-history-archives/woodlawn-cemetery-history.

City of Saskatoon. n.d. b. "History of the Métis in Saskatoon." Accessed March 30, 2023. https://www.saskatoon.ca/community-culture-heritage/cultural-diversity/indigenous-initiatives/treaty-6-metis-homeland/history-metis-saskatoon.

City of Saskatoon. n.d. c. "Woodlawn Cemetery." Accessed March 27, 2023. https://www.saskatoon.ca/parks-recreation-attractions/parks/woodlawn-cemetery.

City of Saskatoon. n.d. d. "History." Accessed September 20, 2023. https://www.saskatoon.ca/community-culture-heritage/saskatoon-history-archives/history.

City of Saskatoon. n.d. e. "Nutana Cemetery (Pioneer Cemetery)." Accessed November 11, 2023. https://www.saskatoon.ca/community-culture-heritage/saskatoon-history-archives/nutana-cemetery-pioneer-cemetery

Francis, Doris. 2003. "Cemeteries as Cultural Landscapes." *Mortality (Abingdon, England)* 8, no. 2: 222-27. https://doi.org/10.1080/13576270310006 87442.

Gambell, Kevin. 2009. "Cemetery spaces of Shxwœwhámel Stó : lœ and the Île-à-la-Crosse Métis." Thesis, University of Saskatchewan.

Hite, Leland. 2011. "Why Headstones Are Arranged in Circles." Hands-on Engineering: It Doesn't Have to Be Complicated. http://leehite.org/documents/Why%20Headstones%20Are%20Arranged%20in%20Circles.pdf.

Ingold, Tim.1993. "The Temporality of the Landscape." *World Archaeology* 25, no. 2: 152-74. https://doi.org/10.1080/00438243.1993.9 980235.

Isaac, Katherine Susan. 2006. "Theories of Death, Ritual, and Place: Evolving the Funeral Typology in Twenty-First Century Canada." Thesis, University of Manitoba.

Jackel, Susan. 2006. "Pioneer Life." *The Canadian Encyclopedia*. Last modified March 4, 2015. https://www.thecanadianencyclopedia.ca/en/article/pioneer-life.

Miller, DeMond Shondell, and Jason David Rivera. 2006. "Hallowed Ground, Place, and Culture." *Space and Culture* 9, no. 4: 334-50. https://doi-org /10.1177/1206331206292450.

Morris, Mandy S. 1997. "Gardens 'for Ever England': Landscape, Identity and the First World War British Cemeteries on the Western Front." *Cultural Geographies* 4, no. 4: 410-34. https://doi-org/10.1177/147447409700400403.

Niezen, Ronald. 2018. "Power, Anthropological Approaches To." *The International Encyclopedia of Anthropology*, 1–10. https://doi.org/10.1002/9781118924396.wbiea2099.

Pickles, Katie. 1998. "Forgotten Colonizers: The Imperial Order Daughters of the Empire (IODE) and the Canadian North." *Canadian Geographies* 42, no. 2: 193-204. https://doi-org/10.1111/j.1541-0064.1998.tb01564.x

Rose-Redwood, R., Baird, I. G., Palonen, E., & Rose-Redwood, C. A. 2022. "Monumentality, Memoryscapes, and the Politics of Place." *ACME an International e-Journal for Critical Geographies* 21, no. 5: 448–467.

Taylor, John Leonard. 2010. "Treaty Research Report - Treaty Six (1876)." Treaty Research Report - Treaty Six (1876). Government of Canada. September 15, 2010. https://www.rcaanc-cirnac.gc.ca/eng/1100100028706/156441 3507531.

The City of Saskatoon. 2015. "Bylaw No. 6453 The Cemeteries Bylaw, 1984." Accessed March 27, 2023. https://www.saskatoon.ca/sites/default/fil es/documents/city-clerk/bylaws/6453.pdf.

Waiser, Bill. 2017. "History Matters: Round Prairie Métis Made Saskatoon Their Home in Early 20th Century." *Saskatoon StarPhoenix*, April 25, 2017. https://thestarphoenix.com/opinion/colum nists/history-matters-round-prairie-metis-made-saskatoon-their-home-in-early-20th-century/.

RESEARCH ARTICLE

Art & Archaeology: Employing Drawing as an Observational Technique[1]

Hailey Kennedy
Department of Anthropology, College of Arts and Science, University of Saskatchewan

Hugh McKenzie
Department of Anthropology, Economics and Political Science, MacEwan University

ABSTRACT

Observational skills provide the foundation for both drawing and archaeological techniques. Drawing was frequently employed within archaeology as a recording technique or to produce technical illustrations for published academic papers. However, in recent years the widespread use and adoption of digital photography and 3D imagery has resulted in a decline of its use and such skills are now only briefly considered in archaeological teaching as practical and worthwhile endeavors. This paper considers the role drawing can have within archaeology and suggests that drawing is a useful tool to aid in critical observation. With the integration of specialist interviews, an art workshop experiment was created. This workshop experiment was created to explore drawing as a learning technique in which to aid in developing the observational skills of undergraduate archaeology students. The results of this study suggest that drawing is a useful mode of observation, one that enables researchers to gain a deeper understanding of what they observe, that it can be used to *see*.

Keywords: Interdisciplinary, Archaeology, Drawing, Ethnoarchaeology, Applied Archaeology

INTRODUCTION

The role of drawing in archaeology is often overlooked despite being considered by many to be intrinsic to archaeological practices, as it imparts critical skills that influence our understanding of the archaeological record (Ingold 2019; James 2015; Morgan et al. 2018; Morgan et al. 2021; Wickstead 2013). It is a skill used to create, from scientific illustrations to drawings done by researchers to record information, the very "practice of archaeology…*is* drawing" (Wickstead 2013,

---

[1] A Note from the Primary Author: Drawing has been engrained in my life for over fifteen years and yet it did not occur until recently that it had allowed me to become more confident in certain areas of archaeology. This was especially apparent within some of my undergraduate archaeology classes, one in which extra credit was given on assignments if a drawing of the artifact was provided. While you were not marked on how well the drawing was executed, I noticed that many of my peers did not attempt a drawing. While this could have been due to several factors, it nevertheless piqued my interest in this topic. I have also recognized that for me, drawing has assisted in my interpretation of material particularly when learning new concepts or ideas. It has helped me to understand flake scarring patterns on lithic materials and learn features on osteological remains (Figures 1 and 2). In general, drawing has forced me to critically think about what I was seeing and provided me with the tools to master concepts, rather than looking at and subsequently forgetting the diagrams in my textbooks.

561). Both drawing and archaeology rely on employing observational techniques to capture, interpret, and derive information about the material remains of the past (James 2015; Morgan et al. 2018; Morgan et al. 2021). An accurate drawing of an object relies on an understanding of its physical attributes. The perspective in which that object is viewed, the relationship to its surrounding environment and the direction of the light source impact how that object is depicted (Addington 1986; Griffiths et al. 1990). In archaeology, the ability to correctly observe the attributes of artifacts within their context is integral to producing an informed interpretation. The creation of stratigraphic profiles and planview maps during fieldwork, the production of polished illustrations and recreations for academic papers (Figure 1), or the personal interpretations and recordings of ethnographic observations focus on demonstrating and communicating knowledge (Taussig 2011; James 2015; Morgan et al. 2018; Morgan et al. 2021; Wickstead 2013). These formats are useful; they record or capture specific information to explain concepts, attributes, or ideas. However, when drawing is applied to archaeology as a *process* or *method*, it assists individuals in improving their observational skills (James 2015; Morgan et al. 2021). We highlight the importance of drawing in archaeology, that drawing can help in *seeing better,* particularly for the development of observational skills in undergraduate education. Causey (2017) uses drawing as a "way to see better" (151), recognizing that when you try to draw an object you are forced to critically evaluate and understand that object within the context of how you are viewing it. The process of drawing employs observational skills and tactics which lead to a deeper understanding of what is being drawn (Kuschnir 2016; James 2015; Morgan et al. 2018; Morgan et al. 2021; Wickstead 2013).

Taking an interdisciplinary approach, a workshop experiment facilitated by the author was created to further explore the process of drawing as an aid to understanding artifacts.
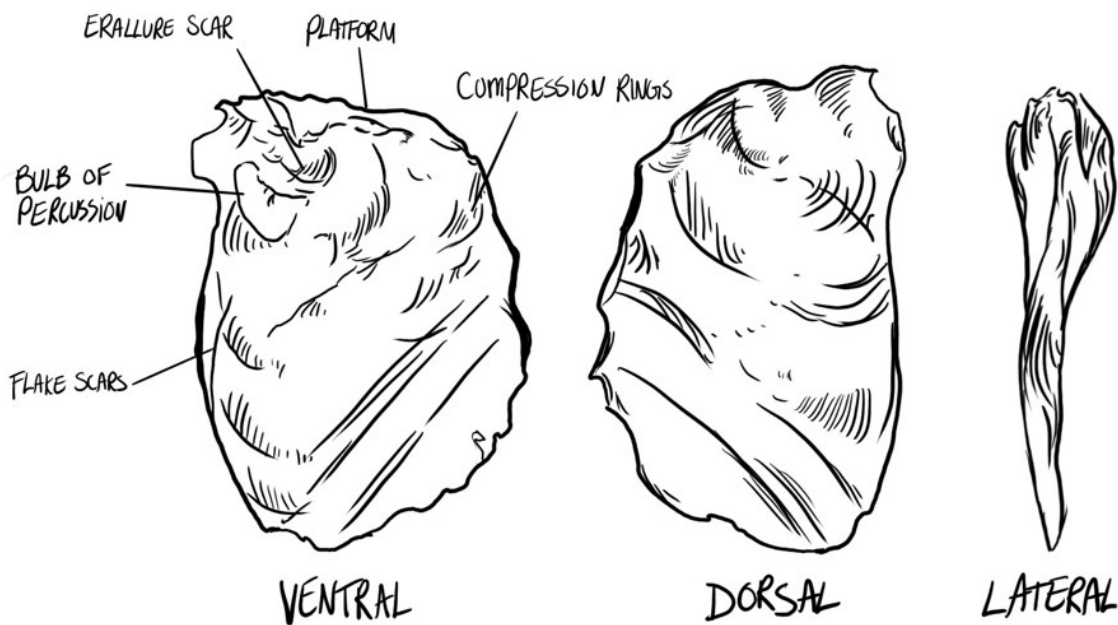

FIGURE 1: *Lithic Diagram Created by Author.*

Aimed at introductory-level undergraduate archaeology students, these workshops were intended to impart basic drawing skills to evaluate if drawing improved students' written observations and interpretations. Prior to the workshops, a series of specialist interviews were conducted to provide additional background information and contextualize current thoughts around drawing practices. The use of interview quotations throughout this paper takes a reflexive approach to incorporate researchers' individual reflections and interpretations of their experiences around drawing within archaeological practices. To disseminate information to the public regarding this research, an online art gallery was constructed and incorporates both quotes from these interviews and completed drawings from the art workshops. This research highlights the usefulness of drawing as a method of improving observations, particularly when it is applied as a learning technique in undergraduate archaeological education.

DRAWING AS A METHOD

To understand the concept and application of drawing in this research, we use the term *mode of observation*. We define this as a method that researchers can employ to collect data or to obtain a greater understanding of what they are observing (Causey 2021). We suggest that drawing is one such mode of observation, particularly when drawing is used as a technique to learn (Figure 2). To consider drawing as a learning technique, the *process* or *act* of drawing an object is what should be emphasized (Kuschnir 2016; James 2015; Morgan et al. 2018; Morgan et al. 2021; Wickstead 2013). But before drawing can be understood as a process, it is important to first understand how drawing is typically employed in archaeology.

Different drawing approaches will produce different end-products. Technical illustrations and drawings done during fieldwork produce aesthetically distinct images, one is typically an accurate and polished piece while the other focuses on recording necessary data in limited amounts of time. However, these drawings are all undertaken with a similar intention, to *communicate* information (James 2015). The intention behind drawing is important to consider as there is a distinct difference between drawing to represent something and drawing as a method to improve a researcher's observations (Causey 2017; James 2015; Morgan et al. 2021). A drawing that results in an accurate or polished illustration takes time and, in most cases, prior artistic knowledge or skills (Addington, 1986; Raczynski-Henk, 2017). For example, artifact illustrations (Figure 3) focus on accurate depictions, following set standards that require an in depth
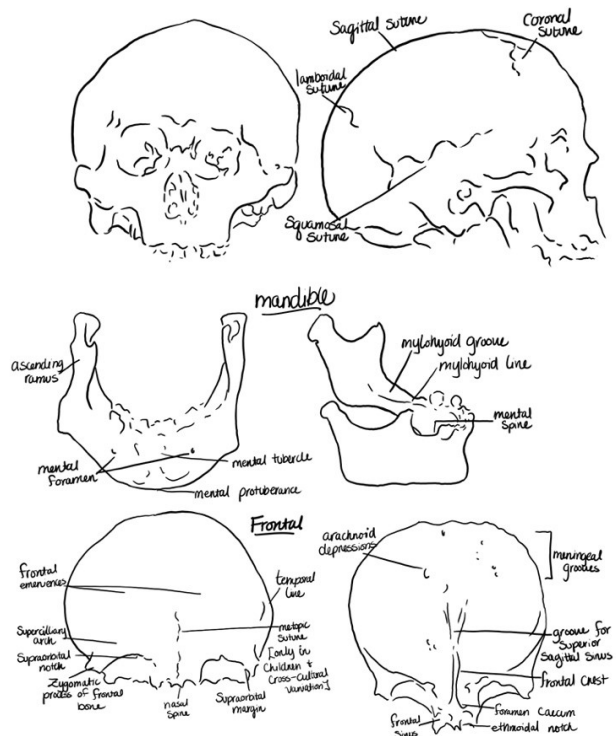

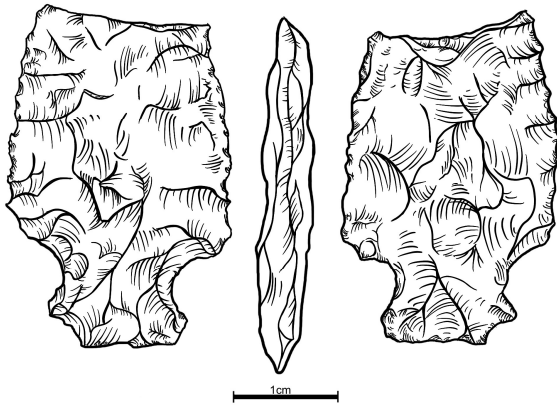**FIGURE 2:** *Diagram with Osteological Terminology Created by Author.*

FIGURE 3: *Artifact Illustration Created by Author.*

understanding of texture, lines, perspective, tone, colour, and proportions (Addington 1986; Griffiths et al. 1990; K. Killackey, interview, January 4, 2022.). Consistency and an understanding of employing specific drawing techniques are incredibly important in producing a successful illustration. Standards may vary by region with different specifications around line weight or thickness, directional or descriptive line strokes, and the overall position of the artifact on the page (Addington 1986; Griffiths et al. 1990; James 2015; Morgan et al. 2021; K. Killackey, interview, January 4, 2022).

Fieldnotes, such as planview maps and stratigraphic profiles, require an understanding of the context of the object(s) and the type of information sought to be captured. Some field drawings may be incredibly detailed and combine many descriptive words, phrases, or legends to understand what is happening; others may be messy, quick sketches to roughly capture an idea or relation of objects to each other (James 2015; Morgan et al. 2021; A. Beaudoin, interview, October 3, 2021). The focus on these drawings is to capture and convey information, and to be as accurate as possible. This process might include the use of tape measures, datums, portable grids, and compasses to record measurements or a general layout of how excavation unit blocks

are set up. While these drawings could result in a more in-depth observation of what is being recorded, the emphasis is on balancing accuracy with time constraints that come with fieldwork (Morgan et al. 2018).

If drawing is approached as a *method*, the emphasis is on providing a greater understanding of what is being observed rather than whether the final drawing is accurate (James 2015). It is drawing for the purpose of learning about the object, rather than having a specific purpose for the completed image. Drawing to assist with artifact observation assumes that the individual or researcher tries to produce an image that is as accurate as possible, as doing so employs 'active' or 'critical observation' of that artifact (Kuschnir 2016). The success of these drawings is not measured by the quality of the image produced, but rather the critical observations made of the object during the drawing process (James 2015). This research reinforces drawing as a mode of observation to assist in the development of critical thinking skills, particularly for undergraduate archaeological students to train their observational eye.

UNDERSTANDINGS AND INTERPRETATIONS

To employ drawing as a mode of observation, this process must be understood as an *individual* experience. This presents a variety of barriers as the individual decides when, what, how or *if* a drawing is undertaken at all. For example, the amount in which a person draws in archaeology depends on their level of comfort and familiarity regarding their drawing skills (James 2015). Lynne Chapman, a fine artist based in London, has numerous experiences in teaching people with varying levels of drawing abilities and finds that "there are so many barriers to people creating art" (interview, June 21, 2021). While most individuals have the *physical* ability to draw the object in front of them, they *choose* not to because there is an "expectation that either [a

drawing] looks like a photographic version of the thing or it doesn't count, it's invalid, or childish" (interview, June 21, 2021). The expectation that a drawing must be visually appealing or 'perfect' can create obstacles and promotes avoidance for both researchers and students—even though it is the *process* of drawing that assists in developing observational skills, rather than the look of the drawing (Causey 2017; James 2015).

Within formal archaeological education, training in drawing has consistently diminished in recent years and has largely been replaced with digital processes like photography, digital surveys, and 3D scanning (James 2015; Morgan et al. 2018; Morgan et al. 2021; Wickstead 2013). This poses a significant barrier for students to develop basic drawing skills, further limiting the application of drawing within archaeological practices in general. A lack of widespread education about drawing and its employment as a tool can significantly diminish the acceptance, application, and presence within formal archaeological education (James 2015). Courtney Lawrence, a flintknapper and recent master's graduate from UNBC, has had little formal drawing education. While he agrees that drawing "helps visualize the [flintknapping] process and product better" he feels that, compared with 3D reconstructions, "illustration itself doesn't have that same impact or…power." (interview, July 30, 2021). However, comparing the use of hand-drawn images to digital drawings completed during fieldwork and when illustrating artifacts, Morgan et al. (2021) found that in both instances, choosing to draw with digital materials over pen and paper can negatively impact a student's overall understanding and recognition of artifacts and their contexts.

In post-secondary archaeological education, teaching students to draw is typically dependent on social networks, previous experiences, and pedagogical approaches of the educator (James 2015;

Morgan et al. 2021). Kathryn Killackey, an archaeological illustrator with a masters in Field and Analytical Techniques in Archaeology, regularly guest-lectures at McMaster University during the pottery unit of the course her husband teaches. Though he does not share her extensive drawing background, "he does insist that it's helpful to understand your [pottery] sherd. To actually sit down and draw it." (interview, January 4, 2022).

Dr. Todd Kristensen, Regional Archaeologist of the Historic Resources Management Branch of Alberta and Assistant Lecturer at the University of Alberta, found that simply working with artists on public outreach projects assisted in new archaeological thought (interview, July 30, 2021). Illustrating scene recreations with artists interested in the minute, technical details made it "an interesting process, because it does force you to think about a single thing, technology or tool, or an artifact in a different way…how would you hold that in your hand…what would the shadows look like and how would that influence why people are attracted to that material or that tool type". Kristensen finds a collaborative approach between archaeologists and artists incredible valuable, and hopes that "staying involved in creating different types of artwork that people will value…will be a part of my career until it ends" (interview, July 30, 2021).

For Dr. Alwynne Beaudoin, now Director of Curatorial and Research at the Royal Alberta Museum, drawing has been something she has always done. It has even influenced her approach to mentoring graduate students by "insisting that they all did what I did, which is draw what they saw under the microscope to train their observational skills." (interview, October 3, 2021). The feedback she received from students was highly variable: "[s]ome of them didn't like it very much…they felt that they weren't very good drawers", while other students "really liked it and did

incredibly detailed drawings…almost illustrations" (interview, October 3, 2021).

An individual's experience, prior knowledge, or skills impact the approach taken when teaching, learning, and employing drawing techniques within archaeological contexts. The individual researcher's interpretation draws on their past experiences to understand and gain deeper knowledge about what they are observing. This interpretation can be incredibly subjective and changes with each researcher's discipline, specific educational background, theoretical approach, and life experience. To be "in the field with archaeologists and with paleontologists at the same time…it's very interesting…you can walk along a river cut bank and the archaeologist will see one thing and the paleontologist will see another. [This is the] difference between seeing and observing. No person will be able to see exactly the same thing when they look at something." (A. Beaudoin, interview, October 3, 2021). Gaining a deeper understanding of material culture requires practice, prior experience, and an understanding of what is being observed. We argue that to use drawing as a method is a useful and important tool when first learning observational skills. It can be employed to assist the researcher in interpreting their observations; drawing can be used to *see* (Causey 2017, 2021).

MATERIALS AND METHODS: DRAWING AS PRACTICE

The goal of drawing within this study, and its application to the workshop experiment, is to learn by doing, "to try and be as accurate as you can with what you see and not worry too much about whether…it is truly high-quality representational art" (Beaudoin, interview, October 3, 2021). The act of drawing itself is what is important as it can assist individuals in initially recognizing and interpretating data, to "focus on using the act of drawing as a process of perception" (Causey

2022, 220). Within this study, a drawn image is viewed as a result of the individual's observations, the quality of which can change depending on an individual's experience with drawing techniques. An *act* of drawing forces the critical evaluation of an object and its attributes, which allows the individual to perceive and interpret information about what they are observing. *How* they interpret and apply their interpretations may change depending on the students' experience levels, the context of the research, or the information that the individual is hoping to obtain by studying the object in the first place. However, this only works if the individual legitimately tries to produce an accurate drawing, that they dedicate the *time* to look at that object and understand its attributes. This does not mean that it will be a "good" drawing or produce a high-quality illustration at the end, but rather emphasizes that a legitimate effort be taken in understanding an object.

To understand what an object looks like, a reference or reference image is typically necessary. A reference refers to the use of images or the objects themselves being consistently viewed during drawing (Aristides 2011; Craig 2015; Gury 2017; Morgan et al. 2021; Piyasena, Philip 2012). They are regularly employed in art practices to help the artist to concretely visualize what is being drawn. Within the context of this study, the artifacts used in the workshop experiment would be considered the reference, as participants directly view the object while drawing. A reference is important as it is the thing in which a basic structural understanding of the object is understood. Drawing from a reference can help challenge an individual's existing perceptions and ideologies surrounding an object; it enables "you to really look closely at all the elements of what it is you're observing so the shape, the size, the structure, whether it has appendages, surface texture, [or] any kind of colour variation" (Beaudoin, interview, October 3, 2021).

THE WORKSHOP

To investigate drawing as a method for improving archaeological observations, an experiment was set up as a series of art workshops. Standard Research Ethics Board (REB) approval, as required by MacEwan University policy, was obtained for both the workshop experiment and interviews. The workshop experiment was intended to generate data to determine whether drawing had any influence or aid in observational skills with individuals at an undergraduate level in archaeology. The effect of drawing to aid in artifact observation was evaluated by having participants complete an initial drawing of an artifact, followed by instruction on basic drawing techniques after which a second drawing of the artifact was undertaken. This study aimed for group size to be between 7-12 individuals. The group size of this study was small to prioritize assistance in what was being taught and ensure that there were ample social distancing protocols in place, in accordance with MacEwan's COVID-19 protocols.

To teach drawing skills, the primary author organized three workshops, each ran for roughly an hour and a half each week for three weeks. There was an option to participate in these workshops either in-person or through an online platform. These two modes made this study accessible to as many interested individuals as possible, particularly taking barriers associated with COVID-19 restrictions into account. The in-person platform met every Wednesday from October 13, 2021 to October 27, 2021 at 1:00-2:30 pm in the Anthropology Lab in MacEwan University, as this location allowed for proper social distancing requirements to be met and housed the appropriate artifacts. The online platform was set up using Google Drive, in which each participant was sent a link to access the materials. The materials contained a lecture video, instructions, and examples of the exercises, with the content varying each week depending on what information was being covered. The link was sent after each in-person meeting to ensure that every participant had approximately the same amount of time in between each workshop. Online participants could then work on the material in an asynchronous format, at their own pace, though it was recommended that they complete the material on Wednesdays, similar to those who participated in the in-person workshop. For both the in-person and online workshops, it was strongly recommended that individuals completed a minimum of 10 minutes a day or a total of 50 minutes within each week of drawing practice. Consistent drawing practice provides a sense of confidence and familiarity with the drawing materials and the objects being drawn, making it easier for the artist to learn and express new techniques (Kistler 2011; Morgan et al. 2021; Chapman, interview, June 21, 2021).

A total of eight participants completed this study, two of which chose the online format. Participants were recruited using indirect recruitment through posters, private social media posts on Instagram and Facebook, and through online class presentation videos. Interested participants were then emailed an outline of what to expect from the workshops and were asked to document their familiarity and experience in art and archaeology. It was required that each participant had at least a basic understanding of archaeology such as an introductory level archaeology class or relevant field experience. This was to ensure participants had some sort of understanding of archaeological terminology and could broadly identify the artifact that they were provided.

Each participant (both in-person and online) was provided with an 8 by 10 inch, 30 sheet sketchbook to be used for the entirety of the study. Each sketchbook was given a number to keep track of which artifact was given to each participant and to assure anonymity. The first page of the sketchbook was where the initial assessment took place, before any drawing techniques were taught.

The participants completed an additional assessment at the end of the last workshop and were then asked to complete an optional end survey. Participants that took part in the online platform were required to book a specific time to do these assessments in the anthropology lab before and after the art workshops, during which time the online participants were provided with sketchbooks.

Both assessments had each participant answer the same three questions about an artifact that they were given, which was to establish a baseline for the participants' confidence in drawing and to provide a comparison between observations before and after learning some drawing techniques. The results of this workshop focused on the assessment questions obtained prior to and at the completion of the workshops. The instructional content within the art workshops was intended to give participants sufficient background to elevate their drawings and to teach them how to observe objects they were attempting to draw. Each assessment question was timed to ensure everyone had ample opportunity to answer the questions. The results of these questions were compared to the assessments done before and after the drawing workshops within the context of each participant's sketchbook. A deception component was also used for this portion of the study in that participants were initially told that *only* their drawings would be analyzed when, in truth, their written observations were analyzed as well. This was done to account for any unintentional biases of the participants. The comparison is outlined in the section below and was used to speculate whether drawing has an impact on observation.

Question 1: Given your archaeology background, please describe this artifact as you would if you were in the field. Describe it in as much detail and using archaeological terminology as you deem appropriate. You'll have 5 mins to do this.

Question 2: Draw this artifact to the best of your ability, include at least one side and a profile. You will be given 15 minutes."

Question 3: Having now drawn your artifact, would you modify your above description in any way? If so, how? You have 5 minutes.

The criteria for comparing these drawings and observations is outlined as follows:

Drawing Quality: specifically focusing on the accuracy of the objects being drawn, the detail being applied to the objects—quantified as the evidence of lines, tone, perspective, texture, and colour taken into consideration. If there was an improvement based on the initial drawing. **Descriptive and Observational Skills:** the specificity of the observations (specific textures, presence of flake scars, etc.), terminology being used and amount of details provided—quantified as whether there was a deeper range of observations or terms used compared with the initial artifact drawing or if there were new observations made or visible difference in the quality

The workshop topics themselves were broken into five main principles of art: lines, tones/values, perspective, texture, and colour. These topics were chosen as they are commonly taught within formal fine art classes and other learning materials such as books and videos (Gury 2017; Kistler 2011; Micklewright 2005; Piyasena and Philip 2012; Roig 2006). Specific examples and exercises were chosen because they focused on observation—such as drawing positive or negative silhouettes, contour drawings or line work to create texture (Causey 2017). These five principal concepts were highlighted throughout the workshops and applied within the context of drawing artifacts. Individuals
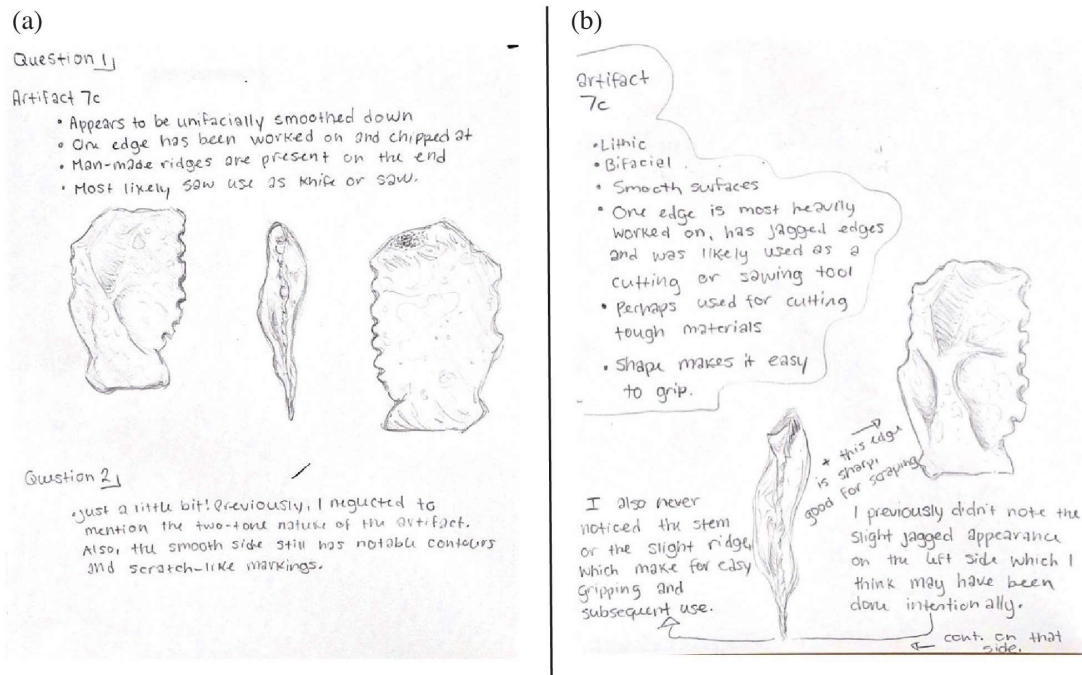
FIGURE 4: *Sketchbook 1, drawings before (a) and after (b) completion of the art workshops.*

who participated in the online workshop supplemented the artifacts with other materials of the individual's choosing as the artifacts were unable to leave the lab. The drawing exercises for each workshop were chosen to develop observational skills and to incorporate the principles covered within each workshop. The first workshop focused on lines, line weight, tone, and shading; the second workshop covered texture, perspectives, and proportions; and the third workshop focused on colour and specifically applying techniques to create traditional artifact illustrations.

After completion, workshop participants were sent a debriefing email and an optional survey questionnaire asking them to reflect on their experience of the workshop. Participants were asked if they thought that drawing had helped with their observations of the artifacts and if there were specific drawing exercises that they found to be the most helpful. The survey was anonymous with the intention to gather data on the teaching methods used and to assist in the planning of future workshops.

An optional art gallery was set up for the participants of this research, the Gray Gallery exhibition run by SAMU (Student's Association of MacEwan University). The gallery showcased drawings by the art workshop participants, relevant art workshop teaching materials, and quotes from the individuals that were interviewed. An online gallery format was chosen to allow access to as many individuals as possible and break any barriers surrounding accessibility to this research, COVID-19 related or otherwise. The link to the art gallery is https://samu.ca/art-and-archeaology-understanding-drawing-within-archaeological-contexts/.

WORKSHOP SKETCHBOOK RESULTS

Below is a comparison between the initial sketches completed by the participants prior to any workshop training and the drawings that were done upon completion of the art workshops. Each sketchbook is compared individually, and the differences are outlined and summarized below (note that

Sketchbook 2 was omitted due to participant withdrawal).

Sketchbook 1 (Figure 4) demonstrates an improvement in drawing quality and descriptive or observational skills. The improvement of drawing quality is more specifically seen in the profile drawing of the artifact; there are more exact lines when compared to the initial profile drawing. The second written analysis uses more exact terminology like "bifacial" and "lithic" than the initial analysis and it summarizes the minute details like the "the slight jagged appearance on the left side which I think may have been done intentionally." Another notable example is when comparing the initial analysis statement, "One edge has been worked on and chipped at. Man-made ridges are present on the end. Most likely [used] as knife or saw", with the second analysis statement of, "one edge is most heavily worked on, has jagged edges, 2nd was likely used as a cutting or sawing tool." Note the addition of the word "tool" assigns a

typological use and the distinction that one edge is worked more than the other, infers a comparative analysis between the length and extent of the worked edges.

Sketchbook 3 (Figure 5) demonstrates both an improvement of drawing quality and more detail-specific written observations. Specifically, there are more distinct markings on the side view of the second analysis compared to the initial drawing in which it was just generally shaded as one tone. The profile drawing is also more accurate; it is level with the side view in the second analysis whereas, in the first analysis, it is physically turned on its side. In comparing the written observations, both appear similar. However, the second description of "smooth yet textured lithic stone tool" is more detailed than the former one, which was simply "stone tool debitage". A description of the colour is also present in the second analysis while absent in the first. The added description of texture can also be seen within the drawing, with specific marks depicting the imperfections on the lithic, when
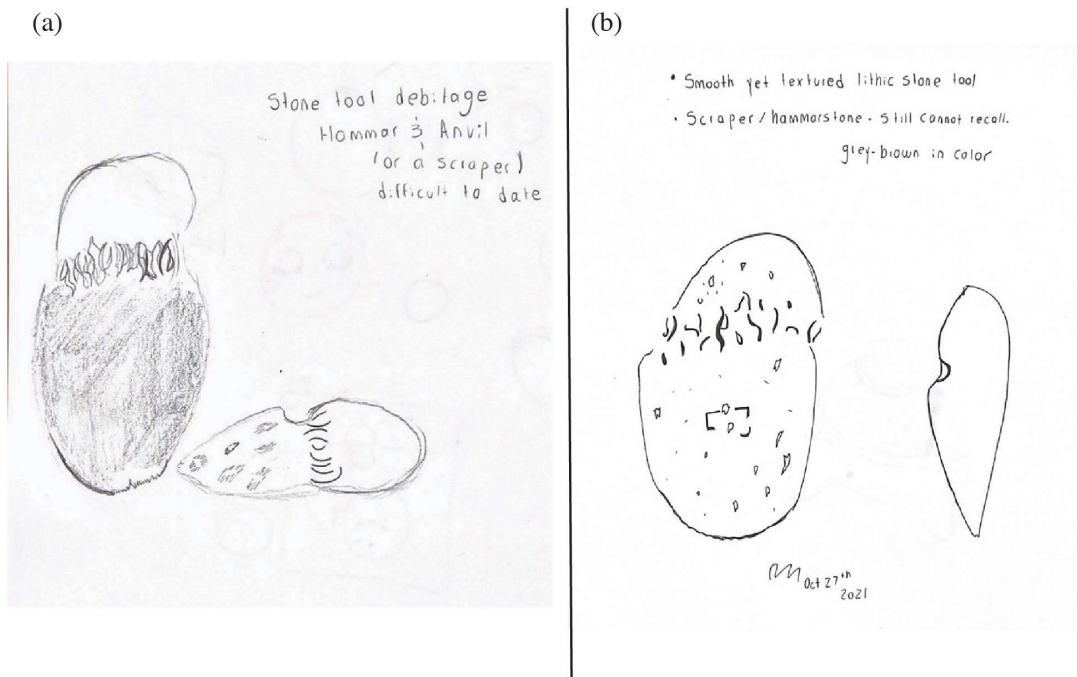
(a)

(b)

FIGURE 5: *Sketchbook 3, drawings before (a) and after (b) completion of the art workshops.*
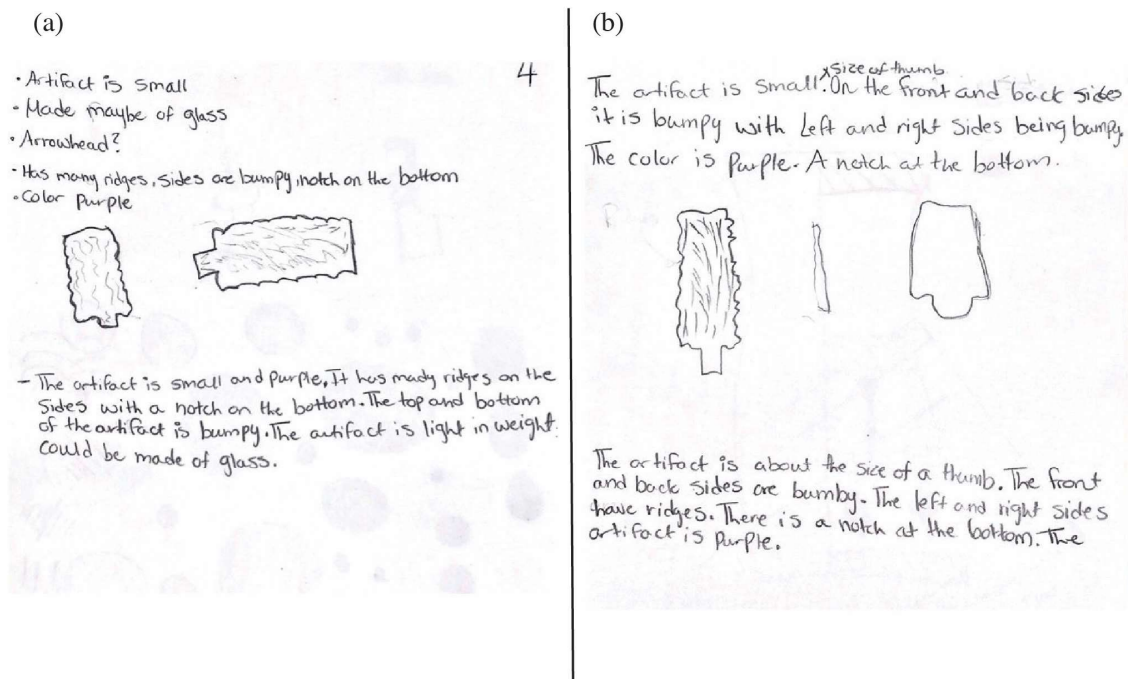
FIGURE 6: *Sketchbook 4, drawings before (a) and after (b) completion of the art workshops.*

compared to just using a single tone on the first drawing.

The drawings of the second analysis of Sketchbook 4 (Figure 6) depict clear worked edges and demonstrate a more accurate understanding of a profile drawing. The initial analysis shows the same drawing of the side view simply rotated, whereas the second analysis shows a more traditional profile drawing. The observations between the two analyses use the same general language, although in the second analysis there is a more concrete size observed as the "size of thumb." The second analysis also includes the "left and right sides being bumpy…the left and right sides have ridges" as the specification of which sides is missing from the first analysis: "has many ridges, sides are bumpy."

Sketchbook 5 (Figure 7) demonstrates clear improvement in both drawing quality and the observational description. The location of the scratches on this artifact is clearly marked on the second analysis drawing, compared with the general overall shading of the first

analysis. In addition, the physical size of the second analysis drawing is a 1:1 ratio, which is a standard in archaeological illustration, compared to the much smaller profile and side view in the initial analysis. The overall description of the second analysis is more comprehensive and specific. For example, in the first analysis the observation is simply "scratches," whereas the second analysis mentions "superficial scratching evident across entire artifact. Deeper scratches more prevalent toward tip." The second analysis also mentions specific dimensions, "approximately 4 inches long, 1 inch wide…1/2 cm thick" whereas the first does not mention them at all.

The drawings for Sketchbook 6 (Figure 8) are relatively similar, however, they deviate in their shading. Specifically, in the second analysis there are lines near the proximal end that depict the direction of flake scars. This is contrasted with the first analysis, which only contains shading in the side view. The profile in the second analysis has clear, confident lines, especially when compared with the first
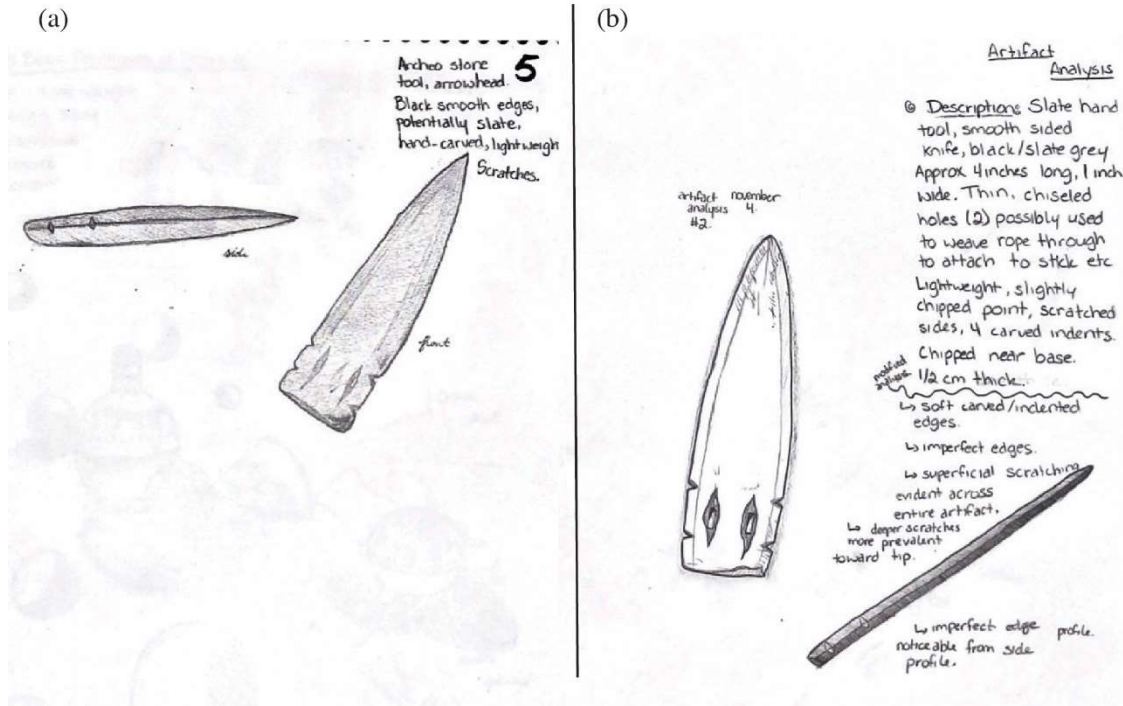
FIGURE 7: *Sketchbook 5, drawings before (a) and after (b) completion of the art workshops.*
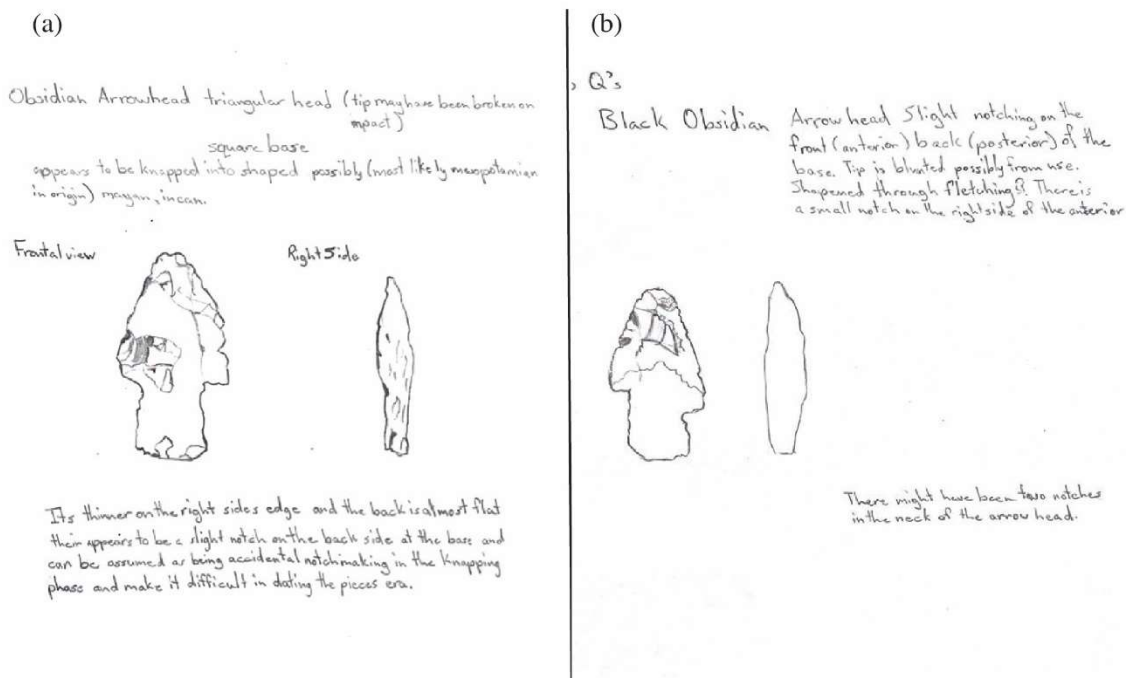

FIGURE 8: *Sketchbook 6, drawings before (a) and after (b) completion of the art workshops. Note the participant drew the other side of the the artifact when compared with the initial drawing.*
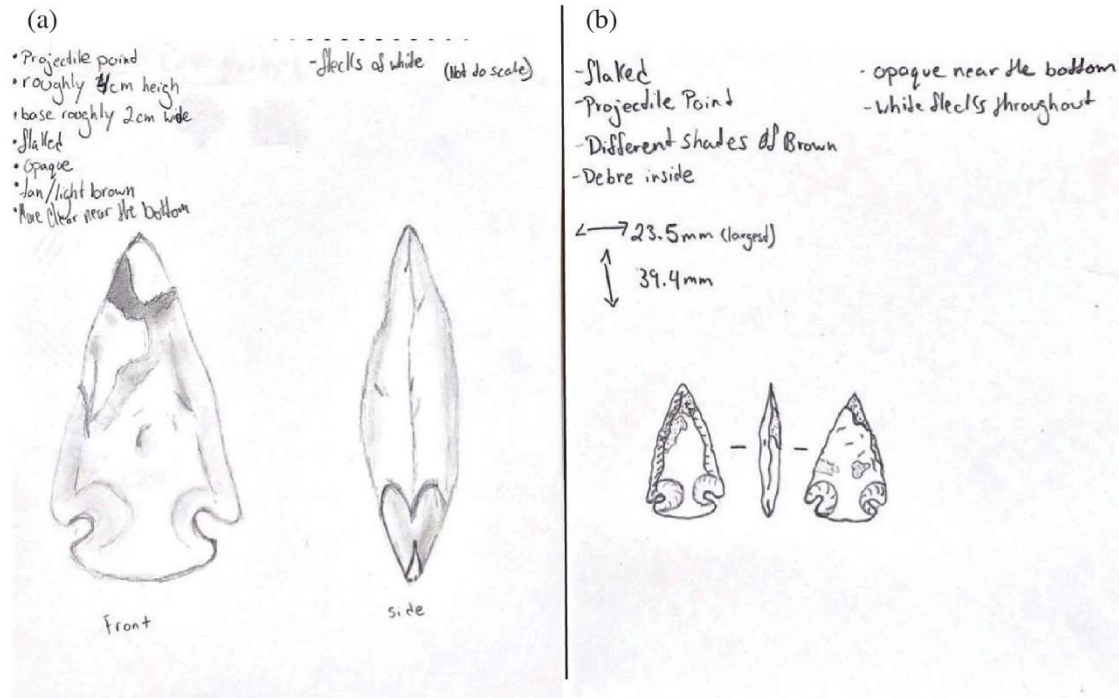
FIGURE 9: *Sketchbook 7, drawings before (a) and after (b) completion of the art workshops.*

analysis. The written observations in the second analysis include more detailed terminology. For example, "black obsidian arrowhead slight notching on the front (anterior) back (posterior) of the base. Tip is blunted possibly from use. Sharpened through fletching?" as compared with the first analysis of "obsidian arrowhead triangular head (tip may have been broken during impact)."

The differences between the analyses of Sketchbook 7 (Figure 9) can be most clearly seen within the drawings. The first analysis is not to scale and shading is heavily used. In contrast, the second analysis is to scale, and the marks made allow readers to gain more information about the artifact; it uses lines rather than shading which allows for a clearer understanding of the artifact as it demonstrates a change in texture. The written observations are similar but differ in that more exact measurements are recorded in the second analysis, "opaque near the bottom…white flecks throughout," compared with the observations of the first analysis, "flecks of white…opaque…more clear near the bottom".

Though the specific words between the written observations are similar, these small changes help greatly with description clarity.

The drawings between the two analyses were for the most part the same for Sketchbook 8 (Figure 10). The participant did disclose, however, that they were unable to complete the third online workshop due to unforeseen circumstances. This may have impacted the results of the drawing as both the side view and profile remain unchanged in the second analysis. However, the written description of the second analysis is extremely detailed when compared with the first. The first analysis described the artifact as "a ceramic shard with blue glaze on one edge and several weathered looking spots" and that "the glaze appears partially worn away." This is greatly contrasted with the second analysis as it was described as a "glazed potsherd" and the "paste colour is quite light, no obvious oxidation streak or easily visible temper."

Sketchbook 9 (Figure 11) showcases the second; eraillure scars are evident in the drawing improvement from the first analysis to
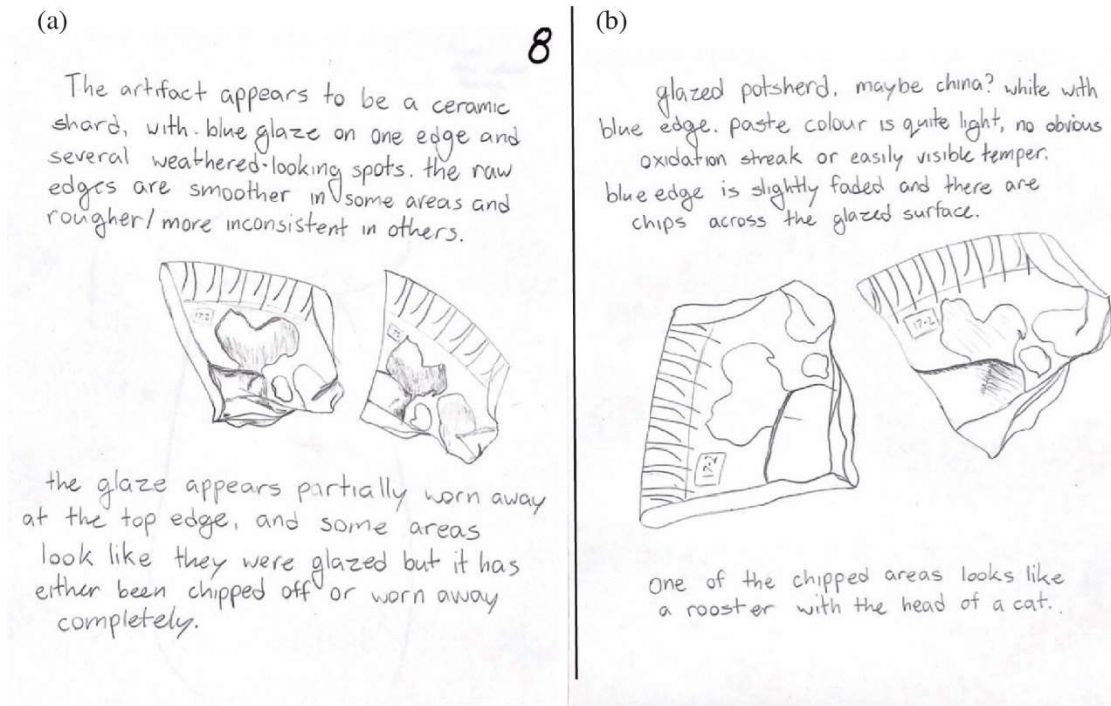
FIGURE 10: *Sketchbook 8, drawings before (a) and after (b) completion of the art workshops.*
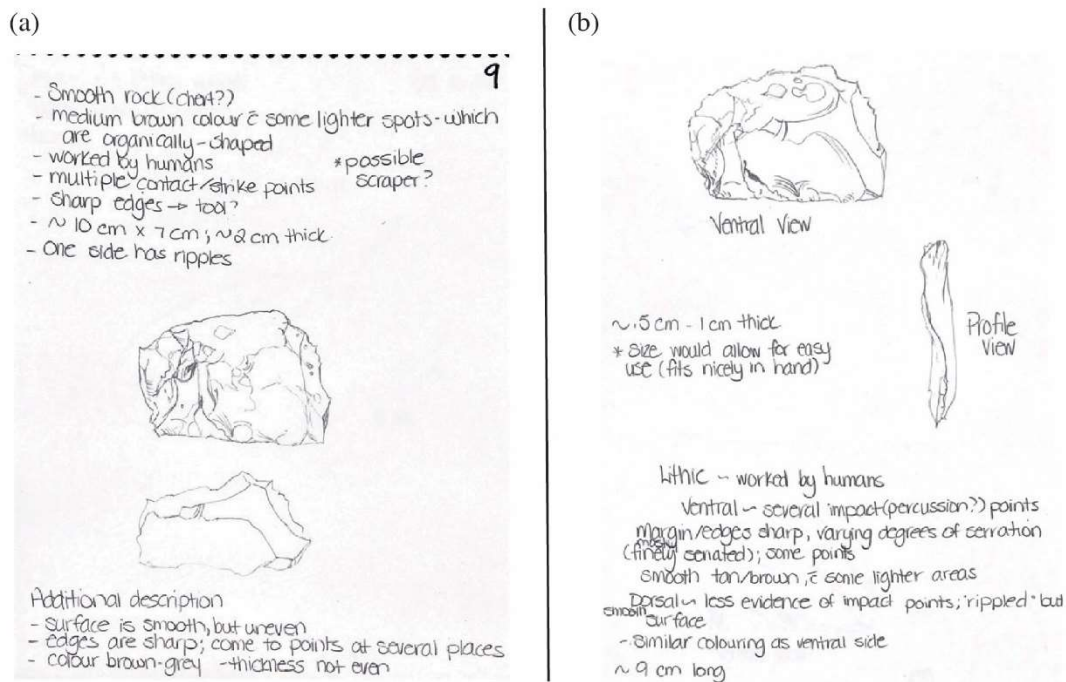

FIGURE 11: *Sketchbook 9, drawings before (a) and after (b) completion of the art workshops.*

second analysis, the line work is more precise, and the overall drawing is clear. The details of the first analysis drawing are smudged and blurred due to the use of a pencil with a blunt end, this can make it harder to interpret when compared to a drawing with crisp or clear lines that is completed with a sharpened pencil. The written observations of the second analysis include a wider use of terminology and is more descriptive with specific colours and measurements. For example, "ventral— several impact (percussion?) points, margin/edges sharp, varying degrees of serration" compared to the observations made in the first analysis: "sharp edges=tool?...edges are sharp; come to points at several places."

DISCUSSIONS IN DRAWING

Drawing teaches fundamental observation techniques. This was noted in our literature review, in specialist interviews, and was supported by the results of the art workshop experiment. In comparing the sketchbooks from the initial artifact analysis with the second analysis, there is a general trend in which participants had either more detailed illustrations or more detailed observations.

The most evident and drastic overall differences can specifically be seen with sketchbook numbers 1, 5, and 9 (Figures 4, 7 and 11). The specificity of the terms used, as well as the quality of the descriptions, changed quite drastically. For Sketchbooks 3, 4, and 6 (Figures 5, 6 and 8) there are more subtle differences. For example, these participants tended to mention if specific attributes were present, such as the introduction of colour terms in Sketchbook 3's second analysis. Sketchbook 7 (Figure 9) had the most drastic drawing difference, to the point where there were inclusions of information surrounding the texture of the flaking scars—an observation that was missing with that participant's initial drawing and written observations. While Sketchbook 7 showed little change in the

written observations; the drawing demonstrates that there was a more substantive observation of the artifact. These results demonstrate that there is a difference between the drawings and written observations from the first artifact analysis prior to any art training when compared with the second analysis after the three-week workshop. This is important to understand because if the quality of the observation is improved, then the researcher's interpretations of the artifact will be more accurate and substantive. While this art workshop only had a total of five hours of combined art training and practice time, it is suggestive of the impact that art, specifically drawing, could have within academic and observational settings if it were more widely applied.

For the purposes of this study, a small, focused group was used and the drawing exercises that were taught were aimed at beginners. The participants themselves ranged in their academic knowledge and drawing experience, which was why each participant's work was compared with their own and the quality or improvement of their work was the focus for this experiment. With a 60% response rate, each survey generally agreed that drawing had helped them analyze artifacts. Participants generally stated they had a positive workshop experience, with suggestions centering on providing more learning and practice time for drawing technique activities. Specific reflections included thoughts "that drawing an artifact helps with making observations…because it requires you to focus in on some of the details that you might otherwise overlook." "It helped me pay closer attention to details that my mind would have otherwise glossed over, like differences in texture on the artifacts surface."

The results of this workshop may have been impacted if participants had learned additional information in between the workshops in the classes they were in. However, the impact would most likely be

minimal as the workshop only spanned a three-week period. Since the courses the participants were in (if any) remain unknown, the potential impact on the quality of the analyses also remains an unknown variable. It should also be noted that all participants had a basic understanding of archaeology through either introductory undergraduate classes or relevant field experience. These results do not reflect what would happen if specialists or experienced archaeologists were given the opportunity to learn basic drawing principles and apply them to artifacts, as their analysis may include more exact terminology. This could be an avenue for further research and may be explored in the future.

This art workshop experiment, as well as the background interviews, were intended to demonstrate how drawing as a mode of observation is useful and has a practical role within archaeology. In recent years, there has been a renewed interest in drawing as a means of assisting anthropological researchers in the production of knowledge and to aid in generating new insights and data (Atalay et al. 2019). This idea is primarily considered within the context of ethnography rather than archaeology, with some anthropologists such as Ingold (2007, 2011, 2019), Hendrickson (2008, 2019), and Taussig (2009, 2011) employing drawing as a research method while in the field.

However, within archaeological contexts there has been little work done in understanding drawing as a tool in archaeology or applying it within formal educational frameworks (James 2015; Huggett 2012; Morgan et al. 2018; Morgan et al. 2021; Wickstead 2013). We reiterate that drawing is useful in teaching observational skills, particularly within the context of undergraduate archaeology classes. Drawing assists in exposing undergraduate students to new ways of analyzing and observing materials, as well as potentially formulating additional interpretative analyses. Integration

of additional methods of analysis can create different approaches to archaeology (Huggett 2012; Morgan et al. 2021). Though this experiment focused on analyzing material in a laboratory setting, it is essential that additional analyses be done, both within the lab and while in the field, as this would provide a greater scope of how drawing can best be employed. It is important that there be an understanding of the application of methods in which to integrate drawing more formally within academia and to recognize how drawing is useful in the observation and interpretation of artifacts (James 2015).

Archaeology is fundamentally rooted in observation; from interpreting the lives of past civilizations to understanding current communities and cultures, drawing is a practical tool in assisting researchers' archaeological understandings. It provides a method to allow individuals to observe artifacts and archaeology in new ways while "teaching you to not make assumptions about how something has to look" (Chapman, interview, June 21, 2021). To observe something, to really notice how something looks, from the small details of an object to the overall bigger picture, is an incredible skill to have. It is at once a practical skill and one that can facilitate greater bodies of knowledge and collaboration. Applying drawing to archaeology has the profound ability to generate additional data for analysis by forcing critical observation which, in turn, fundamentally impacts the quality of the analysis being done and the application to the academic community.

CONCLUSION

This paper takes an interdisciplinary approach to consider the role of drawing within archaeology and its application in developing observational skills. Drawing assists in exposing undergraduate students to new ways of thinking, informed by the personal examples shared from researchers

and illustrated in the workshop experiment. While further research should be done to understand the extent of drawing and its application, our research highlights that drawing *can* make a significant contribution towards learning archaeological observation and suggests that it should be emphasized within formal archaeological education. Though drawing may seem intimidating for some, it is an extremely useful tool for researchers to develop critical thinking skills. A drawing is merely the result of the critical thoughts and interpretations made by an individual; it is proof that an object and the details of it have been understood enough to be captured. Producing an accurate drawing is simply an ability to understand the complexities of an object, to capture it in a way that does not lose its meaning as "a big part of learning to draw is learning what to leave out" (Chapman, interview, June 21, 2021).

REFERENCES

Addington, Lucile. 1986. *Lithic Illustration: Drawing Flaked Stone Artifacts for Publication.* Chicago: The University of Chicago Press.

Aristides, Juliette. 2011. *Lessons in Classical Drawing: Essential Techniques from Inside the Atelier.* New York: Watson-Guptill Publications.

Atalay, Sonya, Letizia Bonanno, Sally Campbell Galman, Sarah Jacqz, Ryan Rybka, Jen Shannon, Cary Speck, John Swogger, & Erica Wolencheck. 2019. "Ethno/Graphic Storytelling: Communicating Research and Exploring Pedagogical Approaches through Graphic Narratives, Drawings, and Zines" *American Anthropologist* 121, no. 3: 769–772. https://doi.org/10.1111/aman.13293.

Causey Andrew. 2017. *Drawn to See: Drawing as an Ethnographic Method.* Toronto: University of

Toronto Press.

———. 2021. "Under observation: Line drawing as an investigative method in focused ethnography." *Qualitative Research in Psychology: Expanding Perspectives in Methodology and Design* 2*.* 211–232. American Psychological Association. https://doi.org/10.1037/0000252-011.

Craig, Lynn. 2015. *Draw it—Tools, Techniques, Methods: A Workbook Manual for Sketching and Drawing.* San Francisco: ORO Editions.

Griffiths, Nick, Anne Jenner & Christine Wilson. 1990. *Drawing Archaeological Finds: A Handbook.* London: Archetype Publications Ltd.

Gury, Al. 2017. *Foundations of Drawing: A Practical Guide to Art History, Tools, Techniques, and Styles.* New York: Watson-Guptill Publications.

Heath, Sue, Lynne Chapman, & Centre Sketchers, T. M. 2018. "Observational sketching as Method." *International Journal of Social Research Methodology* 21, no. 6: 713–728. https://doi.org/10.1080/13645579.2018.1484990.

Huggett, J. 2012. "What Lies Beneath: Lifting the Lid on Archaeological Computing." In *Thinking Beyond the Tool: Archaeological Computing and the Interpretative Process*, edited by A. Chrysanthi, P. Murrietta Flores, and C. Papadopoulos, 204-214. Oxford: Archaeopress.

Ingold, Tim. 2007. *Lines: a Brief History.* Abingdon: Routledge.

———. 2011. *Redrawing Anthropology: Materials, Movements, Lines*. Surrey: Ashgate Publishing.

———. 2019. "Art and Anthropology for a Sustainable World." *Journal of the Royal Anthropological Institute* 25, no. 4: 659–675. https://doi.org/10.1111/1467-9655.13125.

James, Simon. 2015. "'Visual Competence' in Archaeology: A Problem Hiding in Plain Sight." *Antiquity* 89, no. 347: 1189-1202. https://doi.org/10.15184/aqy.2015.60.

Kirner, Kimberly & Jan Mills. 2020. *Doing Ethnographic Research: Activities and Exercises*. California: SAGE Publications, Inc.

Kuschnir, Karina 2016. "Ethnographic Drawing: Eleven Benefits of Using a Sketchbook for Fieldwork." *Visual Ethnography*, *Participatory Approaches to Visual Ethnography from the Digital to the Handmade*. https://doi.org/10.12835/ve2016.1-0060.

Micklewright, Keith. 2005. *Drawing: Mastering the Language of Visual Expression*. London: Laurence King Publishing Ltd.

Morgan, Colleen, and Holly Wright. 2018. "Pencils and Pixels: Drawing and Digital Media in Archaeological Field Recording." *Journal of Field Archaeology* 43, no. 2: 136-151. https://doi.org/10.1080/00934690.2018.1428488.

Morgan, Colleen, Helen Petrie, Holly Wright, and James Stuart Taylor. 2021. "Drawing and Knowledge Construction in Archaeology: The Aide Mémoire Project." *Journal of Field Archaeology* 46, no. 8: 614-628. https://doi.org/10.1080/00934690.2021.1985304.

Piyasena, Sam & Beverly Philip. 2012. *Just Draw it!: The Dynamic Drawing Course for Anyone with a Pencil and Paper*. London: Quarto Inc.

Roig, Gabriel Martin. 2006. "Light and Shadow in Drawing." Translated by E. A Bye. *Barron's Educational Series Inc*. Original work published 2005. Raczynski-Henk, Yannick. 2017. *Drawing Lithic Artefacts*. Leiden: Sidestone Press.

Taussig, Michael. 2009. "What Do Drawings Want?" *Culture, Theory and Critique* 50, no. 2–3: 263–274. https://doi.org/10.1080/14735780903240299.

———. 2011. *I Swear I Saw This: Drawings in Fieldwork Notebooks, Namely my Own*. Chicago: University of Chicago Press.

Wickstead, Helen. 2013. "Between the Lines: Drawing Archaeology." In *The Oxford Handbook of the Archaeology of the Contemporary World,* edited by P. Graves-Brown, R. Harrison, and A. Piccini, 549-564. Oxford: Oxford University Press.

REVIEW ARTICLE

Connecting Humans and Non-humans: A Novel Approach to Disease Management

Katie LaBrie
Department of Anthropology, College of Arts and Science, University of Saskatchewan

ABSTRACT

A recent trend in public health campaigns has been to include non-human health data to capture all relevant variables related to human well-being. This specific approach is the foundation of the World Health Organization restructuring in the early 2000s as they adopted the "one health" framework. Politically, this movement is influential and draws significant health funding globally. "One health" is characterized by a multi-disciplinary collaboration between medical, veterinary, and health sciences. Similarly, the post-human turn in medical anthropology recognizes that viewing the non-human contributions to the cultural construction of health as symbolic does not adequately address how non-humans and nature independently contribute to human health realities. Ethnographic studies of the non-human perspective shed light on how humans are not the only beings that influence culturally constructed reality, nor are they exclusively in control of cultural phenomena. Theoretical trends in anthropology and public health seemingly converge; however, an artificial academic barrier between the sciences and social sciences remains. As these two disciplines are coming closer together through their data, breaking down structural barriers that prevent the successful integration of knowledge has potential to improve human health outcomes. Methodological concessions will have to occur on all sides to make the inclusion of the social sciences in public health possible. Doing so can bring academia closer to a comprehensive scientific understanding of human health.

Keywords: Public health, One Health, Ethnography, Multi-disciplinary, Posthumanism, Cultural construction

INTRODUCTION

Public health, the field concerned with developing and administering science-based programs to improve health outcomes of populations (APHA 2023), emerged from the early successes of large international organizations in the mid-twentieth century. The health of millions of people benefited from the coordination of scientific and administrative expertise in programs that achieved feats like the eradication of smallpox in 1977 (Lock and Nguyen 2018, 87). Today, biomedical expertise is dispensed to millions of people through non-governmental organizations (NGO's) in a coordinated effort to manage infectious and contagious diseases.

Most recently, the conditions brought on by globalization and climate change, also known as the Anthropocene, have radically altered the spread of infectious and contagious diseases and subsequently the approach chosen to address them (Brown and Nading 2019, 9; Keck and Lynteris 2018, 23; Wolf 2015, 6). In recognition of the interconnections between human health, the environment, and other living creatures, a new multi-disciplinary

framework has surfaced connecting biomedicine, veterinary medicine, and the environmental sciences in a coordinated effort to fight the spread of disease. The "one health" paradigm is an influential academic movement which has shaped and provided the title for the World Health Organization's (WHO) "One Health" initiative that seeks to encourage "multi-sectoral approaches to reduce health threats at the human-animal-ecosystem interface" (WHO 2017).

While the social sciences have had some involvement in the "one health" movement, if contemporary anthropological theory were more strongly leveraged, it could make these programs more effective (Steffens and Finnis 2022; Wolf 2015, 6). Recent developments in environmental anthropology have influenced medical anthropologists to reconceptualize non-humans as more than just existing in the background. Realizing that privileging the human perspective when trying to understand human realities has created certain biases, the post-human turn in anthropology encourages a methodological dismantling of human-centered research to convey the human condition more accurately (Smart and Smart 2017). Post-humanist anthropology expands what is known of the culture concept to encompass not just humans, but plants, animals, and microorganisms: "To be posthumanist, anthropology must reject anthropocentrism, the assumption that everything revolves around us humans" (Smart and Smart 2017, 4).

Posthumanism posits that, following the postmodern/poststructuralist turn in anthropology, cultural studies have been overly concerned with humanism and have excluded perspectives essential to understanding how reality is constructed (Smart and Smart 2017, 52). Investigating how non-human actors participate in creating the human experience has changed how anthropologists perceive culture altogether and who is capable of effecting cultural change

(Rock 2017; Strang 2017). For example, Clifford Geertz's famous Balinese cockfight (Geertz 1973) is gaining new criticism as scholars wonder why the positioning of the bird within the larger Balinese social, economic, and ecological structure is not discussed (Singer 2014, 1290; Smart and Smart 2017, 55). Expanding beyond regarding non-humans as symbolic has deepened what is understood of the human experience.

The shape of medical anthropology was significantly impacted in the 1990s when the discipline shifted away from studies strongly grounded in biomedical assumptions toward studying how the body itself is socially constructed at the individual, social, and political levels, a paradigm known as critical medical anthropology (Lock & Scheper-Hughes 1996, 44-45). Incorporating post-humanist theory into their practice, critical medical anthropology has been reshaped once again through an understanding of how the body is also culturally constructed through engagements with nature (Brown and Nading 2019, 6-11).

Understanding how analyses of the cultural construction of health can improve global health initiatives requires an understanding of where it fits into the broader discourse of health management. After a detailed discussion of the foundations and scope of the "one health" movement and post-human anthropological approaches, I will explore insights that anthropological perspectives can impart to the health sciences. I will then detail the advantages and obstacles to incorporating ethnographical methods into public health programming. In doing so, I argue that incorporating ethnography into public health campaigns is an effective strategy for managing the spread of disease by providing nuanced and culturally contextualized accounts of how humans are entangled with their surroundings instead of framing humans as being in control of them.

CULTURE AS A BIOLOGICAL VARIABLE

The shape of contemporary disease prevention programs and their limitations must be understood through how they came to be. Historically, critical thinking was thought to elevate humans above their non-human counterparts, creating a theoretical divide between humans and nature and placing humans conceptually in a position to maintain and manipulate planet Earth to suit human needs (Smart and Smart 2017, 45). More recent technological advancements produced from logical reasoning have reinforced scientific authority in health management. Inventions such as the microscope and antibiotics led many to believe that overcoming infectious threats was a matter of technology and proper organization. In the mid-twentieth century, the need for transnational cooperation when fighting infectious disease led to the inception of large international administrative bodies like the WHO to coordinate global efforts in addressing threats to human health (Lock and Nguyen 2018, 87; Wolf 2015, 7).

Despite biomedical technology and the influx of significant public and private funding into health administration, threats presented by emerging disease have changed in shape and increased in frequency, placing zoonotic infections, pathogens transmissible between species, at the forefront of global health discussions. A 2001 study of 1415 species of infectious agents found 61% of them to be zoonotic in origin and that zoonotic species are significantly more likely to present risks to human health (Taylor et al. 2001, 986). Often associated with the possibility of societal collapse, emerging zoonotic threats have firmly gripped the attention of scientists and politicians (Keck and Lynteris 2018, 23). Acknowledging that the disconnect between veterinary medicine and biomedicine obscured crucial connections between human and animal health, the "one health" paradigm emerged that considers both in tandem (Brown and Nading 2019, 12). "One health" frameworks have been adopted by a broad range of disciplines "including those in comparative medicine, public health, the environmental sciences, biochemistry, nursing science, and plant pathology…" (Wolf 2015, 5-6).

Solutions implemented under the banner of "one health" are global in scope and strive to find generalizable solutions that are flexible enough to adjust to the cultural diversity in the different areas where they are implemented (Brown and Nading 2019, 9). While recognizing the influence of cultural phenomena on their programming, "one health" and public health research treat culture as an imagined entity that can be altered to create desirable outcomes (Smart and Smart 2017, 46). This approach results in social phenomena being operationalized as a biological variable into educational programming designed to eliminate what are thought to be unsafe conditions (Wolf 2015, 5). Social factors like intersectionality and poverty appear with increasing frequency within disease management studies (Brown and Nading 2019, 11). Cultural variables unquestionably affect health, making them attractive to public health professionals as a topic of study. One such exemplary study of this nature was conducted by Lee and colleagues (2021) who tried to determine cultural traits that made Chinese-Canadians more amenable to the imposition of COVID-19 restrictions. The definition used to identify "Chinese-Canadians" does not take into account the significant degree of cultural variability found in China and focuses solely on Torontonians. Through studies such as this, a poorly defined population becomes cemented in academic material, entrenching cultural misunderstanding into the academic record and subsequently health care encounters. While acknowledging cultural influences on health outcomes, the deeper

workings of culture remain unexplored in this and other studies.

Another example that fails to explore the full spectrum of culture's influence on health outcomes is an article by van Helden and colleagues (2003). This piece is concerned with drawing attention to the interconnections between human, environmental, and animal health in an attempt to draw attention to the "one health" movement (Van Helden et al. 2003, 497). Within the article, intervening between humans and domestic cats is used as an example of an action with the potential to significantly reduce incidences of human infection (Van Helden et al. 2003, 499). The potential social implications of such an action are only briefly mentioned: "The social aspect requires delicate handling in this era of social alienation, in which many humans are emotionally dependant on…cats" (Van Helden et. al 2003, 499). While this inclusion identified complex social concepts as being relevant to the discussion, they are incorporated superficially and without elaboration. The social complexities of cat ownership go far beyond emotional dependency and failing to account for this has the potential to create a blind spot that could affect the efficacy of any plan to separate pets from owners.

The turn in the health sciences towards acknowledging the impact of social relationships reinforces the notion that disease must be understood from within its social context (Rock et al. 2009, 992; Wolf 2015, 7). The artificial barriers between natural and social sciences reifies the erroneous idea that anthropologists work with symbolic and interpretative matters while the sciences observe reality (Smart and Smart 2017, 46). The multi-disciplinary approach that is championed by the "one health" movement could be made more effective if the social sciences were included more significantly in this collaborative approach (Steffens and Finnis 2022). It is not a coincidence that the contemporary state of disease on planet Earth has led anthropologists to explore in depth the same cultural elements that are surfacing within public health studies. Anthropologists themselves have only recently begun to understand in depth how human worlds are co-created with non-humans and how potentially disastrous species separation can be.

SEEING HUMANITY THROUGH NON-HUMAN EYES

Historically, anthropology has been conceptually constrained because of its intellectual origins. Early anthropological work characterized culture as being oppositional to natural phenomena, accepting the artificially created division between nature and culture (Rock 2017, 360). Being cultural, and thus being human, became defined by an ability to separate oneself from natural elements (Sablehoff 2001, 45; Singer 2014, 1283; Strang 2017, 267). At this juncture, theorists favoured scientific explanations for the natural world. For example, animism, one of anthropology's earliest concepts, claimed that societies who ascribed agency to natural entities like trees and mountains were committing an intellectual error because of their child-like mentality (Bird-David 1999; S68). Even as anthropologists progressed towards a genuine understanding non-western ontology, non-humans remained treated as objects and were discussed in terms of their symbolic meaning *for humans* as opposed to their consequential influence over human life (Smart and Smart 2017, 52). More recently, Phillipe Descola (2013) has revised animism and re-introduced it as *"New Animism"* so as to acknowledge that the conceptual inclusion of non-humans in social relations reflects a logical understanding of the entanglements between humans and nature; a logic that is now beginning to be recognized in academia (Sullivan 2017, 159). The turn to post-humanism in environmental anthropology has signaled medical anthropologists that the

environment must be considered an active participant in the creation of health realities and not merely as context (Rock 2017, 358).

Post-humanist theory emerged as environmental anthropologists realized that an exclusively human perspective led to significant gaps in their theories (Smart and Smart 2017, 27). Annabelle Sablehoff's (2001) *Reordering the Natural World: Humans and Animals in the City* is one such piece that challenges human supremacy in the world order. Knowing what is at stake when humans are ideologically removed from their environment requires an acknowledgement of how plants and animals have co-created the world as we know it (Smart and Smart 2017, 3). Including the non-human perspective in anthropological studies is not merely an ethical consideration, it is a necessary tool to dismantle artificial divisions that obscure relational entanglements between humans and non-humans (Smart and Smart 2017, 11; Strang 2017, 259; Sullivan 2017). Anthropology has an important role to play in moulding how humans perceive themselves relative to other animals, plants, and landscapes on this planet (Sablehoff 2001: *xi*). Posthumanism and the perspective that it imparts allows for the appropriate language to emerge which can adequately articulate the shared global citizenship between humans and what is considered to be "natural" (Sablehoff 2001: 139-161).

The non-human perspective articulated by environmental anthropologists has been useful for critical medical anthropologists who have traditionally sought to make connections between individual, social, and political influences, and the condition of the human body (Lock and Scheper-Hughes 1996). Particularly when studying disease, an understanding of inter-species relationships is necessary to adequately account for how disease presents in humans (Singer 2014, 1283). The biological properties of pathogens do not sufficiently describe why they are dangerous for humans; it is precisely because of how humans are socially connected to non-humans that they pose a threat (Keck and Lynteris 2018, 23; Rock et al. 2009, 992). Post-humanism is a broad concept that can be applied to many social subjects. Focusing on the human political and economic entanglements with non-humans, how humans have avoided taking responsibility for disease emergence, and the material effect of "othering" in public health initiatives, the following section will outline cultural considerations that impact disease management.

INTER-SPECIES ENTANGLEMENTS

Public health initiatives often fail when they are implemented in diverse cultural contexts that are shaped by different values than those that inform public health policy (Brown and Nading 2019, 9). Hyper-focused on the goal of separating human bodies from potentially dangerous pathogens, global health programming often fails to account for the culturally diverse possibilities for social connections between humans and non-humans (Brown and Nading 2019, 6; Rock et al. 2009, 993). The preventative nature of global health strategies requires an identification of social entanglements between humans and non-humans, but the natural sciences lack the methodologies to analyze them (Wolf 2015, 7). Regarding inter-species relationships as biological phenomena conceals crucial social considerations that must be understood in context in order to understand how they will impact culturally constructed realities. The following examples are used to illustrate some of the social complexities relevant to disease prevention strategies.

The increasing risk of potential infectious threats have given unprecedented authority to governing bodies to dictate and codify acceptable human and non-human interactions within the food production sector (Smart and Smart 2017, 32). In Vietnam, for example, small scale chicken farming which

accounts for almost two-thirds of the poultry production in the country was identified as using dangerous practices during the 2003 H5N1 (avian influenza) outbreak (Porter 2013, 66-67). Requirements such as gated pens and foot baths, essentially features of large-scale commercial operations, became legal requirements of chicken farming (Porter 2013, 78). Similarly, in Alberta during the bovine spongiform encephalopathy (BSE) crisis, mitigation strategies for managing the spread of BSE resulted in the sanctioning of significant capital investment to be permitted to raise cattle (Smart and Smart 2017, 40). In both cases, the requirements favoured large-scale commercial operations. The mandatory imposition of regulations that are financially unfeasible for local, small-scale producers leave many in the position of having to defy recommended protocols to make ends meet (Porter 2013, 79; Smart and Smart 2017, 40).

Top-down health programming does not only favour specific economic structures that may conflict with local perspectives, but also social structures. Rabies prevention in the Canadian Arctic has not been successful because of a limited understanding of the position of the dog within Inuit culture (Levesque 2018, 207). By relying on a western understanding of human-dog relationships, the Canadian Inuit Dog is systematically treated like a wild animal, disregarding the how the Inuit identity is formed collectively between a dog and its master, even if it is a free-ranging animal (Levesque 2018, 200). Actions taken without considering how dogs are conceptually related to their owners have traumatized the Inuit people who perceive dogs as family members and see rabies programs as an attack against their kin structure (Levesque 2018, 202). Similarly, mosquito management strategies are socially complex and their efficacy can be compromised if cultural nuance is overlooked. In Côte d'Ivoire, Granado and colleagues (2011) found that malaria interventions which

focused on educating the public to use simple, cost-effective technology such as bed nets and mosquito coils were unsuccessful because they did not consider how malaria was culturally constructed among the local population. Malaria, or "Palu" as it is understood by the participants, is thought to be endemic, an unavoidable part of life, conceptually minimizing the role of the mosquito in transmitting the sickness and making mosquito prevention a low priority for those with limited resources (Granado et al. 2011, 115). It is not my intention to argue that disease prevention is misguided or should be halted in any way. I do, however, suggest that a deeper understanding of the cultural construction of existing inter-species relationships should be considered if these strategies are to be effective and minimally disruptive to broader social structures in affected areas. Without understanding the forces that sustain inter-species relationships, disrupting them will result in non-compliance when individuals are forced to meet their needs that are not recognized by public health officials.

Limited engagement with social concepts in the "one health" framework can also obscure the role played by western society in shaping how infectious disease materializes. In the H5N1 and BSE outbreaks, these pathogens were made more dangerous through large-scale commercial farming practices like the overcrowding of chicken coops and feeding cattle ground bovine bonemeal (Singer 2014, 1293; Smart and Smart 2017, 38). Human activities such as tourism also create unique infectious conditions for animals. Working in Laos, Nicolas Lainé (2018) identifies how human tuberculosis is being transmitted to captive elephants through encounter tours and is making the elephants sick (158-159). Disregarding how accepted western practices contribute to the spread of disease will only ensure that a comprehensive understanding of the properties of pathogens is

never achieved and that possible solutions to the spread of infectious matter are overlooked.

The authority given to public health initiatives to determine "acceptable" human and non-human interaction has caused an othering of people, non-humans, and landscapes based on western definitions of normalcy. The premise that healthy humans should be separated from nature means that those who insist on maintaining inter-species relationships can be characterized as lacking education (van Helden et al. 2009, 500). While involved in the formation of economic and social realities, non-humans have no legal rights but are ascribed value based on how they fit within the dominant political narrative, legally denying the citizenship that they contribute in practice (Sablehoff 2001, 114-118; Strang 2017). Pets in North American settings are formally incorporated into human kin structures by way of titles such as "fur-babies" and borrow many cultural features from their owners such as socio-economic status, social media accounts, and designer wardrobes. Meanwhile, a cognitive divide exists between pets and commodified agricultural species such as birds and cows whose large-scale exterminations are considered justifiable to protect human lives (Porter 2013; Rock 2017, 359; Singer 2014, 1287; Smart and Smart 2017, 59; Sullivan 2017, 158). Landscapes that possess similar biological properties are represented in different ways; the Amazon is designated a "rainforest" with limitless botanical benefits for humans while Africa is viewed as having "jungles" that present dangerous threats such as Ebola and AIDS (Zerner 2005). Within the discourse on health management, characterizations of people, non-humans, and landscapes are not necessarily based on biological fact, but instead have been shaped by the culture of those implementing solutions. The privileging of biologically based research which centers on replicable and generalizable results by the health sciences while developing

health strategies obscures the culturally constructed nature of disease prevention and limits the success of health programming. Ethnographic studies can potentially contribute a nuanced understanding of the social phenomena that make only a fleeting appearance within many public health studies (Wolf 2015, 8).

INTRODUCING ETHNOGRAPHICAL EXPERTISE TO THE HEALTH SCIENCES

If anthropological work is to be more impactful in health programming, certain tensions between the needs of the health sciences and the realities of ethnographic research must be reconciled. Ethnography is a qualitative methodology based on immersed experiences with the participants or in the field of study (Harrison 2018, 6). Traditionally, this involves extended periods of conducting various types of interviews and participant observation. The immersive approach of ethnography allows for data to be understood from within its social context. While ethnographical methods are drawn upon by many social scientists as well as some in the natural sciences, ethnography was developed by anthropologists and remains the dominant methodology that guides cultural anthropologists today (Harrison 2018, 8-15). If the full value of ethnography is to be integrated into the health sciences, academic divisions between the sciences and humanities need to be broken down.

Human exceptionalism within the health sciences must be addressed. Understanding consequences for humans when intervening in natural processes requires more than just a human perspective (Smart and Smart 2017, 43). Multi-species ethnography has the potential to conceptually collapse the nature/culture dichotomy by illuminating the ways that non-humans contribute to creating human realities (Brown and Nading 2019, 16). This method "centers on how a multitude of organisms'

livelihoods shape and are shaped by political, economic, and cultural forces" (Kirksey and Helmreich 2010, 545). It can provide evidence for the suffering that non-humans experience both alongside humans and because of them (Lainé 2018; Sablehoff 2001, 105; Singer 2014, 1286). It can also reveal how non-humans should be extended certain rights if their crucial role in co-creating realities is to be sustained (Strang 2017, 272).

Tensions that exist between ethnography and the structure of public health programs must also be considered. As mentioned earlier, a focus on efficiency and broadly applicable data seemingly contradicts with a method that can typically only produce localized results over long periods of time. Also, specifically designed to extract highly contextualized cultural information, effective ethnography is, by nature, limited in what it can contribute to health campaigns striving for a single, broadly effective solution that can be implemented on a global scale. Finally, ethnographic insights are obtained from small sample sizes that are not conducive to statistical analyses (Waldram 2009, 81). The careful implementation of ethnographic data into locally focused health initiatives, however, can result in significant improvements to patient care. In one example from Ireland, neurologists drew themes from ethnographic research to develop an online medical resource for epileptics that improved key elements of the patient experience such as transparency, collaboration between patients and clinicians, and trust in the medical system (Power et al. 2020, 1895). The paper describing the project explicitly states how implementing an eHealth program is "not just a technology project, it is more to do with the people…, processes, and associated behavioural change and expectations" (Power et al. 2020, 1904), necessitating a cultural approach. While cultural diversity presents a hurdle for broad and generalized medical programs, it is not something that can be ignored. Moving towards local

ethnographically informed health solutions increases the probability of success by actively engaging with cultural nuance instead of trying to work around it.

The traditional speed of ethnographic methods stemming from extended engagement in the field presents a hurdle for health interventions that typically require rapid injections of knowledge into programming. A potential bridge to this gap is rapid ethnography where the validity generated by long-term engagement in cultural contexts can be substituted by other factors such as the triangulation of data gathered by multiple researchers or by using existing ethnographical data in combination with follow-up material (Ombere 2022, 126; Vindrola-Padros and Vindrola-Padros 2017, 322). While some may argue that speed affects quality (Adams et al. 2014, 189-190), rapid ethnographic techniques have proven to be effective in inducing health policy changes such as the previously mentioned study that successfully improved the patient experience for epileptics in Ireland during the COVID-19 pandemic (Power et al 2020). Further, rapid ethnography in combination with multispecies ethnography could provide clues to evolutionary biologists struggling to locate the origin of the virus who lament the fact that they "can't observe the zoonotic transmission of a novel virus from animals to humans" (Gray 2023, 353). While rapid ethnography has had success, significant limitations identified in these techniques are a lack of researcher reflexivity and a failure to describe data analysis methods (Vindrola-Padros and Vindrola-Padros 2017, 327). If those who implement rapid ethnography can address these shortcomings, there is the potential to quickly contribute accessible and detailed cultural information into healthcare interventions.

Finally, it must be considered that the division between the humanities and sciences has collapsed within the data and should be challenged in academic structures as well. As

previously mentioned, sociality is a reoccurring theme in public health discussions. Likewise, anthropologists must draw on other disciplines to sufficiently understand their complex research topics. Academic analyses in all disciplines could benefit if the structural barriers to their cooperation are dismantled. The acknowledgement that another discipline may be able to provide expertise needs to be regarded as being more scientific by way of adequately addressing relevant variables and not as a threat to disciplinary integrity.

CONCLUSION

The multi-disciplinary structure of "one health" could be more effective if anthropological insights were more strongly leveraged in their studies. Including veterinary and environmental sciences into disease prevention strategies does not sufficiently address the underlying social forces that tie humans to non-humans. The relations that cause interspecies infection must be unpacked and analyzed. Medical anthropologists and their specific study of the cultural construction of the body are well equipped to explain how economic, political, and kin structures influence human health. Shifting attention towards non-human actors and how they co-create human realities strengthens the potential for anthropologists to provide insightful data to the health sciences to mitigate the impact of infectious diseases on humans. By being mindful of making anthropological data usable for other disciplines and what that entails, there is potential to bridge the disciplinary gap that is preventing effective health solutions from materializing.

REFERENCES

Adams, Vincanne, Nancy J. Burke, and Ian Whitmarsh. 2014. "Slow Research: Thoughts for a Movement in Global Health." *Medical Anthropology* 33(3): 179-197. https://doi.org/10.1080/01459740.2013.8

58335.

APHA (American Public Health Association). 2023. "What is Public Health". Accessed September 22, 2023. https://www.apha.org/what-is-public-health.

Bird-David, Nurit. 1999. "'Animism' Revisited: Personhood, Environment and Relational Epistemology." *Current Anthropology* 40(Supplement): 311-27. https://doi.org/10.1086/200061.

Brown, Hannah, Alex M. Nading. 2019. "Introduction: Human Animal Health in Medical Anthropology." *Medicine Anthropology Quarterly* 33(1): 5-23. https://doi.org/10.1111/maq.12488.

Gray, Arabella. 2023. "Animal Origin of Covid-19 Found?." *Veterinary Record* 192(9): 352-353. https://doi.org/10.1002/vetr.3008.

Geertz, Clifford. 1973. "Notes on the Balinese Cockfight." In *The Interpretation of Cultures: Selected Essays*. 412-453. New York: Basic Books.

Granado, Stefanie, Lenore Manderson, Brigit Obrist, and Marcel Tanner. 2011. "Appropriating Malaria: Responses to Malaria Treatment and Prevention in Abidjan, Côte d'Ivoire." *Medical Anthropology* 30(1): 102-121. https://doi.org/10.1080/01459740.2010.4 88664.

Harrison, Anthony Kwame. 2018. "Introduction to Ethnography." In *Ethnography: Understanding Qualitative Research:* 1-39. New York: Oxford University Press.

Keck, Frédéric and Christos Lynteris. 2018. "Zoonosis: Prospects and Challenges for Medical Anthropology." *Medicine*

Anthropology Theory 5(3): 1-14. https://doi.org/10.17157/mat.5.3.372..

Lainé, Nicolas. 2018. "Elephant Tuberculosis as a Reverse Zoonosis: Post-Colonial Scenes of Compassion, Conservation, and Public Health in Laos and France." *Medicine Anthropology Theory* 5(3): 157-176. https://doi.org/10.17157/mat.5.3.379.

Lee, Charlotte T., Rahim Kanji, Angel H. Wang, Aaida Mamuji, Jack Rozdilsky, and Terri Chiu. 2021. "Cultural Contexts During a Pandemic: A Qualitative Description of Cultural Factors that Shape Protective Behaviours in the Chinese-Canadian Community." *BMC Public Health* 21(1897): 1-11. https://doi.org/10.1186/s12889-021-11928-w.

Lévesque, Francis. 2018. "Sixty Years of Dog Management in Inuvik." *Medicine Anthropology Theory* 5(3):195-212. https://doi.org/10.17157/mat.5.3.554.

Lock, Margaret, and Nancy Scheper-Hughes. 1996. "A Critical-Interpretive Approach in Medical Anthropology: Rituals and Routines of Discipline and Dissent." In *Medical Anthropology: Contemporary Theory and Method*: 41-70. London: Praeger.

Lock, Margaret, and Vinh-Kim Nguyen. 2018. "Colonial Disease and Biological Commensurability." In *An Anthropology of Biomedicine*. 2nd Ed. Hoboken: John Wiley & Sons.

Ombere, Stephen Okumu. 2022. "Negotiating Access to Maternal Health Services During COVID-19 Pandemic in Kilifi County, Kenya: Rapid Qualitative Study." In *Understanding Post-COVID-19 Social and Cultural Realities: Global Context*: 123-136, edited by Sajal Roy and Debasish Nandy. Springer: Singapore.

Porter, Natalie. 2013. "Global Health Cadres: Avian Fly Control and Practical Statecraft in Vietnam." *SOJOURN: Journal of Social Issues in Southeast Asia* 28(1): 64-100. https://doi.org/10.1355/sj28-1c..

Power, Kevin, Zita McCrea, Maire White, Annette Breen, Brendan Dunleavy, Sean O'Donoghue, Tim Jacquemard, Veronica Lambert, Hany El-Naggar, Norman Delanty, Colin Doherty, and Mary Fitzsimons. 2020. "The Development of an Epilepsy Electronic Patient Portal: Facilitating both Patient Empowerment and Remote Clinician-patient Interaction in a Post-COVID-19 World." *Epilepsia (Copenhagen)* 61(9): 1894-1905. https://doi.org/10.1111/epi.16627.

Rock, Melanie. 2017. "Multi-Species Entanglements, Anthropology, and Environmental Health Justice." In *Routledge Handbook of Environmental Anthropology*, edited by Helen Kopnina and Eleanor Shoreman-Ouimet, 356-369. New York: Routledge.

Rock, Melanie, Bonnie J. Buntain, Jennifer M. Hatfield, and Benedikt Hallgrimsson. 2009. "Animal-Human Connections, 'One Health', and the Syndemic Approach to Prevention." *Social Science & Medicine* 68: 991-995. https://doi.org/10.1016/j.socscimed.2008.12.047.

Sablehoff, Annabelle. 2001. *Reordering the Natural World: Humans and Animals in the City*. Toronto: University of Toronto Press.

Signer, Merrill. 2014. "Zoonotic Ecosyndemics and Multispecies Ethnography." *Anthropology Quarterly* 87(4): 1279-1309.

https://doi.org/10.1353/anq.2014.0060.

Smart, Alan, and Josephine Smart. 2017. *Posthumanism*. Anthropological Insights. North York: University of Toronto Press.

Steffens, Travis S., and Elizabeth Finnis. 2022. "Context Matters: Leveraging Anthropology Within One Health." *One Health* 14: 100393-100393. https://doi.org/10.1016/j.onehlt.2022.100393.

Strang, Veronica. 2017. "Justice for All: Inconvenient Truths and Reconciliation in Human-Non-Human Relations." In *Routledge Handbook of Environmental Anthropology*, edited by Helen Kopnina and Eleanor Shoreman-Ouimet, 259-275. New York: Routledge.

Sullivan, Sian. 2017. "What's Ontology Got to Do with It?." In *Routledge Handbook of Environmental Anthropology*, edited by Helen Kopnina and Eleanor Shoreman-Ouimet, 155-169. New York: Routledge.

Taylor, Louise H., Sophia M. Latham, and Mark E. J. Woolhouse. 2001. "Risk Factors for Human Disease Emergence." Philosophical Transactions of the Royal Society of London. *Biological Sciences* 356(1411): 983-989. https://doi.org/10.1098/rstb.2001.0888.

van Helden, Paul D., Leslie S. van Helden, and Eileen G. Hoal. 2013. "One World, One Health." *EMBO Reports*. 14(6): 497-501.

Vindrola-Padros, Celia, and Vindrola-Padros, Bruno. 2018. "Quick and Dirty? A Systematic Review of the Use of Rapid Ethnographies in Healthcare Delivery." *BMJ Quality and Safety* 27(4): 321-330. https://doi.org/10.1136/bmjqs-2017-007226.

Waldram, James B. 2006. "The View from the Hogan: Cultural Epidemiology and the Return to Ethnography." *Transcultural Psychiatry* 43(1): 72-85. https://doi.org/10.1177/1363461506061758.

WHO (World Health Organization). 2017. "One Health." Accessed April 6, 2023. https://www.who.int/news-room/questions-and-answers/item/one-health.

Wolf, Meike. 2015. "Is There Really Such a Thing as 'One Health'? Thinking About a More Than Human World from the Perspective of Cultural Anthropology." *Social Science & Medicine* 129: 5-11. https://doi.org/10.1016/j.socscimed.2014.06.018s.

Zerner, Charles. 2005. "Emerging Cartographies of Environmental Danger: Africa, Ebola, and AIDS." In *Making Threats: Biofears and Environmental Anxieties*, Edited by Betsy Hartmann, Banu Subramanian, and Charles Zerner. Lanham: Rowman & Littlefield.

REVIEW ARTICLE

Bogged Down: A Case Study of Tollund Man Using Bioarchaeological Techniques

Shyla Woytowich
Department of Anthropology, College of Arts and Science, University of Saskatchewan

ABSTRACT

This paper explores the bioarchaeological methods employed to investigate bog bodies, which are human remains preserved in peat bogs. The distinctive preservation conditions of bogs have facilitated the remarkable survival of soft tissues, hair, and even textiles, dating back thousands of years. Commencing with a concise historical overview of bog bodies and the associated cultural beliefs, this section elucidates how bogs foster preservation. Bioarchaeological techniques for studying of bog bodies encompass note-taking, photography, radiocarbon dating, isotopic analysis, and medical imaging. Subsequent application of these methods to the case study of Tollund Man, a renowned bog body unearthed in the 1950s, allows researchers to reconstruct Tollund Man's dietary habits, lifestyle, and cause of death, thereby providing fresh insights into the lives of individuals during the Iron Age. The study of bog bodies grants a unique glimpse into the past, and the evolving bioarchaeological methods utilized in their analysis continue to enhance our comprehension of human history.

Keywords: Bioarchaeology, Bog Bodies, Soft Tissue Preservation, Radiocarbon Dating, Isotopic Analysis, Medical Imaging, Tollund Man

INTRODUCTION

Harvesting peat from peat bogs has been done for centuries, usually by hand, to obtain a reliable fuel resource to heat homes (Chapman et al. 2019). Throughout the years, peat cutters have gotten quite the scare when human body parts began to surface during their work. Today, the trade is mechanized, dramatically reducing the likelihood of discovering bodies in the peat bogs (Chapman et al. 2019). Cutting peat by hand significantly increases the chances of unearthing bodies, whereas machinery reduces close contact with the bodies and can easily cut through them. Local Northern European police often received calls to investigate possible homicide cases due to the remarkably well-preserved nature of these bodies, appropriately referred to as 'bog bodies'

(Nielsen et al. 2018). The peculiar truth is that these bodies quietly reside in bogs under excellent preservation conditions for millennia before being discovered. What puzzles many onlookers is how someone so ancient can look like they died only days earlier. Bioarchaeologists who study these bodies aim to answer these questions and discover who these people were when they were alive.

While bogs are not the fountain of youth, they have unique circumstances that allow for exceptional preservation of soft tissues. This environment forms with an accumulation of moss in low areas of the landscape, preventing nutrients and oxygen from cycling in the soil due to it being fully saturated with water (Lobell & Patel 2010). Over time, moss grows and accumulates until it creates a wet, swampy

environment. During this process, the moss decomposes slightly and releases acidic chemicals, which aid in preserving bog bodies. Sphagnum moss produces one of these chemicals called tannic acid, which is often used to tan animal hides and gives the bog bodies their characteristic darkened skin and orange hair (Lobell & Patel 2010). The combination of anoxic conditions prevents bacteria from decaying the body and the dark, cool environment creates the perfect set of circumstances for preserving soft tissues (Lobell & Patel 2010). Unfortunately for bioarchaeologists, these acidic conditions are not favourable for preserving bone and clothing as they frequently dissolve.

Most bog bodies have been dated to the Pre-Roman Iron Age (500 – 1 BCE) and often met very violent deaths by strangulation, cut throats, decapitation, and execution (Bahn 1997). It has been theorized that either these killings were a form of capital punishment for crimes, or they were sacrifices to the gods to ensure their relationship with the community continues to be profitable (Kelly 2006). The belief in Northern Europe at the time was that bogs were an intermediate space between the earth and the gods, so human sacrifices and other offerings were presented to please the gods (Nielsen et al. 2020). Bogs have also preserved objects which are thought to have been left as offerings, including wood and metal weaponry, leather shields, gold and silver jewelry, large wooden ships, and even butter (Kelly 2006).

In some cases, less acidic bogs have allowed for the preservation of both complete and incomplete skeletons (Nielsen et al. 2020). While maybe not as apparent to the viewer when compared to soft tissue preservation, signs of trauma can still be found on the skeleton and attributed to their death (Nielsen et al. 2020). Although most bog bodies are thought to have died in violent ways, some taphonomic processes can appear similar to trauma, leading to misinterpretations surrounding the cause of death (Lobell & Patel 2010). Whether these bodies truly met violent ends or died of natural causes, these seemingly "socially sanctioned killings" contain many skeletal pathologies suggesting physical deformities that would have affected how the individual looked (Nielsen et al. 2020). People may have regarded an individual who was physically different from their peers as being favoured by the gods, making them a sacrifice of great value (Nielsen et al. 2020). Similarly, sacrifices of parts of a body may have also been viewed as equal to or greater than the value of a whole body being offered (Moen & Walsh 2022).

With a brief history of bog bodies and the conditions that lead to their preservation now established, the discussion will shift towards the bioarchaeological methods most commonly employed to study them: notes and photographs, radiocarbon dating, isotopic ratios, and medical imaging. Each method will be examined regarding its procedure and the data it provides about the individual under study. After describing each method, each one will be applied to the most well-known and best-preserved bog body: Tollund Man.

METHODOLOGIES
NOTES AND PHOTOGRAPHS

Within any branch of archaeology, taking detailed field notes and photographing everything within its original context provides a significant quantity of information (Archaeology Canada – Keeping a Record n.d.). Upon discovering bog bodies, a race against the clock begins to excavate them as safely and quickly as possible to prevent further deterioration of the remains (Glob 1965). Once removed from the homeostasis provided by the bog, the soft tissue begins to dry out, and the body becomes exposed to decaying bacteria (Nielsen et al. 2020). The bodies are quickly transferred into a refrigeration unit for transportation to the place of study, maintaining conditions similar to

those found in the bog to aid in preservation. Between the moment of uncovering the body to excavation to preservation in a lab, there is a very narrow window of time for bioarchaeologists to gather crucial contextual evidence (Nielsen et al. 2020). Detailed notes and photographs assist in retaining information that would otherwise be lost when excavating the body, including its orientation and position within the bog (Archaeology Canada - Keeping a Record n.d.). These field notes frequently encompass measurements, descriptions of soil layers and features, artifact catalogues, descriptions of the work conducted at the site, events within each section, and records of any tests performed along with their results (Archaeology Canada - Keeping a Record n.d.).

RADIOCARBON DATING

Once the bog bodies have arrived at the laboratory, one of the first procedures is establishing a date range utilizing radiocarbon dating (Nielsen et al. 2020). Establishing a timeline of when the bodies were interred is crucial, as it offers clues about the cultural background (Moen et al. 2022). These clues can encompass information such as cultural beliefs, diets, gender roles, societal patterns, and mortuary practices, which can be inferred from written and oral histories, as well as other archaeological finds dating to the same time period (Moen et al. 2022). Northern European bog bodies such as Yde Girl have almost all been dated exclusively to the Iron Age (Kelly 2006).

Before the body can be dated, a sample needs to be taken and processed into a material that can be radiocarbon dated (Nielsen et al. 2018). Since bone constitutes the most prevalent type of human remains in the archaeological record, it is typically chosen as the sample (Nielsen et al. 2018). Nevertheless, skin and muscle may also be collected when they are available (Nielsen et al. 2018). Regrettably, this necessitates the removal of a piece of bone, often taken from the best-preserved bones of the individual (Nielsen et al. 2018). The bone pieces are cleaned with a scalpel to remove any large chunks of debris that may be attached before immersing them in hydrochloric acid for several days to dissolve the mineral component of the bone (Nielsen et al. 2018). Subsequently, sodium hydroxide is added to suspend the organic component of the bone, which is then turned into a gelatin-like substance (Nielsen et al. 2018). This substance undergoes a specialized filtration process in a centrifuge to purify the sample (Nielsen et al. 2018). After purification, the sample is freeze-dried and sealed into a tube subjected to combustion, turning the sample into carbon dioxide (Nielsen et al. 2018). By introducing hydrogen and a metal catalyst, they reduce the carbon dioxide to graphite, which can undergo radiocarbon dating (Nielsen et al. 2018).

ISOTOPIC RATIOS

Researchers may also conduct isotopic analysis after transforming the samples into testable material. This process involves comparing the proportions of the stable isotope with the decaying isotope, and the ratio between isotopes can provide various types of information depending on the element under study (van der Pilcht et al. 2004). For example, data on carbon isotopes provides insights into the long-term dietary sources of the individual and how much of their diet was composed of protein (Nielsen et al. 2018). In comparison, nitrogen isotopes provide information on whether the plants and animals in the individual's diet came from marine or terrestrial sources (Nielsen et al. 2018). Lastly, while not commonplace, strontium isotopes may be used to determine the individual's locality when compared with values found in the surrounding landscape (Nielsen et al. 2020).

MEDICAL IMAGING

In contrast to the previously mentioned methods, which can be applied to both osteological and soft tissue specimens, most of the medical imaging techniques in this discussion are relevant exclusively to soft tissues (Zanello et al. 2017). In other bioarchaeological contexts, medical imaging may be employed even when only bone is present (Villa & Lynnerup 2012). In the context of bog bodies, it is a non-invasive means of examining the body's interior (Nielsen et al. 2020). Imaging techniques vary depending on what researchers want to observe and the detail they capture, ranging from X-ray to computed tomography (CT) and magnetic resonance imaging (MRI). X-rays are beneficial for looking at bones and their associated changes but may also be used to view internal organs.

CT scans are similar, except they take more detailed cross-sectional images of the body that are combined using computer software (Zanello et al. 2017). MRI is the most detailed imaging process of the three discussed here, which creates images of organs and tissues such as tumours. Zanello and colleagues (2017) successfully utilized another imaging technique called endogenous fluorescence for non-invasive means of examining remains, including bog bodies. This process employs a laser to stimulate fluorescent particles naturally present within soft tissue, causing them to emit light from areas where they absorb the laser's energy (Zanello et al. 2017). Additionally, this method can differentiate between healthy tissue and tissue containing abnormalities such as warts, as observed on the feet of Tollund Man.

CASE STUDY: TOLLUND MAN

On a spring day in 1950, two peat cutters were working in the Tollund Fen of Bjældskovdal, Denmark, when they suddenly uncovered a face in the peat bog (Glob 1965). Terrified by the possibility of a homicide, local police received a call to investigate the scene (Glob 1965). The officers knew ancient discoveries were somewhat frequent in peat bogs, given that Elling Woman had been found in the same bog in 1938, and intricately carved golden discs and glass beads had also been discovered (Glob 1965). Due to the area's historical significance, museum officials were also called to attend. They included archaeologist P.V. Glob, who later published a book on these findings titled *The Bog People: Iron Age Man Preserved*. They swiftly established that the body belonged to a man who had died centuries earlier, and he was subsequently nicknamed the Tollund Man (Glob 1965). Today, he is known as one of the best-preserved bog bodies found to date and has undergone extensive study to uncover his past.

Upon further excavation, photographs of Tollund Man were taken *in situ*, depicting him lying curled up on his right side, oriented with his head to the west and feet to the east (Glob 1965). They found him in the center of the bog, positioned near the bottom with approximately eight to nine feet of peat covering him (Glob 1965). Glob also made detailed field notes about the body's appearance, which were later analyzed once he could be thoroughly examined in a lab (Glob 1965). Glob observed that Tollund Man had a securely fastened leather cap under his chin, a leather belt around his waist, and a braided leather cord tied into a noose encircling his neck (Glob 1965). The remaining cord length extended over his shoulder and down his back, where the end appeared to be cut from when he was hung at the gallows (Glob 1965). Clothing was otherwise absent from the body due to the acidic bog dissolving away traces of textiles (Lobell et al. 2010).

Since the soil was too soft to bring in machinery to remove Tollund Man from the bog, the excavation team built a wooden box around him, which was attached to horses that pulled him out of the bog (Glob 1965). Tollund

Man and the peat bed beneath him were then sealed and transported to Copenhagen, where he was extensively studied. Upon his arrival at the University of Copenhagen, X-rays were taken of his head and neck to determine the cause of death since the leading theory was that he was hung rather than strangled (Glob 1965). This theory finds support in the indentations on the skin around his neck where the noose was wrapped, except for the back where the knot was positioned (Glob 1965). Through the X-rays, researchers hoped to see dislocation and fractures in the cervical vertebrae, commonly seen in individuals who died by hanging. Unfortunately, due to the acidity of the bog seeping into the tissues, the bone was degraded, and the results of the X-rays were inconclusive (Nielsen et al. 2020). However, the X-rays were still informative since his wisdom teeth were visible and fully erupted, indicating that he had to be older than twenty (Glob 1965). Further examination of tooth wear narrowed his age range to between thirty and forty years old (Giles 2020).

Tollund Man also underwent an autopsy during which his internal organs were examined, and his stomach was dissected to observe the contents of his last meal (Glob 1965). The contents were a mix of boiled grains collectively called gruel and contained seasonal grains available in the winter, such as barley, flax, *Camelina* seeds, and knotweed (Nielsen et al. 2020). By assessing the degree of digestion of the gruel found in his stomach, it was concluded that Tollund Man died approximately twelve to twenty-four hours after consuming his last meal (Glob 1965). After the autopsy, Tollund Man's head and right foot were chemically preserved so that they could be displayed in a museum, making them unsuitable for most bioarchaeological analysis techniques (Nielsen et al. 2018). The remainder of his body was left undisturbed and allowed to dry, enabling examination and further testing to be conducted (Nielsen et al. 2018).

Radiocarbon dating of Tollund Man has been attempted multiple times with variable results (van der Pilcht et al. 2004; Nielsen et al., 2018). Since none of the obtained dates agree, Nielsen and colleagues recalibrated them in 2018 by extracting four samples from various locations on the body, including bone, skin, and muscle (Nielsen et al. 2018). These dates were all close and averaged around 2330 years BP, meaning that he died between 405 and 380 BCE during the Iron Age (Nielsen et al. 2018). Radiocarbon dates were also acquired from the surrounding peat and the wooden track leading into the bog. These structures existed at least two hundred years before Tollund Man's deposition (van der Plicht et al. 2004).

While his last meal was directly observed during the autopsy, it did not provide information about Tollund Man's long-term diet. Carbon isotopic analysis was conducted to compare his diet during adolescence to adulthood (Nielsen et al. 2018). This comparison could provide insights into changes in social status or a shift in reliance on different food sources. A sample was taken to obtain carbon isotope values representing adolescence from the femur since the bone tissue is slower to regenerate (Nielsen et al. 2018). A sample was taken from the ribs for adulthood values since they have a faster bone tissue regeneration time (Nielsen et al. 2018). The analysis revealed no significant difference in diet between the two stages of Tollund Man's life. Nitrogen isotopic analysis indicated that Tollund Man's diet consisted of terrestrial plants and animals (Nielsen et al. 2018). This analysis suggests that he did not reside near water sources. Finally, Nielsen and her colleagues analyzed strontium isotopes to ascertain if Tollund Man originated from the area where his body was discovered. They concluded that he most likely lived within a forty-kilometre radius of the bog.

There has been minimal medical imaging performed on Tollund Man, likely due

to his autopsy in 1950 (Zanello et al. 2017). In recent years, he underwent examination using endogenous fluorescence. His chemically preserved foot and dried foot were both anallyzed for comparison, which resulted in the identification of several warts on both feet and a scar (Zanello et al. 2017). In 2012, a CT scan was taken of his body for comparative purposes to other wet and dry mummies, and he was observed to have a more radiodense head and right foot than the rest of his body since those areas had a higher water content (Villa & Lynnerup 2012). It is important to note that with desiccated tissues, there can be an overlap in the radiographic ranges of various tissue types (Villa & Lynnerup 2012). This overlap may pose challenges in distinguishing between them, potentially leading to inaccurate results (Villa & Lynnerup 2012).

To conduct further studies, it would be advantageous to perform further CT and MRI scans on Tollund Man's remains to better understand his physical characteristics. These imaging methodologies could provide information from his remaining bones including any pathological conditions he may have suffered from such as osteoarthritis and other degenerative joint diseases (Nielsen et al. 2020). Since his muscles do not reflect what they looked like while he was alive, CT and MRI could show entheseal changes related to repetitive motions. Due to the absence of grave goods accompanying him, it has been challenging to assess Tollund Man's social status and gender identity (van der Pilcht et al. 2004). Medical imaging has the potential to provide insight into craft specialization and Tollund Man's social status within his community. While his social identity may remain a mystery, his genetic identity can be unveiled through ancient DNA (aDNA) analysis. Scholarly articles have yet to mention investigating Tollund Man for viable DNA since the acidity of the bog often degrades DNA, but may be possible to find. If there is

any surviving DNA, then there is potential for sequencing his genome to discover his ancestry and medical conditions that are otherwise invisible to the bioarchaeological study methods.

CONCLUSION

Tollund Man is a fascinating case study in bioarchaeology, offering insights into the life and death of an individual from the prehistoric past. Various bioarchaeological methods have provided information on his last meal, age, geographic origin, and pathological lesions. His well-preserved body has provided a unique opportunity to study the health conditions and dietary habits of people who lived over two thousand years ago. Although many questions about Tollund Man's life and identity remain unanswered, the ongoing development of new technologies and bioarchaeological approaches provides hope that researchers can uncover even more about this exceptional individual.

In the continued study of Tollund Man, it would be beneficial to use medical imaging techniques such as CT and MRI scans to provide further insight into his physical condition. At the same time, aDNA analysis may reveal his ancestry and any hidden medical conditions. Furthermore, with the ever-evolving field of bioarchaeology, Tollund Man's story may offer new information that researchers have yet to uncover. Ultimately, Tollund Man's legacy has expanded the understanding of prehistoric societies and serves as a reminder of the value of studying the past to understand the present.

REFERENCES

"Archaeology Canada - Keeping a Record." n.d. Canadianarchaeology.com. Accessed April 14, 2023. https://canadianarchaeology.com/caa/arch canada/chapter5/AC-Ch5-Record.html#:~:text=As%20an%20archa eologist%20works%20in.

Bahn, Paul G. 1997. "Bodies of the Bogs," review of *Through Nature to Eternity. The Bog Bodies of Northwest Europe,* by Wijnand van der Sanden. *Archaeology* 50 (4): 62–67.

Beek, R van, JHJ Candel, C Quik, JAA Bos, MTIJ Gouw-Bouman, B Makaske, and GJ Maas. 2019. "The Landscape Setting of Bog Bodies: Interdisciplinary Research into the Site Location of Yde Girl, the Netherlands." *The Holocene* 29 (7): 1206–22. https://doi.org/10.1177/09596836198380 48.

Chapman, Henry, Roy van Beek, Ben Gearey, Ben Jennings, David Smith, Nina Helt Nielsen, and Zena Zein Elabdin. 2019. "Bog Bodies in Context: Developing a Best Practice Approach." *European Journal of Archaeology* 23 (2): 1–23. https://doi.org/10.1017/eaa.2019.54.

Giles, Melanie. 2020. *Bog Bodies - Face to Face with the Past*. Manchester University Press. https://doi.org/10.7765/9781526150196.

Glob, Peter V. 1965. *The Bog People: Iron Age Man Preserved*. London: Faber.

Kelly, Eamonn P. 2006. "Kingship and Sacrifice:: Iron Age Bog Bodies and Boundaries." *Archaeology Ireland* 35.

Lobell, Jarrett A., and Samir S. Patel. 2010. "Bog Bodies Rediscovered." *Archaeology* 63 (3): 22–29.

Moen, Marianne, and Matthew J. Walsh. 2022. "Under the Skin: Norwegian Bog Skeletons and Perceptions of Personhood, Value, and Sacrifice." *European Journal of Archaeology* 25 (4): 483–503. https://doi.org/10.1017/eaa.2021.65.

Nielsen, Bjarne Henning, Tina Christensen, and Karin Margarita Frei. 2020. "New Insights from Forgotten Bog Bodies: The Potential of Bog Skeletons for Investigating the Phenomenon of Deposition of Human Remains in Bogs during Prehistory." *Journal of Archaeological Science* 120 (August): 105166. https://doi.org/10.1016/j.jas.2020.105166.

Nielsen, Nina H., Bente Philippsen, Marie Kanstrup, and Jesper Olsen. 2018. "Diet and Radiocarbon Dating of Tollund Man: New Analyses of an Iron Age Bog Body from Denmark." *Radiocarbon* 60 (5): 1533–45. https://doi.org/10.1017/RDC.2018.127.

Plicht, J van der, W.A.B van der Sanden, A.T Aerts, and H.J Streurman. 2004. "Dating Bog Bodies by Means of 14C-AMS." *Journal of Archaeological Science* 31 (4): 471–91. https://doi.org/10.1016/j.jas.2003.09.012.

Villa, Chiara, and Niels Lynnerup. 2012. "Hounsfield Units Ranges in CT-Scans of Bog Bodies and Mummies." *Anthropologischer Anzeiger* 69 (2): 127–45. https://doi.org/10.1127/0003-5548/2012/0139.

Zanello, M., J. Pallud, S. Jacqueline, A. Augias, P. Varlet, B. Devaux, O. Nielsen, D. Abi Haidar, and P. Charlier. 2017. "Endogenous Fluorescence Analysis: Preliminary Study Revealing the Potential of This Non-Invasive Method to Study Mummified Samples." *International Journal of Osteoarchaeology* 27 (4): 598–605. https://doi.org/10.1002/oa.2583.

Queer Reproductive Decision-Making in Saskatoon: Pandemically Complicated, a Plain Writing Summary[1,2]

Jessica Jack
Department of Anthropology, College of Arts and Science, University of Saskatchewan

ABSTRACT

This article is a plain writing summary of a master's thesis researched and written in the Department of Archaeology and Anthropology at the University of Saskatchewan between 2020-2023. This thesis examined how eighteen queer people living in Saskatoon, Saskatchewan made their reproductive decisions during the COVID-19 pandemic by asking what meanings do queer people in Saskatoon find in their reproductive decision-making processes, and how do those meanings influence those processes during the COVID-19 pandemic? Three themes emerged from these interviews. The first was how queer family structures are formed, including an analysis of the nuclear family and the ways that approach does or does not work for queer families and the gendered problems queer people face when contemplating pregnancy. The second centres on safety, with people born and raised in Saskatchewan prioritizing social safety and people born in different, sometimes less queer-supporting countries prioritizing physical safety when making reproductive decisions. The third is the relationship between COVID-19 and place, dissecting how the COVID-19 pandemic has changed the meanings of place through social distancing and isolation, and how the space between places (i.e., travel and remote connection software like Zoom) has changed meaning during this pandemic. This research has implications for informing institutional responses to Canada's declining population levels and to better support queer people in making their reproductive decisions.

Keywords: Medical Anthropology, Queer Studies, Reproduction, Kinship, Family, Safety, COVID-19

Highly industrialized and developed countries are dealing with a serious change to their reproductive demographics, as rates of reproduction are declining and women are having their children later in life (The ESHRE Capri Workshop Group 2001; Nargund 2009a; Hellstrand, Nisén, and Myrskylä 2020). Canada is no exception to this trend as fertility rates are declining and the population is aging (Statistics Canada 2021; Government of Canada 2016). Canada must respond to issues caused by these trends (Jackson, Clemens, and Palacios 2017; Gibbard 2018). It is therefore of great importance to understand why these

patterns are happening on an individual level to provide necessary context for these broad national trends, which was one of two primary goals of my thesis.

The other goal was representation. I chose to explore the reproductive decisions being made by a sample of queer people in Saskatoon. Queer people are represented in only a tiny slice of Canadian reproductive research and there is no extant research on queer reproduction in Saskatchewan. Queer people are especially not represented in research on why people choose not to reproduce and my thesis became an exploration of the many issues queer people face that result in their reluctance to reproduce in the same ways as straight and cisgendered people.

I interviewed eighteen queer people living in Saskatoon in the summer of 2021 and heard their experiences about making reproductive decisions during the COVID-19 pandemic. Our interviews focused on the meanings they found within the decisions they were making about reproduction and explored the lived realities that influenced those decisions. These conversations, which were between forty-five minutes and two hours in length, ended up being about the variables that influenced how queer people in Saskatoon made their decisions about whether or not they wanted to be parents. Though these conversations were broad and complex, I found three main themes affecting reproduction as described by the people I interviewed.

The first theme centred on queer family structures and how they are formed. Because queer people are less likely to be accepted by their biological families or families of origin than their cisgendered and heterosexual counterparts, queer people around the world have a long history of forming families of choice (Dewaele et al. 2011a; Baer 2020; Mizielińska 2022; Andreassen 2023). As family and kinship are often key areas of

support, community, and wellbeing, queer people who lack those key areas with their original families will build "families that work" with people who started out as friends and community members (Pilisuk and Froland 1978; Dykstra 1990; Kana'iaupuni et al. 2005). For those who shared their experiences with me, building families that work for queer people and their unique cultural experiences is key to their approaches to reproduction. This kinship creation process includes rejecting the notion of the nuclear family configuration in favour of other approaches, such as embracing more than two parental figures to help spread the load of responsibilities or creating families with multiple households through additional kin relationships with sperm donors or ex-partners.

Building families that work must also contend with the complicated relationship that queer people can have with pregnancy, as mainstream cultural approaches to pregnancy in Saskatoon (and elsewhere) attach specific ideas of femininity and heterosexuality to experiences of pregnancy (Weissman 2017). For queer people whose relationships with their bodies and their social expressions of gender and sexuality often do not align with mainstream expectations, experiencing reproduction through pregnancy is, for some, a notion fraught with difficulties. Creating families that work for queer people is a complex task and one that must include a wide array of variables.

The second theme of importance was that of safety. Queer people's safety is often more precarious than safety for cisgendered and heterosexual people, both physically and socially (Lunny 2013; Stults et al. 2017; Pitman 2019). This is especially true when discussing queer reproduction, as the protection of queer families and of queer reproductive healthcare often face significant challenges and threats (Park, Kazyak, and Slauson-Blevins 2016; Kazyak et al. 2018; Hudak 2021; Carpenter 2021). I found a

distinct contrast in experiences of safety between queer people who were born and raised in Saskatchewan and queer people who were born and raised elsewhere but have immigrated to Saskatoon. For those raised elsewhere, physical safety was often their top priority. Many of them described experiencing or witnessing violence and death for being queer because their countries of origin were more openly homophobic. These participants told me that moving to Saskatoon was a great relief because they could be themselves here or raise their families here without worrying about being brutalized or killed just for being queer.

In contrast, people born and raised in Saskatchewan were concerned with their social safety. These participants were concerned about social support, social acceptance, freedom to be themselves without harassment, and being included in Saskatoon society. Many Saskatchewanian interlocutors saw the province as heavily conservative and heavily Christian, two ideologies that have long histories of anti-queer sentiments. These interlocutors spoke of places like Vancouver and New York City as being places where queer people can live more openly and with institutional support, contrasting Saskatoon's cultural privileging of cisgendered and heteronormative lifestyles. Safety, then, is a culturally subjective phenomenon when it comes to making reproductive decisions.

The third theme was the complex relationship between reproductive decision-making, the COVID-19 pandemic, and place. The decisions people make about having children often contend with place-based variables, including the proximity to loved ones and supportive people, the cultural character of the place people are living in, and the connection to community and the feelings people have about where they are living. COVID-19 and public health responses to the pandemic changed these relationships by introducing painful distance between

households, removing much of the in-person community life that defined Saskatoon for many people, and disrupting the character of the city that made people like living here. For some participants, these changed experiences with place were enough to make them reconsider having children due to the complexities of an at-home world for people with children.

This pandemic also facilitated connections between formerly distant people with the sudden ubiquity of FaceTime and Zoom, improved some relationships between partners through being at home together with increased frequency, and helped others make reproductive decisions by changing peoples' perspectives on life through the serious nature of the COVID-19 virus. For some of these participants, the idea of having children became more attractive during the pandemic because of the way these variables changed their reproductive decision-making process. What "place" is, what it means, and how it impacts the way people make decisions about their reproduction was all heavily influenced by the COVID-19 pandemic.

Making reproductive decisions will never be a simple task as many complex decisions and factors are included in the broader question of having children. The complexity of these decisions increases for the queer population as they often do not fit into cultural narratives about "normal" reproduction. Understanding why queer people are making the reproductive decisions they are making is therefore even more important, as unpacking these intricate factors can inform the ways we support queer people in making these decisions. Federal and provincial legislation and policy, education, healthcare, and local cultural institutions should all consider the ways in which they support the difficult reproductive decision-making processes of queer people during the COVID-19 pandemic. While I hope to have contributed important understanding of these

variables with this thesis, further research is needed to more fully address the cultural specifics behind why queer people are making their reproductive choices.

REFERENCES

Andreassen, Rikke. 2023. "From the Families We Choose to the Families We Find Online: Media Technology and Queer Family Making." *Feminist Theory* 24 (1): 12–29. https://doi.org/10.1177/14647001211059517.

Baer, Pamela. 2020. "Queer Isn't a Choice! Queer Is My Family!" *Theatre Research in Canada / Recherches Théâtrales Au Canada* 41 (2): 313–17. https://doi.org/10.3138/tric.41.2.f09.

Carpenter, Emma. 2021. "'The Health System Just Wasn't Built for Us': Queer Cisgender Women and Gender Expansive Individuals' Strategies for Navigating Reproductive Health Care." *Women's Health Issues* 31 (5): 478–84. https://doi.org/10.1016/j.whi.2021.06.004.

Dewaele, Alexis, Nele Cox, Wim Van den Berghe, and John Vincke. 2011. "Families of Choice? Exploring the Supportive Networks of Lesbians, Gay Men, and Bisexuals1." *Journal of Applied Social Psychology* 41 (2): 312–31. https://doi.org/10.1111/j.1559-1816.2010.00715.x.

Dykstra, Pearl Annette. 1990. *Next of (Non)Kin: The Importance of Primary Relationships for Older Adults' Well-Being*. Next of (Non)Kin: The Importance of Primary Relationships for Older Adults' Well-Being. Lisse, Netherlands: Swets & Zeitlinger Publishers.

Gibbard, Robyn. 2018. "Meeting the Care Needs of Canada's Aging Population." Accessed June 20, 2022. https://www.cma.ca/sites/default/files/pdf/Media-Releases/Conference%20Board%20of%20Canada%20-%20Meeting%20the%20Care%20Needs%20of%20Canada%27s%20Aging%20Population.PDF.

Government of Canada. 2016. "Action for Seniors Report." Research. Accessed May 17, 2022. https://www.canada.ca/en/employment-social-development/programs/seniors-action-report.html.

Hellstrand, Julia, Jessica Nisén, and Mikko Myrskylä. 2020. "All-Time Low Period Fertility in Finland: Demographic Drivers, Tempo Effects, and Cohort Implications." *Population Studies* 74 (3): 315–29. https://doi.org/10.1080/00324728.2020.1750677.

Hudak, Nicole. 2021. "Negotiating Identity and Intimacy in Birth Control and Queer Pregnancy Research." In *Communicating Intimate Health*, edited by Angela Cooke-Jackson and Valerie Rubinsky. 251–262. New York: Rowman & Littlefield.

Jackson, Taylor, Jason Clemens, and Milagros Palacios. 2017. "Canada's Aging Population and Implications for Government Finances." Fraser Institute. Accessed April 18, 2022. https://www.fraserinstitute.org/sites/default/files/canadas-aging-population-and-implications-for-government-finances.pdf.

Kana'iaupuni, Shawn Malia, Katharine M. Donato, Theresa Thompson-Colón, and Melissa Stainback. 2005. "Counting on Kin: Social Networks, Social Support, and Child Health Status*." *Social Forces* 83 (3): 1137–64. https://doi.org/10.1353/sof.2005.0036.

Kazyak, Emily, Brandi Woodell, Kristin Scherrer, and Emma Finken. 2018. "Law and Family Formation Among LGBQ-Parent Families." *Family Court Review* 56 (3): 364–73. https://doi.org/10.1111/fcre.12353.

Lunny, Allyson M. 2013. "'Look, a Faggot!': The Scopic Economies of Cruising, Queer Bashing and Law." *Social & Legal Studies* 22 (2): 231–45. https://doi.org/10.1177/09646639124656 38.

Mizielińska, Joanna. 2022. *Queer Kinship on the Edge? Families of Choice in Poland*. Taylor & Francis. https://doi.org/10.4324/9781003016571.

Nargund, G. 2009. "Declining Birth Rate in Developed Countries: A Radical Policy Re-Think Is Required." *Facts, Views & Vision in ObGyn* 1 (3): 191–93. https://www.ncbi.nlm.nih.gov/pmc/article s/PMC4255510/.

Park, Nicholas K., Emily Kazyak, and Kathleen Slauson-Blevins. 2016. "How Law Shapes Experiences of Parenthood for Same-Sex Couples." *Journal of GLBT Family Studies* 12 (2): 115–37. https://doi.org/10.1080/1550428X.2015.1 011818.

Pilisuk, Marc, and Charles Froland. 1978. "Kinship, Social Networks, Social Support and Health." *Social Science & Medicine. Part B: Medical Anthropology* 12 (January): 273–80. https://doi.org/10.1016/0160-7987(78)90044-3.

Pitman, Gayle E. 2019. *The Stonewall Riots: Coming Out in the Streets*. Abrams.

Statistics Canada. 2021. "Crude Birth Rate, Age-Specific Fertility Rates and Total Fertility Rate (Live Births)." September 29, 2021. Accessed April 4, 2022. http://www150.statcan.gc.ca/t1/tbl1/en/tv. action?pid=1310041801.

Stults, Christopher B., Sandra A. Kupprat, Kristen D. Krause, Farzana Kapadia, and Perry N. Halkitis. 2017. "Perceptions of Safety among LGBTQ People Following the 2016 Pulse Nightclub Shooting." *Psychology of Sexual Orientation and Gender Diversity* 4 (3): 251–56. https://doi.org/10.1037/sgd0000240.

The ESHRE Capri Workshop Group. 2001. "Social Determinants of Human Reproduction." *Human Reproduction* 16 (7): 1518–26. https://doi.org/10.1093/humrep/16.7.1518.

Weissman, Anna L. 2017. "Repronormativity and the Reproduction of the Nation-State: The State and Sexuality Collide." *Journal of GLBT Family Studies* 13 (3): 277–305. https://doi.org/10.1080/1550428X.2016.1 210065.

Harris Lines as Indicators of Physiological Stress in the Middle Holocene Cis-Baikal[1,2]

Lauren Michelman
College of Medicine and Dentistry, James Cook University

ABSTRACT

This article is a plain language summary of a master's thesis completed in 2022 through the Department of Archaeology and Anthropology at the University of Saskatchewan. The goal of this research was to study Harris lines (HL; transverse lines in human and animal long bones that are only visible through X-rays) in the skeletal remains of hunter-gatherers from the Middle Holocene (~9000–3000 years BP) Baikal region of the Russian Federation. HL have often been associated with stress events such as malnutrition or disease in early life. Thus, this thesis expected to highlight differences in the lived stress experiences of two distinct cultural periods from the region which had already been shown in previous studies on stress. Individuals 25 years and younger at time of death from two cemetery populations dating to the Early Neolithic (EN; 7560–6660 years BP) and one from the Late Neolithic (LN; 6060–4970 years BP) were examined for HL. The data was then compared between EN and LN individuals to determine if one population experienced greater stress than the other based on higher HL counts. This thesis demonstrated that HL are not irrefutably tied to stress in EN and LN populations from the Cis-Baikal and HL are not reliable determinants of how often or how many periods of stress they experienced during development. This thesis also challenged ongoing critiques in the study of HL, including image capture methods, to facilitate future research and discussion relating to HL.

Keywords: Bioarchaeology, Harris Lines, Physiological Stress, Osteology, Radiography, Siberia

Harris lines (HL) are horizontal lines of thickened bone that can develop in the long bones of subadult humans and animals (see Roberts and Manchester 2005). They are not visible to the naked eye but are instead observed, recorded, and analyzed through

---

radiography, that being image capture using X-rays. Of all the bones in the body, the tibia, the larger of the two bones in the lower leg, is thought to best display HL when radiographed (Follis and Park 1952; Park and Richter 1953; Park 1964; Garn et al. 1968). Not every skeleton will have HL. Further, HL can only form before an individual reaches maturity and their skeleton stops growing as a young adult (Lewis 2019; Hummert and Van Gerven 1985). The limit on when HL can form is because of how they form; HL are a sign of halted skeletal growth. While a disruption in the normal growth of a young person's skeleton is not unusual, a prolonged disruption is often attributed to an episode of stress to the body (Harris 1931; Park 1964; Zapala et al. 2016). Malnutrition and disease are two such examples of possible stressors that a growing individual might face (Harris 1926; Harris 1931; Park and Richter 1953). When a stress event happens, the body can prioritize certain functions over skeletal growth to compensate for a lack of nutrients or energy required to keep the body functioning normally (Park 1964). Once the individual has recovered sufficiently from the stressor to resume normal bone growth, HL can be left behind as a tell-tale sign of interrupted growth (Harris 1931; Mays 1985; Park 1964; Park and Richter 1953). For this reason, HL are often used and considered in the study and comparison of stress events in both contemporary and archaeological populations (e.g., Alfonso et al. 2005; Clarke 1982; McHenry and Shulz 1976; McHenry 1968; Papageorgopolou et al. 2011)

The Lake Baikal region of Siberia, Russian Federation has yielded several large cemetery populations of Middle Holocene (~9000–3000 years BP; Weber and Bettinger, 2010) hunter-gatherers dating across thousands of years and whose stress experiences are of significant interest for study. For several decades, the Baikal Archaeological Project (BAP; https://baikalproject.artsrn.ualberta.ca) has focused on reconstructing and interpreting the lived experiences and differences in stress that these populations faced during life by way of studying the skeletal remains they left behind. As a result of the BAP's findings, a fascinating depiction of life for hunter-gatherer populations during the Early Neolithic (EN; 7560–6660 HPD cal. BP) and Late Neolithic (LN; 6060–4970 HPD cal. BP; Bronk Ramsey et al. 2021; Weber et al. 2021) has emerged. Separated from the LN population by a temporal gap of approximately 600 years, previous studies have shown that the EN population experienced higher levels of stress including malnutrition and disease (Lieverse et al. 2007, 2011; Lieverse 2010; Osipov et al. 2020; Purchase 2016; Temple et al. 2014; Waters-Rist 2011). As a result of these findings, this MA thesis study was conducted to determine if HL, as signs of stress, would be more common in EN individuals than those from the LN (Michelman 2022).

This study was also a chance to address some current and emerging issues surrounding with the study and analysis of HL in general. HL have been and continue to be a subject of debate in their validity for interpreting stress events that manifest on the skeleton for a few reasons (Papageorgopoulou et al. 2011). First, not every stress event experienced by a young person will result in HL formation (Larsen 2015, 42–44). A young individual may not recover sufficiently to form HL, or the event may not last long enough for formation to occur (Harris 1931; Mays 1985; Park 1964; Park and Richter 1953).

Second, as an individual ages, their skeleton does not continue to grow but rather undergoes bone turnover to maintain bone health known as remodeling (Frost 1990; Ruff et al. 2006; Turner 1998). As such, the older a person gets, the more remodeling their skeleton will undergo (Mays 1999, 1985; Steinbock 1976; Park 1964; Park and Richter 1953). Any HL formed during early life will slowly be erased as this marked bone tissue is

gradually replaced from medial to lateral through normal bone remodeling processes (Garn et al 1968; Harris 1931; Hummert and Van Gerven 1985; Lewis 2019). If a person dies before HL are remodeled away the HL will still be visible radiographically, however, radiograph orientation affects HL visibility. Because bone remodels from medial to lateral, radiographs taken in medial-lateral view (M-L), rather than standard anterior-posterior (A-P) view are thought to best capture HL (Garn et al 1968; Michelman 2022; Scott and Hoppa 2015). Logically, younger people have a higher likelihood of displaying HL than older people.

Third, critics of HL as indicators of stress events argue that bone growth can often stop and start not simply as a result of stress but also as a part of normal skeletal maturation. Ergo, an individual does not necessarily have to be stressed for HL to form (Alfonso et al. 2005; Papageorgopoulou et al. 2011; Roberts and Manchester 2005, 240-242). As a result of these critiques, continued work on HL, including this study, focuses on the following three aims: (1) optimizing image capture (i.e., X-ray techniques), (2) clearly defining what counts as a single HL and therefore a single growth interruption event, and (3) accounting for the potential problem of bone remodeling (Michelman 2022).

Using the tibiae of individuals from three Lake Baikal cemetery populations, two from the EN and one from the LN, this study examined and compared HL frequencies between them with the expectation that HL would be more common in the more-stressed EN individuals. To account for bone remodeling only individuals aged 25 years and younger at death were analyzed. Also, X-ray images were taken in two orientations to address possible differences in the visibility of HL therein (see Scott and Hoppa 2015). X-rays were collected from 82 individuals: 34 from Shamanka II, 22 from Lokomotiv, and 24 from Ust'-Ida I. Shamanka II and Lokomotiv are EN

cemetery sites. Ust'-Ida I is a cemetery site spanning the LN and subsequent Early Bronze Age, but only individuals dating to the LN were used for this study. Contrary to what was expected, EN individuals did not display more HL than those from the LN. Statistically, there was no distinction between the two time periods nor the three cemeteries among them. Instead, age at death affected the severity of HL. Individuals aged 6–12 years had the highest HL counts regardless of the archaeological site or time period they came from. There was also no significant difference between males and females.

This study is of value both to the ongoing research of the BAP and to the future study of HL in both contemporary and archaeological populations. While the results were not as expected, this research highlights how important it is to address and incorporate critiques relating to the capture and analysis of HL and to avoid forming robust conclusions of stress experiences based on HL alone. Future HL studies must incorporate existing information on stress for a given population and ensure consistency in the methods used to capture and study HL. This study also advocates for the use of strict age categories when choosing individuals for analysis. HL are not all-encompassing signs of stress. Rather, they are a fascinating and dynamic part of reconstructing the lived experiences of some young individuals.

REFERENCES

Alfonso M.P., Thompson J.L., and V.G. Standen. 2005. "Re-evaluating Harris Lines—a comparison between harris lines and enamel hypoplasia." *Collegium Antropologicum,* 29:393–408.

Bronk Ramsey, C., Schulting, R.J., Bazaliiskii, V.I., Goriunova, O.I., and A.W. Weber. 2021. "Spatio-temporal patterns of cemetery use among Middle Holocene hunter-gatherers of Cis-Baikal, Eastern Siberia." *Archaeological research in Asia*,

25.

Clarke, S.K. 1982. "The association of early childhood enamel hypoplasias an radiopaque transverse lines in a culturally diverse prehistoric skeletal sample." *Human Biology*, 54:77–84.

Follis, R.H., and E.A. Park. 1952. "Some observations on bone growth with particular respect to zones and transverse lines of increased density in the metaphysis." *American Journal of Roentgenology Radium Therapy and Nuclear Medicine,* 68:709–724.

Frost, H.M. 1990. "Skeletal structural adaptations to mechanical usage (SATMU)." *The Anatomical Record*, 226:403–422.

Garn, S., Silverman, F., Herzog, K., and C. Rohman. 1968. "Lines and bands of increased density: their implication to growth and development." *Medical Radiography and Photography* 44:58–89.

Harris, H.A. 1931. "Lines of arrested growth in the long bones of diabetic children." *British Medical Journal,* 1:713–714.

Harris, H.A. 1926. "The growth of long bones in childhood with special reference to certain bony striations of the metaphysis and to the role of vitamins." *Archives of International Medicine*, 38:785–806.

Hummert, J.R., and D.P. Van Gerven. 1985. "Observations on the formation and persistence of radiopaque transverse lines." *American Journal of Physical Anthropology*, 66:297–306.

Larsen, C.S. 2015. *Bioarchaeology: Interpreting Behavior from the Human Skeleton*. 2nd edition. pp. 42–44. Cambridge: Cambridge University Press.

Lewis, M.E. 2019. *The bioarchaeology of children: perspectives from biological and forensic anthropology.* Cambridge: Cambridge University Press.

Lieverse, A.R. 2010. "Health and Behaviour in Mid-Holocene Cis-Baikal: Biological Indicators of Adaptation and Culture Change." *Prehistoric Hunter-Gatherers of the Baikal Region, Siberia: Bioarchaeological Studies of Past Life Ways*. In Weber, A.W, Katzenberg, A.M, and T.G. Schurr (eds). Philadelphia: University of Pennsylvania Museum of Archaeology and Anthropology. pp. 135-167.

Lieverse, A.R., Link, D.W., Bazaliiskii, V.I., Goriunova, O.I., and A.W. Weber. 2007. "Dental Health Indicators of Hunter-Gatherer Adaptation and Cultural Change in Siberia's Cis-Baikal." *American Journal of Physical Anthropology,* 134:323-339.

Lieverse, A.R., Stock, J.T., Katzenberg, M.A., and C.M. Haverkort. 2011. "The bioarchaeology of habitual activity and dietary change in the Siberian middle Holocene." In *Human Bioarchaeology of the Transition to Agriculture*, Pinhasi, R. and J.T. Stock (eds). pp. 265–291. Chichester: Wiley-Blackwell.

Mays, S. 1985. "The relationship between Harris line formation and bone growth and development." *Journal of Archaeological Science*, 12:207–220.

Mays, S. 1999. "Linear and appositional long bone growth." In Hoppa, R.D. and C.M. Fitzgerald (eds). *Human growth in the past: Studies from bones and teeth*. Cambridge: Cambridge University Press.

McHenry, H.M., and P.D. Schulz. 1976. "The association between Harris lines and enamel hypoplasia in prehistoric California Indians." *American Journal of Physical Anthropology*, 44:507–512.

McHenry, H. 1968. "Transverse lines in long bones of prehistoric California Indians." *American Journal of Physical Anthropology*, 29:1–18.

Michelman, L. 2022. "Harris lines as indicators of physiological stress in the Middle Holocene Cis-Baikal." M.A. thesis, University of Saskatchewan. https://harvest.usask.ca/handle/10388/1438.

Osipov, B., Harrington, L., Temple, D.H., Bazaliiskii, V.I., and A.W. Weber. 2020. "Chronological and regional variation in developmental stress and behavior of Early and Late Neolithic Cis-Baikal hunter-gatherer juveniles: Insights from diaphyseal cross-sectional geometry." *Archaeological research in Asia*, 24.

Papageorgopoulou, C., Sutter, S.K., Ruhli, F.J., and F. Siegmund. 2011. "Harris Lines Revisited: Prevalence. Comorbidities, and Possible Etiologies." *American Journal of Human Biology*, 23: 381-391.

Park, E., and C. Richter. 1953. "Transverse lines in bone: the mechanism of their development." *Bulletin of Johns Hopkins Hospital*, 93:234–248.

Park, E. 1964. "Imprinting of nutritional disturbances on the growing bone." *Paediatrics*, 29 Supplement: 815–862.

Purchase, S. 2016. "Infectious disease as an indicator of physiological stress in the Middle Holocene Cis-Baikal." M.A. thesis. University of Saskatchewan. https://harvest.usask.ca/handle/10388/7512?show=full.

Roberts, C. and K. Manchester. 2005. *The Archaeology of Disease*. 3rd ed. Ithaca, New York: Cornell University Press.

Ruff, C., Holt, B., and E. Trinkaus. 2006. "Who's afraid of the big bad Wolff? "Wolff's law" and bone functional adaptation." *American Journal of Physical Anthropology,* 129(4): 484-498.

Scott A.B., and R.D. Hoppa. 2015. "A re-evaluation of the impact of radiographic orientation on the identification and interpretation of Harris lines." *American Journal of Physical Anthropology,* 156(1):141-147.

Steinbock, R.T. 1976. *Paleopathological Diagnosis and Interpretation: Bone Diseases in Ancient Human Populations. Ch. 2: Trauma.* Springfield, Illinois: Bannerstone House.

Temple, D.H., Bazaliiskii, V.I., Goriunova, O.I., and A.W. Weber. 2014. "Skeletal Growth in Early and Late Neolithic Foragers from the Cis-Baikal Region of Eastern Siberia." *American Journal of Physical Anthropology,* 153: 377-386.

Turner, C.H. 1998. "Three rules for bone adaptation to mechanical stimuli." *Bone,* 23(5): 399-407.

Waters-Rist, A.L. 2011. "Biocultural Diversity in Holocene Period Hunter-Fisher-Gatherers of Cis-Baikal, Siberia: Ancestry, Activity, Diet and Health." Ph.D. dissertation. University of Calgary. https://prism.ucalgary.ca/handle/1880/105039

Weber, A.W., Bronk Ramsey, C., Schulting, R.J., Bazaliiskii, V.I., and O.I. Goriunova. 2021. "Middle Holocene hunter–gatherers of Cis-Baikal, Eastern Siberia: Chronology and dietary trends." *Archaeological research in Asia*, 25.

Weber, A.W., and R. Bettinger. 2010. "Middle Holocene hunter-gatherers of Cis-Baikal, Siberia: an overview for the new century." *Journal of Anthropological Archaeology,* 29: 491-506.

Zapala M.A., Tsai, A., and P.K. Kleinman. 2016. "Growth recovery lines are more common in infants at high vs. low risk for abuse." *Pediatrics Radiology*, 46: 1275-1281.