

## Arrows and Thundersticks: Transitions of Omushkego (Swampy Cree) Archery

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*Abstract: Using oral history interviews in conjunction with written sources, Roland Bohr presents an insightful explanation of aboriginal weaponry, its construction, usage and evolution. Louis Bird, a Hudson Bay elder whose narrative was critically important to Bohr's work, drew upon a lifetime of information gathered from Aboriginal communities.*

Hunting was a crucial subsistence activity to Aboriginal peoples of North America. The necessary expertise and technology evolved over millennia, based on a close observation of game animals, plants and climate. Within these parameters Aboriginal people developed and fine-tuned their weapons, tools and hunting methods to serve their needs, building on expertise and skills that were passed down through the generations.

Nonetheless, Aboriginal technology has often been portrayed as inferior to European weapons and tools introduced to Aboriginal people in North America through the fur trade. Until the 1970s scholars portrayed the fur trade as the crucial catalyst for rapid technological and social change among Indigenous peoples. The newly introduced technologies from Europe were said to have revolutionized Aboriginal hunting and combat methods while creating an almost immediate dependence of Aboriginal people on European traders and their wares.<sup>1</sup>

Increasingly since the 1980s this view, which was often tied to Social Darwinist concepts of European superiority over non-European peoples, has been contested by scholars intending to show that European technology such as firearms was often far from reliable and did not guarantee military superiority of Aboriginal peoples over other Indigenous groups who did not have the same degree of access to these European products.<sup>2</sup> Even though these scholars asserted the ingenuity,

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<sup>1</sup> E. E. Rich. *The History of the Hudson's Bay Company, 1670 – 1870* (London: Hudson's Bay Record Society, 1959); James M. S. Careless. *Canada: A Story of Challenge* (Cambridge University Press: Cambridge, 1953).

<sup>2</sup> Joan B. Townsend, "Firearms Against Native Arms: A Study in Comparative Efficiencies with an Alaskan Example", *Arctic Anthropology*, vol. 20 (2), p. 1-32.

sophistication and efficiency of Aboriginal technologies, tools and weapons they often provided few details about their capacities, their usage and their construction methods. Furthermore, these debates largely ignored the characteristics of natural resources available to Aboriginal people in their home territory or through trade with other Indigenous peoples and the limitations that climate and the availability of raw materials put on Aboriginal peoples' options for manufacturing tools and weapons. However, these limitations are crucial for a deeper understanding of Aboriginal peoples' choices and actions in regard to adoptions and adaptations of European technology.

For example, the Omushkego, or Swampy Cree on the southern and western shores of Hudson Bay and James Bay faced severe limitations in the availability and the quality of raw materials, such as wood. Scholars who assert that they maintained much of their traditional technology until more than a century after contact, often do not explain how the Omushkego people were able to manufacture dependable tools and weapons from the often marginal materials available to them.<sup>3</sup> Furthermore, shortages and limitations in raw materials, climate conditions and the habits of game animals influenced Aboriginal peoples' choices in adopting and adapting European metal tools and firearms. For example, Omushkego archery underwent an important transformation after firearms became available on a consistent basis. This paper provides a close examination of important changes in Omushkego bow making and use of archery, based on the environmental limitations the Omushkego people faced.

Earlier scholars based their research almost exclusively on the interpretation of surviving text documents, such as the correspondence and journals of fur traders and explorers. These records, however, were largely created by non-Aboriginal peoples and in their bias often excluded Aboriginal motivations or points of view. Studies based on such records often asserted that especially the Omushkego Cree, due to their early exposure to trade with Europeans, gave up most of their traditional hunting technology and weaponry very soon after contact, or

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<sup>3</sup> Ibid.; Victor P. Lytwyn. *Muskegowuck Athinuwick Original People of the Great Swampy Land*. Winnipeg: University of Manitoba Press, 2002, 60, 61, 201-204.

at least after consistent trading with the Hudson's Bay Company began in the late seventeenth century.<sup>4</sup>

In regard to the study of Aboriginal agency more recently an interdisciplinary approach has come to be favoured, including the use of archaeological evidence and Aboriginal oral testimony, either recorded by previous generations or obtained from direct cooperation with Aboriginal people. This article will illuminate these questions through such an interdisciplinary approach, based on information from text documents generated by non-Aboriginal people, the study of surviving Aboriginal artifacts, information gained from manufacturing and testing replicas of Aboriginal archery gear and oral testimony from Aboriginal people.

One elder I was fortunate to work with is Louis Bird from Peawanuck, Ontario, an Omushkego, or Swampy Cree community on the southwest coast of Hudson Bay. Louis Bird developed an early fascination with history and his people's past listening to his grandmother and other elders as a child. Starting in 1974, he began collecting stories, legends and recent history from Aboriginal elders along the shores of Hudson Bay, either recording these interviews directly on audiotape or recording summaries of these sessions later on. Having worked as a trapper, hunting guide, line cutter and heavy equipment operator in the central Subarctic contributed to his experience with the people, the wildlife and the sometimes extremely harsh environment of the boreal forests and the Hudson Bay Lowlands.

I first met Louis Bird in the fall of 1999 shortly after I arrived in Winnipeg, Manitoba to pursue a doctoral degree in Aboriginal history at the University of Manitoba. My research focused on Aboriginal peoples' reasons for adopting and adapting European tools and weapons and for retaining or discarding corresponding Aboriginal technologies in the process. Within this larger context I concentrated on big game hunting and combat weapons, such as lances, bows and arrows and firearms.

Louis and I soon developed a friendly rapport and when he mentioned the use of archery in his childhood and youth my curiosity awoke.<sup>5</sup> Like

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<sup>4</sup> Arthur J. Ray. *Indians in the Fur Trade: Their Role as Trappers, Hunters, and Middlemen in the Lands Southwest of Hudson Bay, 1660-1870*. Toronto: University of Toronto Press, 1998 (1974).

many others, I was under the impression that the Lowland Cree had discarded most of their traditional weaponry soon after they began to trade with the Hudson's Bay Company after 1669. Of all Aboriginal people in Central and Western Canada they probably had the longest and most consistent exposure to the fur trade and European technology. Therefore non-Aboriginal scholars largely believed that their traditional hunting methods and weapons disappeared some time in the late seventeenth and early eighteenth century and with them the knowledge of their manufacture and use.

However, in my discussions with Louis it soon became clear that not only had he used bows and arrows to hunt birds and small game as a boy, learning this art from his father, but he also had a deep knowledge of Omushkego bow making techniques and archery. This was especially valuable because Subarctic Aboriginal archery before the early twentieth century was not very well documented.

The recent revival of interest in traditional archery in Western Europe and North America produced a large number of publications on the manufacture of bows and arrows, sometimes based on the study of surviving Aboriginal artifacts. These publications largely focus on Aboriginal archery traditions from the Great Plains, California, southeastern U.S. and to a lesser extent the Great Lakes because Aboriginal archery has been relatively well documented for these regions.<sup>6</sup> The "Indian Wars" on the plains led to a large number of weapons collected from Aboriginal people after military engagements or their formal surrender to United States troops. The subsequent popularity of the "Plains Indians" in the U. S., Canada and in Europe led to a flourishing trade in souvenirs for tourists. Furthermore, salvage anthropologists began to commission artifacts to be manufactured for museum collections in Canada, the U. S. and Europe.<sup>7</sup>

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<sup>5</sup> I would like to thank Louis Bird and his wife Thelma for their friendship, their cooperation and their knowledge about their people's past that they freely shared with me.

<sup>6</sup> T. M. Hamilton. *Native American Bows*. Columbia, Missouri: Missouri Archaeological Society, 1982; Jim Hamm. *Bows and Arrows of the Native Americans*. New York: Lyons and Burford, 1991; Doug Wallentine. *Making Arrows the Old Way*. Liberty, Utah: Eagle's View Publishing, 1987.

<sup>7</sup> Otis Tufton Mason. *North American Bows, Arrows, and Quivers*. Mattituck, New York: Amereon House, 1995 (Reprint Smithsonian Report 1893); Saxton T. Pope. Footnote continued on the next page

The good documentation of Californian Aboriginal archery was largely due to the “discovery” of a Yana or Yahi man, who referred to himself as “Ishi.” He was one of the last survivors of his people and had been found near Oroville, California in 1911. Soon Ishi came under the tutelage of Prof. Alfred Kroeber at the San Francisco University Museum of Anthropology where he manufactured archery gear and demonstrated its use.<sup>8</sup>

However, when it comes to archery among central Subarctic Aboriginal peoples there is far less documentation available. Some of the most important ethnographic accounts on Aboriginal people of the Hudson Bay Lowlands came from fur traders and explorers such as James Isham, Samuel Hearne and Andrew Graham. These men recorded their observations during the mid to late eighteenth century, at a time when firearms had already become well established with the Lowland Cree. Isham’s and Graham’s accounts emphasize the use of traps, caribou hedges, deadfalls and firearms to kill large game and do not mention archery in greater detail.<sup>9</sup>

In contrast, European sojourners among Northern Plains peoples during the second half of the eighteenth century frequently mentioned the prowess of their hosts as mounted archers in bison hunting and combat, emphasizing the importance archery held for the plains peoples.<sup>10</sup> The

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Bows and Arrows. Berkeley: University of California Press, 1974 (1923); William Vonderhey. *Secrets of the Omaha Bow, Grantville, Pennsylvania: William Vonderhey, 1992; Bella Weitzner (ed.). Notes on the Hidatsa Indians Based on Data Recorded by the Late Gilbert L. Wilson. Vol. 56: part 2, Anthropological Papers of the American Museum of Natural History, New York, 1979: 229-246.*

<sup>8</sup> Robert F. Heizer and Theodora Kroeber. *Ishi the Last Yahi: A Documentary History*. Berkeley: University of California Press, 1979.

<sup>9</sup> Andrew Graham. *Andrew Graham’s Observations on Hudson’s Bay, 1767-1791*. (ed. By Glyndwyr Williams) London: The Hudson’s Bay Record Society, 1969; Hearne, Samuel. *A journey from Prince of Wales’s Fort, in Hudson Bay, to the northern ocean: undertaken by order of the Hudson’s Bay Company for the discovery of copper mines, a north west passage, & c. in the years 1769, 1770, 1771 7 1772*. London: Printed for A. Strahan and T. Cadell, 1795, <http://www.canadiana.org/ECO/PageView/35434/0145?id=49078bb615707343>; James Isham. *Isham’s Observations on Hudson’s Bay, 1743*. (ed. By E. E. Rich) Toronto: Champlain Society, 1949.

<sup>10</sup> Peter Fidler, “Journal of a Journey over Land from Buckingham House to the Rocky Mountains in 1792 – a 3 by Peter Fidler.” Provincial Archives of Manitoba, Hudson’s Footnote continued on the next page

lack of information on Aboriginal archery in early accounts pertaining to the Lowland Cree and other Subarctic Aboriginal peoples may indicate that, unlike on the plains, at the time these accounts were recorded, bows and arrow were only one of many hunting tools and weapons to Subarctic peoples with much less social or spiritual significance attached than on the plains where archery deeply permeated the social and spiritual life of Aboriginal communities.

When anthropologists began to work with Central Subarctic Aboriginal people during the first third of the twentieth century, the role of archery had long since undergone an important transformation. By then bows and arrows had gone out of use as a weapon for big game hunting and combat and were now mainly used to hunt small fur bearing animals and birds.<sup>11</sup> With this transformation of the use of archery the equipment had changed, too. After the widespread adoption of metal cartridge ammunition and repeating firearms in the late nineteenth and early twentieth centuries, so-called "bird blunts" with club heads and not arrows with sharp edged stone or metal points became the prominent type of arrow collected from Central Subarctic people.<sup>12</sup> Like Aboriginal people elsewhere, Central Subarctic people manufactured archery artifacts for anthropologists, to demonstrate what their archery had been like in the past. For example, when the anthropologist John M. Cooper visited Ojibwa communities at Lake of the Woods and Rainy Lake in Western Ontario in 1928, two local Aboriginal men made archery outfits for him, pointing out that similar weapons had been in use in their communities until recently.<sup>13</sup>

What little information ethnographers and anthropologists did record on Subarctic archery, often differed sharply from surviving artefacts,

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Bay Company Archives, E 3/2, fols. 2-39; David Thompson. *David Thompson's Narrative, 1784-1812.* (ed. Richard Glover) Toronto: Champlain Society, 1962.

<sup>11</sup> Skinner, *Notes on the Eastern Cree and Northern Sauteaux*, 24.

<sup>12</sup> Such arrows have a fairly large, pear-shaped or bulbous arrowhead, used to disable larger birds or to kill small game, such as small birds or rodents. Unlike an arrow with a cutting arrowhead, these arrows would not puncture and leave the animal's fur or plumage undamaged. Aboriginal people throughout North America often carved the entire arrow, consisting of shaft and head from a single piece of wood.

<sup>13</sup> John M. Cooper. *Notes on the Ethnology of the Otchipwe of Lake of the Woods and Rainy Lake* (Washington D. C.: Catholic University of America, 1936), 16-18. One archery set was made by the Ojibwa elder Kawa'katusk from Rainy Lake while the other archery set, of model size but similar to the other one, was made by the Ojibwa elder Namapok from the Manitu Rapids Reserve.

collected between the turn of the century and the 1970s. To illustrate this a few explanations about the physics of archery are necessary. When a bow is drawn its outside or “back” (the side facing the target) undergoes tension strain while the inside or “belly” (the side facing the archer) endures compression. Every bow design needs to accommodate these forces and distribute them in such a way that renders the bow safe from breakage under the strain of use. Leaving the growth rings intact on the back of a wooden bow helps to accommodate the tension force the bow undergoes when drawn. If the growth rings are cut on the back of the bow, it is far more likely that the weapon will break when drawn, because the even distribution of tension strain will be interrupted at this point. Bows intended for big game hunting and combat, arguably need more force or a higher draw weight to transfer a sufficient amount of energy and speed to the arrow in order to accomplish its task on the target.

Bows collected from Cree communities in northern Ontario, central Manitoba and central Saskatchewan during the twentieth century were generally so-called “selfbows.” This term indicates that they were made of a single piece of wood and no additional material, except for the bowstring. Often these Subarctic bows appear somewhat stubby, with a relatively narrow front-view profile and thick limbs. For example, the Parks Canada collection in Winnipeg holds a selfbow, possibly made of birch, collected in the 1960s at Norway House, Manitoba. The bow is 129 cm long, is widest at the center (3.1 cm) and gradually tapers towards each end (2.6 cm). The side facing the target, or “back” of the bow is rounded with growth rings cut through in many places, weakening the bow’s ability to withstand tension strain when drawn. The side facing the archer, or “belly” is almost flat which helps to distribute compression forces more evenly.<sup>14</sup>

However, Subarctic bows collected during the twentieth century often seem not capable of use in big game hunting, because in terms of energy storage and stress distribution the narrow and thick limbs were far from ideal. The weakness under tension and compression strain of locally available wood species, such as tamarack (*larix laricina*), black spruce (*Picea mariana*), and birch (*betula*) aggravated the flaws of this design. Therefore bows for big game hunting and combat in use by the Omushkego and other Subarctic peoples before and during the early

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<sup>14</sup> Parks Canada, Winnipeg, Cat. No. HG. 63. 9. 19.

contact period must have differed substantially from those collected during the twentieth century. The following paragraphs will provide a closer look at Swampy Cree archery during early contact times.

Aboriginal peoples throughout North America developed several ingenious construction methods to manufacture dependable bows while at the same time overcoming or compensating for flaws and limitations in the available raw materials. For example, Aboriginal people in the Great Lakes area had a wide choice of prime hardwoods of great length and straightness. This enabled them to manufacture long and powerful selfbows in a relatively uncomplicated process. In contrast, on the windswept Great Plains with its extreme climate differences between summer heat and brutal winter cold and in the semi arid scrublands of interior California and the American Southwest Aboriginal people had largely short and knotty pieces of wood available to them. Their growth flaws and short length made the manufacture of long selfbows difficult, if not impossible.

Therefore Aboriginal peoples in these regions devised a construction method known as "sinew backing." Using glue made from hide scrapings or fish parts, they glued strips of dried or fresh animal tendon in wide layers to the backs of their bows because sinew is much stronger under tension than wood. Once the sinew and glue had dried, the layers of sinew held firmly to the backs of their bows, took up the tension strain and compensated for knotholes and other flaws that otherwise would have likely caused breakage. In the high Arctic Inuit people devised a similar technique because they, too had access to woods of only marginal quality for bow making. However, instead of gluing sinew to the backs of their bows, they braided it into a long cable, which they tied to the backs of their bows to absorb the tension strain.

The Hudson Bay Lowland Cree may have used similar bow backings but there is very little evidence for it.<sup>15</sup> Louis Bird mentioned that his father used a bow backed with a material that Louis referred to as "sturgeon spine" or "sturgeon sinew." He mentioned that such bows had a groove with a half-round cross section running from one end of the bow to the other on the back, presumably to accept a cable of some sort. However, Louis mentioned that his father had used such a bow in his youth, before

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<sup>15</sup> Alanson Skinner, *Notes on the Eastern Cree and Northern Saulteaux* (New York: American Museum of Natural History, 1911), 24, 25.

Louis was born. Even at that time these weapons were considered very rare. He observed:

*And then at the back [of the bow], they cut a groove in there. They're going up the back, from the centre to the ends and that's where you put this string, the sturgeon spine, I think it is. You also use a whale spine, for instance. [Louis probably meant some kind of elastic tissue, rather than whalebones.] So they take that and they stretch it and then they put that on the back. And that makes the bow, springier, faster. They put it right in the middle there, right on the back. And the bowstring is on the other side.*<sup>16</sup>

Louis indicated that some sort of cable was attached to the bow's back by hooking it over the tips of the bow and by wrapping it to the limbs as well, very similar to an Inuit bow with a sinew cable backing. When I showed him a drawing of an Inuit bow with a simple single cable backing, he said that this was how the backing must have been fastened to the back of the bows he described.<sup>17</sup>

The close proximity to and the largely hostile interactions with the Copper Inuit to the north and Inuit communities in the Belcher Islands to the northeast made it likely that the Lowland Cree encountered Inuit bows backed with sinew cables. They may have retained some information about these weapons in their traditional stories. However, when Louis and I examined Copper Inuit cable backed bows and other Aboriginal archery artifacts at the Manitoba Museum in the fall of 2001 Louis expressed his unfamiliarity with this Inuit bow design.<sup>18</sup>

The Omushkego and other Aboriginal peoples of the Subarctic probably did not widely adopt sinew backing because of the low compressive strength of the woods available to them. Even if some form of sinew backing had accommodated the tensile stress, bows would still break in the extreme cold, because the wood cells on the belly would collapse

<sup>16</sup> <http://www.ourvoices.ca/filestore/pdf/0/0/1/4/0014.pdf>; Louis Bird, "Guns and Bows," 16, April 2001.

<sup>17</sup> T. M. Hamilton. *Native American Bows*. Columbia, Missouri: Missouri Archaeological Society, 1982, 74, fig. 26, II, IV.

<sup>18</sup> "A Discussion on Native American Archery by the Elder Louis Bird and Roland Bohr, Ph. D. Candidate, at the Manitoba Museum," Centre for Rupert's Land Studies, unpublished documentary video, 2001.

when the bow was drawn far enough to launch the fairly long arrows, common throughout the Subarctic.

Choosing the proper wood species was often crucial to manufacturing a dependable bow. In an emergency, most woods will yield a crude bow, which may stay serviceable at least for a few days. For a longer lasting bow deciduous hardwoods such as ash (*fraxinus Americana*), hickory (*caraya cordiformis*), black locust (*robinia pseudoacacia*), elm (*ulmus Americana*) and osage orange (*maclura pomifera*) were better suited because they have more strength under tension and compression than most coniferous woods, such as tamarack or black spruce.<sup>19</sup> However, these latter ones were the woods primarily available to Omushkego peoples. Therefore they had to accommodate the weaknesses of these materials by adapting their bow designs. Louis Bird explained:

*If you have a good stick, it don't need to be very long, or good material, whatever you use. My father was saying you can have any stick, whether it's tamarack, or any other kind tree. Black spruce [picea maricina] it's not recommended. It breaks easy. And the other one, we call Minahik.<sup>20</sup> This is the tree that usually grows on the riverbank, on the small creeks. And usually has lots of that red wood, springy wood.*

*This is something that I have asked my uncle. One time I asked him: what did they use to make a bow? Mostly in our area it's tamarack, that's the best for them. And it has to be that red wood. Many have the stem out there, on the southeast side of the tree, there's always that red wood.<sup>21</sup> They think that's most springy. It's very hard to pull and it goes back fast. And later on it gets stronger, so you don't necessarily have to pull so far. You could just pull so much and it is very stiff, too. It doesn't break. After a year it's better. The first year is not so good. After a year it begin to condition in some way. The springy stuff, it's really flexible and very powerful. And the older it gets, maybe after four years, it*

<sup>19</sup> An exception to this is the yew tree (*taxus baccata*), which was the basic material for European combat and hunting bows from the Neolithic into the sixteenth century.

<sup>20</sup> This is White Spruce (*picea glauca*), according to Robin J. Marles, Christina Clavelle, Leslie Monteleone, Natalie Tays, and Donna Burns. *Aboriginal Plant Use in Canada's Northwest Boreal Forest*. University of British Columbia Press, Vancouver, Toronto, 2000, p. 92-94.

<sup>21</sup> Tamarack, and a few other conifers show small, elongated, reddish spots underneath the bark and on the inside the light beige wood. Lowland Cree people believed that these were an indicator of greater elasticity of the wood.

*remains the same, and after that it begins to rot and then it's no more strength. And that's when sometimes you don't keep it that long. Four years at the most, if you can keep it that long. Sometimes you can't even keep it that long. An accident happens, or maybe it's just broken by something.*

*So it can be when they used to have a bow and arrow, they used to look, try every kind of tree. I know some people say birch makes a good bow, in certain condition.<sup>22</sup> You don't use it right away, gotta let it stay light, dry it long, condition into something. I don't know if they put it in anything. That way if the board is smeared with something, I don't know. But at least they condition it. And then it last longer, but not necessarily strong. It's very flexible, but not actually much faster as the other one.<sup>23</sup>*

A few Subarctic bows I have examined, which were probably made from birch, feel indeed very light-weight, but also brittle, probably due to their age. When wood is seasoned, moisture leaves the wood cells. This evaporation happens faster near the surface of the wood. As moisture leaves the wood cells, they dry out and contract, causing drying cracks near the surface. These cracks could ruin a bow stave. It is possible that Aboriginal people greased their bow staves while they seasoned them because the layer of grease, fat or oil on the surface prevented moisture from evaporating from the wood too quickly.

However, in times past when archery was still a viable tool for big game hunting to the northern Cree, their bow designs were markedly different from bows collected during the twentieth century. According to Louis Bird, "a bow would be about five feet long. That's average, but if you're a tall man, could be a bit more. My father was six foot, two inches. The bow was about as high as him, six feet two. Usually the bow would be as tall as the man, but not necessarily."<sup>24</sup>

Another indicator for the relatively greater length of bows from boreal forest regions was recorded by the Hudson's Bay Company employee

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<sup>22</sup> James Isham. *Isham's Observations on Hudson's Bay, 1743*. (ed. By E. E. Rich) The Champlain Society: Toronto, 1949, p. 118; the Hudson's Bay Company factor James Isham provided an illustration of a simple "D" bow, made of "berch" [sic] by the Natives near York Factory.

<sup>23</sup> <http://www.ourvoices.ca/filestore/pdf/0/0/1/4/0014.pdf>; Louis Bird, "Guns and Bows," 14, 15, April 2001.

<sup>24</sup> *Ibid.*, 14.

David Thompson who stayed with a group of Piegan Blackfoot on the northern plains in 1787. His host was Saukamappee, a Cree by birth who had married a Piegan woman and risen to prominence among them. Saukamappee was likely in his eighties at the time of Thompson's visit and told Thompson about his peoples' past and the effects the adoption of horses and European weapons had had on their hunting and combat methods. Saukamappee described the bows in use among the Parkland-Cree people in the 1730s as having been made of larch, likely tamarack, and reaching up to the chin in length.<sup>25</sup>

Because Omushkego people did have access to rather tall and straight pieces of wood, they could make their bows rather long, approximately a little less than the height of the user. This offered an advantage in accommodating tension and compression forces. Given the same draw length, thickness and width, a longer bow has to endure much less strain than a shorter one. Making their bows relatively long helped to accommodate limitations in the raw materials available to the Lowland Cree and other Subarctic peoples.

To render their bows even more efficient and safe to use, Subarctic peoples employed another ingenious construction method. Because the woods they had available were relatively weak under compression and tension, Lowland Cree people made their bows rather flat and wide in cross section, up to two inches, widest at the mid section of each bow limb, precisely at the spot where the greatest degree of bending and strain occurred.<sup>26</sup> This distributed compression and tension forces as evenly as possible at the spot where they caused the greatest strain. Such bows were narrow in the handle and widest in the center of each limb while tapering almost to a point at each tip. According to anthropologist Edward S. Rogers, the Mistassini Cree on the eastern and southern shores of James Bay, used wide-limbed, flat bows that were about 97 cm to 127 cm (38 1/8 to 50 inches) long. Rogers stated that these selfbows were made of tamarack or black spruce and that they did not have any backing. The limbs were flat and at least one inch wide at the center, while the handle area was fairly narrow and thick. The bow back was flat or slightly convex and the belly was rounded and shaped like a slight

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<sup>25</sup> Glover, ed., *David Thompson's Narrative*, 242.

<sup>26</sup> "A Discussion on Native American Archery by the Elder Louis Bird and Roland Bohr, Ph. D. Candidate, at the Manitoba Museum," Centre for Rupert's Land Studies, unpublished documentary video, 2001.

ridge in the handle area. Such bows were occasionally still made and used in the 1960s.<sup>27</sup>

In the Western Subarctic Aboriginal bow makers faced similar limitations in raw materials and extreme winter temperatures and applied similar construction methods to their bows to overcome these difficulties. The Norwegian ship captain Johan Adrian Jacobson (1853-1947) traveled the Yukon River area in Alaska from June 1882 to June 1883 collecting Aboriginal artifacts for the Berlin Museum of Ethnology (Ethnologisches Museum Berlin) among Inuit, Ingalik and Tanaina people. He collected two bows from the Ingalik. Both bows were selfbows made of a rather lightweight, probably coniferous wood. They are relatively long (167.5 cm and 155.5 cm), narrow in the handle with flat limbs that are widest at the center section, where the greatest bend occurred. The longer bow was labeled "Wooden bow, painted black, used for hunting" ("Holzbogen, schwarz bemalt, zur Jagd benutzt"). The shorter bow carried a label that read "Wooden bow, painted red and white, used in war" ("Holzbogen, roth und weiss bemalt, im Krieg gebraucht").<sup>28</sup>

Bows with a wide and flat cross section of the limbs are more difficult to manufacture with hand tools than a narrower, but thicker bow would be. With a wide and flat limb it is more difficult to control precisely where wood is removed. A narrower bow with a somewhat rounded belly would offer much easier access to the wood surface and thus greater control over the process of wood removal. The greater care is taken during this process, the more evenly the bow will bend when in use and thus the strain will be distributed more evenly. This means that careful and controlled wood removal and constant control of the bending progress, a process known as "tillering," will lead to a more durable bow which is less likely to break and safer to use. However, some non-Aboriginal authors commenting on Aboriginal archery implied that Aboriginal bows were badly made because they were not tillered.

Primitive bows and arrows were very crude. Arrows were neither feathered nor straight. They were tipped with sharp flints, splinters of

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<sup>27</sup> Edward S. Rogers. *The Material Culture of the Mistassini* (Ottawa: National Museum of Canada, 1967), 67-69.

<sup>28</sup> Ethnologisches Museum Berlin, Cat. No. IV A 5601, length: 155.5 cm, Ingalik, Alaska; Cat. No. IV A 5602, length: 167.5 cm, Ingalik, Alaska, 1882-83.

bone or had fire-hardened points. The bows probably had every possible fault that a finicky archer of today can discover even in a fine yew, osage or lemonwood weapon of modern make.<sup>29</sup>

Tillering denotes the process of careful and gradual material removal from the bow, mostly from the belly side, until the proper bend or curve at the intended draw weight and draw length is reached. This process is the most difficult and most important step in bow making. However, because most ethnographers and anthropologists who recorded information from Aboriginal people had little familiarity with archery and bow making, they did not understand the importance of this process and often simply recorded that Aboriginal people “whittled” or “carved” their bows from wood. For example, David Mandelbaum wrote about the Plains Cree: “The best bows were made of chokecherry wood. A straight shoot, three to four feet long and two or three inches in diameter, was whittled flat on both sides and smoothed with a stone.”<sup>30</sup> Similarly E. Wallace and E. A. Hoebel stated about Comanche bow making: “After the bow wood had seasoned, it was scraped and shaped to proper dimensions and rubbed with fat or brains to make it pliable.”<sup>31</sup>

The terms “whittling,” “scraping” and “shaping” suggest wood working activities but do not provide an accurate description of the different steps and procedures of wood removal. Such accounts often do not mention where the bow maker removed wood and which areas of the bow stave were left intact. Removing wood to bring a bow to its intended length and width was more easily understood by non-specialist observers, whereas the slow and painstaking process of removing wood to bring the bow to its proper bend and draw weight was much less obvious to such observers. Later authors then inferred from such unspecific and

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<sup>29</sup> L. E. Stemmler. *The Essentials of Archery: How to Make and Use Bows and Arrows*. Manorville, L. I., New York, 1942, See also:

<http://www.stavacademy.co.uk/mimir/archeryessentials.htm>.

<sup>30</sup> David G. Mandelbaum. *The Plains Cree*. Regina: Canadian Plains Research Center, University of Regina 1979 (1940), 94. This observation was in regard to sinew-backed bows, however. Therefore cutting through the growth rings on the back of the bow would not be so much of a problem in the completed bow, because the tension strain on the back would be taken up by the sinew and not by the wood. If the growth rings are cut through on the back of a selfbow, it is very likely to break under tension strain when the bow is drawn.

<sup>31</sup> Ernest Wallace and E. Adamson Hoebel. *The Comanches: Lords of the South Plains*. Norman: University of Oklahoma Press, 1976 (1952), 100.

inaccurate accounts that Aboriginal bows were crudely made and inefficient, compared to medieval European or Asian bows.<sup>32</sup>

However, the exact process of wood removal and constant observation of its effect is important in determining how the bow will bend and perform. When I asked Louis whether the Lowland Cree when manufacturing bows, gradually removed wood, while constantly checking for the proper bend and strength, he answered: "Yes, because you can't make a bow any other way."<sup>33</sup> From my own experience in manufacturing bows according to Aboriginal and European traditions, I agreed. For any bow to perform well and safely, careful tillering is necessary. Surviving Aboriginal bows often indicate this, showing an evenly spaced chevron pattern of growth rings on the belly side of the bow, with the peaks of the chevrons pointing towards the ends of the bow. Such a grain pattern indicates that wood was removed gradually and evenly to achieve an even taper and bend of the bow limbs. For example, the Manitoba Museum holds a selfbow collected from the Granite Lake Cree in central Saskatchewan, and two selfbows from Nelson House Cree in Manitoba. All bows were made from a coniferous wood or from birch. Even though these bows appear to be of a more recent, narrow type, with growth rings cut on their backs, they show chevron patterns of growth rings on their bellies, indicating careful tillering.<sup>34</sup>

In regard to archery, the extreme cold from December to the end of February aggravated the negative characteristics of the wood species available to the Lowland Cree. Louis pointed out that during this period bows could not be used unless they were warmed over a fire immediately before shooting.

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<sup>32</sup> L. E. Stemmler. *The Essentials of Archery: How to Make and Use Bows and Arrows*. Manorville, L. I., New York, 1942, See also: <http://www.stavacademy.co.uk/mimir/archeryessentials.htm>.

<sup>33</sup> Louis Bird, personal communication, Centre for Rupert's Land Studies, October 2001.

<sup>34</sup> Manitoba Museum, Winnipeg, ethnology collection, coll. nos. H 4. 12-302 a, Granite Lake Cree, central Saskatchewan; H 4. 12. 11 and H 4. 12. 12, Nelson House Cree, central Manitoba. There is no precise information as to the age of these bows. The bow from Granite Lake may have been collected as late as the 1960s while the two bows from Nelson House may date as early as the late nineteenth century.

But this kind of bow [a sinew backed bow] would also break in very cold weather. I mean, any stick will do, any kind of stick will do [to manufacture a bow]. But it's brittle when it's cold. It cracks to pieces. Almost any kind of wood will do that. Tamarack may be a little bit more flexible. A little bit, but if it's too cold, it's too cold.<sup>35</sup>

Because of the danger that extremely low temperatures posed to their bows, Omushkego hunters had to wait behind shelters or hunting blinds sitting near a low fire to warm their bows while other hunters drove game animals such as caribou toward the waiting archers. Driving caribou in winter involved sustained heavy running on snowshoes and was most strenuous work. According to Louis, that was the reason why the runners received a much larger share of the proceeds of the hunt than the other hunters. When the Hudson's Bay Company employee Peter Fidler stayed with a group of Peigan Blackfoot in the Bow River area during the winter of 1792-93 he observed similar hunting and driving methods in Peigan bison hunts. Fidler noted:

Bringing the Buffalo to the Pound, particularly when at a great distance is a very hard job for the young men, as they are obliged to run so very much to keep the Buffalo in the proper direction for the Pound – there is a deal of art in thus driving them the way they wish.<sup>36</sup>

When the animals came within close range, the archers emerged from behind the hunting blinds and shot arrows at the animals. In this way archery in winter was restricted to the use of stationary hunting devices such as pounds, caribou hedges or enclosures. If hunters needed to follow the trails of game animals during this time of the year, they had to use other weapons than bows and arrows, such as lances and later firearms. However, firearms posed their own problems, as Louis Bird noted.

*The first gun they have, it was not so good. They know it was not reliable, so they used to keep their bow and arrow, just in case. In case the gun doesn't work and in summer time, especially. And also, during*

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<sup>35</sup> <http://www.ourvoices.ca/filestore/pdf/0/0/1/4/0014.pdf>; Louis Bird, "Guns and Bows," 16, 17.

<sup>36</sup> Provincial Archives of Manitoba, Hudson's Bay Company Archives, 4M 103, E 3/2, p. 14; "Journal of a Journey over Land from Buckingham House to the Rocky Mountains in 1792 – a 3 by Peter Fidler," Dec. 28, 1792.

*the wintertime, they know the bow and arrow cannot be used during the coldest weather, at least part of December, January, February. That time it's really hard to use bow and arrow, just to bring it out and shoot, because it's frozen stiff. The only time they can use bow and arrow in those days was if they were funneling caribou. So they can create a fire behind a snow bank, so the caribou doesn't see that, so they can hold their bow there to warm it up so it doesn't break. As soon as they [the caribou] are coming here, that's when they shoot quickly. So that's the problem with the bow and arrow only in that three months period, it's not reliable, really. But it can be. There was a way to hunt, even the moose hunting. They had a special way to do that, so the shooter would sit some place where this moose is gonna be chased. He already has that fire, where he can just wait for it. And this way, when the moose appears, then he can shoot. So it's a bit harder, not like in summer. In summer they can shoot it anytime.*<sup>37</sup>

The use of arrows, like that of bows, required skill and patience. Although firearms did not instantly replace Indigenous weapons, the Omushkego Cree believed that early firearms held certain advantages over their traditional distance weapon, the bow and arrow: "The gun, when you shoot an animal, you don't have to try to retrieve anything, the bullets, you just don't have to find them. But the bow, you have to find the arrow, if you don't know how to make an arrow."<sup>38</sup> To manufacture dependable arrows for consistent and accurate shooting was even more difficult and labour intensive than making a bow. At least a full day's work went into manufacturing a single arrow. Therefore archers were keen to retrieve spent projectiles to use them again. Louis observed about arrow making:

*To make the arrow shaft you would use willow. Willow is the easiest thing to make, because you don't have to shape it. You just cut the very straight stuff. Sometimes it doesn't have to be good, it could be a bit curved. But you make that straightened. And you take the raw stuff. And*

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<sup>37</sup> <http://www.ourvoices.ca/filestore/pdf/0/0/1/4/0014.pdf>; Louis Bird, "Guns and Bows," 6, 7, April 2001.

<sup>38</sup> Another problem encountered in archery, but not in using firearms, was the search for lost projectiles. Arrow making is a time consuming and laborious task, with more than a full days' work invested into a well-made arrow, if made from scratch. Therefore, in case of a miss, or if an arrow passed through its target, archers, past and present, have been keen to find their lost projectile.

*when it's dry, it's very, very strong, durable. It's flexible. It can bend, but it doesn't break. But they can be very straight. That's what they liked. Another one you still find is cedar, tamarack, and also the other kind of spruce tree.*<sup>39</sup>

*Women would sometimes help in putting the feathers on arrows. That was while they were still using bow and arrows. Yes, the women, they're very good, making those feathers for the end of the arrow. The women were good at that, because they can make string with the sinew from the animals, sometimes just the beavers and the otters make a fine sinew. And that's what they used to wrap these feathers on, so they won't hurt on the hand and the finger of the man. They were good at that. So the women usually used to make that. The men would put the head, if there is a big game animal. And if it's a goose they had just put a little sharp thing. Very easy to go on through. And sometimes we got the big head, like a club, just to knock it down [a so-called "bird blunt"].*<sup>40</sup>

Besides bird blunts Aboriginal people in boreal forest regions also used arrowheads made from flat and sharpened pieces of bone. In 1928 John M. Cooper collected such arrows from Ojibwa people near Rainy Lake in Western Ontario who stated that in the past they had used these to hunt moose, caribou and other big game.<sup>41</sup> Louis Bird mentioned the use of bone arrowheads by the Omushkego Cree for this purpose as well.<sup>42</sup> The Manitoba Museum in Winnipeg has four such arrows, collected from Cree people near Granite Lake in central Saskatchewan.<sup>43</sup> The arrow shafts were made from split coniferous wood and varied in length from 62 cm to 66.5 cm. All arrows have large points of a triangular or diamond shape, made from large, thick flat bones. These arrowheads are up to 8.5 cm long, 4.2 cm wide at the base and are ca. 7 mm thick.<sup>44</sup>

<sup>39</sup> <http://www.ourvoices.ca/filestore/pdf/0/0/1/4/0014.pdf>; Louis Bird, "Guns and Bows," 28, April 2001.

<sup>40</sup> *Ibid.*, 9.

<sup>41</sup> Cooper, John M. *Notes on the Ethnology of the Otchipwe of Lake of the Woods and Rainy Lake*. Washington D.C.: Catholic University of America, 1936, 17, 18.

<sup>42</sup> <http://www.ourvoices.ca/filestore/pdf/0/0/1/4/0014.pdf>; Louis Bird, "Guns and Bows," 20, April 2001.

<sup>43</sup> Manitoba Museum, Winnipeg, ethnology collection, coll. nos. H 4. 12-302 c-f, belonging to bow H 4. 12-302, all collected from the Granite Lake Cree, Saskatchewan.

<sup>44</sup> Manitoba Museum, ethnology collection, H 4. 12-302 c.

The mode of use of these arrowheads and their penetrative capabilities are not clear. Bone can be sharpened reasonably well but does not hold its edge very long. It would take a very powerful bow to drive an arrow equipped with such a wide and thick bone arrowhead through the hide of a moose. A narrower pointed bone arrowhead with a round diameter, or a smaller stone or metal arrowhead would have much greater penetrative capability. For example, the smaller and narrower metal arrowheads that became popular for hunting bison among Aboriginal peoples on the Great Plains during the eighteenth and nineteenth centuries would function much better in this context. The shape of the Ojibwa bone arrowheads collected near Rainy Lake by John M. Cooper closely resembles an arrowhead pattern that was common for metal arrowheads on the plains. However, large bone arrowheads like those on the Cree arrows from Granite Lake are consistently found on Central Subarctic arrows, collected during the late nineteenth and early twentieth centuries.

After trading began with the Hudson's Bay Company Lowland Cree and other Aboriginal people of the Central Subarctic purchased metal kettles, pots and pans and tools, such as files and chisels. They used these tools to cut up metal containers to manufacture arrowheads from them. Once fur traders recognized this demand, they began to sell ready-made metal arrowheads to Aboriginal people in the Hudson Bay Lowlands and further west.<sup>45</sup> However, surviving Subarctic arrows with metal arrowheads from the time period of 1670 to 1870 are extremely rare. The majority of Subarctic arrows with a separate arrowhead in existence today have bone arrowheads. By the time anthropologists began to collect artefacts among Central Subarctic people intertribal warfare had ceased and firearms had long since become the predominant distance weapon for big game hunting. Therefore metal arrowheads were no longer in use at the time most of the surviving Subarctic arrows were collected. At that time firearms had become the principal distance weapon. Louis Bird pointed out the advantages even muzzle loading firearms held to the Omushkego people:

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<sup>45</sup> Elizabeth Mancke. *A Company of Businessmen: Hudson's Bay Company and Long Distance Trade, 1670-1730*. Winnipeg: Rupert's Land Research Centre, University of Winnipeg, 1988, 43; Mancke cited E. E. Rich, intro., *Minutes of the Hudson's Bay Company, 1671-1674*. London: Hudson's Bay Record Society, 1942, vol. 5, XXXI; John S. Milloy. *The Plains Cree: Trade, Diplomacy, and War, 1790 to 1870*. Winnipeg: University of Manitoba Press, 1988, 17, 18.

*Well, one thing the firearm does, it kills instantly and then it is more accurate in the distance than the bow and arrow. It has a greater range and is also more accurate, if you know how to use it. The bow and arrow, it's straight at a certain distance and it can kill, but usually the power, the strength of it is sometimes not very strong and the animal will just run quite a ways before its dies. But the gun, you hit it in the right spot, takes only a few minutes before it drops and dies, or is unable to run. And then in birds, because there are the pellets in it, so you can kill more than one at one shot. And also the gun can kill the large animals like moose, caribou, black bear, polar bear much easier than bow and arrow. Bow and arrows are just as good, but they are not as quickly as the gun. So that's one good thing about it.<sup>46</sup> ...*

*And also it gives them the assurance to be able to kill dangerous animals, like a polar bear, a black bear. And at mating season the bull moose is very dangerous and charge you, if you are there. So, usually when that happens, if then somebody got the gun, has a chance to load and he'll be able to knock down the moose, instead of running away. So, many of those things have been benefiting our Omushkego people.*

To the Lowland Cree the lead balls of trade guns and other smoothbore muzzle-loading weapons provided much greater stopping power and penetrative force than arrows. This could be decisive in hunting big game such as moose or in defending oneself against bears.

The same weapons could be loaded with shot or pellets to hunt birds. Aboriginal people in the Subarctic, Arctic, the Plains and the Southwest of North America manufactured bird-hunting arrows enabling an archer to bring down two or three birds with one arrow. However, these were suited more for hunting smaller birds, whereas with a single shot from a fowling piece or a trade gun a hunter could bring down several larger birds, such as geese. Experienced Omushkego hunters could kill ten or more birds with one shot from their firearms.<sup>47</sup>

In hunting caribou in winter firearms proved to be more effective because the low winter temperatures from December to January made

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<sup>46</sup> <http://www.ourvoices.ca/filestore/pdf/0/0/1/4/0014.pdf>; Louis Bird, "Guns and Bows," 1, 2, April 2001.

<sup>47</sup> *Ibid.*, 3, 8; James Isham. *Isham's Observations on Hudson's Bay, 1743*, 118.

bows brittle and likely to break when drawn in the cold. However, freezing locks and springs proved a serious weakness of the early muzzle loading firearms traded to the Lowland Cree. Such firearms functioned well in temperate Europe, but in North America their metal parts often did not withstand the extreme cold on Hudson Bay or on the Northern Great Plains. For example, the Hudson's Bay Company trader William Tomison at Manchester House on the North Saskatchewan River observed in January 1787: "Men employed as yesterday, except Gilbert Laughton who was cleaning and repairing trading guns, some of the springs are so weak that Indians refuse to take them, as they will not give fire in cold weather."<sup>48</sup> In order to be able to sell such weapons to their Aboriginal customers, fur traders at Manchester House re-fitted these weapons with stronger springs, which performed correctly in cold weather.<sup>49</sup>

If firearms were kept in proper working order, their advantages over archery in winter were significant, as Louis Bird observed.

*But in caribou hunting, with a gun you can kill more than one caribou at once, that is in the wintertime, also in the summer time. They [the hunters] can follow the caribou and then they're gonna shoot it, first by sneaking up on it and once they shot the first shot, they can take the guts out of the first one they killed and put it away and then follow the other group that's still there. And then in an hour, an hour and a half, because the way they follow it, they would sort of bypass the path of them, go ahead and then wait for them, and they'd kill another one. And then they'd do the same thing they'd take the guts out of the animal, then put it away nicely and follow one more. So in a day they can kill three caribous if there is only shot. In winter this can't be done with a bow because it's cold. It breaks. But in the summer time they can do it with the bow. That's the only thing about the bow it's not so reliable that way. So that's the good thing about the gun.*<sup>50</sup>

Due, at least in part, to these advantages in a gradual but accelerating process that lasted from their introduction in the late 1600s to the early decades of the nineteenth century, among the Omushkego Cree firearms

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<sup>48</sup> HBCA, Manchester House Post Journal Jan. 13, 1787, 1M 73, B 121/a/1, 28.

<sup>49</sup> *Ibid.*, B 121/a/2, 25.

<sup>50</sup> <http://www.ourvoices.ca/filestore/pdf/0/0/1/4/0014.pdf>; Louis Bird, "Guns and Bows," 4, April 2001.

replaced bows and arrows as the principal distance weapon for big game hunting and combat. The wide-limbed flat long bows that distributed tension and compression forces very evenly, allowing bows with high draw weights to be made from marginal woods, eventually gave way. However, archery did not disappear but remained in use in hunting small game and birds. For this, bows did not have to be as powerful as to kill large animals, such as moose or bears. There developed a different type of self bow among the Omushkego Cree. The narrow and thick bows collected from Central Subarctic people during the first half of the twentieth century distributed tension and compression strain less evenly but were still safe to use at a lower draw weight and shorter draw length than the older and wider type of bow.

Initially big game hunting remained the domain of men who increasingly preferred firearms for this purpose. Thus, bows became a hunting weapon primarily used by boys and sometimes by women. For example, Sam Waller, a teacher in The Pas in northern Manitoba took a photograph of three Northern Ojibwa or Cree women using bows and bird blunt arrows. The picture was probably taken around 1925.<sup>51</sup> According to the Ojibwa linguist Roger Roulette, Ojibwa women owned, used and even made their own archery gear.<sup>52</sup> Louis Bird also mentioned women's participation in manufacturing arrows, especially in the delicate but important step of attaching the fletching feathers to the arrow shafts.

As a small game hunting weapon bows remained in use in Omushkego Cree communities well into the mid-twentieth century. Even at some residential schools Aboriginal boys were allowed to manufacture their own bows and arrows and to hunt small game with them. In some cases their older male relatives made these items for them and brought them to the schools on their visits.<sup>53</sup>

With the advent of modern repeating firearms and cartridge ammunition, Subarctic women's contributions to big game hunting increased. While

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<sup>51</sup> Manitoba Museum, Winnipeg, photo negative number 6515.

<sup>52</sup> Roger Roulette, personal communication, Fall 2000.

<sup>53</sup> Government of Canada, Sessional Papers, Dominion of Canada, Annual Report of the Department of Indian Affairs for the year ended March 31, 1910, Ottawa 1910, Reports of Inspectors and Principals of Boarding and Industrial Schools, The Report of the Rev. Ernest O. Duke, Principal of the boarding school, Moose Factory, James Bay Ont., for the year ended March 31, 1910, p. 429.

before the widespread adoption of such weapons women had participated in big game hunting mainly by building and maintaining hunting structures such as enclosures and caribou hedges, now they began to participate more regularly as individual hunters. Modern firearms were relatively easy to use and to carry and their range and accuracy was such that large and potentially dangerous animals could be killed at safe distances.<sup>54</sup>

As male-dominated activities, such as inter-tribal warfare and the fur trade declined in their economic importance for the Swampy Cree, women, using these new weapons, were increasingly able to contribute to their families' income and subsistence. They added big game hunting to the manifold activities they already practiced in support of their communities, such as trapping, gathering and the manufacture of wares for the souvenir trade.

While big game hunting was an important part of their subsistence, the Omushkego people relied on fishing, trapping and hunting small game to a great extent. In order to survive where they lived they had to ingenuously utilize scarce but diverse plant and animal resources using a wide range of tools and weapons. Furthermore, the characteristics of locally available woods and the severe winter cold limited the options for the manufacture of bows and the use of archery. Therefore, to the Omushkego people the bow and arrow were useful, but were not endowed with greater social prestige than other weapons. The relatively limited durability of Subarctic bows may have contributed to this as well. Louis Bird indicated that bows made from tamarack were in prime condition about a year after their manufacture but then the wood slowly began to lose its strength and elasticity until after four years they were hardly usable at all. In contrast, sinew backed bows from the plains could last for decades. This greater durability may have contributed to the higher social and spiritual prestige accorded to bows by plains peoples such as the Blackfoot.

These environmental limitations and cultural practices, more so than any inherent superiority of European technology, influenced Omushkego people's choices to adopt firearms, once they became available. As a consequence of the adoption of firearms, the bow and arrow lost its

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<sup>54</sup> Madeline Katt Theriault. *Moose to Moccasins: The Story of Ka Kita Wa Pa No Kwe*. Toronto: Natural Heritage/Natural History Inc., 1995, 42.

importance as the principal distance weapon for big game hunting and combat. However, in a different design it survived as a weapon for small game. While these bows were simpler than their predecessors, some of the knowledge and ingenuity necessary to manufacture the older bow designs was kept alive in the oral traditions and stories of the Omushkego people.

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