Salvaging on the Coast of Erebus Bay: An Analysis of Inuit Interaction with Material from the Franklin Expedition

by

Dana Thacher

A thesis
presented to the University of Waterloo
in fulfillment of the
thesis requirement for the degree of
Master of Arts
in
Public Issues Anthropology

Waterloo, Ontario, Canada, 2018

Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Abstract

Over the course of the 19th century, many European explorers sailed in search of a Northwest Passage through the Canadian Arctic. These journeys brought them into territory occupied by Inuit, who both traded with the explorers for various goods and interacted with the material that they left behind. The Inuit then sometimes altered these goods to suit their own needs and the alterations had the potential of ascribing new meaning to the material that was different from what the European manufacturers intended. In this research, I will examine the remains of two ship's boats from three sites on King William Island (NgLj-2, NgLj-3, and NgLj-8) that were abandoned by members of the Franklin expedition and subsequently found and altered by an Inuit sub-group called the Netsilik to reveal the motivational factors behind their actions. By combining the conceptual frameworks of entanglement and salvage, it appears that Inuit utilized these boats in a manner that reflects (1) their environment, (2) what the material afforded, (3) their past experiences with Europeans and European material, and (4) their intended uses of the material.

Acknowledgements

This thesis would not have been possible without the mentorship and guidance of my wonderful supervisor, Dr. Robert Park. From helping me find manageable ideas in my ramblings to reading over and commenting on every draft of my thesis, I am sincerely thankful for his unwavering support. I would also like to thank my other committee members, Dr. Christopher Watts and Dr. Douglas Stenton for reviewing this thesis and offering their insight and comments.

I would also like to thank the Department of Anthropology and particularly, Dr. Chris Watts, Dr. Jennifer Liu and Dr. Seçil Dağtaş for their instruction and guidance over the coursework. To my classmates, Jacquie Meijer, Amelia Pilon, Melissa Pynkoski-Anderson, Leah Govia, Stuart Anderson, Alecs Romanisin, Matthew Johnson, and Yuet Chan, thanks for all your help throughout this process. I couldn't have picked a better group to go on this journey with.

I am also grateful for the support of the Social Sciences and Humanities Research Council and would like to thank David Weaver for the Sally Weaver Award and the family of Iris Yuzdepski. I would also like to thank the Government of Nunavut for granting permission for me to work with this fascinating material.

Also, I am eternally grateful to my parents, Dale and Brent and my brother, Eric who have supported me always and have never failed to keep me motivated and on track. I wouldn't be where I am today without them.

As well, thank you to my best friend and partner, Antonio Machado, for being by my side through everything, good or bad. With his support, I have been able to focus my efforts on my academic goals and for that, I am incredibly grateful.

Finally, I would like to thank my friends back in Winnipeg for their love and support throughout this journey as well as the friends I have made here for making this experience truly grand.

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Chapter 1

Situating European Material in an Inuit World

An archaeological artifact does not merely offer insight on a single group of people at a specific point in time but instead, it reflects the actions and decisions of all the different populations that engaged with it over its lifetime and altered its appearance and meaning through the ages. During the 19th century, many European explorers were sent to the Arctic in search of a Northwest Passage and over the course of these voyages, Inuit both traded with the explorers for various goods and interacted with the material that they left behind. They then altered that material to suit their own needs and these alterations had the potential to ascribe new meaning to the material that was different from what the European manufacturers intended. By closely examining these alterations, we can reveal the aspects of Inuit life that gave cause to them. For my Master's thesis research, I studied the remains of two ship's boats that were found and recovered by archaeologists at NgLj-2, NgLj-3, and NgLj-8 on King William Island. After being dragged across the ice and eventually abandoned by members of the Franklin expedition, these boats were later discovered and dismantled by the Netsilik Inuit living near the region.

To reveal what motivated Inuit during their interaction with these two boats, I applied the conceptual framework of entanglement and site formation processes to the material recovered from these three sites in Erebus Bay during the excavations in 1993 as well as those from 2012 to 2015. Those writing on entanglement suggest that we think about material in terms of the larger web of influential factors that motivated a group's interaction with it as well as how the threads of that web are interwoven together (Hodder 2012; Thomas 1991). This complements scholarly work on the site formation process that has drawn attention, in relatively recent archaeological

studies, to the different anthropogenic and non-anthropogenic factors that construct what we see in the archaeological record today (Schiffer 1987). In this case, Inuit dismantled the boats in Erebus Bay in a manner that reflects their own understanding of what the boats could be used for, their past experiences with European explorers and their material, what the material itself afforded them, and a variety of other factors. As such, it behooves us, as archaeologists, to recognize the role that this material played in their lives as well as the European explorers who originally abandoned the material.

Even though we know that Inuit did interact with the material at these two sites, there have been no studies to date that have tried to shed light on these behaviours. This has led to an incomplete understanding of what occurred at NgLj-2, NgLj-3, and NgLj-8 and a failure to explicitly acknowledge the active role of Inuit actors at these sites. In the past, Inuit were largely allotted a passive role as informants or guides in the journals of those sent to search for the missing Franklin expedition (McClintock 1860; Nourse 1879; Gilder 1899). However, they were also independent actors who made their own decisions about the material they found that had originally been abandoned by the expedition. As archaeologists interested in knowing the past, it is important that we highlight their contributions and do all that we can to understand what role Inuit played at these three sites as completely as possible.

1.1 The Franklin Expedition in Recent Events and the Role of the Inuit

The activities of archaeologists and other scholars working on material related to the Franklin expedition have recently received a surge of news coverage and public interest with the discovery of the location of both of Franklin's ships (HMS *Erebus* and HMS *Terror*) as well as the announcement that Britain will transfer ownership of the shipwrecks and associated artifacts

to Canada (Potter "Celebrating 30 Years"; Canadian Broadcasting Corporation "Cruise ships to visit"; British Broadcasting Corporation "Sir John Franklin"). Inuit have been involved in these discoveries and are also responsible for some of the artifacts. Environment Minister Catherine McKenna has announced that the ships and artifacts will be jointly owned by the government and the Inuit (Canadian Broadcasting Corporation "Canada welcomes") but unfortunately, as of yet, there are no details on what joint-ownership would entail for the Inuit. Parks Canada has also recently hired Inuit guardians to watch over the Wrecks of HMS *Erebus* and HMS *Terror* National Historic Site (Kyle "Inuit guardians"). With these projects, Inuit are taking on an active role in caring for the Franklin material and, by including Inuit in these projects, the Canadian government, in an effort to meet their land claims responsibilities, has recognized that the remains of this expedition were found on their traditional lands. In terms of sites NgLj-2, NgLj-3, and NgLj-8, this material is jointly owned by the Government of Nunavut, a public government that is headed by Inuit leaders and originally designed to provide the Inuit inhabitants of the region with greater political power, and the Inuit Heritage Trust and therefore, is under greater Inuit control than the shipwrecks and the artifacts associated with them.

My research further supports the role of Inuit in the management of the material record of the Franklin expedition by highlighting the part that their ancestors played in constructing what we see in the archaeological record today. Inuit visited the sites in Erebus Bay on multiple occasions between the initial discovery of a boat at Erebus Bay by Hobson and McClintock in 1859 (McClintock 1860:263; Stenton 2014a) and 1982, when archaeologist Owen Beattie found the scattered remains of a boat in the region (Stenton and Park 2017:215). The history of these sites is thus irreversibly entangled with the history of Inuit who travelled to King William Island to collect wood and metal from these boats. Unlike some archaeological sites around the world

where extensive conservation, restoration, and preservation efforts are carried out in an effort to freeze time at a point that archaeologists and other researchers have labelled significant (Stanford 2000:29; Martínez 2008:246; Pétursdóttir and Olsen 2014:15), these sites have been altered by Inuit through time and there is no single moment that could be deemed of the greatest importance. The Inuit's ongoing history with these sites make NgLj-2, NgLj-3, and NgLj-8 of importance not only to archaeologists as remnants of the Franklin expedition but also as reflective of the decisions made by those living in the region.

1.2 Categorizing Modified European Material

My research problematizes how we categorize archaeological material and, in doing so, questions how we should label material recovered from the Franklin expedition that had been altered by Inuit. The National Maritime Museum (NMM) hosts a large collection of material recovered by explorers in search of Franklin and these items are largely viewable through their online catalogue. In this catalogue, any item made from Franklin expedition material is given a title that reflects what the object is (an 'Arrow' for example) and, in the description of the artifact, it is labelled 'A Relic of Sir John Franklin's last expedition 1845-1848'. The description also provides information on what the object is, who obtained it, and where they got it from. However, despite that some artifacts were made by Inuit for their own use, the artifact is not explicitly labelled as 'Inuit' and instead, the primary focus of each appears to be on where the material originated from and how it fits in to the search for Franklin and his crew. The material I worked with for my thesis simultaneously tells the story of Franklin's crew as they journeyed along the coast of King William Island as well as what Inuit valued and how they utilized wood and metal in their everyday lives. As such, we need to recognize that the material abandoned by

Franklin's crew and later picked up and altered by Inuit should be labelled as both European material associated with the Franklin expedition and as Inuit artifacts that were either designed to suit Inuit purposes or altered during the construction of such artifacts. Recognition of their role in altering what we see in the archaeological record today will break from the historical records of explorers in search of Franklin, that placed the Inuit people in largely passive roles, by casting them as active participants with their own agency and desires. Labelling changes how both archaeologists and the public interpret and conceptualize artifacts as well as the people associated with those artifacts (Lightfoot 1995; Harrison 2014) and so, we need to think very carefully about who was actually involved in the manufacture of each artifact on display and if possible, what their intentions were.

1.3 European Material and Inuit Identity Construction

By encouraging both archaeologists and the public to include Inuit as well as Europeans in how we label and conceptualize artifacts that originated in European contexts but were subsequently found and altered by Inuit, my research questions the exclusion of these materials from Inuit identity construction. In the early 19th and 20th centuries, the 'whites', or the Qallunaat (a term that describes any non-Inuit group but is largely used to refer to 'white people') established sustained contact with Inuit via the Hudson's Bay Company trading posts and Protestant and Catholic missions in the region (Légaré 2002:100; Shadian 2007:325). However, it was not until after World War II that government interventions to northern communities developed a regular link between these two groups (Légaré 2002:100). Despite the fact that Inuit were only in permanent association with the Qallunaat after the 1940s, they still recognized the

Qallunaat as their cultural opposites and developed their own collective identity based on this perception (Searles 2008:241).

Today, the effects of this cultural binary are still visible and the symbols used in the construction of Nunavut are largely drawn from traditional Inuit lifeways. For example, the qulliq, a stone lamp that was burned in the home for light and for cooking, is found on the Nunavut coat of arms and there is one lit prior to every meeting of the Legislative Assembly in Iqaluit (Graburn 2004:78; van Dam 2008: 23,108). As well, the doorway to the Legislative Building of Nunavut is designed in the shape of a qamutiik, or wooden sledge, and the centre of the Legislative Assembly chamber is decorated with various traditional tools and a seal skin (van Dam 2008:113-116). The snow house is also portrayed on the coat of arms to symbolize survival (van Dam 2008:23) and the Legislative Assembly itself, which has a partial glass roof and a circular seating arrangement, is designed to mimic the interior of this structure (van Dam 2008:115). The binary between the Inuit and the Qallunaat also has social implications and the ability to survive on the landscape and hunt have become requirements for a person to be considered 'true' Inuit (Briggs 1997: 229; Doubleday 2003: 306; Sejersen 2004:76). In contrast, non-traditional 'Qallunaat' hunting methods, such as those that involve guns or snowmobiles, are sometimes rejected by members of the Inuit community as 'non-Inuit' (Sejersen 2004:78).

In the past, archaeologists have interpreted the adoption of European goods by Indigenous groups as the loss of 'traditional culture' (Lightfoot 1995; Pezzarossi 2014:147; Silliman 2014:69). The superiority of European goods was seen as self-evident in archaeological studies and historical records alike (Corcoran-Tadd 2016:62; Dietler 1998:296; Ferris 2014:377) and the 'Europeanization' of Indigenous groups as inevitable (Thomas 1991:85; Williamson 2004:177). It is therefore possible that, deciding to resist these forms of narrative, Inuit

deliberately rejected Qallunaat symbols, when selecting what would represent Nunavut, in favour of traditional ones from before contact with Europeans. However, by focusing on this particular point in their history in the construction of Inuit identity, other eras are forgotten. The period after European contact and all of the modern innovations that emerged more recently in the region, such as guns and snowmobiles, are not included and are subsequently deemed 'not Inuit' (Sejersen 2004). By constructing Inuit identity in this manner, it freezes what we call 'Inuit' at a particular point in time that does not necessarily reflect how many people currently live in the Arctic.

As an alternative to rejecting all forms of Qallunaat material in what we are able to call 'Inuit', my research follows more recent archaeological interpretations which suggest that Indigenous people adapted new, European resources, such as wood and metal, into their own material culture (Ferris 2014; Martindale 2009; Turgeon 2004). These materials reject classification as 'European' or 'Inuit' and, even though they originate in European contexts, should not be considered 'non-Inuit'. With my research, I do not mean to suggest that Inuit *should* include Qallunaat symbols or material in their representations but instead, I wish to encourage a broader understanding of what it means to be Inuit that is not frozen at a particular moment in time.

I plan on submitting Chapter 2 of my thesis to the journal *Arctic* for publication because this journal features many forms of scholarship on work from any region of the Arctic. My Master's thesis utilizes material from the Franklin expedition as a vehicle to closely examine the lives and behaviours of mid to late 19th-century Netsilik; therefore, my results are of particular interest to those who already have some familiarity with this particular group of people. The behaviours of the Inuit and the results of my research can also only be fully understood within an

Arctic environment. The Netsilik interacted with the boats in Erebus Bay in a manner that, in part, reflects their broader environmental context and it is much easier to understand their actions if one is familiar with that context. As such, I need to be certain that the editors and reviewers for the journal in which I hope to publish are well-versed in the Arctic and understand its particular features. With *Arctic,* I can be relatively certain that my work will be assessed within this framework because their publication scope is described on their website as being all scholarship "dealing with the polar and subpolar regions of the world" ("ARCTIC").

Arctic is also a publishing venue for people outside of the discipline of archaeology. This will not only allow me to connect with scholars outside of my field, but will also better capture the essence of Public Issues Anthropology. In writing for an audience outside of anthropology, I must be aware of what makes my work relevant and important beyond the theoretical and methodological underpinnings of my project. This awareness will ultimately result in a paper that is better suited to a Public Issues Anthropology degree and one that aligns well with my own personal interests in interdisciplinary research and contributions.

Finally, my committee members have recently published two papers on the same sites that I have examined in this journal (Stenton et al. 2015; Stenton and Park 2017). These existing publications not only set a precedent for my own research but also offer some confidence that reviewers for *Arctic* will be interested in what I have done and how it contributes to our understanding of what happened with material abandoned by members of the Franklin expedition in Erebus Bay.

Chapter 2

Salvaging on the Coast of Erebus Bay: An Analysis of Inuit Interaction with Material from the Franklin Expedition

2.1 Background

In 1845, Sir John Franklin departed England with two ships, HMS *Erebus* and HMS *Terror*, to complete the missing link of the Northwest Passage (Beattie and Geiger 1988:9; Sutherland 1985:v). The Northwest Passage would open up a direct trade route with Asia and many expeditions were sent to the Arctic for this purpose (Berton 1988; Cyriax 1939; Hickey 1984:17). 129 men sailed into the Canadian Arctic on the Franklin expedition but unfortunately, none of them would end up returning to England. Both of the ships became locked in ice in 1846 near King William Island (KWI) (see Fig 1) and by April 1848, the party had been reduced from 126 (three crew members passed away at Beechey Island) to 105 and the ships were deserted (Cyriax 1939:94; Sutherland 1985:v). Dragging boats on sledges, the survivors made their way south along the west coast of KWI then eastward towards Back River, but all of the men lost their lives in this final trek. Two archaeological sites that are the focus of this thesis, NgLj-2 and NgLj-3, mark the locations of two boats that are believed to have been abandoned in Erebus Bay on KWI when they could not be dragged any further (Stenton and Park 2017). This study also includes data from a third site at Erebus Bay, NgLj-8, that contained expedition material thought to have been acquired by Inuit from NgLj-2 and NgLj-3 (see Fig 2).

NgLj-2 and NgLj-3 were first discovered and documented more than a decade later by parties in search of the fate of the Franklin expedition and their reports are vital to our understanding of what happened to the boats after they were abandoned. The first to discover and

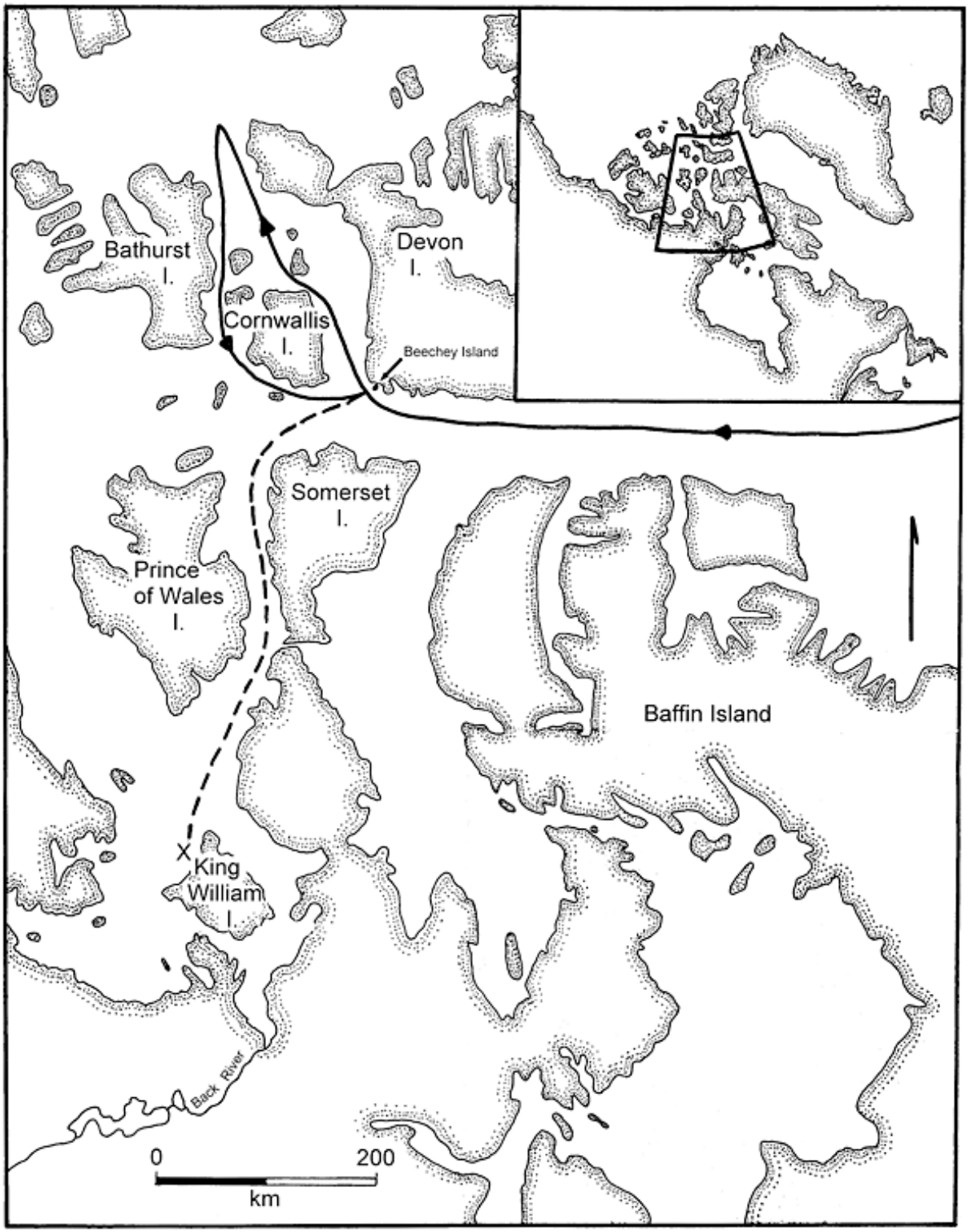

Figure 1. Franklin's route through the Canadian Arctic. The solid line is the known route and the dashed line is presumed (from Mays et al. 2015:335)

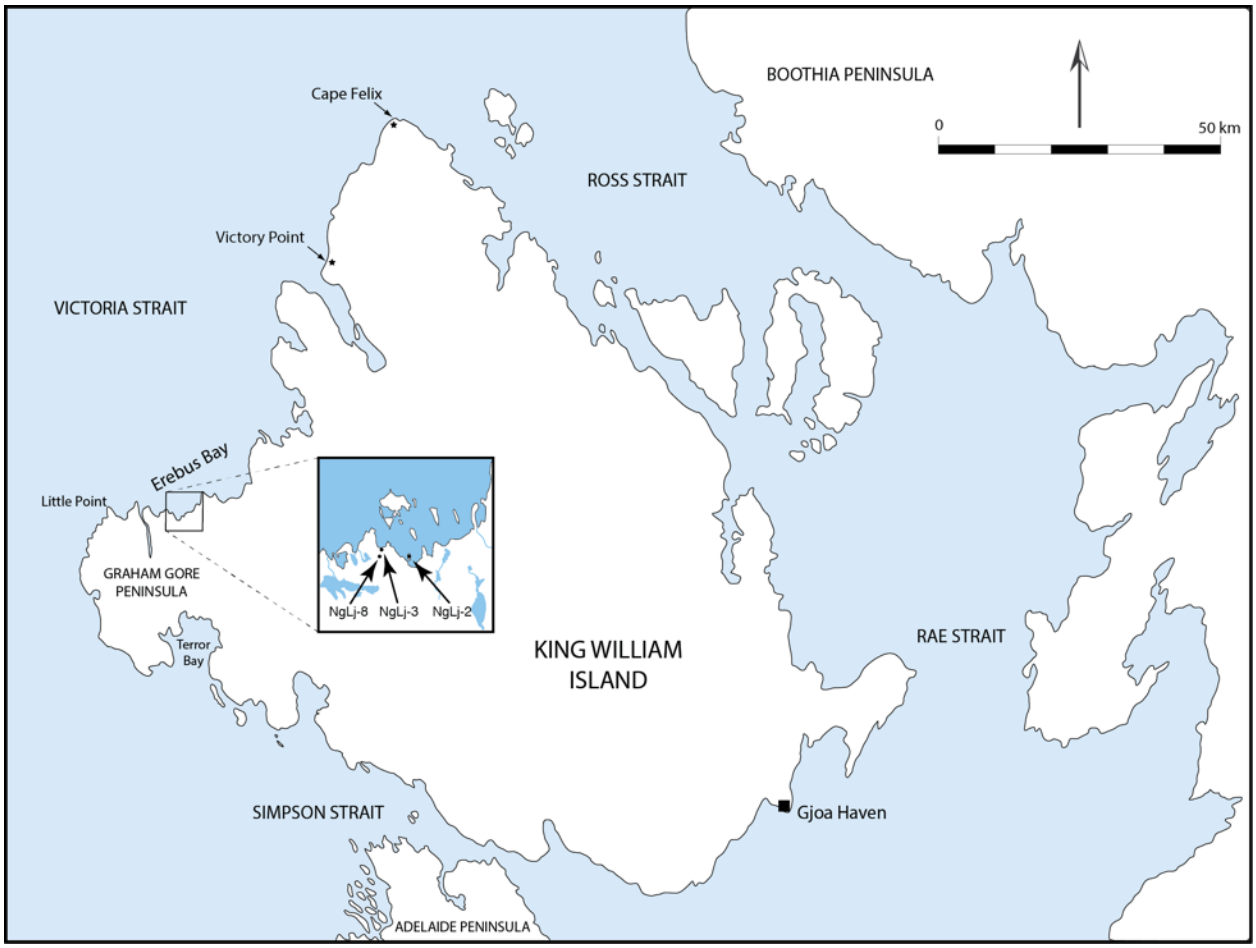

Figure 2. Map of King William Island with sites NgLj-2, NgLj-3, and NgLj-8 marked

record what is now known as NgLj-3 was Lieutenant William Hobson, second-in-command to Captain Leopold McClintock. While searching the shoreline of Erebus Bay on May 24, 1859, he found a 28-foot boat partially dislodged from the heavy sledge on which it was sitting (Beattie and Geiger 1988:38; Cyriax 1939:165). Inside the boat, the remains of two individuals were found as well as a large number of artifacts that were listed in detail in McClintock's report. These artifacts included three axes, files, saws, knives, dishware, clothing, paddles, two rolls of sheet-lead, guns, and ammunition (Stenton 2014a:518; McClintock 1860:266-267). McClintock arrived at the boat six days later (McClintock 1860:255) and, in his own description of the site, he notes the same features as recorded by Hobson and adds that while the boat had originally

been built in carvel fashion (with the strakes attached to the ribs edge-to-edge), the upper strakes had been removed and replaced by thin fir planks in clinker fashion (with the strakes overlapping and attached to each other) in order to lighten the load (McClintock 1860:263). Based on the undisturbed nature of the site, Hobson determined that Inuit had not yet found the boat (Cyriax 1939:176; Stenton 2014a:517). These explorers removed a number of artifacts from the boat site (McClintock 1860:334-336) and, in doing so, altered what was available to Inuit who arrived in Erebus Bay after their discovery.

The next account we have of the boats in Erebus Bay comes from the journal of Charles Francis Hall, who led a search for survivors of the Franklin expedition from 1864 to 1869. Although Hall did not visit Erebus Bay himself, he recorded descriptions of the sites from an Inuit informant, In-nook-poo-zhe-jook, who Hall calculated had visited the boats in spring 1861 (Nourse 1879:416; Stenton and Park 2017:207; Woodman 1991:299). In-nook-poo-zhe-jook's testimony is the first record we have of a second boat in Erebus Bay east of the one described by McClintock (Cyriax 1939:177; Nourse 1879:405) and although he reported that one boat was empty (which he stated was the boat that McClintock and Hobson had found), the second had apparently not yet been disturbed (Nourse 1879:405). In-nook-poo-zhe-jook and his accompanying party were therefore likely the first people to arrive at these boats after McClintock and Hobson. The second boat was described as being copper-fastened, with many skeletons in and around it and with a tent and hearth nearby (Nourse 1879:420). However, even though the only other boat place known archaeologically is NgLj-2, significant discrepancies exist between the archaeological record and In-nook-poo-zhe-jook's description of the site. These discrepancies have not been resolved and a recent analysis suggests the possibility of In-nook-

poo-zhe-jook describing a third, as yet undiscovered boat site in Erebus Bay or that certain aspects of his testimony were embellished (Stenton and Park 2017).

The last important historical record of the boats in Erebus Bay that I will discuss here is recorded in Lieutenant Frederick Schwatka's 1878-1880 search for records from the lost expedition. When Schwatka arrived at the boat sites in July 1879, he found discarded pieces of a clinker-built boat, a boat stem, a broken gunwale, and other miscellaneous artifacts left behind by Inuit (Gilder 1881:155-156; Klutschak 1987:94; Schwatka 1965:88). He and his party buried 76 human bones here (Gilder 1881:156; Klutschak 1987:94) and these were recovered through archaeological investigations in 2013 (Stenton 2014b:9). We can therefore confirm that what archaeologists have termed NgLj-3 is the same boat site that Schwatka found (Stenton et al. 2015:34; Stenton and Park 2017:209). Furthermore, the boat stem recovered by Schwatka and returned to the National Maritime Museum (NMM) bears the same markings as the boat stem described by McClintock (Stenton and Park 2017:210), confirming that McClintock and Schwatka had found the same boat. Schwatka was aware that Inuit had reported a second boat site in the area, but he was not able to locate it (Gilder 1881:157; Schwatka 1965:88).

The first archaeological search for the Franklin expedition boats in Erebus Bay dates to 1982 through fieldwork conducted by Owen Beattie. Beattie found the scattered remains of a boat at what is now labelled NgLj-1 and in 1992, amateur historian Barry Ranford discovered NgLj-2. Excavations were undertaken at NgLj-2 by archaeologist Margaret Bertulli the next year (Stenton and Park 2017:209) and while participating in Bertulli's excavation, Ranford discovered NgLj-3. This was mapped by archaeologist John MacDonald in 1994 (Stenton and Park 2017:205). The most recent investigations at NgLj-2 and NgLj-3 were conducted by Douglas Stenton and Robert Park from 2012-2015. Although this thesis focuses on the boat remains

collected from these sites, a variety of other artifacts, including cloth fragments, percussion caps, buttons, and personal effects, were also found. In addition to artifacts, human skeletal remains were recovered and, whereas a minimum number of 11 individuals was originally estimated for NgLj-2 (Keenleyside et al. 1997:38), this has been increased to 13 individuals through recent DNA studies (Stenton et al 2017:7). At NgLj-3, bioarchaeological studies indicate that the recovered remains come from three individuals (Stenton et al. 2015:40).

An Inuit tent ring and artifacts associated with the Franklin expedition were also discovered at NgLj-8, situated 365 metres SSW of NgLj-3 (Stenton 2014b:10). Investigations were conducted at the site in 2013, 2014, and 2015 and, given that a significant number of the artifacts unquestionably originated from a Franklin expedition boat, it appears that the Inuit had moved some material from one or more of the boat sites to this location.

2.2 Netsilik Inuit

The Netsilik Inuit occupied a region of the Central Arctic that included King William Island, Boothia Peninsula, and Adelaide Peninsula (Balikci 1970:xvii). It would have been Netsilik that found and dismantled the boats in Erebus Bay and, therefore, it is important to understand their material culture and lifestyle if we are to interpret their behaviours at NgLj-2, NgLj-3, and NgLj-8. The Netsilik were seasonally mobile, hunting seal at breathing holes in the winter and caribou in the summer and fall (Balikci 1970; Damas 1988:102). Fish also played an important part in the Netsilik diet and occasionally, small animals and birds were trapped or shot (Balikci 1970; Rasmussen 1976). During the fall and winter months, the Netsilik would aggregate in relatively large snow house villages, and they used light skin tents when they dispersed across the landscape in smaller groups during the spring and summer (Balikci 1970:4-

5; Damas 1988:102). This lifestyle required a large array of implements and each of these would have traditionally been constructed out of stone, bone, and other animal products. These same tools were also constructed out of wood and metal when these resources were available and the boats at Erebus Bay would have served as an excellent source of both.

Wood and metal are valuable and rare resources in the Arctic (Balikci 1970:xxii; Hickey 1984:19; Rasmussen 1976:145; Savelle 1981) and numerous explorers noted how well these materials were received by the local Inuit population (Lyon 1824; McClintock 1860; Nourse 1879; Parry 1824; Ross 1835; Schwatka 1965). However, it is important to note that neither wood nor metal were unknown to Inuit prior to European exploration in the region. Although rare, driftwood was collected, and McClintock (1860:264) reports finding a 12-foot long fir-tree stump in Erebus Bay in 1859 so it clearly was available, if not predictably, in the region where the boats were abandoned. Native copper and, to a lesser degree, meteoritic iron were also in use many years prior to European arrival (Pringle 1997:767; McCartney and Mack 1973; Morrison 1987) and at some Paleo-Inuit sites, the use of such materials appears relatively widespread (Pringle 1997:766). The Netsilik's western neighbours, the Inuinnait, also known as the Copper Inuit, made extensive use of native copper deposits in the region (Morrison 1987) and it is very possible that trade occurred between these two groups.

Furthermore, the Netsilik that dismantled the boats in Erebus Bay had already come in contact with European material prior to this interaction with materials from the Franklin expedition. In his 1832 search for the Northwest Passage, Captain John Ross was forced to abandon the engine of his ship when it failed to function properly and a smaller boat named the *Krusenstern* in the Netsilik region (Savelle 1985:195). He also left a stores depot and his ship, the *HMS Victory,* near Boothia Peninsula when it became locked in ice (Berton 1988:117; Cyriax

1939:10; Damas 1988:104; Ross 1835:643). Given that Ross exchanged goods and services with members of the Netsilik during his time there, they would have known where the ship was abandoned and Hall even notes that in the 1860s, he encountered some individuals with a sledge made from pieces of HMS *Victory* (Nourse 1879:261). There is also evidence that Inuit reduced and removed a considerable amount of the engine and the boiler (Larsen 1984:17; Savelle 1985:196). The Inuit were therefore very familiar with European material having encountered Ross' abandoned ship and the goods he left behind possibly 30 years prior to when In-nook-poo-zhe-jook found the boats in Erebus Bay.

Inuit oral testimony also confirms that the Netsilik had already discovered and utilized a wide range of materials they had found at Franklin expedition sites in other locations (Nourse 1869; Schwatka 1879). These included a boat on Adelaide Peninsula in Starvation Cove as well as a boat near Point Ogle and Montreal Island (Rae 1855:16; McClintock 1860). It is therefore likely that In-nook-poo-zhe-jook was already familiar with how European material and specifically, European boats, could be utilized prior to his arrival in Erebus Bay.

2.3 Entanglement and Salvage

To understand the Netsilik's actions at NgLj-2, NgLj-3, and NgLj-8, I will utilize the conceptual frameworks of entanglement and salvage. Every action is influenced by an entangled web of factors that includes one's knowledge about how the materials have been used in the past, what one intends for the future, and what the material itself affords the user. When Inuit found the two Franklin expedition boats and associated paraphernalia in Erebus Bay, they too were influenced by these various factors and, by examining how the Inuit utilized these boats, it is possible to explore the influence that each one had on their activities. This, in turn, allows a

better understanding of how Inuit incorporated European material within their own understanding of the material world.

Entanglement has been widely applied in colonial settings to describe how Indigenous people utilize the material of Europeans (Corcoran-Tadd 2016; Dietler 1998; Mrozowski 2016; Stahl 2002). However, the use of the term 'colonialism' implies an asymmetrical intercultural relationship of power (Dietler 1998; Gosden 2004; Jordan 2009:32) and is therefore inappropriate in this context. At this stage in Arctic exploration, no central hubs of European activity had been established in the Netsilik region and the people had had only minimal contact with Europeans and their material. Despite the historical trajectory in the Arctic that would culminate in a more widely recognizable form of colonial interaction, at this point the interaction between the Inuit and European explorers was liminal, and both Dietler (1998:298) and Jordan (2014:111) rightfully caution us to avoid labelling based on foreshadowed circumstance. However, that being said, the points made by those writing in a colonial context regarding the mixing of material cultures are important and relevant and must be addressed.

Earlier studies on colonial material interaction have focused on acculturation and the supposedly inevitable replacement of 'traditional' Indigenous material with that of colonizers (Gosden 2004; Jordan 2009:33; Turgeon 2004:20). This method of interpretation focused largely on cultural change and archaeologists would trace what stage of acculturation the colonized group was in based on the percentage of European material found in the archaeological assemblage (Lightfoot 1995; Pezzarossi 2014:147; Silliman 2014:69). This method of interpretation was identified as problematic because it makes Indigenous loss of culture appear as inevitable (Thomas 1991:85; Williamson 2004:177) when this was often not the case. Hybridity was then introduced to highlight how Indigenous people actually alter and incorporate

new material into their own contexts (Bhabha 1994), but this concept has received important criticism in the past two decades. As scholars have pointed out, there is no way to determine when hybrid forms end and new traditions emerge (Silliman 2015) and in order for hybridity (or the mixing of two distinct forms) to occur, it must be assumed that there is pre-existing homogeneity prior to contact (Harrison 2014:37; Liebmann 2008; Stockhammer 2013:12). Entanglement has since been suggested as one possible alternative to hybridity that focuses more closely on the relationship between human lives and things.

In his founding work on entanglement, Thomas (1991) calls for a recognition of the unstable identities of material objects and the importance of understanding their context. He states that even if we know what was given to or found by Indigenous people, we do not know what was received unless we are familiar with how they would have perceived that object (Thomas 1991:108). The use and value of an object is ascribed by the user and this may differ entirely from the producer's intention. It is therefore the taste of the 'encounterer' that frames the reception and rejection of objects (Gosden 2004; Stahl 2002:833), and not some naturally occurring essence of the material itself.

That being said, Hodder adds that the material itself does afford actors certain ways of interacting with it (2016). For example, in his study on the introduction of pottery in Çatalhöyük, Hodder notes that the mineral temper used in pottery is more efficient and allows better heat transfer than the clay balls they previously cooked with (2016:238). The shape of pottery also allowed the largely lactose-intolerant population of the region to process milk into yoghurts and cheeses so that they could use these important forms of subsistence (Hodder 2016:245). In both examples, the material and shape of the pottery allowed the people of Çatalhöyük to use it in a certain way.

As suggested by entanglement, people engage in the material world through a series of intertwined motives that guide behavioural patterns. In terms of the boats in Erebus Bay, the Inuit were involved in processes of salvage and by studying these processes, the variables that informed their actions can be examined. Michael Schiffer (1987) was one of the first to identify the importance of closely examining how an archaeological site changes over time and the processes that an artifact may go through during its lifetime. If an artifact changes in either form, how it is used or who is using it without being discarded first, Schiffer (1987:28) calls this 'reuse'. However, he defines reclamation as when individuals return artifacts to use after they have been discarded (Amick 2015:4; Schiffer 1972:157; Schiffer 1987:99) and 'salvage' as the reclamation of artifacts from earlier occupations of a site (Schiffer 1987:104). Franklin's crew did discard the boats in Erebus Bay and these were later found by Netsilik inhabitants of the region. It is therefore appropriate to call their use of the boats 'salvage'.

A number of studies have successfully looked at how artifacts were either reclaimed or reused to understand what motivated that behaviour (Amick 2007; Romagnoli 2015; Seeb 2013; Swift 2012; Wilson 1995). For example, some groups reused lithic material to make up for the lack of natural raw material in their area (Amick 2007:244; Rios-Garaizar et al. 2015:194) and others constructed monuments in a manner that incorporated much older burial cairns to ensure the survival of those cairns (Bradley 2002:77). Although there are many entangled variables that determine how an individual interacts with material (Hodder 2012; Stahl 2002; Stockhammer 2013), this study will focus on how Inuit salvaged material abandoned by members of the Franklin expedition to reveal: (1) how the extant environment influenced their behaviour, (2) what the material at these sites afforded Inuit actors, (3) what they wanted to use the material for, and (4) the past events that would have altered their actions at and perception of these sites.

2.4 Methodology

For the purpose of this thesis, 644 wood artifacts, and 192 metal artifacts (124 nails and bolts, 65 roves and 3 iron knees) were analyzed. These artifacts were recovered during the 1993, 2012, 2013, 2014, and 2015 investigations at NgLj-2, NgLj-3, and NgLj-8. It is important to note that the collection investigated is a subset of the material that archaeologists encountered and that not all of the artifacts found at these sites were recovered in excavation. This collection is therefore assumed to be a representative sample of the entire assemblage. In creating the database for these items, each artifact was catalogued and examined for attributes that may pertain to Inuit use of the material (see Table 1).

	Feature	Information Recorded
Wood	Dimensions	• Length in centimeters
	Ends and Faces[1]	• Broken, recently broken[2], sawn, rounded, burnt, or driftwood[3] (driftwood was subsequently removed from analysis if no other features were indicative of Inuit use)
	Nail Holes	• Number
	Nails	• Number • Included in nail analysis (see below)
	Refit	• Artifact number of fragment it refits with
	Body	• Wood broken up to saw mark or not • Wood bent in an effort to break it or not
Nails and Bolts	Material	• Copper or iron
	Shank	• Round, square, or indeterminate in cross section

[1] Each wood fragment was orientated so that the artifact number was upright and facing the researcher (face 1) and subsequent faces were numbered after the top of the artifact was rotated towards the researcher.
[2] If two wood fragments were recently broken (identified by a difference in colour when compared with the other faces) and could be refit together, they were included as one entry in the catalogue.
[3] For wood that was triangular in cross-section, face 4 was labelled as not applicable (NA). For wood that was very thin and only had two discernible faces or for fragments that were semi-circular in cross-section, faces 2 and 4 were labelled as not applicable (NA).

		• Bent, not bent, or unknown
	Completeness	• Head missing, tip missing, unknown, or none
	Property Mark	• Broad arrow, no broad arrow, or it could not be determined
	Size	• Small (under 0.5 cm), medium (0.5 to 1 cm), or large (over 1 cm)
	End	• Complete, broken, cut, or indeterminate (if the nail was still embedded in the wood)
Roves	Type	• Round or square
	Material	• Copper or iron
	Completeness	• Broken or not
	Nail Hole	• Square, round, or indeterminate in cross-section
	Nail Still in Rove	• Included in nail analysis (see above)

Table 1. Attributes measured on artifacts recovered from NgLj-2, NgLj-3, and NgLj-8

Once the unmodified driftwood was removed and the recently broken wood that could be refitted was reduced to a single catalogue entry, the number of wood fragments that remained was 594. Along with the features mentioned above, each artifact was also examined for other signs of Inuit activity that were too infrequent to include in the examination of each individual piece. These were included in the comments and analyzed separately.

2.5 Results

Once each artifact was catalogued, I calculated the frequency of each feature (see Appendix) and these were examined together with the comments on individual artifacts to reveal what influenced the Netsilik's behaviour at these three sites.

2.5.1 Absent Material

Archaeologists have tried to avoid making interpretations based on what is absent (Stone 1981:81; Gowlett and Wrangham 2013:10), but the material left behind at these three sites is

what the Inuit discarded over multiple extraction events, not what they selected for. Therefore, if we are to understand what the Inuit desired, it is important to consider what went missing over time as well as what was left when archaeologists arrived.

What McClintock and Hobson found at NgLj-3 was a 28-foot pinnace on top of a 23-foot 4-inch sled that McClintock estimated to weigh around 1400 pounds (Beattie and Geiger 1988:39; McClintock 1860:263; Stenton 2014a:514). These items would have produced extremely long pieces of wood that were largely removed when Schwatka found the boat at NgLj-3 in 1879 and were entirely gone when archeologists arrived at the sites (see Fig 3). In fact, the average length for all of the wood studied was 12.5 cm and the longest was only 47 cm.

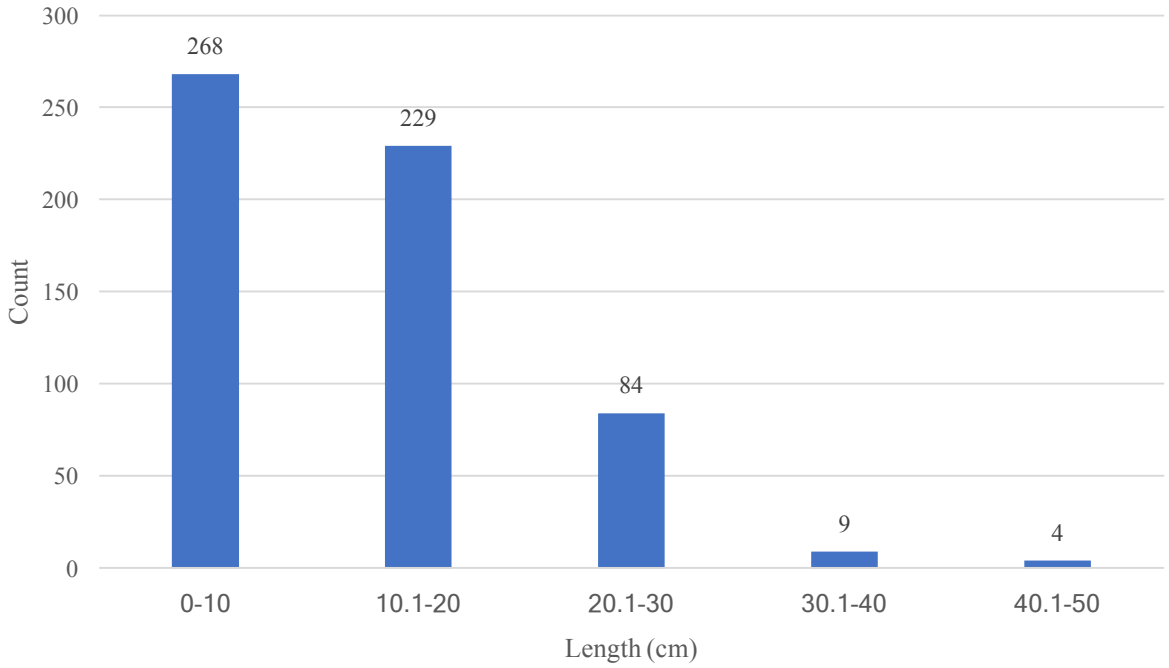

Figure 3. Length of wood fragments recovered

A number of the knee braces that would have held up the thwarts (where the rowers sat) and other structural elements of the boats were also missing from the site. According to a model from NMM of a 19th-century 28-foot pinnace, the boat at NgLj-3 would have had at least twenty-

eight iron knee-braces (four for each thwart, two on the bow sheets, and two at the stern) and likely more supporting other structural elements of the boat (Royal Museums Greenwich "Pinnace"). The boat at NgLj-2 would have also been constructed with iron knees but we do not have any information regarding what type of boat it was. That being said, we do know that a 12-ft dinghy was the smallest boat that HMS *Terror* and HMS *Erebus* were equipped with (Winfield 2014:280) and that a 30-ft galley and a 30-ft whale boat were the largest. Based on construction plans from the 19th-century and a reconstruction of this boat in the NMM collection, a 12-foot dinghy had two thwarts (Winfield 2014:246) and at least eight iron knees to support them. The 30-ft galley (which would have had more knee braces than the whale boat) had six thwarts with four knee braces to support each, two knee braces on the bow sheets, and four near the stern (Royal Museums Greenwich "Gig"). Therefore, although it is unlikely that the members of Franklin's crew would have abandoned their smallest boat this early in their trek, there would have been between thirty-six and fifty-eight knee braces available at these boat sites and the fact that we only recovered four (Barry Ranford recovered a fourth in the area but this was not included in the study) indicates that many were removed for some purpose.

2.5.2 Evidence of Bending

Amongst the wood and metal artifacts left behind by the Inuit, there is evidence for bending the boards of the boat in an attempt to break them. Whether these actions were performed after Inuit had already removed the boards from the boat or while they were still attached is uncertain, but 56 of the 594 wooden fragments that were recovered display characteristics of bending force failure. When pressure is applied at a single point on a wooden beam, longitudinal stresses are set up on the face opposite where the pressure is applied (Ennos

and van Casteren 2010:1253; Kollmann and Côté 1968:544). This causes a predictable pattern of failure, as demonstrated by three-point stress tests, in which the wood splits along its length (see Fig 4). We see this same failure pattern in 56 of the wooden pieces left behind by Inuit at NgLj-2 and NgLj-3 (see Fig 5). During the construction of the boat, the carpenters would have had to bend the wood to attach it to the frames of the vessel; however, they would have used heat, likely in the form of steam, to aid in this process (Holland 1971:31; McKee 1983:59). If the wood is bent in this fashion, it attains a smooth surface through the bend (Kollmann and Côté 1968:542) that is devoid of cracks (see Fig 6).

Figure 4. Lumber failure during three-point stress test (Lynch "SOM's Timber Tower")

Figure 5. Wood fragments with bending stress failure indicated

Figure 6. Fragment illustrating wood bent during construction

One of the wrought iron knee braces recovered at NgLj-8 also displays evidence of bending. The knees held structural elements of the boats at NgLj-2 and NgLj-3 together and were fastened to the wood with iron bolts (Moss 2006:81; Stammers 2001:115). Although they were bent during construction to fit the features of the vessel (McCarthy 2005:74; Moss 2006:88), the arm of NgLj-8:1 does not appear to have been modified for this purpose. Instead of the relatively uniform bend we would expect if the arm followed the curvature of the vessel, this knee brace is bent much more drastically and only at the end (see Fig 7), suggesting that it was bent outside of the construction process while it was still affixed to the vessel.

Figure 7. Iron knee with arm bent at the end

2.5.3 Use of European-Manufactured Tools

There is also evidence of Inuit using European tools to dismantle the boats. McClintock and Hobson reported that three axes as well as a broken saw were found at the boat they discovered (NgLj-3) (Stenton 2014a:518; McClintock 1860:267) and these tools were listed as having been left at the site (McClintock 1860:335). Marks from these same tool types were

discovered on artifacts collected from all three sites and, although Franklin's crew had previously altered the boat at NgLj-3 and in so doing likely caused some of these marks (McClintock 1860:263), Inuit appear to have been responsible for some.

Saws

Of the 594 wood fragments, at least 32 were broken up to a saw mark (see Fig 8) and on one, there are nail holes in the broken section (see Fig 9). This alteration was not likely caused by the members of Franklin's crew as the wood would have no longer been structurally integral to the vessel if the nails were removed and therefore, would have been abandoned where the alterations were made before the boat was dragged away from the ships. It has also already been demonstrated that Inuit were bending and breaking parts of the boat and that saws would have been available at NgLj-3 and via trade with McClintock (McClintock 1860:146). These lines of evidence suggest that it was Inuit who were responsible for at least some of these saw marks.

Figure 8. Wood fragments that are broken up to a saw mark

Figure 9. Wood fragment broken up to saw mark with nails removed from broken section

Axes, Pickaxes, or Adzes

As well, there is evidence on the bolts and clinch rings recovered from NgLj-8 that either an adze, a pickaxe, or an axe was used to remove these from the wood. The bolts and clinch rings were used to attach the iron knee braces to the thwarts and for holding other structural elements of the boat together. The head of the bolt would rest against the iron knee but, to keep it from being pulled back through the hole, the end would have been hammered down and flattened over a clinch ring on the bottom of the thwart (McCarthy 2005:91-92; Zori 2007). Therefore, the clinch ring would need to be detached first in order to remove the bolt. I suggest that the Inuit used an adze, pickaxe, or an axe for this task because every clinch ring and bolt recovered has chop marks (see Fig 10) and a number of them display a hinge-feature (see Fig 11) that is consistent with those left behind by an adze (Best 1977; Cunliffe 2013:79). Unlike the axe, the adze features a transverse head and the tool is normally drawn towards the user, resulting in a

Figure 10. Bolts and clinch rings with chop marks

Figure 11. Detail of clinch ring depicting hinged metal as result of adze strike

transverse groove pattern, during the reduction process (Best 1977:333; Cunliffe 2013:106). In fact, injuries to the legs of dockworkers were frequently caused by the adze when shaping timber for a ship's hull (Biddle 2009:111). Therefore, when the stroke is angled steeply and is halted partway through the material, it leaves a hinge. The chop marks on the clinch rings are also very deep, suggesting that either a European adze, pickaxe, axe, or an adze constructed out of European material (see Fig 12) was used. Even though adzes had traditionally been part of the Netsilik toolkit (Balikci 1970:16; Rasmussen 1976:496), they would have only been tipped with stone or a small amount of metal and would have lacked the weight required to make such deep incisions. Instead, a European-manufactured tool, which features a much heavier metal head, or an adze made from a large piece of metal was probably used. Hobson and McClintock listed every item they uncovered at the boat site and an adze was not recorded in their reports.

Figure 12. Adze constructed by Inuit from what is possibly a steam engine component. Purchased during the Collinson Search Expedition 1850-1855 (Royal Museums Greenwich "Adze Head")

However, this tool was commonly used by carpenters (Samuel 1977:37; Biddle 2009) and so, it is possible that the Inuit picked one up at another location in Erebus Bay or at some other site associated with either Ross' or Franklin's expeditions.

2.5.4 Nail Removal and Shaping

On the 594 wood fragments, there were 400 nail holes and only 31 nails. In other words, 92.25% of the nails are missing and, even though nails may have been removed when Franklin's crew members altered the boats, the volume of missing nails suggests that Inuit were responsible for removing at least some of them. There is also evidence suggesting that Inuit cut the wood apart in order to remove the nails. Four pieces of wood were recovered from NgLj-2 and NgLj-3 that have cut marks down to a nail hole (see Fig 13). The wood was then either discarded or accidentally forgotten at the site. Another possibility is that Inuit created some of these nail holes. One artifact has nine nail holes within a 6.0 x 1.6 cm^2 area (see Fig 14). Affixing nails close together, and particularly along the same grain, damages the structural integrity of the wood and increases the risk of splitting (McKee 1983:48); therefore, it is unlikely that these nail holes were created during the construction process or when the boat was refitted to make it lighter. The Inuit were the only ones that altered the material after these events and therefore, it is likely that they were the cause of this unique feature. That being said, there is nothing else in the archaeological record to corroborate these claims and it is important only as a possible factor that may have exacerbated the nail hole count.

My research also suggests that Inuit put effort into removing the riveted nails. A riveted nail has a rove placed over its end and the end deformed so that it cannot be pulled back through the hole (McGrail 2004:151; Zori 2007). This is common in clinker-built vessels

Figure 13. Wood fragments with nail holes that were cut down to indicated

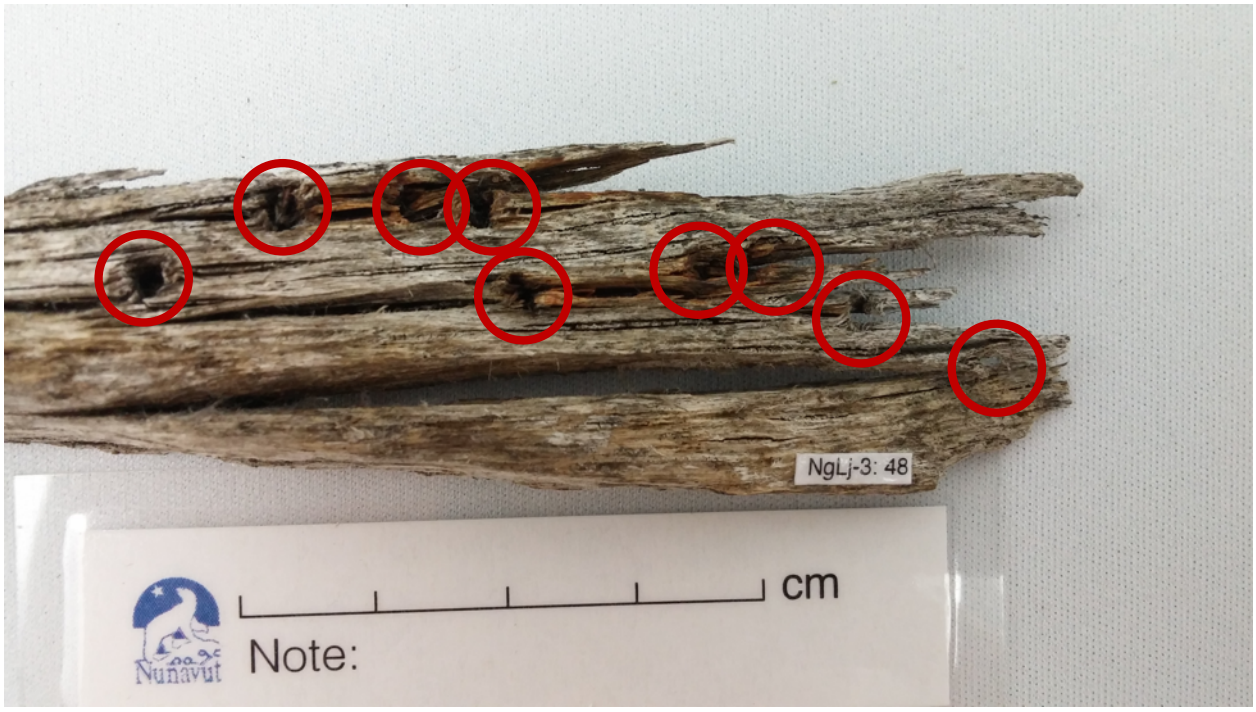

Figure 14. Wood fragment with nine nail holes indicated

(Hutchinson 1984:31; Lavery 1987:217) and the technique would have been used to build the clinker-sections of the boat at NgLj-3 (see Fig 15). The deformed nail end would have made it impossible to remove the nail without first cutting off either the nail head or the riveted end. Inuit evidently engaged in such activities because 32.05% (N=50) of all the nails recovered (N=156) were cut on at least one end (see Fig 16). It also appears that Inuit tried to remove the rove by either prying it off or breaking it in a similar fashion as the clinched bolts. Of the used square copper roves (N=39) (excluding the single rove that was recovered still attached to the wood), 35.90% (N=14) had at least one corner bent up and, of all the roves and clinch rings recovered (N=54), 55.38% (N=35) were broken. Evidently, Inuit put time and effort into removing these riveted nails and bolts.

Figure 15. Two wood fragments riveted together in typical clinker-fashion

Figure 16. Roves with nails still in them. The ends of each of these nails were cut

The Inuit also tried to shape some of the nails at NgLj-2 and two nails recovered were bent into a J-form (see Fig 17). Bent nails were not uncommon among the artifacts recovered from these sites; in fact, 36.54% (N=57) of all the nails recovered (N=156) were bent. However, the cut marks in the bends of NgLj-2:138 and NgLj-2:402 (see Fig 18) suggest that this was intentional shaping and not a consequence of the nails being pulled out of the wood.

2.6 Discussion

The results of this study allow us to make inferences concerning what influenced Netsilik behaviour at these sites. Here, I will trace some of the lines of entanglement that were made visible during the salvage process to illustrate how their knowledge of the extant environment, material affordances, past events, and what they intended on using the material for motivated these actions.

Figure 17. Nails recovered that have been bent in J-shape


Figure 18. Detail of nail showing cut marks in bend

The Netsilik Inuit practiced seasonal mobility to exploit seasonally variable resources and, according to In-nook-poo-zhe-jook's testimony, Hall calculated that he arrived at the Erebus Bay sites in the spring of 1861 (Nourse 1879:416; Stenton and Park 2017:207). The Netsilik normally hunted caribou in the spring and fall but, at this point in time, there were very few

available in the northwestern region of KWI and the Inuit seldom travelled there (Damas 1988:125; Rasmussen 1976:144-145; Schwatka 1965:44; Woodman 1991:189). In fact, one Inuit informant stated that the sole reason people were travelling to that part of the island was to obtain Franklin expedition wood, copper, and iron (Klutschak 1987:74). We know that Inuit living in this region had already come in contact with other Europeans and, sometime between 1848 and 1859, with other boats left behind by members of the Franklin expedition south of KWI. They also knew, from what McClintock told them, that European explorers had travelled along the west coast of KWI and, based on their knowledge of what valuable resources could be obtained from European sites, they decided to travel into the region.

That being said, the results of this study also indicate that simply explaining Inuit behaviour as a desire for wood and metal is not sufficient. The Netsilik who dismantled the boats at NgLj-2 and NgLj-3 and reduced the material further at NgLj-8 were after rare wood and metal resources and this is reflected in the material missing from these sites (the majority of the iron knees, many nails, and a significant amount of wood); but the factors that motivated their behaviour were not necessarily straightforward. The Inuit discarded four pieces of wood where they had cut down to a nail and removed it. This behaviour suggests that the metal was more important to them; however, wood was not always sacrificed in favour of metal and 32.05% of all the nails recovered were cut on at least one end. This behaviour demonstrates that, despite the fact that it is easier to cut through wood, the Netsilik did not always do so. These seemingly conflicting behaviours suggest that at least some Inuit individuals made efforts to preserve the metal over the wood in some cases but they (or possibly other Inuit visitors to the sites) also engaged in activities that would preserve the wood in others.

My research also indicates the following conflicting conclusions: that the Netsilik used European tools to dismantle the boats and that European-manufactured tools were *not* used in the dismantling of the boats. Based on the tool marks recorded, the Inuit appear to have utilized a European saw and either an adze of European manufacture, possibly an adze made from European material, a pickaxe, or an axe. However, archaeologists also recovered wood that displays evidence of Inuit having bent it in an effort to break it and one of the knees appears to have been bent while still affixed to the wood. Therefore, despite having heavy tools of European-manufacture available to them that may have made the dismantling process easier, the Netsilik did not invariably utilize them. Unfortunately, we cannot know for sure why Inuit used European-manufactured tools in some cases and not in others but some possible explanations do exist. Perhaps, there were not enough European tools recovered for every person to have one and so, those that did not have a European axe, saw or adze used other means to break apart the wood. As well, given the sheer volume of material found at the sites, they were undoubtedly visited multiple times over the years and it is very likely that the first people to find the boats removed the tools that McClintock left there. Therefore, these tools would not have been available to subsequent groups. It should also not be assumed that European-manufactured tools were necessarily superior and perhaps it was easier to pry apart the boat once an effective handhold could be established. In fact, given that 99.67% of the wood recovered had at least one broken edge, it can be assumed that breaking the wood *was* an effective extraction method.

That Inuit utilized different strategies when dismantling the boats might also reflect the fact that there was too much wood available at these sites for any one group to logistically transport. As previously discussed, the Netsilik were seasonally mobile and they would have had to transport everything they collected with them as they moved across the landscape. It is

therefore likely that the dismantling of the boats in Erebus Bay occurred over multiple visits and the amount of material available diminished after each. That being said, Schwatka and company recorded several long pieces of wood that the Inuit had left behind at NgLj-3 20 years after McClintock first arrived at the Erebus Bay boat sites (Gilder 1881:156; Schwatka 1965:88). Evidently, there was enough highly desirable wood available at these sites that pieces of it were still available for a relatively long time after the boats were found. These long pieces of wood were removed by the time archaeologists arrived at the site, suggesting that Inuit continued to remove materials from NgLj-3 after 1879. If so, it is likely that different groups were responsible for employing different strategies in response to the material that was available to them at the time.

The sheer amount of material available also afforded certain actions at these sites. As previously mentioned, the long planks of the boat were not recovered by archaeologists and this is likely because wood of that size would have been useful for making harpoons for seal-hunting, leisters for fishing, bows, arrows, spears, and tent poles (McClintock 1860; Nourse 1879; Rasmussen 1976). Of course, the small pieces of wood were also useful, but the reduction of the longer pieces would have produced smaller pieces of wood for those implements, such as the handles of knives or harpoon rests, that required such material. It was therefore less important for Inuit to gather all of these smaller pieces nor was it practical given the number of small pieces of wood that would have been available. The fact that a number of small pieces of wood were still recovered in excavation indicates that the sheer amount of wood available diminished the importance of these smaller pieces. In this manner, the volume of wood and metal itself afforded certain ways of interacting with the material. The Inuit did not simply try to preserve every bit of

wood and metal available simply because it is rare in the Arctic but they were also influenced by the amount of material that was available to them at these sites.

Inuit activities were also influenced by their intentions for the material. Not only were the planks of the boats long but the lower boards (at least on the boat at NgLj-3) were made of strong mahogany that would have been highly suitable for constructing a variety of implements. These were subsequently removed. As well, nails could be made to serve a number of useful purposes. According to ethnographic evidence, iron nails could be flattened and used as projectile points or blades (McCartney and Mack 1973:336) or hafted on to a handle as an ice pick (Balikci 1970:7). Copper and iron nails could also be used as rivets to hold the wooden pieces of a tool together (Balikci 1970:18; McClintock 1860:338; Walpole 2017:152) or they could be bent into fishhooks (Balicki 1970:87) (see Fig 19). In fact, the two nails recovered that had been shaped by the Inuit were bent to resemble a fish hook and it is possible that the Inuit were trying to create this tool on site. That being said, these shaped nails were subsequently discarded and therefore, we can assume that the achieved shape was not what was desired. My

Figure 19. Inuit fish hook constructed out of copper by Inuit that was recovered by Schwatka (Royal Museums Greenwich “Fish Hook”)

research has also demonstrated that the Inuit cut off the riveted ends of nails to remove them from the wood. This effort, combined with the fact that 92.25% of the nails are missing, suggests that the Inuit were aware of the multiple purposes nails could serve and therefore, put a significant amount of effort into removing them.

The missing knee braces may also have been removed because they could be reduced to make metal implements. That being said, the knees were made of brittle hand-forged iron and could not be worked as easily as barrel-hoop to construct blades, harpoon tips, arrowheads, or adze heads and tips (Balikci 1970; McClintock 1860; Nourse 1879; Rasmussen 1976). However, the fact that so many were removed suggest that the Netsilik did find them useful. Studies of metal use prior to European arrival in the Arctic have proven that the Inuit reduced meteoritic iron (Colligan 2017; Pringle 1997:767; McCartney and Mack 1973; Wayman 1989:95) and, although we do not have direct evidence of this behaviour in the Netsilik region of the Arctic, meteoritic iron artifacts were discovered near KWI (Colligan 2017:112). Some Netsilik also had files, given to them by explorers or found at European sites, with which to work the metal (McClintock 1860:339; Ross 1835) and files were even found by McClintock and left at the boat site (McClintock 1860:336). Therefore, the Inuit likely removed the knee braces because they knew how to reduce them to useful smaller pieces and had the tools to do so.

Inuit extraction processes were also influenced by their past experiences with European tools and what these tool types afforded. McClintock noted that saws were highly sought out in trade with Inuit (1860:140) and that they would use them to take apart “old wrecks” (McClintock 1860:151). However, there are no tools in the traditional Netsilik toolkit that resemble saws and therefore, it was only with the arrival of Europeans in the Arctic that this tool-type became

available. The saw itself allows wood (and other materials such as whalebone) to be cut in a controlled manner and had Inuit not either found a saw at a European site or received one via trade, they would have not been able to interact with the boats in the manner my research suggests. In terms of the chopping tools, the adze was a part of the Inuit toolkit prior to European arrival in the Arctic (Rasmussen 1976:496) and it can be assumed that they would know how to use one whether it was of European manufacture or not. The knowledge of how to use an adze could also be extended to the axe or the pickaxe, which are similar chopping tools, and the Inuit groups who dismantled the boats did have access to axes. McClintock and Hobson found three axes at NgLj-3 and listed them as having been left on site (McClintock 1860:335). Ross mentions having had an axe stolen (1835:383) and European explorers may have traded axes with the Netsilik. My research suggests that the clinch rings were removed from the bolts via a heavy, metal chopping tool and the only tools that match this description are either of European construction or made from European raw material. Therefore, it was through contact with Europeans that Inuit were able to remove the clinch rings without having to go through the wood. As such, it is what the tools afforded that facilitated their use.

2.7 Conclusion

By tracing the salvage behaviours that the Inuit engaged in while dismantling the two boats at Erebus Bay, my research has illuminated some of the entangled factors that informed the Netsilik people's actions and decisions at these sites. Entanglement has emerged as a useful devise for interpreting settings where Indigenous groups have utilized European material to highlight their agency within this interaction and the manner by which they incorporate that

material into their extant understanding of the environment as well as how they are influenced by what the material affords and their vision for what it may be used for.

At Erebus Bay, the strategies employed by the Inuit at NgLj-2, NgLj-3, and NgLj-8 portray an entangled combination of motives that sometimes appear to be conflicting. However, as Hodder (2012) points out, humans generally use material in a coherent manner that follows intertwined patterns of logic. The Inuit did not act illogically at these sites, but their behaviour is so complex that it cannot be captured by a single over-arching pattern. Instead, their use of these boats was guided by an entanglement of their knowledge of what they could find at a European site, their previous encounters with Europeans and their technology, the paucity of wood and metal resources in the Arctic, the different resources that different groups had available to them when they visited the boats, the types of actions that the European tools and material afforded, and what each different group that visited these sites wanted to use the wood and metal for. Guided by these forms of knowledge and their desires, the Inuit dismantled the two boats at Erebus Bay and irreversibly entangled this material within their own vision of the world.

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Appendix

Wood Analysis (N: 594)

Length (cm)	
Average	12.52
Maximum	47
Minimum	2.1

Broken	Number	Percentage
At least one broken face	592	99.67%
No broken faces	2	0.34%

Burnt	Number	Percentage
At least one burnt face	27	4.55%
No burnt faces	567	95.45%

Sawn	Number	Percentage
At least one sawn face	470	79.12%
No sawn faces	124	20.88%

Number of Nails and Nail Holes	
Nails	31
Nail Holes	400

Wood Broken up to Saw Mark or Bent (Number)	
Broken up to saw mark	32
Bent	56

Nail and Bolt Analysis (N: 156)

Material	Number	Percentage
Copper	99	63.46%
Iron	56	35.90%
Unknown*	1	0.64%

*Unknown nail embedded in wood and not clearly visible

Cross-section	Number	Percentage
Round	20	12.82%
Square	105	67.31%
Round and square	1	0.64%
Unknown	30	19.23%

Bent	Number	Percentage
Number bent	57	36.54%
Number not bent	49	31.41%
Unknown	51	32.69%

Missing Sections	Number	Percentage
Head	33	21.15%
Tip	47	30.13%
Head and tip	13	8.33%
None	52	33.33%
Unknown	11	7.05%

Size	Number	Percentage
Small (0-0.5 cm)	95	60.90%
Medium (0.5-1 cm)	27	17.31%
Large (over 1 cm)	15	9.62%
Unknown	3	1.92%
Not Applicable*	16	10.36%

*Deemed not applicable if shank missing

Property Mark	Number	Percentage
With broad arrow	39	25.00%
Without broad arrow	34	21.79%
Unknown	83	53.21%

Ends	Number	Percentage
With at least one cut end	50	32.05%
With at least one broken end	58	37.18%
Complete nail	53	33.97%

*Note: for nails with both ends missing, each was analyzed separately

Roves (N: 65)

Type	Number	Percentage
Square	42	64.62%
Round	23	35.38%

Material	Number	Percentage
Copper	47	72.31%
Iron	18	27.69%

Broken	Number	Percentage
Broken	36	55.38%
Not Broken	29	44.62%

Bent Roves*	Number	Percentage
Rove bent	14	35.90%
Rove not bent	25	64.10%

*Examined used square copper roves (N:39)

Nail Hole	Number	Percentage
Square	29	44.62%
Round	18	27.69%
Not Applicable*	2	3.08%
Unknown	16	24.62%

*Deemed not applicable if rove unused