BEOTHUK HOUSEPITS:

BAROMETERS OF HISTORIC TRANSITION

LAURIE MCLEAN
CONSULTING ARCHAEOLOGIST

5 Dunscombe Place
St. John's, NL
A1E 3P7
laurie.mclean@nf.sympatico.ca

ABSTRACT:

Newfoundland and Labrador's Beothuk Indians were considered extinct by 1829. Historical and archaeological data depict a gradual Beothuk withdrawl from coastal Newfoundland as European economic activity and settlement increased. Recent interpretation of Beothuk housepit morphology, along with their distribution and associated assemblages, shows that Beothuk did not uniformly respond to the influx of newcomers. This has implications for Beothuk settlement/subsistence activities, material culture and relations with Europeans pertaining to temporal and locational parameters.

BEOTHUK HOUSEPITS:

BAROMETERS OF HISTORIC TRANSITION

Newfoundland's resident population at the time of European contact during the late fifteenth century is archaeologically known as the Little Passage complex (Penney 1984:185; Schwarz 1984:1; Pastore 1992:10; Marshall 1996:13). European fishermen and settlers referred to these people as Red Indians, Wild Indians, Red men, Savages, Aborigines, or natural inhabitants until 1827 when Bishop Inglis started using "Beothuc" or "Boethic" to refer to them (Marshall 1996:434). The term "Beothook/Red Indian" first appeared in a word list attributed to Demasduit, a Beothuk female who briefly lived with European settlers in 1819 (Ibid). "Beothuk" has since been accepted to represent Newfoundland's historic indigenous population although the transition from Little Passage to Beothuk was ongoing throughout the historic period (Ibid:13). Historic and archaeological data chronicle many of the changes experienced by the Little Passage complex, resulting in a list of attributes and features that are diagnostic of the contact-period Beothuk. Housepits and iron projectile points, the latter were recycled from European objects, are two of the Beothuk's most prominent material products. This paper shows that specific housepit and iron projectile point characteristics are mutually associated with modifications to Beothuk settlement-subsistence practices. Beothuk-European relations influenced the development and implementation of these cultural entities that were pertinent to different periods and locations.

Beothuk housepits contain sunken interiors that are usually surrounded by mounded earthen or cobble walls, or a combination of these, that helped to insulate the wood-framed structure that was erected over the pit. A few archaeologically-identified housepits lack mounded perimeters, but this is a rare attribute that may represent incomplete or briefly used buildings (Devereux 1970:17; McLean 2011a:27, 40; 2013a:24, 25, 40, 44; 2014c:34). Housepits' superstructures were usually covered with birch bark although bark from other trees, animal skins and European sails were sometimes used to cover them (Marshall 1996:350). Beothuk housepits manifested a variety of shapes and sizes, but share a number of basic characteristics. The presence of a central hearth, sleeping hollows, artifacts and faunal remains inside housepits are evidence for their use as habitations. These features and associated external activity areas enabled housepit occupants to fulfil five basic household practices, including production, distribution, transmission, reproduction and co-residence (Searcy et al 2016:300). Housepits lacking these features may represent incomplete constructions while some provided storage, primarily for caribou meat. Others may have awaited use as crypts (see below).

A detailed description of an occupied housepit in Newfoundland's Exploits Valley in 1811 references an octagonal building that was 22 feet in diameter. Earth was mounded outside to the top of its four-foot high wooden walls. A fire burned in the center of the floor and people slept with their feet towards it. Sleepers' heads reached the lattice work that filled the gap between wall studs anchored in each corner (Howley 1915:85). Beothuk housepits closely resemble pit structures identified in a study of 84 ethnographic groups listed as using such architecture. A pit structure refers to any non-contiguous building whose floor is excavated

below the ground surface. Floor depth is variable (Gilman 1987:539). This type of architecture tended to be used in non-tropical climates and its efficiency in retaining 20% more heat than non-excavated structures made it a practical option for winter housing, although pit houses were often occupied during summer as well. These structures were typically used in a minimal bi-seasonal settlement-subsistence strategy and stored food accompanied these occupations (Ibid:541, 542). The majority of the housepit-using groups, n = 65/77%, participated in hunter-gatherer economies (Ibid:545).

The Beothuk's precontact ancestors, the Little Passage complex, did not use housepits. Their habitations probably resembled conical wigwams seen on the Newfoundland coast by Europeans during the sixteenth and early seventeenth centuries (Figure 1). These wigwams lacked excavated interiors and mounded foundations. The crew of the English fishing ship, the *Grace*, described Indian houses in Bay St. George, on Newfoundland's west coast, in 1594. The structures "...consisted of fir trees bound together at the top and set round like a dovehouse and covered with the bark of trees..." (Quinn 1979:64). Conical-shaped structures constituted the majority of 50 Beothuk houses seen by John Guy in 1612 at eight sites along 80 kilometers of coastline in the bottom of Trinity Bay, on Newfoundland's lower northeast coast. These buildings were about ten feet in diameter and consisted of poles covered with animal skins or, in one instance, a ship's sail. Each of the houses seen in 1612 had a centrally placed fire inside it (Gilbert 1992:7). Henry Crout, one of Guy's shipmates, was impressed by the small size of the houses and felt they could only accommodate one man, one woman and a child (Marshall 1996:350). The sail-covered wigwam, along with a copper kettle, an old sail and a fishing reel that were found

inside an unoccupied dwelling, showed that the Trinity Bay Beothuk had incorporated European items into their material culture by 1612 (Howley 1915:15). Guy's men peacefully met Beothuk in All Hallows Bay, Trinity Bay, on November 6 and traded with them (Ibid:16). This was the most memorable non-confrontational interaction between Beothuk and Europeans although Beothuk may have obtained some of the newcomers' goods via similar small-scale barter at other times. Archaeological identification of many of the historically-referenced Trinity Bay sites has not produced any evidence of housepits (Gilbert 1992:126). The growing European population in Trinity Bay after the 1612 encounter forced the Beothuk to withdraw from this area by the end of the 17th century although they periodically returned as late as 1770 (Marshall 1996:274).

The Beothuk word for house, *mammateek*, does not distinguish between traditional conical wigwams and the innovative housepits although an alternative name, *mae-adthike,* may have been used to reference smaller structures (Hewson 1978:157). Historical and archaeological data list 33 coastal Beothuk housepits and a possible 34th pending brush clearing and archaeological excavation to determine its status as an overgrown housepit or a small hearth fortuitously located within a housepit-like depression (McLean 2017c:26). This feature is therefore excluded from this discussion. A total 243 Beothuk structures historically and archaeologically documented in Newfoundland's Exploits Valley, including Red Indian Lake, provided human habitations, store houses, crypts or steam baths (McLean 2018a:86). At least 165 of these were housepits (Tables 4A, 4B).

Morphological examination of 22 extant coastal housepits and 64 from the Exploits Valley revealed a range of sizes between 7.68 m^2 and 60.00 m^2. The inland housepits average 30.66 m^2, compared to the 27.95 m^2 for coastal examples, but the simple comparison of mean sizes does not account for the significant variability manifested throughout the sample. For example, although the eight largest housepits occur in the Exploits Valley, this region also contains the collection's seven smallest examples. Obviously, while some of the Beothuk living in the Exploits Valley required larger structures than they did on the coast, there was also a need for smaller buildings in the interior. Dividing the set into small, medium and large categories does not account for the large differences in size occurring within each subset. Therefore, the total housepits were split into four groups encompassing Small, Medium, Large and Extra-Large examples. The 52.32 m^2 difference between the largest and smallest housepits was divided by four to determine the parameters for each of the four sub-sets. Small housepits are 7.68-20.76 m^2, Medium examples contain 20.77-33.85 m^2, Large ones are 33.86-46.93 m^2 and Extra-large members range from 46.94-60.00 m^2 (Tables 1-3). Analysis of these data, in consideration of housepit distribution, associated assemblages and subsistence activities, permitted splitting these features into five chronological groups, namely Early, Early-Modified, Middle, Late and Late-Modified Periods (Table 3; Figures 2, 3).

THE EMERGENCE OF BEOTHUK HOUSEPIT ARCHITECTURE AND IRON RECYCLING ALONG NEWFOUNDLAND'S NORTHEAST COAST:

EARLY-PERIOD HOUSEPITS – SMALL, MEDIUM AND LARGE SIZES: A.D. 1550-1750

Extant Early-Period Beothuk housepits, representing the oldest examples of this architecture, consist of 16 features located on the coasts of Bonavista Bay and Notre Dame Bay (Figures 1-3). The oldest Beothuk housepit is #6 from the Beaches (DeAk-01), Bonavista Bay, which was radiocarbon dated to 390 ± 70 BP (CAL A.D. 1454-1604) (Beta 39900) (McLean 1991:16). This housepit is one of the smaller ones remaining at the Beaches site and suggests an updated version of a Little Passage/early Beothuk conical wigwam (Tables 1, 3). This date, along with a modified wrought iron nail, other nail fragments, bone pendant fragments and stone artifacts from inside the former structure, suggest a mid- to late sixteenth-century occupation, considering that Beothuk access to European goods probably was unreliable until the mid-1500s. Europeans' poor impression of Beothuk people during the early sixteenth century, gleaned from historic data, implies an absence of meaningful interactions between the two groups which would have limited the amount of foreign objects accessible to Beothuk (Marshall 1996:20). The migratory fishery shifted to a shore-based operation during the mid-sixteenth century which increased European activity along Newfoundland's shoreline (McLean 1989:15; Innis 1978:21, 46). This provided a limited source of European materials that could be obtained by Beothuk without having to negotiate with their owners. Beothuk may have collected items from fishing stations at opportune times throughout the fishing season, but would have enjoyed unchallenged access to any objects left behind when migratory fishermen returned to Europe in the fall.

Although Beothuk started modifying European iron objects during the sixteenth century, the unpredictable supply of the new material would have impeded the rate at which they learned how to manufacture projectile points from the metal. Nonetheless, most Early-Period housepits contain modified iron artifacts, fragments of iron, other European objects and traditional Beothuk items. Modified iron consists of Beothuk-manufactured projectile points, including preforms, along with complete or fragmentary European items exhibiting evidence for having been hammered, cut and/or ground (McLean 2003:5). Incomplete European iron objects and unidentifiable iron fragments not exhibiting plastic deformation attributable to hammering, or signs of scoring or cutting are not included in the modified category. The exception to this pattern is Housepit 7 at the Beaches site (DeAk-01). Excavation of one-half of this feature produced traditional artifacts in the absence of European materials, but examples of the latter are conceivably present in the un-excavated portion of the housepit (Deal and McLean 1995:7). Traditional Beothuk stone tools decreased in frequency at later Exploits Valley Beothuk sites as the use of European alternatives, mainly iron, increased (McLean 1989:5).

Nineteen housepits were identified at the Beaches in 1875, but erosion had destroyed 11 of them prior to their being mapped in 1989 (Lloyd 1876:222; McLean 1990:3). Portions of two of the site's housepit interiors were excavated in 1965, parts of five others were dug between 1989 and 1998 and all of Housepit 5's floor, along with parts of its earthen walls, was dug in 1992 (Devereux 1969; Deal and McLean 1995; McLean 1990, 1991, 1994a, 1999, 2002). The Beaches housepits' close proximity to the shoreline and the site's low elevation means the former structures were visible from the surrounding waters. Although the Beaches site has been ravaged by erosion, its

current elevation, under one meter above sea level, is only nine to 10 centimeters lower than it was during the mid-sixteenth century, allowing for sea level rise (Catto 2000:7). The construction of highly visible habitations is characteristic of Early-Period housepits whose Beothuk occupants may have perceived a low probability of being seen by passing Europeans due to the latter's low numbers. It is also possible that the occupants of Early-Period housepits were unconcerned about the consequences of being observed, signifying that they had not negatively interacted with Europeans although they probably had been warned about them from their Beothuk trading partners.

The eight surviving Beaches housepits are between 15.55 and 33.74 m^2 in total size, averaging 24.01 m^2 (Table 1). They consist of three Small and five Medium-sized examples. The Beaches' Small housepits are between 15.55 m^2 and 19.48 m^2, comprising the smallest coastal values, supporting the interpretation that they represent modified versions of Little Passage/early Beothuk conical wigwams. The Beaches' Medium-sized housepits, which range from 20.83 m^2 to 33.74 m^2, are up to 54% larger than the Small ones, showing a wide range of sizes at this site. This trend continued at subsequent Beothuk occupations which also contain a variety of housepit sizes and shapes (Tables 1, 2; Figure 2). Two of the Beaches' largest surviving housepits are square-shaped, representing another historic transition from older conical-shaped wigwams.

Despite the new type of architecture adopted by Beothuk at the Beaches and their use of European materials there, the site's housepit assemblages primarily consist of traditional objects.

The 426 artifacts collected from the Beaches' housepit interiors contain 352 stone tools (82.6 %), in addition to 1285 flakes (McLean 2002:37-40) (Table 6). These objects include 29 corner-cotched, basally-notched, or stemmed stone projectile points that are diagnostic late Little Passage/early Beothuk artifacts (Schwarz 1984:1, 74). Another 12 Recent Indian projectile points recovered from the housepits' earthen walls represent Beaches complex, Little Passage complex and early Beothuk occupations that predate the dwellings (Table 6). Fifty-three iron artifacts found inside the Beaches housepits include six (11.5 %) modified objects, a low proportion that is consistent with a Beothuk occupation where iron had not supplanted stone implements to the degree that occurred at more recent camps and settlements in Notre Dame Bay and the Exploits Valley (Tables 5, 6). Another 34 iron artifacts that were recovered from Beothuk housepit walls and external features at the Beaches include three modified pieces. This raises the total number of modified iron objects at the Beaches to nine (10.34 % of all iron from the site), but still indicates that a small amount of iron recycling took place here compared to subsequent Beothuk occupations. Two corroded projectile point fragments, or incomplete preforms, were found in Housepit 5, while a 27 centimeter-long iron artifact found inside Housepit 4 appears to be a preform of a large projectile point historically referred to as a deer spear. This object is not available for examination (Table 8).

The Beaches' modified iron and contemporaneous similar material from the Fox Bar burial (DeAk-02), located 1.1 kilometers along the shoreline from the Beaches, constitute some of the earliest evidence for Beothuk recycling this metal. The burial contained the remains of seven Beothuk who were interred during two visits, one dating to the late sixteenth/early seventeenth century

and the second one radiocarbon dated to the early 1700s (Duggan et al 2017:e5). Associated grave goods include stone tools, bone pendants, shell beads, 58 iron objects and eight other European items (Carignan 1973:12; Marshall 1996:396, 412; McLean 1989:9, 130; Duggan et al 2017:85). The iron artifacts include four projectile point preforms along with nine fragments of projectile points and/or preforms (McLean 1989:9, 130). This burial assemblage shows that the Beothuk held European goods in high esteem during their Beaches occupation although iron constitutes a small part of the site's housepit assemblage. Contemporaneous modified iron, dating to the latter sixteenth-early seventeenth centuries, from Trinity Bay consist of a modified nail fragment from Russell's Point (CiAj-01) and a modified nail from Sunnyside-1 (ClAl-05) (Gilbert 2002:117; Mills and Gaulton 2010:92). Trinity Bay's modified iron artifacts, significantly, are not associated with housepits, distinguishing their Beothuk owners from those in Bonavista Bay. Beothuk did not manufacture iron projectile points in Trinity Bay, showing the infancy of their iron recycling skills there. Beothuk-modified iron has not been recovered outside of Trinity Bay, Bonavista Bay, Notre Dame Bay and the Exploits Valley.

European fishermen avoided Bonavista Bay until 1670 when they began fishing outside some of the inlet's outermost islands (Head 1976:56, 75). This activity probably did not impact Beothuk living at the Beaches which is located within a large archipelago, but the advent of salmon fishing in the bay after 1700 brought Europeans into closer proximity with Beothuk. Bonavista Bay's European population did not significantly increase until 1750, however, due to constant out-migration, permitting the local Beothuk population to survive into the eighteenth century. Beothuk were seen near the town of Bonavista during the summer of 1720 although they

reportedly wintered far to the north (Colonial Records-194, Vol. 7, Folio 7). These winter camps may have been located at the Beaches or on the shore between Bonavista Bay and Fogo Island which was lightly used by Europeans during the early eighteenth century. Beothuk camps were reported there at that time (Marshall 1989:122; Tocque 1844:285-286). A Beothuk-European conflict allegedly occurred in Bloody Bay, which is named after the claimed incident and is 16 kilometers from the Beaches. This event, which reportedly occurred prior to 1715 when Bloody Bay and nearby Indian Bay first appear on a map, may have contributed to the demise of the Beothuk in Bonavista Bay (Major 1983:26; Marshall 1996:102). Although there is no clear archaeological or historical record of the Beothuk retreat from Bonavista Bay it is conceivable that some of the resident population died within their traditional territory while others dispersed to coastal or inland areas beyond the range of Europeans.

Early-Period architecture and associated iron-recycling occurred at Boyd's Cove (DiAp-03), Notre Dame Bay, which is 140 kilometers northwest from the Beaches, two to three generations after they were adopted at the latter. Excavation of portions of five of Boyd's Cove's 11 housepits revealed that these shelters were inhabited between A.D. 1650 and 1720. They were believed to be transitional between older conical type structures and larger buildings used by more recent Beothuk (Pastore 1984:107). Although Boyd's Cove's housepits chronologically overlap with some of the Beaches', the former's examples are less suggestive of older conical wigwams than the Beaches' are. Boyd's Cove's housepits, consisting of one Small, five Medium and five Large units (Tables 1, 3; Figures 1, 2, 4) manifest an average size of 32.13 m^2 compared to the 24.01 m^2 average pertaining to the Beaches' eight surviving examples (Table 1). The average size of Boyd's

Cove's housepits, 32.13 m^2, is skewed by the presence of five Large examples, all of which are bigger than the most spacious Beaches example, which is 33.74 m^2 (Tables 1a, 1c). Boyd's Cove's five Large-sized housepits average 39.21 m^2 while the site's six others average 26.22 m^2 which is similar to the 24.01 m^2 mean for the Beaches' examples. Four of the Large Boyd's Cove housepits are listed as square or rectangular, with one manifesting an ovate shape. Boyd's Cove's unusually large structures significantly contribute to the Early-Period mean of 28.58 m^2, the third largest of the five time periods (Figure 5; Table 3).

Boyd's Cove's five Large housepits constitute Early-Period architecture while its Small and Medium-sized examples occur within the Early-Modified-Period (see below). Housepits 2, 3, 4, 5 and 8, the Large-sized examples, occur 2.7-14.69 meters from the outer edge of a six-meter high bank that steeply rises from the beach in front of the site. Housepit 4, the largest at Boyd's Cove, is 3.1 meters from this exposed edge and Housepit 5, the site's fourth biggest, is 2.7 meters from the outside border. The structures that stood over these foundations located near the edge of the bank were obviously easily seen from the surrounding waters (Pastore 1987:3, 13). The construction of these conspicuous buildings at Boyd's Cove and the Beaches permitted their occupants to monitor their surroundings while displaying the Beothuk title to the base camp locations. The asserted ownership was strengthened by the absence of contemporaneous camps in the region (Searcy et al 2016:308). This function of housepits, effectively transmitting the notion of Beothuk territorial possession, represents one of five basic household practices, the others being production, distribution, reproduction and co-residence (Ibid:300).

Boyd's Cove's prominent large buildings are symbolic of the brief prosperity Beothuk enjoyed at this site (Pastore 1989:66). The locality's rich faunal sample was interpreted as evidence for successful hunting facilitated by the diverse toolkit that incorporated traditional and European materials (Ibid). The positioning of Boyd's Cove's largest housepits may have in fact signalled their occupants' willingness to trade with Europeans. Housepit 4's prominent onsite position means it was well-placed for greeting newcomers to camp, one of the acknowledged functions of a Labrador Innu *mokoshan* (Henriksen 1973:35) (Figure 4). Housepit 4's large hearth, with associated bone mash, are interpreted as evidence for *mokoshan* festivals (Pastore 1992:47).

Examination of the Boyd's Cove assemblage supports the conclusion that Beothuk traded with European settlers in this vicinity. European artifacts are significantly more numerous at Boyd's Cove than they were at the Beaches site although the loss of 11 housepits to erosion at the latter prohibits fully interpreting this Beothuk village. A total 1,712 iron artifacts and 760 objects made from other European materials from Boyd's Cove constitute, by far, the largest collection of settler items in Beothuk context from a coastal site. The presence of 677 glass trade beads, fragments of Normandy stoneware and the remains of a high number of furbearing animals led to the conclusion that Beothuk and Europeans may have traded goods at, or near, the site (Pastore 1984:103; 1989:66). Additional evidence for Beothuk-European trade, or other peaceful interaction in the Boyd's Cove vicinity was provided by the identification of forge-modified iron from the site. Three wrought iron nail fragments that had been partly hammered flat in recycling are identical to over 200 Beothuk-modified nails and fragments except for having been re-worked at temperatures only attainable in a European forge (McLean1989:99-103).

Iron tools had not completely replaced those made from stone at Boyd's Cove, but 10 iron projectile points, seven preforms and 20 fragments of finished points or preforms were recovered (Tables 6, 8). The Boyd's Cove assemblage included 229 modified iron items, almost entirely consisting of wrought iron nails, in addition to its projectile points. The preference for using wrought iron nails as raw materials at this site may be attributable to the ready supply of these objects at European fishing stations located nearby, but it also speaks to the fact that Beothuk were still learning how to rework iron into projectile points during the seventeenth and early eighteenth centuries. Wrought iron nails were more easily recycled than the much larger traps and a variety of items incorporating steel into their construction which were subsequently reworked in the Exploits Valley (McLean 1989:109).

The Boyd's Cove iron projectile points' sharp edges and longitudinal symmetry exemplify high quality workmanship, but they are a simpler design compared to more recent points from interior Newfoundland (McLean 2003:9). One-half (n=5) of Boyd's Cove's finished iron projectile points contain non-shouldered blades (Type 1), compared to three (5.3%) non-shouldered examples of 57 projectile points from interior Newfoundland (Plate 1). The thin cross-section of the non-shouldered blades from Boyd's Cove suggests they are complete projectile points, albeit cruder versions of similar items from the Exploits Valley, rather than preforms. Boyd's Cove's five shouldered blades (Type 2A) exemplify greater attention to detail than their non-shouldered counterparts, but their tangs are unmodified nail shafts (Plate 1). Beothuk-manufactured projectile points (Types 2B, 2C, 3A, 3B, 3D) from the Exploits Valley's typically have much longer tangs that required additional manufacturing, compared to Types 1 and 2A (Plates 2, 3) (Ibid:9-

14). The smaller size of the Boyd's Cove projectile points also facilitated making them. The reduced attention to detail exhibited by Boyd's Cove's iron projectile points corresponds with the absence of deeply-grooved sandstone abraders there. Twenty-eight stone abraders, two abrader fragments and eight anvil stones associated with iron recycling have been identified in the Exploits Valley, compared to one small grooved abrader from the Beaches site (Tables 5, 6). This is the only incidence of a coastal abrader similar to those from the Exploits Valley (Ibid:16).

Three housepits located on Inspector Island (DiAq-01), 14 to 20 kilometres northwest along the coast from Boyd's Cove, depending on the route taken, were occupied between 1720 and 1730, at the end of the Early-Period in Notre Dame Bay. Excavation of two of the housepits and external features at Inspector Island concluded that this Beothuk assemblage occurred on the heels of the evacuation of Boyd's Cove (Pastore 1987:12). Inspector Island produced a combination of traditional stone tools, items recycled from European iron and fragments of European objects similar to Boyd's Cove's and the Beaches', but also contained a few anomalies (Ibid:10; McLean 1989:7). One Inspector Island projectile point preform that consists of a shouldered blade outlined in *bas relief* on a tabular piece of iron suggests a recycling procedure similar to some of those used in the Exploits Valley rather than at Boyd's Cove or the Beaches (McLean 1989:51). This artifact is a prelude to more advanced iron recycling subsequently undertaken in the Exploits Valley.

These three housepits consist of one Small and two Medium-sized features which are within the range of sizes manifesting Boyd's Cove's smaller structures as well as most of those from the Beaches (Tables 1, 3). The Inspector Island housepits' onsite locations indicate a lack of concern about visibility, similar to that interpreted for Boyd's Cove's five Large features and all of the Beaches housepits. Housepit 1 at Inspector Island is currently at the coastal edge of the site's 80-centimetre high eroding bank while Housepit 2 is 2.29 metres west from #1 and less than a metre from the eroding border. Housepit 3 lies 49 metres east of Housepit 1, manifesting a significant separation possibly representing different occupations. Housepit 3 occurs 9.5 metres north of the site's eroding edge and despite being located slightly further from the shoreline, still occupies a prominent position. Its location, small size and lack of stone tools in test pits dug inside it suggest it probably represents a brief visit by a small group of Beothuk after the use of Housepits 1 and 2 (McLean 2013b:23). Inspector Island was beyond the area of European activity until 1730 when the salmon fishery spread throughout Notre Dame Bay. Coastal base camps were no longer feasible for the Beothuk after this, prompting the Inspector Island residents to shift their settlement to the Exploits Valley, possibly joining other ex-Boyd's Cove occupants who had migrated inland without setting up camp on Inspector Island.

The absence of housepits among precontact Recent Indians asks if Beothuk were inspired by Paleo-Inuit housepit remains, European structures, or independently developed the new architecture. The lack of metal axe heads from Early-Period housepit assemblages suggests such tools did not significantly contribute to chopping down the larger number of trees and the more elaborate preparation required by housepits, compared to conical wigwams. One iron/steel axe

head was found at the Fox Bar Burial (DeAk-02), meaning that Beothuk were aware of these tools during the Early Housepit Period, but infrequently used them, if at all. Previous research linked the Beothuk adoption of housepits to extended coastal occupations, relative to the Little Passage (Holly 2008:176). Re-examination of Little Passage and Beothuk faunal data indicates that the harp seal hunt was an integral component of this modified subsistence endeavour. Beothuk apparently were aware of housepits' thermal efficiency as their initial usage correlates with increased harp seal hunting during the winter in Bonavista Bay and Notre Dame Bay. Analysis of Little Passage faunal material, dated to 585 $\pm$ 80 BP (CAL A.D. 1305-1405) (Beta 34272) and slightly later, from the Beaches (DeAk-01) showed evidence for a generalized hunting-fishing-gathering economy, primarily focussing on resources available in the inner coastal environment, but also including significant harvesting of harp seals which required visits to the outer coastal zone (Cridland 1998:263; McLean 1991:10). A minimal occupation between late February and the end of summer is suggested for the Beaches' Little Passage residents (Cridland 1998:237).

Faunal material recovered from inside the Beaches' housepits shows that the Beothuk harvested larger numbers of harp seals during the historic period (Devereux 1969:n.p.; McLean 1991:12; 1994b:18; Deal and McLean 1995:26). The Beothuk harp seal harvest in Bonavista Bay appears to have intensified as the local Beothuk heard about the growing numbers of Europeans in Newfoundland and possibly intermittently observed them. An increased seal harvest would have reduced the Beothuk dependence on summertime coastal resources whose availability coincided with the busiest European activity (Cridland 1998:270). This appears to have resulted in a prolonged Beothuk wintertime occupation of the Beaches which in turn led to additional

investment of effort and materials required to build housepits that offered better protection from winter temperatures. Stable isotope analysis of Beothuk skeletal material revealed higher ^{13}C and ^{15}N values from individuals interred at the Fox Bar, compared to other Beothuk skeletons, providing evidence for significant Beothuk seal hunting during the late 16th and early 17th centuries (Alison et al 2019:17).

Harp seal hunting was also important to Little Passage and Beothuk residents of Boyd's Cove (DiAp-03). The site's Beothuk faunal sample, recovered from two housepits, lists 28 animal species from marine and terrestrial environments, with 92 - 95% of edible meat coming from bear, seals and caribou (Cumbaa 1984:11). Harp seal elements came from mixed Recent Indian/Beothuk context at Boyd's Cove, but additional harp seal remains may be present among 1,357 unidentified mammal bones/fragments (Ibid:5). Little Passage faunal material recovered from Inspector Island (DiAq-01), then a central exploitation site associated with the Boyd's Cove base camp, is dominated by harbour seals and harp seals (Schwartz 1984; Cridland 1998:249, 263), suggesting that portions of these animals were brought back to Boyd's Cove. Little Passage faunal remains from Inspector Island were dated to 610 $\pm$ 60 BP (CAL AD 1302-1390) (Beta 6730) and 690 $\pm$ 40 BP (Beta 3938) (CAL AD 1274-1370) (Pastore 1989:260). Little Passage and other occupants of Boyd's Cove travelled to Inspector Island to monitor the availability of harp seals and sea birds that did not normally occur closer to Boyd's Cove. The Beothuk construction of three housepits on the island, following the evacuation of Boyd's Cove, transformed Inspector Island from a satellite of the latter into a base camp. Harp seals and harbour seals suggest equal proportions in the Beaches and Inspector Island Little Passage faunal samples, but harp seals are

possibly underrepresented due to butchering techniques and the destruction of long bones to obtain their marrow (Cridland 1998:265). The list of animal species utilized at the Beaches (DeAk-01), Boyd's Cove (DiAp-03) and Inspector Island (DiAq-01) suggest that all of these sites could have been occupied throughout the year, or year round, but resources were concentrated from late winter/early spring until late summer/fall (Ibid:156, 237; Cumbaa 1984:17).

The Beothuk bands who did not adopt the use of housepits include people living in southeastern Newfoundland, southern Newfoundland, western Newfoundland and the Northern Peninsula, regions that experience milder winters and/or, for various reasons, show less harvesting of harp seals. The absence of housepits in Trinity Bay and Newfoundland's south coast sites coincides with the low harp seal population and milder winters, relative to Bonavista Bay and Notre Dame Bay (Gilbert 1992; 2002:126). Otherwise, Late Little Passage/early Beothuk based in Trinity Bay and southern Newfoundland practiced generalized hunting-fishing-gathering economies similar to the rest of the island's population. Harp seals constituted a potentially important resource for Little Passage living in western Newfoundland and the Northern Peninsula, but the miniscule faunal data and the absence of Beothuk housepits, or other Recent Indian architectural remains, in these regions do not permit fully assessing the relationship between subsistence and architecture there. A small Little Passage faunal sample, consisting of 70 bones/fragments from the Port au Port Peninsula, on Newfoundland's west coast, did not contain any sea mammal elements. The presence of 39 (55.7 %) beaver bone fragments, 21 (30 %) caribou and other species indicated a non-marine focus for this occupation despite its proximity to the sea. The

small sample size prohibited assessing the presence or absence of a generalized Little Passage hunting-fishing economy at Port au Port (Simpson 1986:203-209; Cridland 1998:23).

The confinement of Beothuk Early-Period housepit usage to Bonavista Bay and Notre Dame Bay may also have been influenced by Little Passage/Beothuk social structure which probably consisted of isolated bands living as small communities for much of the year. Bands may have consisted of two or more hunting groups who regularly congregated for one season. The geographic separation of bands fostered self-sufficiency that resulted in independent activities. Inter-band cooperation was rare, except for emergencies (Marshall 1996:285; Holly 2008:174). While there was sufficient inter-band contact to reinforce cultural identity, as expressed in stone projectile point typologies throughout Newfoundland and southern Labrador, the list of optimal resources and environmental conditions varied regionally, resulting in behaviors and material culture specific to a given area. Beothuk-European interactions also probably were not uniform throughout Newfoundland and this would have affected Beothuk behavior, although there is no evidence that Europeans directly influenced Beothuk house construction. Varying stable isotope levels between Beothuk skeletons from different geographic areas were attributed to the different impact of European contact on Beothuk lifeways (Alison et al 2019:19, 20).

Beothuk-modified iron also has not been found in western Newfoundland or the Northern Peninsula, suggesting that although the island's west coast was not historically settled until the latter eighteenth century, European fishing and whaling activity in the Gulf of St. Lawrence since

the early 1500s stifled traditional Beothuk pursuits, along with potential upstart technologies, similar to the situation in Trinity Bay. Labrador Innu and Inuit activity on the Northern Peninsula also restricted Beothuk interests there (Marshall 1996:62). The geographic isolation of Newfoundland's west coast and Northern Peninsula from the rest of the island would have been exacerbated by the growing historic settler population elsewhere on the island, contributing to the development of localized expressions of Beothuk material culture and behavior. Newfoundland's south coast shows a similar correlation between European fishing activity starting in the sixteenth century and the local Beothuk population's non-use of housepits. As mentioned earlier, southern Newfoundland's milder winters may have also contributed to the non-use of housepits there.

EARLY-MODIFIED HOUSEPITS: SMALL AND MEDIUM-SIZED EXAMPLES FROM BOYD'S COVE (DiAp-03): A.D. 1710-1720

The preceding discussion of Early-Period housepits shows that Beothuk initially built such structures along marine shorelines where they were visible from the surrounding ocean. Increased tension, including conflict, between Beothuk and Europeans ended the Early-Housepit-Period. A Beothuk skirmish with European salmon fishers in Dog Bay, located six kilometers overland from Boyd's Cove, preceded the construction of less conspicuous housepits at that site (Pastore 1987:13). Boyd's Cove was abandoned shortly afterwards (see Middle-Period). Boyd's Cove's lone Small housepit and its five Medium-sized examples are distinctly clustered inside the arched distribution of their five Large neighbours (Figure 4). The smaller depressions occur much further, 16.9 to 43.1 meters, averaging 30.09 meters, from the site's outer border, compared to

the 2.7 to 14.69 meter distance, 7.94 meter average, for the five Large housepits. This led to the conclusion that Beothuk attempted to hide Boyd's Cove's smaller structures from Newfoundland settlers following a breakdown in relations (Pastore 1992:38). Citing the suggestion that prominent structures also transmitted a group's title to a given area, the Beothuk construction of housepits in more discrete locations at Boyd's Cove symbolically relinquished their overt claim of ownership of this location. This acknowledged the lack of security they felt following the breakdown in relations with Europeans.

Excavation of Housepit 11, one of Boyd's Cove's smaller housepits and the second-furthest from the water, produced 121 artifacts which is a significantly lower number than the totals from the Large (Early-Period) housepits excavated at the site. This assemblage would be consistent with a briefer occupancy by a smaller group. Although Housepit 11 produced 98 artifacts made from European materials and 23 stone objects, the absence of trade beads and forge-modified iron suggest the short-lived trade between Beothuk and Europeans at, or near Boyd's Cove had come to an end. Housepit 11's small hearth was also interpreted as evidence for shorter usage than occurred in the Large, Early-Period, housepits (Ibid). Housepit 11's occupants appear to have discarded their household waste into the interior of Housepit 1, another Early-Modified feature, indicating that a minimum of two occupations during this period. The discovery of a small hearth on top of another housepit wall and a hearth found above the living floor of a housepit interior were also attributed to brief Beothuk re-visits to Boyd's Cove following it being vacated (Pastore 1992:42). The Beothuk practice of returning to abandoned traditionally popular settlements continued until their disappearance in 1829 (see below).

Although Boyd's Cove's six smallest housepits morphologically resemble most of those left at the Beaches, they were used subsequently to Boyd's Cove's larger structures rather than being transitional between conical mammateeks and more spacious housepits. The six Early-Modified housepits have an average size of 26.22 m^2, representing a significant reduction in interior space from Boyd's Cove's five Large structures which have a mean size of 39.21 m^2 and represent a relatively affluent interval at the site. The Early-Modified average is slightly smaller than the Middle Period mean of 26.65 m^2, suggesting more conservative domestic housing was preferred in the two intervals following the Early Period.

THE SPREAD OF BEOTHUK HOUSEPITS TO NEWFOUNDLAND'S EXPLOITS VALLEY: MIDDLE-PERIOD HOUSEPITS – SMALL, MEDIUM, LARGE AND EXTRA-LARGE SIZES: A.D. 1720-1781

Archaeological and historical data show that the Beothuk's retreat from Notre Dame Bay to the Exploits Valley proceeded in a manner that was conducive to continued diversification of their architecture and increasing sophistication of their iron-recycling abilities in the inland environment. These material alterations occurred along with a major economic shift from a primary dependence on marine resources to terrestrial alternatives, mainly caribou. Beothuk periodically returned to the coast, however. They were seen near Inspector Island as late as 1770 and elsewhere in Notre Dame Bay during the early nineteenth century (Cartwright 1792:4, 7; Marshall 1996:131, 138, 153, 161, 173). The Exploits Valley's 243 Beothuk structures include a minimum of 165 housepits that manifest a variety of shapes and sizes which, along with their

onsite locations and associated artifacts are informative concerning Beothuk attempts to live autonomously after vacating Notre Dame Bay (McLean 2018a:5) (Tables 4A, 4B). A total 3034 Beothuk artifacts that have been collected at 31 Exploits Valley archaeological sites contain 1534 iron objects. The latter include 57 projectile points, 49 preforms and 12 projectile point/preform fragments. In comparison, 11 iron projectile points, 13 preforms and 35 fragments have been found on the coast (Tables 5, 6, 8). The inland projectile points exhibit a wider variety of shapes and sizes than occur on the coast (Plates 1-3). A greater diversity of European iron objects were used as raw materials in the interior, providing further indication of superior recycling abilities, compared to coastal assemblages (McLean 1989:53, 69, 109).

When John Cartwright led the first European expedition ascending the Exploits River to Red Indian Lake in 1768 he mapped the locations of 87 Beothuk houses and 30 kilometers of "deer" fences along the river (Marshall 1996:90, 91). The deer fences were used by Beothuk to hunt caribou. Cartwright also recorded four Beothuk houses, a large ruined village containing an unspecified number of structures and one deer fence at Red Indian Lake. Cartwright's guide, a European trapper and salmon fisherman named John Cousens, reported seeing another eight Beothuk houses on the shores of the Forbidden Ponds which were connected via streams to the Exploits River's north bank (Howley 1915:41; Marshall 1977:231). Most of the buildings seen in 1768 were described as cone-shaped, suggesting a combination of traditional wigwams and housepits, but a few rectangular-shaped examples represent newer-style houses. Cartwright does not mention the number of housepits relative to unexcavated wigwams, but the subsequent identification of 165 housepits at 32 Exploits Valley sites implies that many, possibly the majority,

of the wigwams seen in 1768 possessed semi-subterranean interiors (McLean 2018a:5) (Tables 4A, 4B). This claim is supported by the presence of 33 housepits on the coasts of Bonavista Bay and Notre Dame Bay that were used prior to 1768, showing that this type of architecture was popular among Beothuk by the time Cartwright ventured into the Exploits Valley (McLean 2015b:1; 2017b:26).

At least 78 of the buildings represented by the Exploits Valley's 165 housepits are not mentioned in historic data, resulting in the projected figure of 243 Beothuk buildings throughout this interior environment (McLean 2018a:5). Assuming the Beothuk started building housepits in the Exploits Valley after they abandoned Boyd's Cove around 1720, they constructed 98 inland structures over an approximate 48 year period. They erected a minimum 145 additional buildings after 1768. Further research is warranted to explain the increased number of Beothuk structures from the Exploits Valley, compared to coastal sites, but the inland distribution is significant concerning re-designed subsistence activities and the goal of maintaining security from Europeans. These objectives were pursued by shifting housepit locations at established sites as well as moving base camps to regions beyond European access.

The majority, n=123 (74.5%), of the Exploits Valley's housepits were found through avocational archaeology which inadequately recorded feature morphology, site locations and artifact provenience (Locke Field Notes; McLean 2018a:3). Seven Exploits Valley housepits have been professionally excavated which contributed 152 (5 %) artifacts of the valley's total 3034 Beothuk

items (Devereux 1970; LeBlanc 1973, Sproull-Thomson 1982; Schwarz 1992; Schwarz and Hutchings 2018; McLean 2018b). Evidence of precontact and Beothuk activity within the valley has been enhanced by a number of recent projects initiated by Newfoundland and Labrador's Provincial Archaeology Office (PAO) (McLean 2010, 2011a, 2013a, 2014a, 2014b, 2014c, 2015a, 2015b, 2015c, 2016a, 2016b, 2017a, 2017b, 2017c, 2018ab; Reynolds 2015). These site re-visits confirmed the presence of 61 of 163 housepits that had been previously recorded at 30 Exploits Valley archaeological localities (Tables 2, 4A, 4B). Two new housepits were also discovered (McLean 2015c:31; 2017b:26). Morphological information for a housepit that was excavated in 1970 is included with the sample (Devereux 1970). All of the extant Exploits Valley housepits were measured and were evaluated in consideration of their research potential, along with the threat of erosion and other foreseeable impacts. Although many of these housepits have suffered disturbance, the total set still holds much potential information about Beothuk life in the Exploits Valley. Research to date shows that 48 (75%) of the surviving Exploits Valley housepits were used as domestic structures while excavations are required to determine if the other 16 functioned as habitations, storage houses, crypts or represent unfinished buildings. Excavations of coastal housepits indicated that all of them were domestic habitations. This shows that the Exploits Valley housepits performed additional functions than coastal ones did.

Re-visiting the Exploits Valley housepits re-affirmed the existing observation that the majority of them are distributed over 27 sites that are clustered in five locations (Figures 1-3; Table 2). One-hundred-fifty-six housepits were originally recorded at these localities. Another seven housepits were reported at three Exploits River sites not associated with the clusters (Table 2; Figures 2, 3).

Cartwright's map shows additional Beothuk structures along both shores of the river that are not associated with the clusters, but many of these have not been archaeologically identified. Researchers agreed that the Nimrod's Pool, Badger Brook, Red Indian Falls and Noel Paul's Brook locations had been selected in consideration of their importance as major river crossings for caribou during their annual migrations. Similarly, Indian Point (DeBd-01), June's Cove (DeBd-03) and smaller sites on the south shore of Red Indian Lake were also strategically located for harvesting caribou as they crossed the waterbody during migrations (Locke Field Notes: N.D; Schwarz 1993:6).

Most of the Exploits Valley's Beothuk housepits have not been dated to specific periods within the 1720-1829 interval which probably encompasses the majority, or all, of them. Re-examination of historical and archaeological data, however, revealed patterns in eighteenth century and nineteenth century Beothuk settlement throughout the valley that facilitate tentatively dating the re-identified Beothuk structures. The earliest Exploits Valley housepits, encompassing the Middle-Housepit Period, were built at Nimrod's Pool, Badger Brook, Red Indian Lake and other locations that had experienced sporadic, although sometimes intensive, precontact and early Beothuk usage (Tables 5, 7). Indian Point (DeBd-01), on the south shore of Red Indian Lake, yielded a radiocarbon date of 355 $\pm$ 100 BP (I-6562) (CAL A.D. 1464-1644) from a hearth not associated with a housepit, representing an early Beothuk occupation in Newfoundland's deep interior (Martindale et al 2015). Boom Island (DfAw-03), in Nimrod's Pool produced a similar date of 320 $\pm$ 30 BP (Beta 422459) (CAL A.D. 1510-1616) from a hearth not associated with a housepit (McLean 2016a:24) (Table 9). Stone projectile points made by early

Beothuk, as well as their Little Passage and Beaches Recent Indian ancestors, have also been recovered from these areas. The Beothuk construction of housepits at Indian Point, Badger Brook and Nimrod's Pool followed a sequence of Recent Indian occupations similar to that identified at the Beaches (DeAk-01), Boyd's Cove (DiAp-03) and Inspector Island (DiAq-01) on the coast. Precontact and early Beothuk use of the Exploits Valley, however, was more irregular than contemporaneous occupations of the coast were.

A Middle-Period housepit found at the Old House site (DfAx-04) and three at Four Mile Rapids (DfAv-01) are not directly affiliated with the listed housepit clusters. Housepit morphology and onsite location, along with these sites' close proximity to clustered Middle-Period housepits, meet the criteria for this sub-set, however. Although Middle-Period structures, presumably including housepits, were reported at Red Indian Lake by Cartwright in 1768, none have survived erosion and historic development that destroyed 47 of the 50 Beothuk buildings historically and archaeologically identified there. Installation of a dam across the lake's outflow to the Exploits River in 1909 and subsequent modifications to the facility raised the water level by 10 metres (Young 1951; Morry and Cole 1977:1). This expanded the lake's perimeter by 6.4 x 1.6 kilometres, leading to drastic erosion of the shoreline and widespread destruction of archaeological resources (Ibid; Jenness 1929:36; Taylor 1964:4, Penney et al 2010:9; Sproull-Thomson 1982:179, 181; McLean 2013b:9, 10; 2017a:19, 21, 45, 66; 2017b:21, 26). One excavated housepit and two remaining at the lake are tentatively dated to the Late-Modified Period. The missing Red Indian Lake structures represent habitations, crypts and store houses that were used throughout the Middle, Late and Late-Modified Housepit Periods (see below).

Middle-Period housepits are tentatively dated to 1720-1781 which slightly overlaps with the Early-Period and Early-Modified structures. The first Middle-Period housepits were constructed by members of the Boyd's Cove settlement who migrated inland rather than participate in the creation of a new base camp on Inspector Island. These Beothuk were joined around 1730 by others who had abandoned the latter. The Middle-Period of housepit construction ended when growing European numbers within the Exploits Valley forced the Beothuk to take measures to reduce the possibility of surprise encounters with settlers (see Late-Period). Although the earliest Middle Period housepits were built by Beothuk whose coastal toolkits consisted of traditional and European materials, excavations of Exploits Valley housepits have recovered a variety of modified and unmodified iron objects, fragments of other European materials and an absence of diagnostic Beothuk stone tools. This observation is largely based on excavations that were conducted by an enthusiastic amateur archaeologist who used a metal detector to find iron artifacts rather than comprehensively excavate housepits. This means that stone tools are possibly under-represented in the Exploits Valley's housepit assemblages. A worked stone cobble found in a housepit interior at Four Mile Rapids (DfAv-01) and a flake from inside a housepit at Little Red Indian Brook (DfBa-06) suggest vestigial flint knapping by Beothuk inside some Middle-Period housepits, however (McLean 2016b:25, 54; 2018a:54). Retouched flakes recently recovered from a housepit's earthen foundation wall at Sabbath Point (DeBd-08) and flakes from the mounded wall of Housepit 18 at Indian Point (DeBd-01) may have been created by late eighteenth century-early nineteenth century Beothuk on the south shore of Red Indian

Lake, but further research is needed to elaborate on the question of when Beothuk stopped using stone-tipped projectiles following their exodus from Notre Dame Bay (McLean 2018b:29).

There are 22 extant Middle-Period housepits spread over eight archaeological sites (Table 3; Figures 2, 3). This sub-sample consists of eight Small, eight Medium-sized, five Large and one Extra-large features whose onsite positions left them clearly visible from the Exploits River. This follows the distribution plan for Early-Period housepits which were easily visible from the sea coast (Table 3; Figure 4). The largest Beothuk housepit on record, a 60.00 m^2 rectangular feature from North Angle (DfAw-01), in Nimrod's Pool, is currently located at the outer edge of vegetation, 13 metres from the Exploits River and less than two metres above it. Even allowing for erosion of the river bank, this Extra-large housepit probably was always visible from the river. Smaller housepits at Boom Island and Aspen Island, within Nimrod's Pool, also occur in highly visible locations, suggesting a similar lack of concern with being seen during the Middle-Period (Tables 1, 2) (McLean 2013a:33, 43, 44, 47).

Cartwright's map also shows numerous wigwams along both sides of the Exploits River near Badger Brook, suggesting additional examples of Middle-Period housepits. Although 12 housepits were reported on the river's north bank near the brook in 1914, erosion and development destroyed most of them before they could be archaeologically mapped. Two small housepits and precontact artifacts were archaeologically recorded at Pope's Point (DfBa-01) during the 1960s and three recently re-identified housepits at Little Red Indian Brook (DfBa-06)

represent some of the Middle-Period mammateeks in this area (Speck 1922:24; Devereux 1965:3, 5; McLean 2018a:52). Two housepits at Slaughter Island (DfBa-05), near Badger Brook are also tentatively placed in the Middle-Period (Tables 2, 3) (McLean 2018a:37).

EXPANDED BEOTHUK USE OF THE DEEP INTERIOR: LATE PERIOD HOUSEPITS: SMALL, MEDIUM, LARGE AND EXTRA-LARGE-SIZED STRUCTURES: A.D. 1781-1790

Europeans' absence from the Exploits Valley permitted Beothuk to move throughout this region with autonomy even after commercial salmon fishing had started at the mouth of the Exploits River around 1730. The subsequent increasing magnitude of the salmon fishery and the growth of fur trapping, however, prompted further changes to Beothuk settlement-subsistence and housepit construction. By 1770, there was extensive fur trapping throughout the Exploits Valley. Two furriers saw a Beothuk camp at Sewel Point, near the bottom of the Grand Falls, in 1767 and quickly returned downriver. John Cousens, who served as guide on Cartwright's 1768 expedition, had previously travelled down Thunder Brook to its juncture with the Exploits River above the falls. Cousens did not report encountering Beothuk during this excursion (Howley 1915:42). By 1786, salmon nets were distributed over 44 kilometers of the Exploits River, extending inland from its mouth (Marshall 1996:76, 66). This distance brought fishermen to the base of the Grand Falls which marked the natural limit of salmon migration on the Exploits River. The section of the river below the Grand Falls would have been inaccessible to Beothuk by then, negatively impacting travel and resource procurement. Beothuk no longer had unchallenged access to salmon in the river and a major food resource was denied them. Stable isotope analysis of

Beothuk skeletons shows that the pre-1700 Beothuk diet included 20-65% salmon while post-1700 Beothuk skeletons manifest a declining proportion of this food source, representing a different diet in response to historic pressures (Alison et al 2019:14).

The Nimrod's Pool cluster of sites is located five kilometers above the upper end of the portage around Grand Falls, beyond the area of interest to commercial salmon fishermen, but easily accessible to fur trappers and Europeans exploring the Newfoundland interior. The earliest reported European attack on a Beothuk camp in the valley occurred at a location three days travel upriver, possibly in Nimrod's Pool, in 1781 (Marshall 1996:103, 104, 126). This event included the brutal murder of a Beothuk man and possibly helped to convince the Beothuk to shift their base camps to deeper interior locations where the intruders were less active. Maps and written accounts show an absence of Beothuk structures along the upper Exploits River leading to Red Indian Lake until the late-eighteenth century. Housepit aggregations at Red Indian Falls and Noel Paul's Brook are three kilometers apart, representing a shared upper river context constituting Late-Period housepits. These locations held a similar lack of appeal for precontact people and pre-1781 Beothuk, but filled the needs of later Beothuk who desired isolation from foreigners, in addition to access to migrating caribou (Figures 1, 2, 3). Small precontact assemblages were reported at a few of the Late-Period sites, while some localities do not contain precontact material (McLean 2018a:42, 97: Schwarz 2011:8, 9). The Stone Chip site (DeBb-06), near Noel Paul's Brook, consists of privately collected flakes that are not available for examination. Noel Paul Brook-South (DeBb-03), contains over 100 flakes and a biface fragment that were tentatively interpreted as precontact Recent Indian (Thomson 1983:17). A reported private collection of

stone tools from the vicinity of Red Indian Falls-5 (DfBb-01) cannot be confirmed. Waterworn cores and flakes collected at Red Indian Falls-North-2 (DfBb-09), Red Indian Falls-North-1 (DfBb-08) and Red Indian Falls-7 (DfBb-07) show that good quality lithic raw material is available there, but further research is needed to determine whether these items include artifacts or naturally chipped cobbles (McLean 2011a:41; 2015a:28, 29, 30).

There are 15 extant Late-Period housepits distributed over six sites within the Red Indian Falls and Noel Paul's Brook clusters (Figures 2, 3; Tables 2, 3). Six small storage pits, extraneous to the Red Indian Falls housepits, were also identified (Schwarz 2011:9). Other Late-Period sites probably were present along the shores of Red Indian Lake as well, but these appear to be lost to erosion. Eight additional housepits at Red Indian Falls and Noel Paul's Brook are subsequently utilized Late-Modified features (see below). Late-Period housepits occur at low elevations on the outer edges of river banks, suggesting the Beothuk perception of a low probability of Europeans penetrating this far inland after 1781. Nine surviving housepits at Red Indian Falls-1 (DfBb-03), Red Indian Falls-4 (DfBb-06) and Red Indian Falls-5 (DfBb-01), along with six at three Noel Paul's Brook sites are 1.14 to 4.95 meters, averaging 2.20 meters, above the river. These housepits are one to 10 meters, averaging 5.91 meters, horizontally from the river. The Late-Period housepits consist of three Small, nine Medium, two Large and one Extra-Large examples (Table 3, Figures 2, 3). Their mean size, 29.12 m^2, is slightly bigger than the Early Period mean of 28.58 m^2 and second overall to the Late-Modified average of 36.47 m^2 (Figure 2). The majority of Late-Period housing was provided by nine Medium-sized examples whose average size of 28.75 m^2 is the largest Medium mean within the five time periods (Figures 5, 6). Late-Period Large housepits

have the lowest Large mean per time division, but the period's single Extra-Large housepit is the fourth largest overall. The need for slightly larger houses during the Late-Period may have resulted from the incorporation of Beothuk refugees into more intact households, a trend which reached its greatest manifestation in the following Late-Modified Period (see below). The Late-Period's Small housepits continue the pattern towards progressively smaller values within this size category over time in the Exploits Valley. Store houses that were smaller than habitations were reported along the river in 1811 (Howley 1915:83), but archaeological excavations are required to determine if particular Small housepits were used as shelters, or for storage, or for the interment of human remains in the Exploits Valley.

FURTHER ADJUSTMENTS TO A BEOTHUK DEEP INTERIOR EXISTENCE:

LATE-MODIFIED HOUSEPITS: 1790-1829:

SMALL, MEDIUM, LARGE AND EXTRA-LARGE EXAMPLES

Beothuk housepits' Late-Period proved to be relatively short-lived due to the increasing amount of settler activity throughout the upper levels of the Exploits Valley. Europeans, in 1790, sacked a number of Beothuk camps near the juncture of the Exploits River and Red Indian Lake, showing that the Late-Period settlements were no longer safe for Beothuk. Two Beothuk women and a child were captured during this raid, but were soon released (Marshall 1996:103, 126). This event preceded the Late-Modified Period of housepit construction when Beothuk built structures in discrete, difficultly accessed locations at Red Indian Falls, Noel Paul's Brook, Red Indian Lake, Badger Brook and Nimrod's Pool. Twenty-seven housepits, distributed over 10 sites, constitute

Late-Modified examples which are tentatively dated to 1790-1829 (Figure 3). This is the largest number of housepits and the highest number of sites per period although the Middle-Period possibly contained larger houspit and site totals before erosion.

Although the Middle and Late-Modified Periods both contain high numbers of housepits that were widely dispersed throughout the Exploits Valley, comparison of housepit morphologies and onsite location reflect deteriorating Beothuk living conditions during the latter interval. Seven recently re-identified housepits, out of 11 originally reported at Red Indian Falls-2 (DfBb-04) and Red Indian Falls-3 (DfBb-02) were built in areas that offered enhanced defensibility compared to Late-Period structures at Red Indian Falls-1, 4 and 5 (DfBb-05, 03, 01). Red Indian Falls-2 and -3 (DfBb-03, 04) are located 22 to 37.5 meters, averaging 28 meters, horizontally from the Exploits River and 7.7 to 9.5 meters above it. These features occur on a level terrace that is accessed via a steep gravel bank. Although the upper terrace houses would have given their occupants an excellent view of the river after large trees were removed, their elevation posed a practical disadvantage for storing caribou killed along the river bank. Arguably, the upper terrace sites may have been used to procure north-migrating caribou before they entered the Exploits River, but in consideration of hunters' preference to place their camps out of the direct path of caribou migrations, it seems more likely that the higher elevation sites represent the Beothuk's desire to conceal their habitations from Europeans during a period of acute tension (Erwin, Holly, Prince 2018:214). The recovery of 1030 glass trade beads from Housepit 2 at Red Indian Falls-3 (DfBb-02) dates this feature to the early nineteenth century when goodwill expeditions into the Exploits Valley carried strings of beads and other items as gifts for Beothuk (Howley 1915:72, 117).

Although Red Indian Lake's two remaining housepits currently occur close to the waterline and sit one to 3.64 metres above the lake, their original settings, before construction of a dam at the outflow to the Exploits River raised the water level by 30 feet, fit the criteria for Late-Modified structures. Partial excavation of a recently discovered housepit at Sabbath Point (DeBd-08), on Red Indian Lake's south shore, indicated it was occupied during the late eighteenth/early nineteenth century (Schwarz and Hutchings 2018:39; McLean 2017b:26). Although this feature is currently within one meter of the site's eroding bank and is 1.5 metres above lake, it was originally at least 19 metres from the water line and 11 meters above it. Twenty-seven tree stumps protruding through the 18 metre-wide pebble beach below the eroding bank illustrate the lost terrain here (McLean 2017b:27). Similarly, Housepit 18 at Indian Point (DeBd-1), 400 metres northeast from Sabbath Point, is the surviving member of at least 24 housepits seen at this site in 1875 (Lloyd 1876:223; McLean 2017a:28). Another Indian Point housepit, Feature B5, which occurred 11 metres northeast from # 18, was excavated in 1970 (Devereux 1970). These two features were part of an aggregation of 21 housepits that were present on the site's upper level which was 30 feet above Red Indian Lake. At least three more housepits were counted on the site's lower bank (Lloyd 1876:223). Housepit 18 is currently 3.64 metres above the lake and 14 metres from the site's eroding edge, but it would have been some 13.64 metres above the water and 47 metres inland from the waterline before the lake rose in elevation and erosion ensued. Housepit B5 at Indian Point also would have been 13.64 metres above the lake and 19.6 metres inland when Beothuk occupied it. These three housepits' locations obviously were not selected in consideration of easy access to Red Indian Lake, a trait they share with the Red Indian Falls upper terrace sites and the Early-Modified units from Boyd's Cove.

European discovery of occupied and abandoned mammateeks on Red Indian Lake's shoreline in 1811 corroborates the proposed locational criteria for Late-Modified structures. A group of soldiers and their guides found caribou carcasses and quarters near a path that led to an old wigwam in the woods, suggesting a vacant Late-Modified building. The Europeans subsequently encountered six Beothuk canoes and three octagonal-shaped mammateeks further northeast along this shoreline. The absence of guards at this camp shows that the 65-75 Beothuk who were sleeping inside the houses were unconcerned about being attacked. The settlers "ascended the bank with great alacrity and silence..." indicating that the houses lay on an elevated area overlooking the lake. Once the Beothuk were put at ease regarding the intruders' intentions, the latter were fed venison cakes. Despite this peace offering and reciprocal gifts from the Europeans, two marines were eventually killed by Beothuk, possibly largely due to the groups' inability to clearly communicate with each other (Howley 1915:76, 77, 85). The Beothuk woman Shanawdithit, who was was among the Beothuk encountered in 1811, subsequently reported that 42 people were present in three houses during this interaction, suggesting that the actual number is between this figure and the 75 estimated by Buchan (Marshall 1996:206).

An additional nine Late-Modified housepits occur at Two Mile-Island-1 (DfBa-02) and one was found at Two Mile Island-2 (DfBa-03) which are located two miles (3.2 kilometres) upriver from Badger Brook. Although these housepits are located 17 kilometres downriver from Red Indian Falls' Late-Modified features, the Two Mile Island examples are strategically situated with respect to late eighteenth-century and nineteenth-century Beothuk logistics that saw them travel from the Exploits Valley to the sea coast via Badger Brook and its adjoining ponds, rather than along

the lower Exploits River. The Badger Bay watershed route enabled Beothuk to access the sea coast while avoiding European fur trappers and salmon fishermen in the lower Exploits Valley (Marshall 1996:150). Although Two Mile Island-1's (DfBa-02) housepits are not located on a high terrace, they are 30 to 48 metres, averaging 38 metres, from the river. These housepits are the furthest removed Beothuk structures, on average, from the Exploits River. Most of the Two Mile-1 housepits also occur unusually large distances, up to 130 metres, from their neighbours which would have helped them to blend into the surrounding vegetation. The majority of housepits at other large Beothuk sites are much more closely aggregated, often sharing portions of their earthen walls (McLean 2014b:48, 49). Most of Two Mile Island-1's housepits have barely visible earthen foundations facing the river, implying that the walls that extended from these ramparts were accordingly discrete, thereby contributing to camouflaging these structures (McLean 2014b:50). A final observation about Two Mile Island-1's (DfBa-02) housepits concerns their large size. Eight measured housepits manifest an average area of 38.40 m^2, the largest mean size for a cluster other than Red Indian Lake whose three measured pits have a mean of 40.35 m^2 (Tables 2, 3; Figure 2). Considering, however, that these Red Indian Lake housepits represent 6.0% of the 50 Beothuk structures documented along the shores of the waterbody, they cannot be regarded as representative of the total sample from the lake.

Six housepits, including one Small, three Medium and two Extra-Large examples, from Nimrod's Pool are also tentatively assigned to the Late-Modified Period based on their onsite positioning. Many of these have not been archaeologically excavated, leaving the possibility that some of them were briefly inhabited by Beothuk re-visiting this traditionally favoured area during 1781-

1790. If so, these occupations would constitute a Middle-Modified Period, representing additional alterations to the Middle-Period preferences for housepit location and associated subsistence activities. It is also possible that some of Red Indian Lake's missing housepits were Middle-Modified Period occupations, given the sustained long term usage of that region. Housepit 13, from Aspen Island-2 (DfAw-05), in Nimrod's Pool, is currently located 38 metres from the Exploits River which, despite its low elevation, 1.70 metres, above the water suggests a Beothuk desire for isolation/security that contrasts with four Middle-Period housepits from that site. Similarly, Housepit 9 from Aspen Island-2 (DfAw-05) sits 46 metres from the edge of the river, suggesting another Late-Modified occupation. Three housepits from Aspen Island-1 (DfAw-04), 25 metres from Aspen Island-2 (DfAw-05), are 30 to 31.2 metres from the river, locations that place them within the Late-Modified period. Beaver Island's (DfAw-02) Extra-Large housepit, also in Nimrod's Pool, is possibly the location where a Beothuk woman was killed by John Peyton Sr. in 1816 (Howley 1915:245). The timing of this event, along with the Beaver Island housepit's location 22 metres from the river, would place it in the Late-Modified Period. Buchan, in 1811 reported finding a recently occupied Beothuk house on a Nimrod's Pool island (Ibid:151, 153), referring to a Late-Modified structure that could be one of these or a former mammateek yet to be identified.

South Exploits (DfAw-07), in Nimrod's Pool, reportedly contained 10 Beothuk housepits which have been lost to erosion or are currently invisible due to dense vegetation. While these features' documented locations, near the outside edge of the low-lying river bank, would suggest Middle-Period housepits, some of the site's artifacts represent the Late-Modified-Period. An iron

projectile point from Housepit 8 and a second one found near Housepits 9 and 10 at South Exploits are very similar to a complete one, as well as a preform, from Sabbath Point (DeBd-08). These are the only four specimens of this type which dates them to the Late-Modified Period (Plate 3) (Locke Field Notes; Erwin and Hull 2018; McLean 2003:14; 2018b:19). Additional Late-Modified evidence from South Exploits consists of an iron projectile point preform (DfAw-07:95) that closely resembles a unique projectile point recovered from the interior of the Sabbath Point (DeBd-08) housepit (McLean 1989:77; Schwarz and Hutchings 2018:39). Other artifacts, including glass trade beads, European locket fragments, a string of marine's buttons and a complete furrier trap, from South Exploits' (DfAw-07) Housepit 8 are also consistent with the proposed Late-Modified time frame (Locke Field Notes; McLean 2013a:50).

The Late-Modified housepits provide the most emphatic architectural expressions of the effects of latter-period changes to Beothuk family structure due to steadily increasing European activity. This period's housepits' average size, 36.47 m^2, is the only interval mean outside the parameters for Medium-sized features, 20.77-33.85 m^2 (Table 3). The Late-Modified average is attributable to this period having the highest numbers of Extra-Large, Large and Medium-sized housepits. The large mean is especially significant, considering that the Late-Modified Period also contains the smallest housepit on record and its three Small housepits comprise the lowest average for this size per period (Table 3). Beothuk may have increased their use of small store houses during the Late-Modified-Period when their numbers were reduced and they probably spent less time at a given site as they attempted to isolate from Europeans. Buchan, in 1811, reported seeing a circular store house at Red Indian Falls that was smaller than Beothuk wigwams. Large store

houses continued to be used, however, as a 40 foot long, almost square example, containing meat from 100 caribou, and located along the Exploits River was reported by William Cull in 1810 (Howley 1915:84; 69).

The concentration of Extra-Large housepits along with bigger than normal Large and Medium-sized structures during the Late-Modified Period constitutes another major alteration to an established Beothuk architectural pattern. Omitting the 27 Late-Modified housepits from the inland sample changes the mean size of Exploits Valley housepits to 26.42 m^2 from 30.66 m^2. This revised value is less than the coastal average of 27.96 m^2, showing that Beothuk architecture was trending towards smaller structures in the interior until the Late-Modified Period. This is consistent with the declining Beothuk population. The concentration of exceptionally large housepits during the Late-Modified Period corroborates historical evidence for surviving members of decimated Beothuk families living together within a single structure, producing bigger households than the traditional single family-based residency. Between 42 and 75 Beothuk were living in three houses on the south shore of Red Indian Lake in 1811. Two dwellings on the lake's north shore housed 13 people in total and 17 Beothuk occupied two mammateeks on southwestern Red Indian Lake that year (Marshall 1996:206; Howley 1915:85). Thirty-one Beothuk were living in three houses on the northeast shore of the lake when John Peyton's group of settlers encountered them in 1819 (Marshall 1996:208). Twenty-seven Beothuk occupied three mammateeks along the Exploits River in 1820 (Ibid:170, 179). The multi-family population of these mammateeks, as explained by the Beothuk woman Shanawdithit, dramatically contrasts with the small conical wigwams from early seventeenth-century Trinity Bay (Ibid:206-209). The

social upheavals arising from a declining Beothuk population during the Late-Modified Housepit Period also contrasts with the prosperity of Boyd's Cove's Early-Period Large housepits.

Although the Late-Modified housepits are the most recent Beothuk former structures that have been archaeologically identified, historical information attests to continued European activity during this interval that saw further dispersal of Beothuk survivors to even more remote areas. Settler excursions upriver, peacefully searching for Beothuk or hoping to avenge sabotage attributed to them, are reported from 1803, 1809, 1810, 1811, 1816, 1819 and 1820 (Marshall 1996:103, 104, 106, 126, 151, 153). Beothuk killed two marines on the frozen Red Indian Lake in 1811 and later that year, Europeans interpreted an empty storehouse perforated with arrows as a warning (Ibid:142, 143). A Beothuk woman was murdered in Nimrod's Pool in 1816 and settlers captured a Beothuk woman, Demasduit, after killing her husband, Nonosabasut, on Red Indian Lake in 1819 (Ibid:142, 168, 209). Shanawdithit reported that Beothuk, between 1819 and 1823, camped along lakes located between the Exploits River and Badger Bay (Ibid:208). The remains of a large Beothuk camp were found on the shore of New Bay Pond or South Twin Lake, within the Badger Bay watershed, in 1828, but this site has not been archaeologically identified (Ibid:195). Beothuk were also encountered on the Badger Bay coast during this period (Ibid:183).

CONCLUSIONS

Housepits, iron projectile points recycled from European objects and bone pendants, along with modified subsistence pursuits, are diagnostic attributes of Newfoundland's Beothuk Indians. These entities distinguish Beothuk from their precontact ancestors who are archaeologically

known as the Little Passage complex. Despite the significance of these traits, they were not adopted by all Beothuk, but were confined to the island's northeastern coast and the Exploits Valley which extends inland from this marine area. The temporal and spatial occurrence of these cultural elements reflects the Little Passage/early Beothuk settlement-subsistence pattern that consisted of small bands of people whose catchment areas were separated by considerable distances along Newfoundland's coast. This resulted in a non-unified response to the arrival of Europeans in Newfoundland.

Beothuk living in Bonavista Bay and Notre Dame Bay lay beyond early European fishing, whaling and associated pursuits that impacted Newfoundland's southeast, south, west and northwest coasts since the sixteenth century. The northeastern Beothuk followed their ancestors in establishing base camps and satellite localities in archipelagos occurring within Bonavista Bay and Notre Dame Bay which provided additional buffering from Europeans even as the latter increased along Newfoundland's outer northeast coast after 1670. While these Beothuk experienced very little, if any, close contact with early migratory fishermen, Beothuk in Bonavista Bay were in possession of European goods since the mid to late-sixteenth century. These foreign items may have been obtained through trade with Beothuk, primarily those based in Trinity Bay and Conception Bay, who lived in closer proximity to Europeans. The Bonavista Bay Beothuk also could have procured European objects from shipwrecks or fishing stations located outside their inner coastal environment although these sources would have been rare until the latter seventeenth century. The northeastern Beothuk would have been informed about Europeans from their Beothuk trading partners which provided the more isolated Beothuk the luxury of

considering the potential ramifications of European activity before it directly affected their territory. The northeastern Beothuk showed impressive foresight in tweaking their settlement-subsistence adaptation as well as their architecture and toolkits at this early time.

This paper summarizes morphological, contextual and assemblage data pertaining to 22 housepits found on Newfoundland's northeast coast and 64 from the Exploits Valley. The analysis shows there is a close relationship between housepit usage and changes to Little Passage/Beothuk settlement-subsistence pursuits which repeatedly occurred in response to historic pressures. Little Passage residents of Bonavista Bay and Notre Dame Bay annually harvested large numbers of harp seals during the late winter-early spring. This hunt intensified in the historic period, enabling Beothuk descendants of the Little Passage to curtail their summertime activities in order to reduce the potential for chance encounters with Europeans. Housepits were adopted in Bonavista Bay during the mid- to late-sixteenth century, to facilitate extended seal hunting on the coast during winter and spring. It is unclear as to whether Beothuk independently conceived the housepit template or were otherwise influenced in the development of the new architecture. Precontact Recent Indians did not build housepits although they would have been familiar with Paleo-Inuit housepit remains on the island and southern Labrador. Beothuk may have activated this latent knowledge in association with alterations to their subsistence endeavours. Beothuk housepits do not appear to be copies of European structures and the absence of iron axes in the oldest examples shows that these tools did not factor in the Beothuk's initial construction of larger buildings that required more wood and effort to complete. Iron/steel axe heads were found inside later housepits built in the

Exploits Valley, indicating that they may have been used in constructing them, but a greater number of modified axes were also present, showing they were equally valuable as a raw material for recycling.

Beothuk built 19 housepits at the Beaches site (DeAk-01), in Bonavista Bay, between 1550 and 1750. The housepit concept may have eventually been transferred via trade or other inter-Beothuk relations to Notre Dame Bay localities which are 140 kilometers to the northwest from the Beaches. Beothuk erected 11 housepits at Boyd's Cove (DiAp-03), in Notre Dame Bay between 1650 and 1720. They built three more at Inspector Island (DiAq-01) during the 1720-1730 interval. European settlement and the growth of the salmon fishery within Notre Dame Bay forced Beothuk to abandon Boyd's Cove around 1720 and Inspector Island by 1730. Beothuk erected at least 243 structures throughout the Exploits Valley between 1720 and 1829 following their evacuation of Boyd's Cove (DiAp-03). At least 165 of these buildings were housepits.

Morphological data obtained from 85 extant housepits and an excavated specimen were divided into four size categories that are distributed over five time periods. Small housepits are 7.68 – 20.76 m^2, Medium examples are 20.77 – 33.85 m^2, Large encompass 33.86 – 46.93 m^2 and Extra-Large are 46.94 – 60.00 m^2. They are divided into Early (1550-1750), Early-Modified (1710-1720), Middle (1720-1781), Late (1781-1790) and Late-Modified (1790-1829) periods although further research may prove that some of the Late-Modified structures were utilized during a slightly earlier Middle-Modified (post-1781) interval. Each period saw morphological, contextual and

assemblage variation in housepits that are associated with modifications to Beothuk settlement-subsistence adaptations in response to Europeans encroaching on traditional Beothuk territory, or threatening to do so.

This discussion of northeastern Beothuk's changing settlement-subsistence and associated material culture alterations shows that they preferred to camp close to marine or freshwater shorelines to facilitate satisfying basic needs, namely production, distribution, transmission, reproduction and co-residence. Early-Period housepits were constructed in highly visible locations along the sea coast between 1550 and 1750. Middle-Period and Late-Period housepits were built along the low elevation banks of the Exploits River and Red Indian Lake between 1720 and 1790. Early, Middle and Late-Period housepits' close proximity to waterways facilitated procuring resources and delivering them to base camps for processing and consumption. Housepit positioning during these periods also permitted Beothuk to monitor their surroundings while also giving notice of their regional title. Although the Middle and Late-Period sites represent a significant shift from a predominantly coastal existence to one based in the Newfoundland interior, Middle-Period base camps were established in areas that had been intermittently used by Beothuk and their predecessors for many generations. The move to Late-Period locations broke from accustomed behavior as these deep interior areas show little evidence of precontact or early Beothuk usage, meaning they were not preferred for caribou hunting or other resource procurement. The decision to establish base camps here was more of a gamble and is symbolic of Beothuk's diminishing control over their fate during the late eighteenth century.

The Early-Modified and Late-Modified Housepit Periods saw alterations to structures' positions at Early-Period and Late-Period sites in response to European aggression. In addition, some Late-Modified housepits were discretely positioned at previously unused localities. The Early-Modified and Late-Modified housepits were less visible from the adjoining waterways. These habitations and store houses were also more difficult to access which provided Beothuk with extra time to flee invading Europeans or to defend their property. Beothuk perceptions of their relationship with non-Beothuk and their sense of security were obviously less optimistic during the Early-Modified and Late-Modified periods. The Beothuk preference for re-occupying popular locations, which are known as multi-component archaeological sites today, is apparent in the construction of Early-Period and Middle-Period housepits at sites which had been used by preceding Beothuk and precontact Recent Indians. Early-Modified housepit positioning at Boyd's Cove (DiAp-03), along with Late-Modified examples at Aspen Island-2 (DfAw-05) and possibly Indian Point (DeBd-01), represent a less disruptive adjustment to settlement-subsistence compared to shifting the whole base camp, often to previously unused locations. It is also possible that some of the Early-Modified and Late-Modified housepits resulted from unpredictable and sporadic re-visits to abandoned Early, Middle and Late-Period base camps after Beothuk had moved to more remote locations. Excavations are needed to obtain radiocarbon dates along with information pertaining to assemblages and housepit morphology that will help to date these occupations.

Final observations concern the variable size and functions of Beothuk housepits. Medium-sized examples are the most numerous size, n = 39 (45.35%), and occur in each time period. They are

also the most common in each interval, except for the Middle-Period which has equal totals of Medium and Small housepits in its top categories. The 30.14 m^2 average size for the entire sample is a Medium value, endorsing the conclusion that this size supplied the majority of Beothuk housing and storage needs during the housepit periods. Nonetheless, the presence of four housepit size classes represents Beothuk architectural requirements beyond what could be provided by Medium-sized structures. All of the Early-Period and Early-Modified-Period's housepits, consisting of Small, Medium and Large examples, were domestic habitations with storage presumably provided by smaller features that are hard to archaeologically identify. Subsequent periods saw Small, Medium, Large and Extra-Large structures used as human habitations while an undetermined number of Small, Medium and Large housepits provided storage, primarily for caribou meat. Archaeological excavations are needed to determine if Extra-Large housepits were used to store food. Food storage was clearly more important to Beothuk who had moved inland from Notre Dame Bay, indicating the more tenuous supply of these resources in the interior.

Comparing the average size of 22 coastal housepits, 27.96 m^2, representing the Early and Early-Modified Housepit Periods to that derived for 64 Exploits Valley examples, 30.66 m^2, representing the Middle, Late and Late-Modified Periods, suggests a Beothuk preference for larger structures in the interior environment. This conclusion, however, is skewed by the aggregation of larger than normal Medium and Large-sized housepits, along with the addition of six Extra-Large examples, in the Late-Modified Period. Beothuk actually reduced the size of most of their housepits in the Exploits Valley until bigger habitations were required to accommodate

survivors of families decimated by disease and European expansion during the Late and especially the Late-Modified Periods. This development is especially apparent in the concentration of Extra-Large housepits at Late-Modified sites that are tentatively dated to A.D. 1790-1829. This corroborates historic reports of the remnants of multiple families sharing a single structure, often totalling more than 10 people living under one roof.

The model outlined in this paper shows that future excavations of Beothuk housepits holds much potential information pertaining to their settlement-subsistence practices and associated material culture. These conclusions were derived from analysis of 86 housepits which represent 43 % of the total 198 of these features that have been reported. Altogether, 33.34 % of coastal housepits, representing Early and Early-Modified examples, are unexcavated or have been lost to erosion. Similarly, 66.57 % of Exploits Valley housepits, representing Middle-Period, Late-Period and Late-Modified occupations, are unexcavated or otherwise destroyed. It is recommended that Beothuk sites in both regions should be closely monitored and selectively excavated in conjunction with surveys, looking for undocumented localities.

TABLE 1: BEOTHUK HOUSEPIT MORPHOLOGICAL DATA PER COASTAL SITE

TABLE 1A: BEACHES (DeAk-01)

HP #	SHAPE	FLOOR (M2)	WALLS (M2)
1	ROUND/OVAL		15.55
2	ROUND/OVAL		33.74
3	SQUARE/OVATE		30.7
4	OVATE	7.00 (D)	20.83 (M)
5	SQUARE	11.38	32.08
6	OVATE	8.83	19.48
7	SQUARE/RECTANGLE/OVATE		21.76
8	OVATE		17.96
	AVERAGE	**9.07 (N=3)**	**24.13 (N=3)** **24.01 (N=8)**

D FROM DEVEREUX'S DIAGRAM
M FROM MCLEAN

TABLE 1B: INSPECTOR ISLAND (DiAq-01)

HP #	SHAPE	FLOOR (M2)	WALLS (M2)
1	PENTANGLE/RHOMBUS	11.85	27.76
2	SQUARE/TRAPEZOID		19.62
3	ROUND		22.27
AVERAGE			**23.22**

TABLE 1C: BOYD'S COVE

HP #	SHAPE	FLOOR (M2)	WALLS (M2)
1	PENTANGLE/ROUND	16.49	32.53
2	RECTANGLE	14.69	35.94
3	SQUARE/ROUND	17.27	39.43
4	RECTANGLE	24.47	46.51
5	SQUARE/PARALLELOGRAM	14.8	36.60
6	CIRCULAR/OVAL	11.83	26.51
7	OVAL	10.57	24.66
8	OVATE	22.09	37.59
9	CIRCULAR/OVAL	7.96	18.47
10	OVAL	12.43	25.19
11	ROUND/HEXAGONAL	19.00	29.97
AVERAGE		**15.60 (N=11)**	**32.13 (N=11)**

TABLE 2: BEOTHUK HOUSEPIT MORPHOLOGICAL DATA PER INTERIOR SITE

HP #	SHAPE	FLOOR (M^2)	WALLS (M^2)
	SABBATH POINT (DeBd-08)		
1	HEXAGON	39.92	51.45
	INDIAN POINT (DeBd-01)		
B5	PENTANGLE	25.62	29.33
18	IRREGULAR QUADRILATERAL	18.54	40.27
	RED INDIAN LAKE AVERAGE	**28.03**	**40.35**
	NOEL PAUL'S BROOK-1 (DeBb-01)		
1	ROUND/OVAL	21.02	44.80
	NOEL PAUL'S BROOK-4 (DeBb-04)		
1	OVAL	13.99	32.65
2	SQUARE/RECTANGLE	18.0	33.0
3	SQUARE/RECTANGLE	12.25	25.0
	DeBb-04 AVERAGE	**14.75**	**30.22**
	LITTLE BROOK SITE (DeBb-05)		
1	SQUARE/ROUND	13.30	28.00
2	SQUARE	4.40	12.90
	GLADE SITE (DeBc-02)		
1	SQUARE	18.0	39.0
	NOEL PAUL'S BROOK AVERAGE (N=7)	**14.42**	**30.76**
	RED INDIAN FALLS CLUSTER/ UPPER TERRACE		
	RED INDIAN FALLS-3 (DfBb-02)		
1	ROUND	10.34	20.95
2	ROUND	15.24	37.5
3	ROUND	18.29	35.83
	RED INDIAN FALLS-3 (DfBb-02) AVERAGE (N = 3)	**14.62**	**31.43**

TABLE 2 (CONTINUED): BEOTHUK HOUSEPIT MEASUREMENTS: INTERIOR HOUSEPITS

HP #	RED INDIAN FALLS-2 (DfBb-04)	FLOOR (M^2)	WALLS (M^2)
1	RECTANGLE/SQUARE/PENTANGLE	30.0	52.90
2	SQUARE	18.7	32.5
3	SQUARE	6.2	14.4
5	SQUARE/ROUND	13.7	44.2
	RED INDIAN FALLS-2 (DfBb-04) AVERAGE (N=4)	**17.1**	**36.0**
	UPPER TERRACE AVERAGE (N=7)	**16.10**	**34.04**
	RED INDIAN FALLS-5 (DfBb-01)		
1	OVATE/RECTANGLE	13.3	34.8
2	ROUND/OVAL	5.78	12.75
3	ROUND	13.30	31.78
	RED INDIAN FALLS-5 (DfBb-01) AVERAGE	**10.79**	**26.44**
	RED INDIAN FALLS-1 (DfBb-03)		
1	ROUND/OVAL	12.41	29.39
2	ROUND	11.52	24.82
3	ROUND	11.43	27.99
	RED INDIAN FALLS-1 (DfBb-03) AVERAGE	**11.79**	**27.40**
	RED INDIAN FALLS-4 (DfBb-06)		
1	OVAL/RECTANGLE	26.2	58.8
2	ROUND	12.74	26.12
3	ROUND	12.25	19.73
	RED INDIAN FALLS-4 (DfBb-06) AVERAGE	**17.06**	**34.88**
	RIF/LOWER TERRACE AVERAGE (N=9)	**13.21**	**29.58**

TABLE 2 (CONTINUED): BEOTHUK HOUSEPIT MEASUREMENTS: INTERIOR HOUSEPITS

HP #	SITE/CLUSTER	FLOOR (M^2)	WALLS (M^2)
	TWO MILE ISLAND (DfBa-02)		
2	RECTANGLE/OVAL (ROCK-LINED)	17.96	34.99
3	HEXAGONAL?	20.70	36.6
4	ROUND/SQUARE (ROCK-LINED)	?	31.40
5		17.2	24.7
6		26.2	40.6
7	(ROCK-LINED)	36.2	56.9
11		11.34	22.8
12		32.5	59.2
	TWO MILE ISLAND-1 (DfBa-02) AVERAGE	**23.16 (N=7)**	**39.40 (N=7) 35.77 (N=9)**
	TWO MILE ISLAND-2 (DfBa-03)		
2	OVATE/CIRCULAR	?	31.20
	SLAUGHTER ISLAND (DfBa-05)		
1	QUAD	?	23.50
2	HEPTAGON	6.99	12.17
	SLAUGHTER ISLAND (DfBa-05) AVERAGE		**17.83**
	LITTLE RED INDIAN BROOK (DfBa-06)		
2	CIRCULAR	?	27.06
3	RECTANGULAR	?	12.92
5	OVATE	?	24.37
	LITTLE RED INDIAN BROOK (DfBa-06) AVERAGE		**21.45**
	BADGER BROOK AVERAGE	**21.14 (N=8)**	**35.99 (N=8) 30.21 (N=15)**

TABLE 2 (CONTINUED): BEOTHUK HOUSEPIT MEASUREMENTS: INTERIOR HOUSEPITS

HP #	SITE/CLUSTER	FLOOR (M^2)	WALLS (M^2)
	OLD HOUSE SITE (DfAx-04)		
	OVATE	7.50 (N=1)	15.75 (N=1)
	NIMROD'S POOL	FLOOR (M^2)	WALLS (M^2)
	NORTH ANGLE (DfAw-01)		
1	OVAL	11.43	30.93
2	OVAL	16.17	25.27
3	OVAL	19.28	35.73
4	RECTANGLE	32.60	60.0
5	RECTANGLE	21.80	42.20
6	ROUND	17.49	34.99
	NORTH ANGLE (DfAw-01)AVERAGE	**19.79**	**38.19**
	BEAVER ISLAND (DfAw-02)		
1	RECTANGLE	16.60	59.20
	BOOM ISLAND (DfAw-03)		
1	OVAL	?	17.84
	ASPEN ISLAND-1 (DfAw-04)		
1	ROUND	17.88	48.45
2	OVAL/RECTANGLE	11.90	27.99
3	ROUND	7.89	23.95
	ASPEN ISLAND-1 (DfAw-03) AVERAGE	**12.56**	**33.46**
	ASPEN ISLAND-2 (DfAw-05)		
1	ROUND	7.70	25.07
2	ROUND	7.71	27.98
3	RECTANGLE	5.70	19.20
4	ROUND	8.21	46.53
9	PENTANGLE	?	29.60
13	OVATE	?	7.68
F16	SQUARE	4	12.25
	ASPEN ISLAND-2 (DfAw-05) AVERAGE	**6.64 (N=5)**	**26.21 (N=5) 24.04 (N=7)**

TABLE 2 (CONTINUED): BEOTHUK HOUSEPIT MEASUREMENTS: INTERIOR HOUSEPITS

HP #	SITE/CLUSTER	FLOOR (M^2)	WALLS (M^2)
	ASPEN ISLAND-3 (DfAw-06)		
1	RECTANGLE	12.5	35.6
	NIMROD'S POOL AVERAGE	**13.68 (N=16)**	**34.71 (N=16)** **32.12 (N=19)**
	FOUR MILE RAPIDS (DfAv-01)		
1	HEXAGONAL	8.89	17.98
2	HEXAGONAL	11.90	22.60
3	ROUND/OVAL	8.71	16.44
	FOUR MILE RAPIDS (DfAv-01) AVERAGE	**9.83**	**19.01**

TABLE 3: DISTRIBUTION OF HOUSEPIT SIZES PER TIME PERIOD

EARLY	EARLY-MODIFIED	MID-PERIOD	LATE	LATE-MODIFIED	TOTAL
SMALL HOUSEPITS (7.68 – 20.76 M^2)					
BEA HP1 (15.55 M^2)	BC HP9 (18.47 M^2)	LRIB HP3 (12.92 M^2)	LBS HP2 (12.90 M^2)	2MI1 HP9 (14.70 M^2)	
BEA HP6 (19.48 M^2)		OHS HP1 (15.75 M^2)	RIF5 HP2 (12.75 M^2)	RIF2 HP3 (14.40 M^2)	
BEA HP8 (17.46 M^2)		4MR HP1 (17.98 M^2)	RIF4 HP3 (19.73 M^2)	AI2 HP13 (7.68 M^2)	
II HP2 (19.62 M^2)		4MR HP3 (16.44 M^2)			
		BOOM IS HP1 (17.84 M^2)			
		AI2 HP3 (19.20 M^2)			
		AI2 FEA 16 (12.25 M^2)			
		SI HP2 (12.17 M^2)			
4 SMALL (25.0 %) AVG = (18.03 m^2)	**1 SMALL (16.67 %) (18.47 M^2)**	**8 SMALL (36.36 %) AVG = (15.57 m^2)**	**3 SMALL (20.0 %) AVG = (15.13 m^2)**	**3 SMALL (11.11 %) AVG = (12.26 m^2)**	**19 SMALL (22.1%) AVG = (15.65 m^2)**

TABLE 3: DISTRIBUTION OF HOUSEPIT SIZES PER TIME PERIOD (CONTINUED)

MEDIUM-SIZED HOUSEPITS (20.77 – 33.85 M^2)					
EARLY PERIOD HOUSEPITS	EARLY-MODIFIED HOUSEPITS	MID-PERIOD HOUSEPITS	LATE PERIOD HOUSEPITS	LATE PERIOD-MODIFIED HOUSEPITS	TOTAL
BEA HP2 (33.74 M^2)	BC HP1 (32.53 M^2)	LRIB HP2 (27.06 M^2)	NPB 4HP1 (32.65 M^2)	RIF2 HP2 (32.50 M^2)	
BEA HP3 (30.74 M^2)	BC HP6 (26.51 M^2)	LRIB HP5 (24.37 M^2)	NPB4 HP2 (33.0 M^2)	RIF3 HP1 (20.95 M^2)	
BEA HP4 (20.83 M^2)	BC HP7 (24.66 M^2)	NA HP1 (30.93 M^2)	NPB4 HP3 (25.0 M^2)	2MI1 HP4 (31.40 M^2)	
BEA HP5 (32.08 M^2)	BC HP10 (25.19 M^2)	NA HP2 (25.27 M^2)	LBS HP1 (28.0 M^2)	2MI1 HP5 (24.70 M^2)	
BEA HP7 (21.76 M^2)	BC HP11 (29.97 M^2)	AI2 HP1 (25.07 M^2)	RIF5 HP3 (31.78 M^2)	2MI1 HP11 (22.8 M^2)	
II HP1 (27.76 M^2)		AI2 HP2 (27.98 M^2)	RIF1 HP1 (29.39 M^2)	2MI2 HP2 (31.20 M^2)	
II HP3 (22.27 M^2)		4MR HP2 (22.60 M^2)	RIF1 HP2 (24.82 M^2)	AI1 HP2 (27.99 M^2)	
		SI HP1 (23.5 M^2)	RIF1 HP3 (27.99 M^2)	AI1 HP3 (23.95 M^2)	
			RIF4 HP2 (26.12 M^2)	AI2 HP9 (29.60 M^2)	
				IP HPB5 (29.93 M^2)	
7 MEDIUM (43.75 %) AVG = (27.03 m^2)	**5 MEDIUM (83.33%) AVG = (27.77m^2)**	**8 MEDIUM (36.36 %) AVG = (25.85 m^2)**	**9 MEDIUM (60.0 %) AVG = (28.75 m^2)**	**10 MEDIUM (37.04 %) AVG = (27.80 m^2)**	**39 (45.35%) AVG = (27.37 m^2)**

TABLE 3: DISTRIBUTION OF HOUSEPIT SIZES PER TIME PERIOD (CONTINUED)

LARGE-SIZED HOUSEPITS (33.86 – 46.93 M^2)					
EARLY	EARLY-MODIFIED	MIDDLE	LATE	LATE-MODIFIED	TOTAL
BC HP2 (35.94 M^2)		NA HP3 (35.73 M^2)	GS HP1 (39.0 M^2)	RIF3 HP2 (37.5 M^2)	
BC HP3 (39.43 M^2)		NA HP5 (42.20 M^2)	RIF5 HP1 (34.8 M^2)	RIF3 HP3 (20.95 M^2)	
BC HP4 (46.51 M^2)		NA HP6 (34.99 M^2)		RIF2 HP5 (44.2 M^2)	
BC HP5 (36.60 M^2)		AI2 HP4 (46.53 M^2)		2MI1 HP2 (34.99 M^2)	
BC HP8 (37.59 M^2)		AI3 HP1 (35.60 M^2)		2MI1 HP3 (36.60 M^2)	
				2MI1 HP6 (40.60 M^2)	
				NP1 HP (44.80 M^2)	
				IP HP18 (40.27 M^2)	
5 LARGE (38.46%) (39.21 m^2)	**0 LARGE**	**5 LARGE (20.0 %) (39.01 m^2)**	**2 LARGE (13.33 %) (36.90 m^2)**	**8 LARGE 29.63 %) (39.35 m^2)**	**20 (23.26 %) (38.99 m^2)**

TABLE 3: DISTRIBUTION OF HOUSEPIT SIZES PER TIME PERIOD (CONTINUED)

EXTRA-LARGE-SIZED HOUSEPITS (46.94 – 60.00 M^2)					
EARLY	EARLY-MODIFIED	MIDDLE	LATE	LATE-MODIFIED	TOTAL
			RIF4 HP1 (58.80 M^2)	RIF2 HP1 (52.90 M^2)	
		NA HP4 (60.0 M^2)		2MI1 HP12 (59.20 M^2)	
				2MI1 HP7 (56.90 M^2)	
				SP HP1 (51.45 M^2)	
				AI1 HP1 (48.45 M^2)	
				BEAVER I HP (59.20 M^2)	
0 EXTRA-LARGE	**0 EXTRA-LARGE**	**1 EXTRA-LARGE (4.55 %) (60.00 m^2)**	**1 EXTRA-LARGE (6.67 %) (58.80 m^2)**	**6 EXTRA-LARGE (22.22 %) (54.68 m^2)**	**8 (9.30 %) (55.86 m^2)**
N = 16 (28.58 m^2)	N = 6 (26.22 m^2)	N = 22 (26.65m^2)	N = 15 (29.12 m^2)	N = 27 (36.47 m^2)	86 (30.14 m^2)

LIST OF SITES PER PERIOD

EARLY	EARLY-MODIFIED	MIDDLE	LATE	LATE-MODIFIED
BEACHES BOYD'S COVE INSPECTOR ISLAND	BOYD'S COVE	4 MILE RAPIDS ASPEN ISLAND-2 ASPEN ISLAND-3 BOOM ISLAND SOUTH EXPLOITS? NORTH ANGLE OLD HOUSE SITE POPE'S POINT? SLAUGHTER ISLAND LITTLE RED INDIAN BROOK INDIAN POINT?	RED INDIAN FALLS-1 RED INDIAN FALLS-4 RED INDIAN FALLS-5 LITTLE BROOK SITE NOEL PAUL'S BROOK-4 GLADE SITE	RED INDIAN FALLS-2 ASPEN ISLAND-1 ASPEN ISLAND-2 RED INDIAN FALLS-3 TWO MILE ISLAND-1 TWO MILE ISLAND-2 INDIAN POINT SABBATH POINT BEAVER ISLAND

TABLE 4a: HISTORICALLY-IDENTIFIED BEOTHUK STRUCTURES IN THE EXPLOITS VALLEY

YEAR	EXPLOITS RIVER	RED INDIAN LAKE	BADGER BAY PONDS	OTHER	TOTAL
1768	86/Cartwright	4+/Cartwright		8a/Cartwright	98+
1781		X (N=?)/Peyton Sr.			?
1791	4/Richmond, et al				4
1810	2 (storehouses)				2
1811	1 (storehouse) X (N=?) empty	15/Shanawdithit (3/Buchan)			16+
1816	1 (Peyton)				1
1819		(5/Shanawdithit/see Buchan, 1820)		5b/Shanawdithit	5
1820	(7/Buchan) 9/Shanawdithit	7/Buchan (4/Shanawdithit)	2/Buchan 6/Shanawdithit	1c/Mi'kmaq	23
1822-23			4/Shanawdithit		4
1827			10/Cormack		10
TOTAL	103+	26+	22	14	165+

(a) FORBIDDEN PONDS, REPORTED BY COUSENS
(b) LITTLE RED INDIAN POND
(c) HODGES HILL

TABLE 4B: EXPLOITS VALLEY HOUSEPITS

INFORMANT	EXPLOITS RIVER	RED INDIAN LAKE	BADGER BAY PONDS	OTHER	TOTAL
LLOYD (1876)		24+/INDIAN POINT (a) 3/VICTORIA RIVER MOUTH	0	0	27
SPECK (1914)	12/BADGER BROOK (b)	(7/INDIAN POINT) (SEE LLOYD)	0	0	12
LOCKE (1962-1987)	123 (c)	(20 / SEE LLOYD)	0	0	123
SPROULL-THOMSON (1981)		(1/SEE LLOYD)			
PAO (2000)	1/TWO MILE ISLAND-2 (DfBa-03) (d)				1
MCLEAN (2015) (2017)	1 (TWO MILE ISLAND-2) (DfBa-03) (e)	1/SABBATH POINT	0	0	1 1
TOTAL	137	28	0	0	165

Devereux 1963, 1969; LeBlanc 1973, Sproull-Thomson 1981, Thomson 1982, 1987; Schwarz 1992, McLean 2011-2017 (except where noted above) re-identified housepits, but did not add to the historically-identified amount.

(a) At least 22 were not historically reported

(b) Nine were not historically reported

(c) At least 45 were not historically reported

(d), (e) Not historically reported

At least 78 known housepits were not historically reported + 165 (minimum) counted structures = 243 (minimum) documented Beothuk structures in the Exploits Valley.

TABLE 5: ASSEMBLAGE TOTALS PER SITE CLUSTER

	TOTAL IRON	OTHER EURO	AB	AB FR	AS	WH	STONE	TOTAL
INDIAN COVE-SOUTH (DhAt-15)							12	12
THE BEACHES (DeAk-01)	87	13	2				34,138	34,240
BOYD'S COVE (DiAp-03)	1712	760					140*	2612
INSPECTOR ISLAND (DiAq-01)	282	19					26*	327
COASTAL TOTAL	**2081**	**792**	**2**				**34,316 (I)**	**37,191**
RED INDIAN LAKE	335	30	16	0	2	0	11,430	11,813
NOEL PAUL'S BROOK	25	17	0	0	0	0	102	144
RED INDIAN FALLS/UPPER TERRACE	46	1036	0	0	0	0	1	1083
RED INDIAN FALLS/LOWER TERRACE	29	14	0	0	0	0	54	97
BADGER BROOK	60	90	3	0	2	0	532	687
NIMROD'S POOL	978	150	7	2	2	1	822	1962
FOUR MILE RAPIDS (DfAv-01)	58	6	2	0	2	1	10	79
?	3	0	0	0	0	0	0	3
EXPLOITS VALLEY TOTAL	**1534**	**1343**	**28**	**2**	**8**	**2**	**12,951**	**15,868**
TOTAL	**3615**	**2135**	**30**	**2**	**8**	**2**	**47,267**	**53,059**

* BEOTHUK LITHIC ARTIFACTS

(I) INCOMPLETE LITHIC TOTAL

TABLE 6: BEOTHUK HOUSEPIT INTERIOR ASSEMBLAGES

SITE	IRON	ABRADER	OTHER EUROPEAN	STONE*	BONE	OTHER	TOTAL
BEACHES (DeAk-01)	53 (12.4)	2 (0.5)	11 (2.6)	352 (82.4)	8 (1.9)	1(0.2)	427 (99.8)
BOYD'S COVE (DiAp-03)	903 (50.1)		760 (42.2)	140 (7.8)	0	0	1803 (100.1)
INSPECTOR ISLAND (DiAq-01)	91 (66.9)		19 (14.0)	26 (19.1)	0	0	136 (100.0)
INDIAN COVE-SOUTH (DhAt-15)	0			10 (F)			10
COASTAL TOTAL – HOUSEPIT INTERIORS	**1047 (44.3)**	**2 (0.1)**	**790 (33.4)**	**518 (21.9)**	**8 (0.3)**	**1 (0.05)**	**2366 (100.05)**
NORTH ANGLE (DfAw-01) (INCOMPLETE)	71 (47.3)	5 (3.3)	66 (44.0)	3 (F) (2.0)	0	5 (3.3)	150 (99.9)
INDIAN POINT (DeBd-01) (INCOMPLETE)	1	0	0	0	0	0	1
SABBATH POINT (DeBd-08)	2	0	3			1	6
INTERIOR TOTAL – HOUSEPIT INTERIORS	**74 ()**	**5 (3.3)**	**69 ()**	**3 (F) (2.0)**	**0**	**5 (3.3)**	**151**
TOTAL FROM HOUSEPIT INTERIORS	**1536 (52.6)**	**28 (1.0)**	**1343 (46.0)**		**0**	**12 (0.4)**	**2917 (100.0)**

*NOT INCLUDING FLAKES EXCEPT WHERE NOTED

F FLAKE

TABLE 7: SUMMARY OF CULTURAL COMPONENTS PER SITE CLUSTER

CLUSTER	SITES	MA	PI	G	D	RI	BEA	LP	P	BEO	NS	MI/NS	TOTAL (%)
RED INDIAN LAKE	**9**	3	2	1	1		1	1	4	5			18 (26.1)
NOEL PAUL'S BROOK	**8**	1				1			2	5			9 (13.0)
RED INDIAN FALLS/UPPER TERRACE	**2**								1	2			3 (4.3)
RED INDIAN FALLS/LOWER TERRACE	**7**								3	4	1		8 (11.6)
BADGER BROOK	**8**	1	1			1			4	6			13 (18.8)
NIMROD'S POOL	**10**	2		2	1		2	1	2	7		1	18 (26.1)
TOTAL	44	7 (10.1)	3 (4.3)	3 (4.3)	2 (2.9)	2 (2.9)	3 (4.3)	2 (2.9)	16 (23.2)	29 (42.0)	1 (1.4)	1 (1.4)	69

KEY

MA MARITIME ARCHAIC
PI PALEO-INUIT
G GROSWATER PALEO-INUIT
D DORSET PALEO-INUIT
RI RECENT INDIAN
BEA BEACHES RECENT INDIAN
LP LITTLE PASSAGE RECENT INDIAN
BEO BEOTHUK
MI/NS MI'KMAQ/NEWFOUNDLAND SETTLER

TABLE 8: DISTRIBUTION OF BEOTHUK IRON PROJECTILE POINTS AND PREFORMS

CLUSTER	PROJECTILE POINTS	PROJECTILE POINT PREFORMS	PP/PPP FRAGMENTS	TOTAL	TOTAL IRON	OE	STONE*
RED INDIAN LAKE	9	3	4	15	335	30	11,430
NOEL PAUL'S BROOK	0	0	0	0	25	17	102
RED INDIAN FALLS/UPPER TERRACE	1	4	0	5	46	1036	1
RED INDIAN FALLS/LOWER TERRACE	0	2	0	2	29	14	54
BADGER BROOK	4	9	1	14	60	90	532
NIMROD'S POOL	39	29	7	75	978	150	822
BELOW GRAND FALLS	2	2	0	4	58	6	10
?	2	0	0	3	3	0	0
EXPLOITS VALLEY TOTAL	**57 (74.0)**	**49 (79.0)**	**12 (31.6)**	**119 (66.7)**	**1534**	**1337**	**12,951**
BEACHES (DeAk-01)	0	1	0	1	87	13	34,138*
FOX BAR BURIAL (DeAk-02)	9	4	0	13	56	8	20
BOYD'S COVE (DiAp-03)	10	7	20	37	1712	1094 (I)	847 (I)
INSPECTOR ISLAND (DiAq-01)	1	1	6	8	282	217	122 (I)
COMFORT ISLAND BURIAL (DiAr-01)	1				1		
COASTAL TOTAL	**20 (26.0)**	**13 (21.0)**	**26 (68.4)**	**59 (33.3)**	**2138+**	**705+**	**35,127**
SWAN ISLAND (BURIAL) (DiAs-01)					M		
BURNT ISLAND (BURIAL)					M		
WESTERN INDIAN ISLAND (BURIAL)					M		
RENCONTRE ISLAND (BURIAL)					M		
TOTAL	**78**	**62**	**38**	**178**	**3606**		

M ARTIFACTS ARE MISSING OR STORED AWAY FROM NEWFOUNDLAND AND LABRADOR

OE ARTIFACTS MADE FROM OTHER EUROPEAN MATERIALS (NON-IRON)

(I) INTERIM COUNT

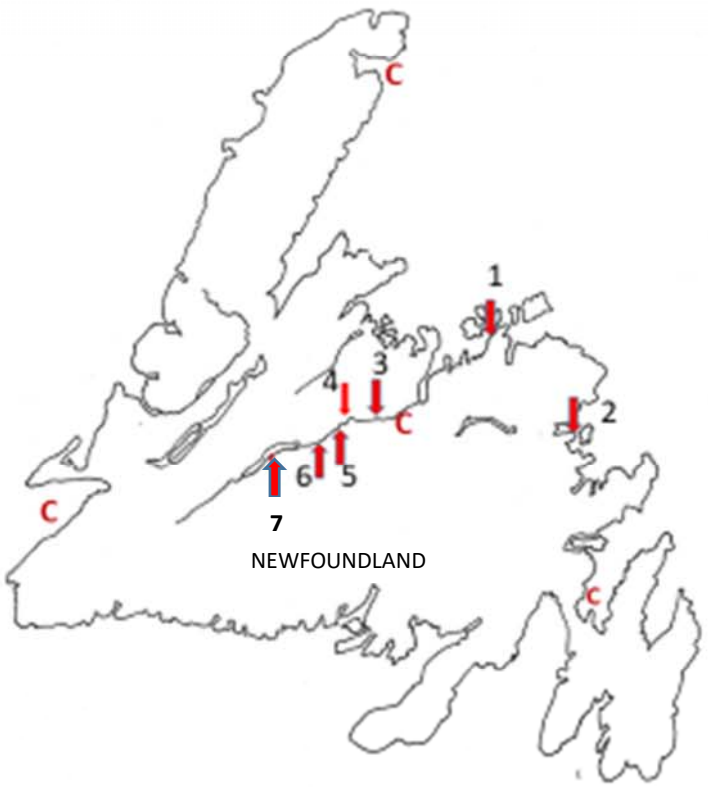
*FROM ALL COMPONENTS

TABLE 9: BEOTHUK RADIOCARBON DATES

SITE	CHARCOAL SOURCE	SAMPLE NUMBER	DATE
BEACHES (DeAk-01)	HOUSEPIT 6 HEARTH	BETA-	68% CAL AD 1454-1604
SAILOR SITE (DeAj-01)	HEARTH	S-1000, NMC-738	68% CAL AD 1460-1610
INDIAN POINT (DeBd-01)	FEATURE 33A/HEARTH	I-6562	68% CAL AD 1464-1644
RUSSELL'S POINT (CiAj-01)	MIDDEN 1	BETA-128506	95% SIGMA 2 CAL AD 1490-1665
BOOM ISLAND (DfAw-03)	FEATURE 3/HEARTH	BETA-422459	68% CAL AD 1510-1616
BOYD'S COVE (DiAp-03)	HOUSEPIT 1 MIDDEN*	BETA-6729	68% CAL AD 1520-1776
RUSSELL'S POINT (CiAj-01)	MIDDEN 2	BETA-128511	95% SIGMA 2 CAL AD 1525-1560
RUSSELL'S POINT (CiAj-01)	MIDDEN 2	BETA 128511	95% SIGMA 2 CAL AD 1630-1950
RUSSELL'S POINT (CiAj-01)	MIDDEN 2	BETA-128510	95% SIGMA 2 CAL AD 1650-1955
INDIAN POINT (DeBd-01)	HOUSE 1 HEARTH	BETA-3677	68% CAL AD 1692-1904

*MIDDEN WAS POSSIBLY DEPOSITED IN HOUSEPIT 1 BY OCCUPANTS OF HOUSEPIT 11

FIGURE 1: LOCATIONS OF BEOTHUK STRUCTURES UNDER DISCUSSION



1 BOYD'S COVE (DiAP-03) (11 HPS)
INSPECTOR ISLAND (DiAq-01) (3 HPS)

2 THE BEACHES (8/19 HPS)

3 NIMROD'S POOL (16/53 HPS)

4 TWO MILE ISLAND (9/10 HPS)

5 RED INDIAN FALLS (16/28 HPS)

6 NOEL PAUL'S BROOK (7/14 HPS)

7 INDIAN POINT, RED INDIAN LAKE

C HISTORIC SIGHTINGS OF CONICAL WIGWAMS

FIGURE 2: DISTRIBUTION OF HOUSEPIT SIZES

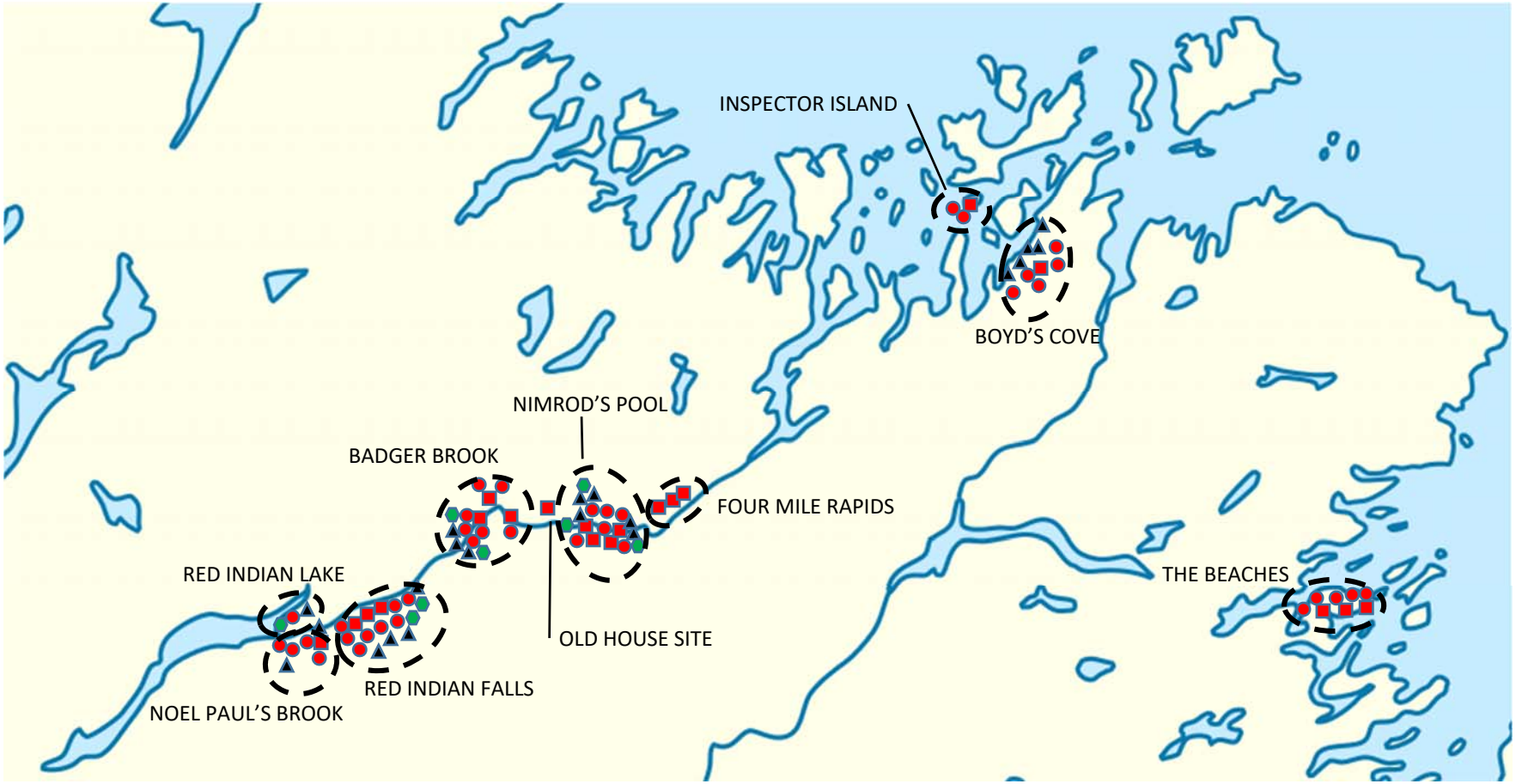


FIGURE 3: DISTRIBUTION OF BEOTHUK HOUSEPIT AGE CATEGORIES PER SITE

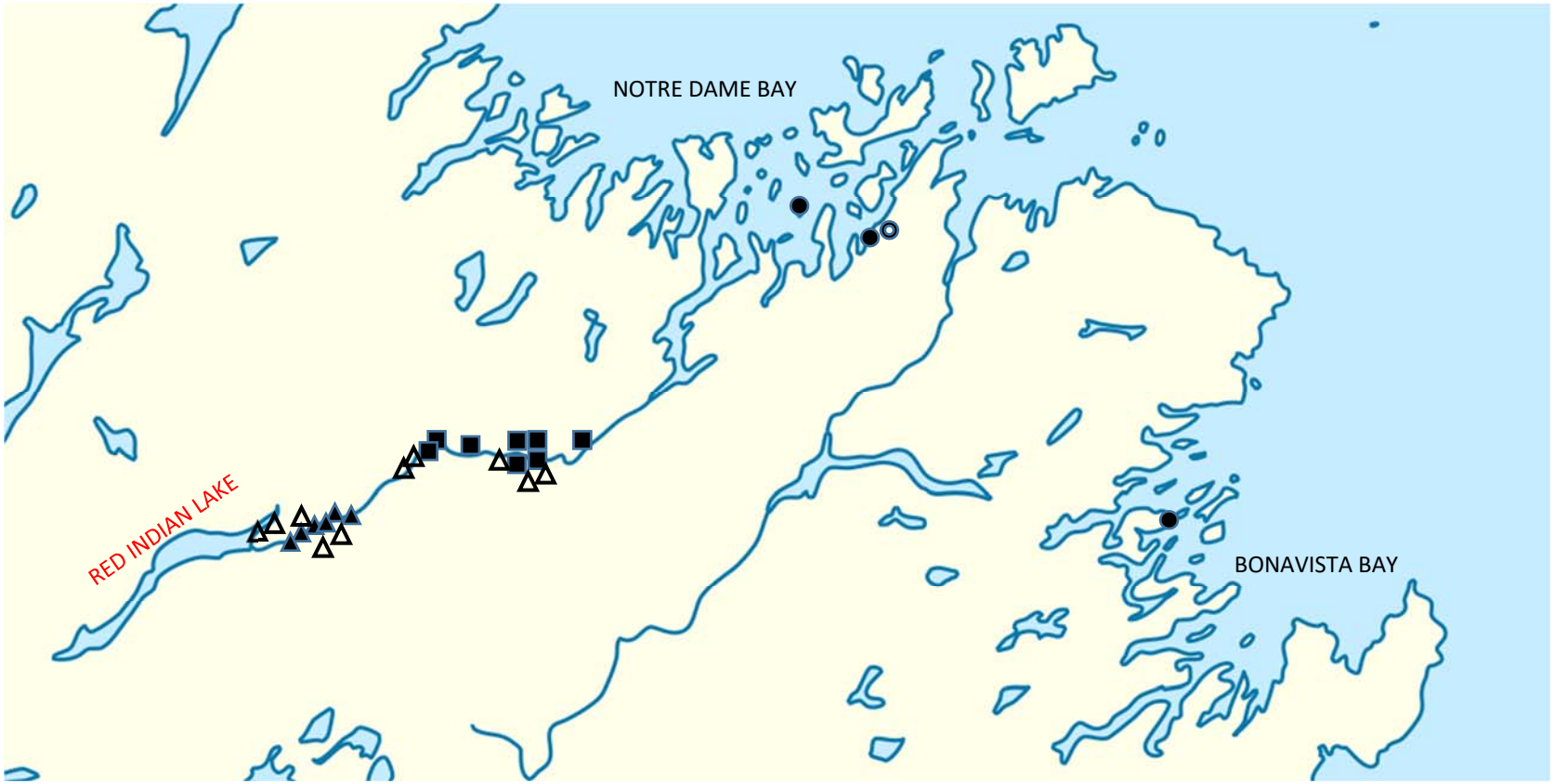
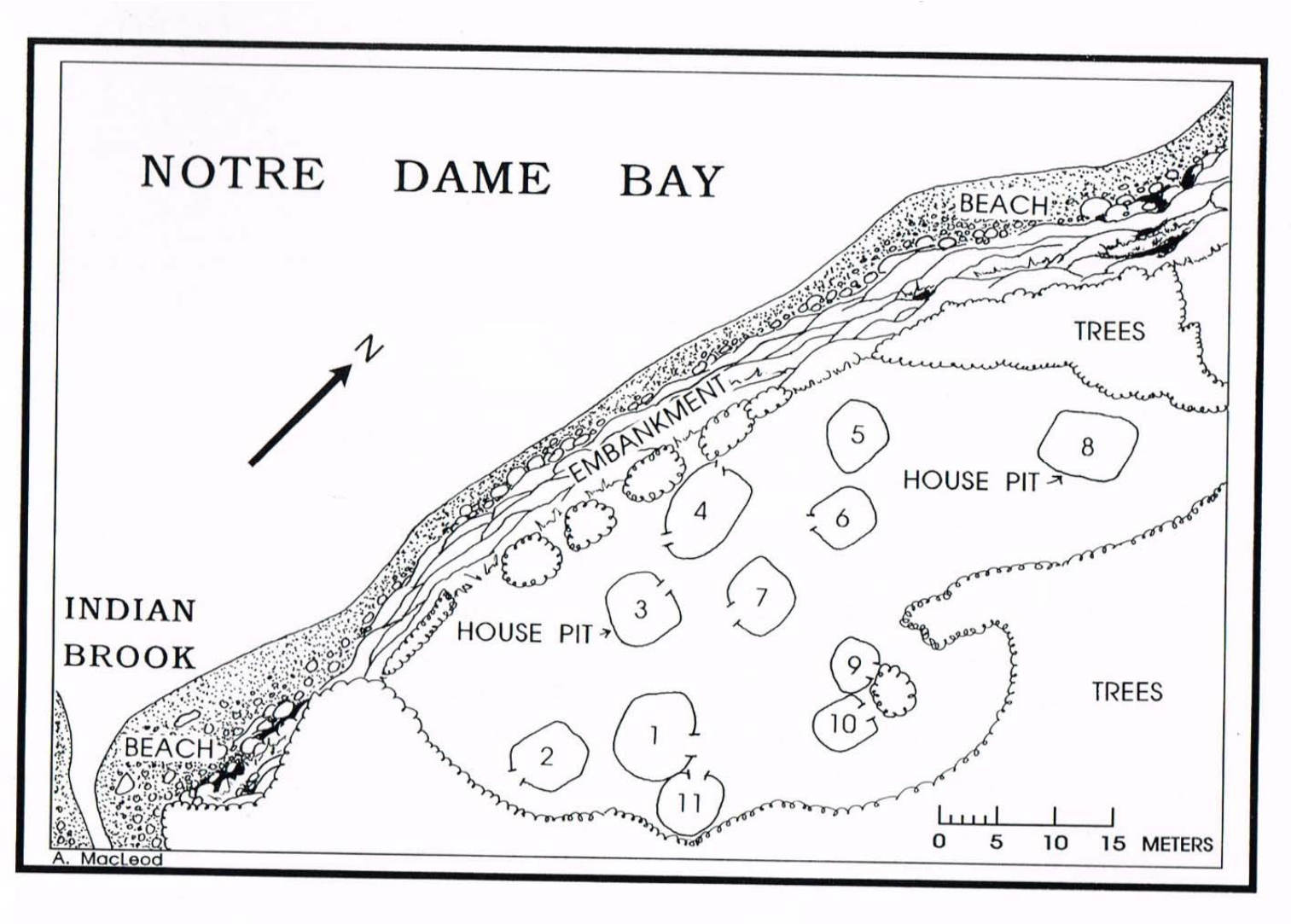


FIGURE 4: SITE MAP FOR BOYD'S COVE (DiAp-03) (FROM PASTORE 1986)



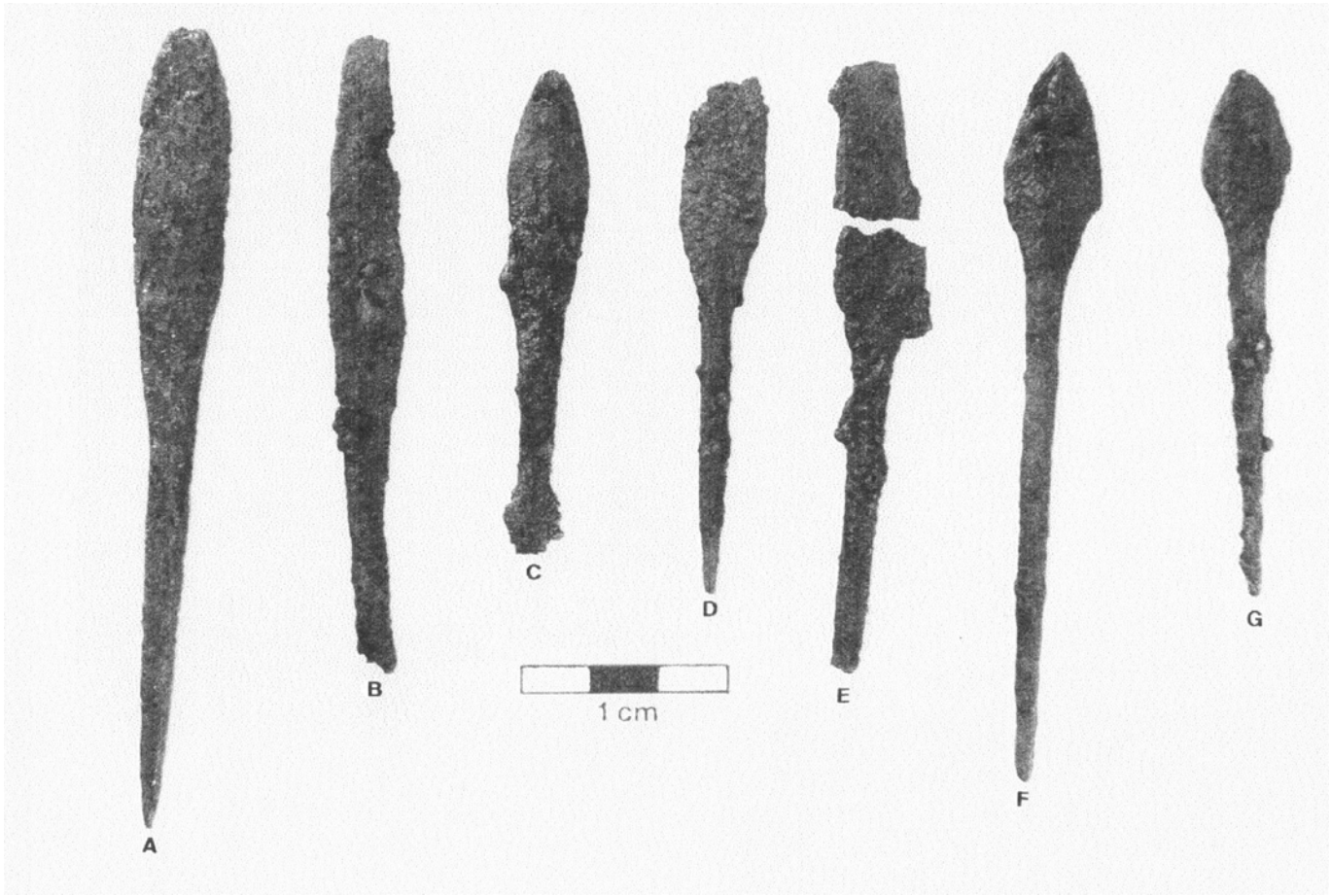


Plate 1: Iron projectile points from Boyd's Cove (DiAp-03): A-C - Type 1A; D-G – Type 2A.

Plate 2: Type 2C iron projectile points found in the Exploits Valley.

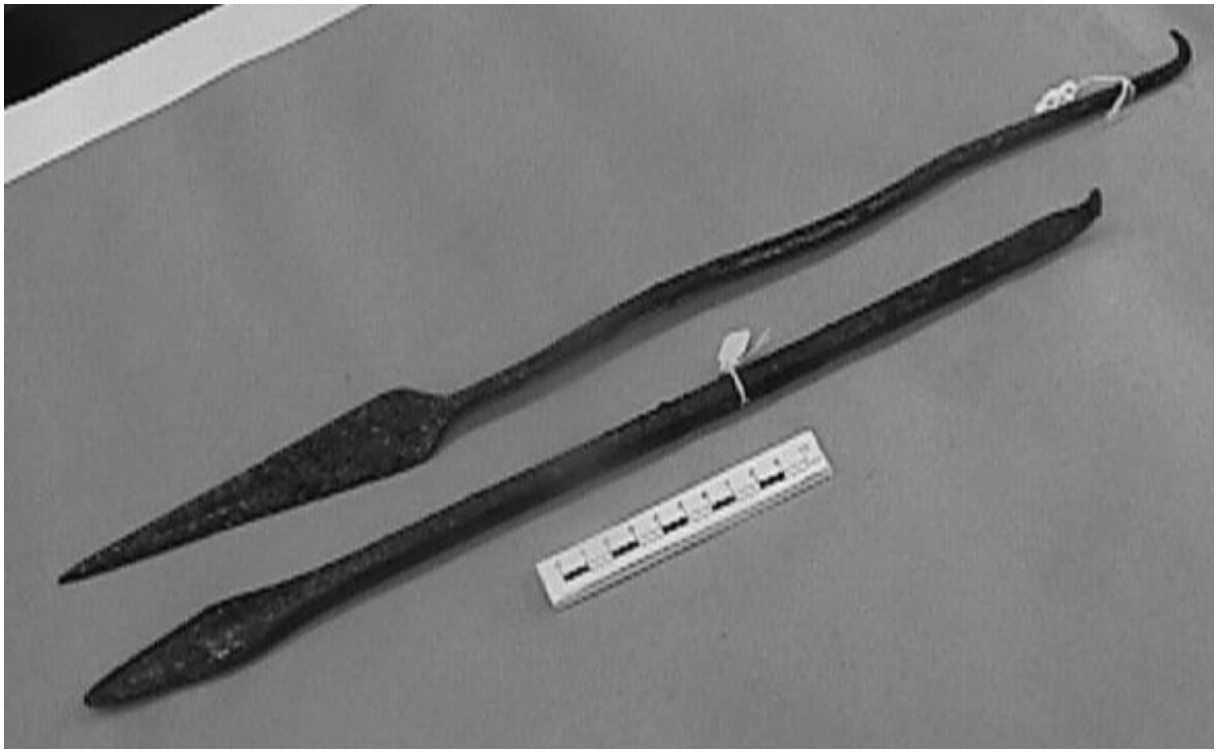


Plate 3: Type 3D iron projectile points (deer spears) from the South Exploits site (DfAw-07), in the Exploits Valley.

BIBLIOGRAPHY

Alison, J., T. Harris, Ana T. Duggan, Stephanie Marciniak, Ingeborg Marshall, Benjamin T. Fuller, John Southam, Hendrik N. Poinar, Vaughn Grimes.

2019 *Dorset Pre-Inuit and Beothuk Foodways in Newfoundland, ca. A.D. 500 – 1829. PLOS ONE* 14 (1): e0210187. June 7. http://doi.org/10.1371/journal.pone 0210187.

Carignan, Paul

1973 *Archaeology of Bonavista Bay: Salvage Report – 1973*. Centre for Newfoundland Studies, Queen Elizabeth II Library, Memorial University of Newfoundland and Labrador. St. John's.

Catto, Norm 2000 *Late Holocene Sea-Level Changes, Eastern Newfoundland. Current Research (2000).* Geological Survey Report 2000-1. Department of Mines and Energy, Government of Newfoundland and Labrador.

Cartwright, George

1792 *A Journal of Transactions and Events on the Coast of Labrador*. Three volumes. Allan and Ridge. Newark, England.

Colonial Records – 194 Volume 7, Folio 7. No date. Microfilm in the Public Archives of Newfoundland and Labrador. St. John's.

Cridland, Jennifer

1998 *Late Prehistoric Indian Subsistence in Northeastern Newfoundland: Faunal Analysis of Little Passage Complex Assemblages from the Beaches and Inspector Island Sites*. Unpublished M.A. Thesis, Department of Anthropology, Memorial University of Newfoundland and Labrador. St. John's

Cumbaa, Steven

1984 *"Divers Furres and Deeres Flesh" – Animal Use by a Seventeenth-Century Beothuk Population at Boyd's Cove, Notre Dame Bay, Newfoundland*. Zooarchaeological Identification Centre, National Museum of Natural Sciences, National Museums Canada. Ottawa.

Deal, Michael and McLean, Laurie

1995 *The Beaches Archaeological-Palaeothnobotanical Project: Fieldwork*. Unpublished report on file, Provincial Archaeology Office, Department of Tourism, Culture, Industry and Innovation; Government of Newfoundland and Labrador. St. John's.

Devereux, Helen.

1965 *The Pope's Point Site, Newfoundland*. Microfiche in the Centre for Newfoundland Studies, Queen Elizabeth II Library, Memorial University of Newfoundland and Labrador. St. John's.

1969 *The Beaches Site*, in *Five Archaeological Sites in Newfoundland*. Unpublished manuscript, Centre for Newfoundland Studies, Queen Elizabeth II Library, Memorial University of Newfoundland. St. John's.

1970 *A Preliminary Report on the Indian Point site, a Stratified Beothuk site*. Unpublished manuscript, Centre for Newfoundland Studies, Queen Elizabeth II Library, Memorial University of Newfoundland and Labrador. St. John's.

Duggan, Ana, Alison J.T. Harris, Stephanie Marciniak, G. Brian Golding, Vaughn Grimes and Hendrik Poinar.

2017 *Genetic Discontinuity between the Maritime Archaic and Beothuk Populations in Newfoundland, Canada*. Current Biology (report). October.

Erwin, John and Stephen Hull.

2018 *Provincial Archaeology Office 2017 Field Activities*. *Provincial Archaeology Office 2017 Archaeology Review*. Stephen, Delphina Mercer (editors), Department of Tourism, Culture, Industry and Innovation, Government of Newfoundland and Labrador. St. John's.

Gilbert, William

1992 *"great good done..." – Beothuk – European Relations in Trinity Bay, 1612-1622*. Newfoundland Quarterly 87 (3).

2002 *Russell's Point (CiAj-01): A Little Passage/Beothuk Site at the Bottom of Trinity Bay*. Unpublished M.A. Thesis, Department of Anthropology, Memorial University of Newfoundland and Labrador. St. John's.

Gilman, Patricia A.

1987 *Architecture as Artifact: Pit Structures and Pueblos in the American Southwest. American Antiquity* Volume 52, No. 3.

Head, C. Grant.

1976 *Eighteenth-Century Newfoundland*. McClelland and Stewart. Toronto

Henriksen, George.

1973 *Hunters in the Barrens*. Newfoundland Social and Economic Studies #12. Institute for Social and Economic Research, Memorial University of Newfoundland and Labrador. St. John's.

Holly, Donald H., Jr.
2008 *Social Aspects and Implications of "Running to the Hills": the Case of the Beothuk Indians of Newfoundland. Journal of Island and Coastal Archaeology* 3:170 – 190.

Holly, Donald H., Jr., Paul Prince and John Erwin.
2018 *Bad Year Economics at Birchy Lake*. Journal of Anthropological Research. April, 2018.

Howley, J.P.
1915 *The Beothucs or Red Indians.* Prospero Books. Toronto.

Inness, Harold A.
1978 *The Cod Fisheries*. University of Toronto Press. Toronto. First printed, 1940.

Jenness, Diamond
1929 *Notes on the Beothuk Indians of Newfoundland*. National Museum of Canada Annual Report for 1927. Department of Mines. Ottawa.

LeBlanc, Raymond.
1973 *The Wigwam Brook Site and the Historic Beothuk Indians*. Unpublished M.A. thesis, Department of Anthropology, Memorial University of Newfoundland and Labrador. St. John's.

Lloyd, T.G.B.
1876 *A Further Account of the Beothucs of Newfoundland*. Journal of the Royal Anthropological Institute of Great Britain and Ireland. Vol. 5.

Locke, Don. Field Notes.
N.D. Handwritten manuscript on file, Provincial Archaeology Office, Department of Tourism, Culture and Recreation, Government of Newfoundland and Labrador. St. John's.

Major, Kevin.
1983 *Terra Nova National Park "Human History Study*". Studies in Archaeology, Architecture and History. National Historic Parks and Sites Branch, Parks Canada, Environment Canada.

Marshall, Ingeborg.
1977 *An Unpublished Map Made by John Cartwright between 1768 and 1773, Showing Beothuk Settlements and Artifacts and Allowing a New Population Estimate*. Ethnohistory 24 (3).

1996 *A History and Ethnography of the Beothuk*. McGill-Queen's University Press. Montreal and Kingston.

Martindale, Andrew, Richard Morlan, Matthew Betts, Michael Blake, Conrad Cajewski, Michelle Chaput, Andrew Mason and Pierre Vermeersch.

2016 *Canadian Archaeological Database (CARD 2.1*). Canada/NL/DeBd-1 (Indian Point)/I-6562.

McLean, Laurie.

1989 *The Beothuk Adoption of iron Technology*. Unpublished M.A. thesis, Department of Anthropology, Memorial University of Newfoundland and Labrador. St. John's.

1990 *Final Report of a 1989 Archaeological Survey in Bonavista Bay*. Report on file, Provincial Archaeology Office, Department of Tourism, Culture, Industry and Innovation, Government of Newfoundland and Labrador. St. John's.

1991 *Burnside Heritage Project: Archaeology Report for Summer, 1990*. Report on file, Provincial Archaeology Office, Department of Tourism, Culture, Industry and Innovation, Government of Newfoundland and Labrador. St. John's.

1994a *Burnside Heritage Project: 1992 Archaeological Report*. Report on file, Provincial Archaeology Office, Department of Tourism, Culture, Industry and Innovation, Government of Newfoundland and Labrador. St. John's.

1994b *Back to the Beaches: New Data Pertaining to the Early Beothuk in Newfoundland*. In *Northeast Anthropology* No. 47.

1999 *Burnside Heritage Foundation Inc.: 1995 Archaeology Report*. Manuscript on file, Provincial Archaeology Office, Department of Tourism, Culture, Industry and Innovation, Government of Newfoundland and Labrador. St. John's.

2002 *Burnside Heritage Foundation Inc.: 1998 Archaeology Report*. Unpublished report on file, Provincial Archaeology Office, Department of Tourism, Culture, Industry and Innovation, Government of Newfoundland and Labrador. St. John's.

2003 *A Guide to Beothuk Iron*. Archaeology Unit, Memorial University of Newfoundland. St. John's.

2010 An Archaeological Survey of the Exploits River around Noel Paul's Brook. Report on File, Provincial Archaeology Office, Department of Tourism, Culture, Industry and Innovation; Government of Newfoundland and Labrador. St. John's.

2011a *An Archaeological Assessment of Red Indian Falls Archaeological Sites*. Unpublished report on file, Provincial Archaeology Office, Department of Tourism, Culture, Industry and Innovation. St. John's.

2011b *A Historic Resources Assessment of Pope's Point Archaeological Site (DfBa-01)*. Report on file, Provincial Archaeology Office, Department of Tourism, Culture, Industry and Innovation, Government of Newfoundland and Labrador. St. John's.

2013a *An Archaeological Re-Assessment of Nimrod's Pool, Exploits River*. Report on file, Provincial Archaeology Office, Department of Tourism, Culture, Industry and Innovation, Government of Newfoundland and Labrador. St. John's.

2013b *An Archaeological Survey of Southwest Dildo Run, Notre Dame Bay*. Report on file, Provincial Archaeology Office, Department of Tourism, Culture, Industry and Innovation, Government of Newfoundland and Labrador. St. John's.

2014a *an Archaeological Search for Two Beothuk Housepits and a Possible Longhouse at Aspen Island-2 (Dfaw-05).* Unpublished report on file, Provincial Archaeology Office, department of Tourism, Culture and Recreation, Government of Newfoundland and Labrador. St. John's.

2014b *an Archaeological Survey of Two Mile Island, Exploits River: Phase 1*. Unpublished report on file, Provincial Archaeology Office, Department of Tourism, Culture and Recreation, Government of Newfoundland and Labrador. St. John's.

2014c *Salvage Archaeology at Aspen Island-2 (DfAw-05), in Nimrod's Pool, Exploits River*. Report on file, Provincial Archaeology Office, Department of Tourism, Culture, Industry and Innovation; Government of Newfoundland and Labrador. St. John's.

2015a *An Archaeological Survey of the Area Around Red Indian Falls North Portage, Exploits River.* Report on file, Provincial Archaeology Office, Department of Tourism, Culture, Industry and Innovation, Government of Newfoundland and Labrador. St. John's.

2015b *Observations about Beothuk Housepits*. Paper presented at the 47th annual meeting of the Canadian Archaeological Association. St. John's. Copy available at the Centre for Newfoundland Studies, Queen Elizabeth II Library, Memorial University of Newfoundland and Labrador. St. John's.

2015c *Final Report for Phase 2 of an archaeological Survey of Two Mile Island, on the Exploits River. Permit Number 15.22*. Unpublished report on file, Provincial Archaeology Office, Department of Tourism, Culture, Industry and Innovation, Government of Newfoundland and Labrador. St. John's.

2016a *Final Report for Archaeological Salvage Excavations at Boom Island (DfAw-03) and Aspen Island-2 (DfAw-05), on the Exploits River, Newfoundland. Permit No. 15.36, 15.36.01*. Unpublished report on file, Provincial Archaeology Office, Department of Tourism, Culture, Industry and Innovation, Government of Newfoundland and Labrador. St. John's.

2016b *Final Report for an Archaeological Survey of the Four-Mile Rapids Site (DfAv-01) and the South Bank of the Exploits River Opposite the Grand Falls-Windsor Boat Launch*. Report on file, Provincial Archaeology Office, Department of Tourism, Culture, Industry and Innovation, Government of Newfoundland and Labrador. St. John's.

2017a *Report for an Archaeological Survey of Part of the South Shore of Red Indian Lake*. *Permit No. 16.29, 16.29.01*. Unpublished report on file, Provincial Archaeology Office, Department of Tourism, Culture, Industry and innovation, Government of Newfoundland and Labrador. St. John's.

2017b *An Archaeological Survey of the Sabbath Point Area, Red Indian Lake: Final Report. Permit No. 16.38*. Unpublished report on file, Provincial Archaeology Office, Department of Tourism, Culture, Industry and Innovation, Government of Newfoundland and Labrador. St. John's.

2017c *An Archaeological Survey of Thwart Island and the Shoreline from Point of Bay to Indian Cove, Bay of Exploits*. Report for Permit 17.25. Unpublished report on file, Provincial Archaeology Office, Department of Tourism, Culture, Industry and Innovation, Government of Newfoundland and Labrador. St. John's.

2018a *An Archaeological Survey of Slaughter Island (DfBa-05), the Mouth of Little Red Indian Brook and the North Side of the Exploits River Between Badger Brook and Junction Brook: Final Report*. Unpublished report on file, Provincial Archaeology Office, Department of Tourism, Culture, Industry and Innovation, Government of Newfoundland and Labrador. St. John's.

2018b *Partial Excavation of a Beothuk Housepit at Sabbath Point (DeBd-08), Red Indian Lake: Permit Number 18.32*. Report on file, Provincial Archaeology Office, Department of Tourism, Culture, Industry and Innovation, Government of Newfoundland and Labrador.

Mills, Stephen and Barry Gaulton.

2010 *Sunnyside-1 (ClAl-05): A Possible Seventeenth-Century Winter House at the Bottom of Bull Arm, Trinity Bay*. In *the Provincial Archaeology Office 2009 Archaeological Review*, Stephen Hull and Delphina Mercer eds.. Department of Tourism, Culture and Recreation, Government of Newfoundland and Labrador. St. John's.

Morry, C.J. and L.J. Cole.

1977 *Limnology and Fish Populations of Red Indian Lake, a Multi-Use Resevoir*. Fisheries and Marine Services, Environment Canada. Technical Report No. 691.

Pastore, Ralph T.

1984 *Excavations at Boyd's Cove, Notre Dame Bay – 1983*, in *Archaeology in Newfoundland and Labrador-1983*. Annual report No. 4. Jane Sproull Thomson, Callum Thomson (eds.), Historic Resources Division, Department of Culture, Recreation and Youth, Government of Newfoundland and Labrador. St. John's.

1987 *Fishermen, Furriers and Beothuks: The Economy of Extinction*. In *Man in the Northeast* No. 33.

1989 *The Collapse of the Beothuk World*. *Acadiensis* 19 (1).

1992 *Shanawdithit's People, the Archaeology of the Beothuks*. Atlantic Archaeology Ltd. St. John's.

Penney, Gerald and Associates.

1984 *The Prehistory of the Southwest Coast of Newfoundland*. Unpublished M.A. Thesis, Department of Anthropology, Memorial University of Newfoundland and Labrador. St. John's.

2010 *Red Indian Lake Cabin Development: Historic Resources Impact Assessment (Stage 1); Archaeological Investigation Permit #10.39*. Unpublished report on file, Provincial Archaeology Office, Department of Tourism, Culture, Industry and Innovation; Government of Newfoundland and Labrador. St. John's.

Quinn, David B.

1979 *New American World* Volume 4. Arno Press Co. and Hector Bye Inc. New York.

Schwarz, Frederick A.

1984 *The Little Passage Complex in Newfoundland*. Honours Dissertation, Department of Anthropology, Memorial University of Newfoundland and Labrador. St. John's.

1992 *Archaeological Excavations in the Newfoundland Interior*. Unpublished report on file, Provincial Archaeology Office, Department of Tourism, Culture, Industry and Innovation; Government of Newfoundland and Labrador. St. John's.

1993 *Archaeological Excavations in the Exploits Basin: Report on the 1992 Field Survey*. On file, Provincial Archaeology Office, Department of Tourism, Culture, Industry and Innovation; Government of Newfoundland and Labrador. St. John's.

2011 *Archaeological Monitoring of Brush Cutting Activities at Six Beothuk Archaeological Sites Along the Exploits River, NL.* Report on file, Provincial Archaeology Office, Department of Tourism, Culture, Industry and Innovation, Government of Newfoundland and Labrador. St. John's.

Schwarz, Frederick A. and Corey Hutchings.

2018 *Archaeological Excavations at Sabbath Point (DeBd-08), July 2018, Red Indian Lake, Newfoundland*. Report on file, Provincial Archaeology Office, Department of Tourism, Culture, Industry and Innovation; Government of Newfoundland and Labrador. St. John's.

Searcy, Michael, Bernard Schriever and Matthew Taliaferro.

2016 *Early Mimbres Households: Exploring the Late Pithouse Period (550-1000 A.D.) at the Florida Mountain Site. Journal of Anthropological Archaeology 41.*

Simpson, David

1987 *Prehistoric Archaeology of the Port au Port Peninsula, Western Newfoundland*. Unpublished M.A. Thesis, Department of Anthropology, Memorial University of Newfoundland and Labrador. St. John's.

Speck, Frank

1922 *Beothuk and Micmac*. Museum of the American Indian, Heye Foundation. New York.

Sproull-Thomson, Jane

1982 *Investigations at Red Indian Lake*. In *Archaeology in Newfoundland and Labrador – 1982*. Jane Sproull-Thomson, Callum Thomson (eds.). Historic Resources Division, Department of Culture, Recreation and Youth; Government of Newfoundland and Labrador. St. John's.

Taylor, J. Garth

1964 *An Archaeological Survey of Red Indian Lake and the Exploits River, Newfoundland*. Report on file, Centre for Newfoundland Studies, Queen Elizabeth II Library, Memorial University of Newfoundland and Labrador. St. John's.

Thomson, Callum

1983 *An Archaeological Survey of the Exploits River From Red Indian Lake to Grand Falls, May 29-June 19, 1982*. Report on file, Provincial Archaeology Office, Department of Tourism, Culture, Industry and Innovation; Government of Newfoundland and Labrador. St. John's.

Tocque, Philip.

1846 *Wandering Thoughts.* Thomas Richardson and Son. London.

Young, Ewart

1951 *Grand Falls, Botwood, Bishops Falls, Millertown, Terra Nova: Pulp and Paper Town of the Interior*. Guardian Associates, Ltd. Montreal.