

ROLAND BOHR

# Gifts from the Thunder Beings

Indigenous Archery and European Firearms in the  
Northern Plains and the Central Subarctic, 1670-1870

“Aboriginal weapons are an important subject in themselves and for their role within Native societies and Native-white relations. Roland Bohr’s knowledge of how Aboriginal weapons work and why they were constructed as they were allows the author to critique the ethnocentric and technologically ignorant assumptions of many earlier scholars. As a bowyer himself, Bohr brings knowledge of making and using bows and arrows lacking in earlier scholarship to his careful historical research.”

—Dr. Laura Peers, curator of the Americas at the Pitt Rivers Museum and reader in the School of Anthropology and Museum Ethnography at the University of Oxford

## Gifts from the Thunder Beings



Gifts from the Thunder Beings

Indigenous Archery and European Firearms in the  
Northern Plains and Central Subarctic, 1670–1870

Roland Bohr

University of Nebraska Press

Lincoln and London



© 2014 by the Board of Regents of the University of Nebraska

Cover image: George Catlin, “Rainmaking among the Mandan,” from the Smithsonian American Art Museum, gift of Mrs. Joseph Harrison Jr.

All rights reserved

Library of Congress Cataloging-in-Publication Data

Bohr, Roland.

Gifts from the thunder beings: indigenous archery and European firearms in the Northern Plains and Central Subarctic, 1670–1870 / Roland Bohr.

pages cm.

Includes bibliographical references and index.

ISBN 978-0-8032-4838-0 (cloth: alk. paper)

ISBN 978-0-8032-5438-1 (epub)

ISBN 978-0-8032-5439-8 (mobi)

ISBN 978-0-8032-5437-4 (pdf)

1. Indian weapons—Great Plains—History. 2. Indian weapons—Canada, Northern—History. 3. Bow and arrow—Great Plains—History. 4. Bow and arrow—Canada, Northern—History. 5. Firearms—Great Plains—History. 6. Firearms—Canada, Northern—History. I. Title.

E98.A65B64 2014

355.8'241—dc23

2013039217

The publisher does not have any control over and does not assume any responsibility for author or third-party websites or their content.



## Contents

List of Illustrations

Preface

1. Bows, Guns, and Diverging Views on Indigenous and European Technology

2. Indigenous Subsistence Patterns of the Hudson Bay Lowlands and Northern Plains

3. Bows of the Northern Plains and Subarctic

4. Arrows and Arrow Makers

5. Aboriginal Peoples and Firearms

6. Injuries Caused by Arrows and Firearms

7. Archery and Firearms in Aboriginal Beliefs

8. Archery and Firearms in Hunting

9. Archery and Firearms in Combat in the Central Subarctic

10. Archery and Firearms in Combat in the Northern Plains

11. Survival and Adaptation of Aboriginal Archery and European Firearms

Appendix: Extended Image Credits

Glossary of Archery Terms

Notes

Bibliography

## Index



## Illustrations

### Figures

1. Competency ceremony at Crow Creek Reservation, 1916
2. Competency ceremony at Standing Rock Indian Reservation, 1920s
3. Plains Cree bison pound
4. Buffalo jump, painting by Alfred Jacob Miller
5. Parts of a bow
6. Unstrung Plains Cree self bow
7. Basic construction steps from tree to bow stave
8. Lakota self bow with cut growth rings
9. Lakota self bow, viewed from back
10. Omaha self bow with intact growth ring on back
11. Osage self bow with intact growth ring on back
12. Blackfoot bows, arrows, and quiver/bow case
13. Asymmetrical ash bow made by Wolf Chief
14. Stringing method for asymmetrical Plains bows
15. Asymmetrical sinew-backed Hidatsa bows
16. Asymmetrical Blackfoot self bow

17. Reproduction of asymmetrical sinew-backed Plains bow
18. Self bow, collected from Nelson House Cree
19. Omushkego Cree self bow as described by Louis Bird
20. The Sudbury bow
21. Ingalik self bow from western Alaska
22. James Isham's drawing of an "Indian Bow of Berch"
23. Samuel Hearne's drawing of a Déné self bow
24. Western Arctic sinew cable-backed Inuit bow
25. So-called Penobscot double bow
26. Northern Plains arrows with metal arrowheads
27. "Archer's paradox"
28. Arrow releases used by Aboriginal people
29. Projectile points from bison jump, Avon, Montana
30. Stone and metal arrowheads, Morkin site, Alberta
31. Iron projectile point, Elk Point, Alberta
32. Metal arrowheads, Pine Fort, Manitoba
33. Barbed metal arrowheads, Pine Fort, Manitoba
34. Projectile points from Writing-on-Stone, Alberta

35. Metal arrowheads from Fort George, Alberta
36. Arrow components
37. Bird-hunting arrow with thorns or crosspieces
38. Subarctic blunt-headed arrow from central Manitoba
39. Subarctic shooting glove
40. Possible arrowheads from northern Manitoba
41. Subarctic arrow with stone point
42. Unusual metal points from Manitoba
43. Iron arrowhead from Tailrace Bay site, Manitoba
44. Flintlock mechanism
45. “Northwest” trade gun
46. Northern Plains archery set made by Roland Bohr
47. The Mandan Sih-Sä. Watercolor by Karl Bodmer, 1833
48. Mounted Plains Indian bison hunter
49. Dragon side plate from trade gun
50. Joe Rich (Naskapi) demonstrating use of bow and arrow
51. Shield-bearing warriors, Writing-on-Stone, Alberta

52. Images of combat from Writing-on-Stone, Alberta

53. Hide painting (Segesser 1)

54. Southern Plains painted robe, attributed to the Quapaw

55. Detail of Quapaw robe

56. Arikara drawing of combat formations

57. Youth archers from the Caribou Lake community, Ontario

## Maps

1. Hudson Bay Lowlands and adjacent regions

2. Northern Plains and adjacent regions

## Table

1. Comparison of bows and projectile velocities



## Preface

This study examines North American Aboriginal peoples' use of Indigenous and European distance weapons in big game hunting and combat from the beginning of the fur trade in the Hudson's Bay Company trading territory in the late seventeenth century to the treaty and reserve period that began in Canada in the 1870s. It compares the northern Great Plains and the Central Subarctic, two adjacent but environmentally very different regions of North America and their respective Indigenous cultures.

Technological change and the impacts of European contact were not uniform throughout North America. Aboriginal people in the Northern Plains and Central Subarctic became much involved in the fur trade and from the early 1700s on had to deal with European newcomers, but they did so in divergent ways. Because Aboriginal people in both regions were affected by and participated in the fur trade, a comparative examination of continuity and change in their hunting methods and hunting equipment, as well as patterns of violent conflict, can shed more light on their history and the history of Aboriginal-European relations. Wherever possible, this examination focuses closely but not exclusively on the Omushkego (Swampy) Cree, exemplifying Central Subarctic Aboriginal peoples and on the Blackfoot as an exemplary

Aboriginal group from the Northern Plains. The Omushkego Cree were chosen because they had a relatively long and quite early exposure to the fur trade and the changes it brought. The Blackfoot provide a good example of Plains cultures because their acquisition of horses and firearms was said to have been a crucial factor in their westward and southward expansion, causing important shifts in military and political relations between Aboriginal peoples in the Northern Plains.

My interest in North American Aboriginal peoples' history began with a fascination with their material culture. Intrigued by the controversies surrounding the relative effectiveness of Aboriginal technologies in comparison to European tools and weapons, I found that much of the sparse information on Aboriginal weapons was either overlooked or misinterpreted by historians of the fur trade. To gain a more realistic understanding of their capabilities, I began in 1992 to manufacture working reproductions of Aboriginal artefacts such as moccasins, containers, tools, and bows and arrows. Through a Fulbright Grant at the University of North Dakota in Grand Forks in 1995–96, I had the chance to study the history, archaeology, and material culture of the Mandan, Hidatsa, Arikara, and Lakota. There, I began to seek information from Aboriginal people themselves in order to compare it with information from other sources and to integrate it

into my practical studies on Aboriginal material culture.

Soon after I began my doctoral studies at the University of Manitoba in Winnipeg in 1999, I met Mr. Louis Bird, an Omushkego (Swampy Cree) elder from Peawanuck, Ontario, who had been active in collecting his peoples' traditions, legends, and histories for over thirty years. My conversations and cooperation with Louis Bird had a formative influence on my work. So far my interests had been mainly directed toward Plains Aboriginal peoples, but he brought me to study Subarctic peoples as well. Through these conversations I realized that a significant amount of information on traditional Subarctic Aboriginal archery has survived in Omushkego-Cree oral traditions and through peoples' continued use of bows and arrows in hunting. But because of a widespread assumption that traditional weaponry had quickly disappeared after the opening of direct trade between the coastal Cree and the Hudson's Bay Company in 1668–69, academic researchers had never before asked Omushkego historians like Louis Bird about these topics.

Another realization that came from working with Louis Bird was that Subarctic peoples' responses to European tools and weapons and their ways of integrating these new items into their own technology, although appearing similar on the surface, were very different from

those of Aboriginal groups in the Northern Plains. Comparing these different Aboriginal cultures in regard to their usage of Indigenous and European technology has led me to a more thorough understanding of these adaptive processes and Aboriginal peoples' responses to them.

A brief survey of the Subarctic and Northern Plains environments and the most common subsistence strategies in these regions near the time of contact (chapter 2) provides the context for a detailed examination of Aboriginal distance weapons in chapters 3 and 4. Chapter 4 also examines social and cultural aspects of the manufacture of arrows. Chapter 5 introduces the major types of firearms that became available to Aboriginal people through the fur trade. Its main focus is on muzzle-loading smoothbore flintlock guns because these comprised the majority of firearms sold in the fur trade and because these weapons, rather than later models of repeating firearms, were said to have had an important impact on military relations among different Aboriginal groups in the Plains and Subarctic. Chapter 6 compares injuries from arrows and bullets, and chapter 7 explores some of the social and spiritual connotations of bows, arrows, quivers, and firearms.

Beyond the capabilities of European weapons, Aboriginal peoples' ways of adapting and using them contributed greatly to the impact these weapons had on Aboriginal cultures. Chapter 8

examines Aboriginal peoples' use of archery and firearms in hunting, and chapters 9 and 10 compare and contrast important aspects of their use in combat in the Central Subarctic and Northern Plains. Following the conclusion in chapter 11, a glossary of archery terms defines the technical archery terms and concepts appearing in this study.

I could not have completed this study without the generous assistance and support of numerous individuals and institutions. My wife, Youngok Kang-Bohr, and my late parents have patiently supported me spiritually and emotionally and provided constant encouragement during the years of my postgraduate studies. Archivists and curators at the Hudson's Bay Company Archives and Manitoba Museum in Winnipeg, Royal Alberta Museum in Edmonton, Royal Ontario Museum in Toronto, Glenbow Archives and Museum in Calgary, McCord Museum in Montreal, Canadian Museum of Civilization in Gatineau, Quebec, Montana Historical Society in Helena, Montana, Northwest Museum of Art and Culture in Spokane, Washington, Pitt Rivers Museum in Oxford, England, Museum of Ethnology in Berlin (Ethnologisches Museum Berlin), Lindenmuseum in Stuttgart, Germany, and the Young Jip Bow and Arrow Museum in Paju, South Korea, devoted considerable time and effort in support of my research. I am very grateful for their cooperation and their helpful suggestions and ideas. For their wonderful

illustrations, I would like to thank Janet LaFrance, Margaret Anne Lindsay and Steve Allely.

The University of Manitoba provided extensive and vital funding through the University of Manitoba Graduate Fellowship, the Martin Kavanagh–Pierre Gaultier La Verendrye Fellowship, the J. G. Fletcher Travel Award, and the George Schultz Bursary in Native History.

For guidance, encouragement, and support I want to thank Steve Allely, Roger Armitte, Kent Ayoungman, Morgan Baillargeon, Susan Berry, Thelma and Louis Bird, Bruce Bolster, Peter Bolz, Howard Bowe, Alison K. Brown, Jennifer S. H. Brown and Wilson Brown, Kevin Brownlee, Arnie Brownstone, Francis Cahoon and family, Hing Chao and family, Gerry Conaty, Carolyn Corey, Clifford Crane Bear, Michelle Crow Chief, Peter Dekker, Kendra Derrer, Thomas Dinkgraeve, Maureen Dolnyuk, Margaret and William Dumas, Thomas Duvernay, Bede Dwyer, Jack Farrell, Sherry Farrell-Racette, Barry Ferguson, Bill Fernie, Michael Fluegge, George Fulford, Keith Goulet, Janice Greene and family, Hilary Greenland, Don Grey Day and family, Steven Greyeyes, Jim Hamm, Birgit Hans, Wolfgang Helbich, Gordon Hill, Carol James, Yuhua Jang, Sabine Juergenmeier, Juergen Junkmanns, Park-Young Kim, Yun-Kyoung Kim and family, Jaap and Kay Koppedrayer, Chris Kotecki, Rose Krause, Guislaine Lemay, Margaret Anne Lindsay and family, Suki Low, Kathy

Mallett, Horace Massan, Tisa Matheson, Valerie McKinley, Judy and Barry McPherson, Preston Miller, Kathy Nanowin, Sally Nystrom and family, the late Cath Oberholtzer, Maro Oh, Laura Peers, Adele Perry, Maren Peters, Katherine Pettipas, Carolyn Podruchny, Jerry Potts, Heinz W. Pyszczyk, Jay Red Hawk, Theresa Schenck, Sonja Schierle, Mary Jane Schneider and Fred Schneider, Sabrina and Thomas Schlup and family (Anpo-Bison Ranch), Daniel Seong, Freeman Simard, Richard Sims, Scott Stephen and family, Donna Sutherland, Ron Taillon and family, Kathy Walker, Chris Whaley, Cory Wilmott, Se-Hyun Yoo, Young-Ki Yoo and family, and last but certainly not least, the organizers and participants of the World Traditional Archery Festival.

## Gifts from the Thunder Beings



1.

## Bows, Guns, and Diverging Views on Indigenous and European Technology

In 1908 Indian agent James McLaughlin held a novel ceremony at Timber Lake on the Cheyenne River Indian Reservation in South Dakota. His aim was to impress upon the Lakota men who had signed up to receive allotment lands the importance of U.S. citizenship and to mark their transition from “savagery” to “civilization.” Journalist Fergus M. Bordewich provided a vivid description of such an event:

They [the Lakota] stood resplendent in the feathers and fringed buckskin of a bygone age, facing Major James McLaughlin, a shrewd and hard man who was known to all Sioux as the Indian agent who had ordered the arrest of Sitting Bull in 1890. Ramrod-stiff, cigar in hand, McLaughlin watched as each Indian solemnly stepped from a tepee and shot an arrow to signify that he was leaving behind his Indian way of life. Moving forward, he then placed his hand on a plow to demonstrate that he had chosen to live the farming life of a white man.<sup>1</sup>

During the early twentieth century non-Aboriginal policy makers and the public at large in Canada and in the United States believed the complete assimilation of Aboriginal peoples into the

dominant society to be the only valid solution to what was then perceived as the “Indian problem.” One of the measures devised in the United States to accomplish this was the allotment of reservations into parcels for individual families under the Dawes Act, or General Allotment Act, of 1887.

James McLaughlin and his colleagues in the Bureau of Indian Affairs could hardly have found a more poignant and fitting symbolism than archery gear. While to them the plow was a central symbol of civilization, the men from Washington had also hit the mark precisely concerning the central significance of the bow and arrow to the Plains peoples.

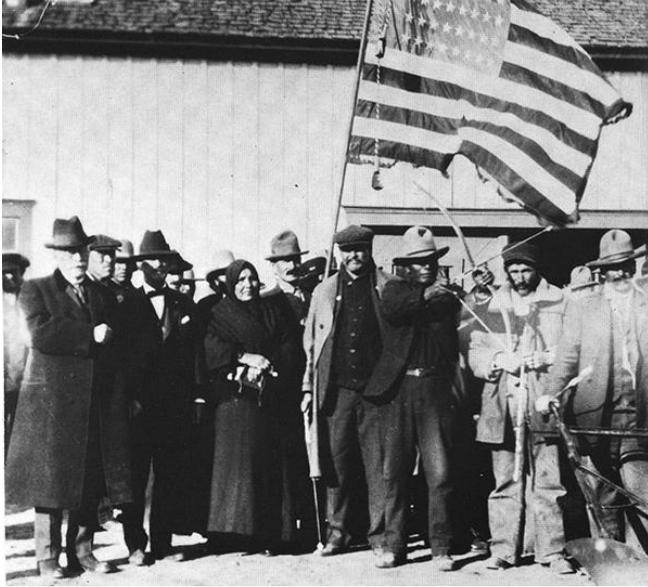
#### Changing Perceptions of Aboriginal Archery

By the closing decades of the nineteenth century, non-Aboriginal peoples attached increasingly negative connotations to Native American archery. At a time when social Darwinist models of cultural and ethnic hierarchies had become an integral part of intellectual culture, Native American archery was considered a relic of bygone times, representing Aboriginal technological and cultural inferiority. For example, in *Ancient Society*, published in 1877, Lewis Henry Morgan, then a leading American anthropologist, divided the evolutionary scale of civilizations into lower, middle, and higher savagery, lower, middle, and upper barbarism, and civilization. As the distinctive mark of higher

savagery, he considered the invention of the bow and arrow. In contrast, his hallmark of civilization was the invention of writing.<sup>2</sup>

This indicates a link in scholarly and informed popular perceptions between archery and “savagery,” a cultural backwardness when comparing cultures of “higher savagery” (i.e., Native American) to those of “civilization” (i.e., Euro-American). Morgan’s notions might have at least in part informed the ideas of people like James McLaughlin and others who invented the competency ceremonies and their archery component.

To Bureau of Indian Affairs officials like McLaughlin the bow and arrow stood for “savagery,” violence, and technological inferiority while to Plains Indians it was a symbol of military prowess, economic independence, and masculinity, an expression of their role as providers and protectors.<sup>3</sup> As early as 1754, Blackfoot or Gros Ventre people in the Northern Plains had rejected the Hudson’s Bay Company’s invitation to visit its posts on Hudson Bay to trade for guns and other goods. Presenting an archery outfit to the Hudson’s Bay Company’s emissary Anthony Henday, they stated that these weapons served them well enough.<sup>4</sup>



**Fig. 1.** Competency ceremony at the Crow Creek Reservation in South Dakota, 1916. Note the man standing underneath the flag, drawing a Plains bow and arrow, and the man on the far right resting his hands on a plow. Photograph courtesy of the National Archives.



**Fig. 2.** Competency ceremony at McLaughlin, Standing Rock Indian Reservation, South Dakota, 1920s. In their online catalogue, the State Historical Society of North Dakota records the following caption to this image: “Major James McLaughlin issues patents to Indians. Shooting of arrow denotes departure from Indian way of life, while the plow denotes acceptance of White man’s way of life.” Image courtesy of State Historical Society of North Dakota, 00036-003.

In spite of assessments to the contrary by later writers, fur trader and explorer David Thompson, who observed Aboriginal archery during the late eighteenth and early nineteenth centuries, confirmed the effectiveness of Plains Aboriginal bows in a skirmish between Gros Ventre des Prairies and Iroquois trappers: “The Willow Indians [Gros Ventre] were but a few more than the Iroquois and mostly armed with Bows and Arrows, which whatever maybe thought by

civilized men, is a dreadful weapon in the hands of a good archer.”<sup>5</sup>

By the late nineteenth century, policy makers in Ottawa and Washington considered it necessary to suppress and eradicate most aspects of Aboriginal cultures in what they saw as an attempt to enable Aboriginal people to survive in the “modern world” by adopting Euro-American ways. Over several decades Aboriginal people were to be stripped of every important aspect of their traditional cultures, which were dismissed as “primitive” or “savage.” This process included, logically, taking from Plains Indian men the greatest symbol of their independence and self-esteem, the bow and arrow, especially because archery was deeply embedded in Plains customs, spirituality, mythology, and culture.

While by this time to Euro-Americans bows and arrows in the hands of Native peoples held connotations of “savagery” and “backwardness,” they had also become one of the strongest symbols of “Indianness” to non-Aboriginal audiences at events such as the Banff Indian Days. According to historian Laurie Meijer Drees, the Banff Indian Days “included foot races and bow and arrow competitions. The marksmanship contests typically involved twenty or thirty Indian marksmen, armed with bows and arrows and simultaneously shooting at a single sheep or goat target. The event was simple but had enormous appeal. Again, the attraction of the

events appears to have lain in the ‘traditional’ nature of the events. Bows and arrows were a central part of that ‘traditional Indian’ image that lent the Days their great appeal.”<sup>6</sup>

In the Central Subarctic, archery seems to have held far less prominence. The symbols of Subarctic Aboriginal men’s independence and prowess were both assimilated from Europeans: metal knives in elaborately decorated sheaths, and later, firearms. Following contact with Europeans, bows and arrows remained in use for killing birds and small game, but by the 1800s, firearms had long since achieved dominance for Subarctic big game hunting and as a combat weapon, and their Aboriginal users had imbued them with meaning and contexts of their own. Accordingly, archery and firearms coexisted in very different spiritual and social contexts in the Subarctic as compared with the Northern Plains.

European Metal Weapons and Firearms: Catalysts of Momentous Change or Overrated Gadgets?

Why did the Plains peoples hold on to their traditional distance weapon for so long, even though from the mid-eighteenth century on, they had increasing access to muzzle-loading firearms? Why did bows and arrows remain in use as the preferred big game hunting weapons in the Plains well into the 1870s, until breech-loading firearms became available?<sup>7</sup> How and why did these transition processes play out differently in other Aboriginal cultures and notably in the Subarctic?

Examining these questions can shed light on processes of technology diffusion and changing Aboriginal-European relations.

The Europeans' introduction of metal weapons, such as axes, daggers, arrowheads, and firearms, has often been thought to be a cause of momentous changes in political, economic, and military relations among different Aboriginal groups and also between Aboriginal people and Europeans. During the first half of the twentieth century, scholars suggested that initial contact between Indigenous cultures of North America and European cultures, represented by explorers and fur traders, led to a rapid collapse of Aboriginal economies and social organization and subsequently to their dependency on European goods.<sup>8</sup>

The availability of metal weapons and firearms through trade with Europeans was also said to have instantly revolutionized hunting and fighting methods because of their alleged superiority over Indigenous North American tools and weaponry.<sup>9</sup> As John Clapham put it in the 1940s: "The Cree Indians were living about the southern end of the Bay. Armed by British and French traders, they ultimately became one of the great conquering tribes and fought their way, in bloody Indian fashion, right across the continent. They knew why they wanted 'metal wares.'"<sup>10</sup>

Critics of such views, however, have pointed out the many disadvantages of early firearms, when compared to Aboriginal North American weapons systems such as the bow and arrow.<sup>11</sup> For example, Brian Given went so far as to state: “Until the development of breech-loading, and later, repeating rifles during the nineteenth century, the gun offered no practical advantage over Native weapons in terms of its utility as a projectile weapon.”<sup>12</sup>

These controversies have revolved around the question of whether differences in technology alone are sufficient to account for unequal sociopolitical relations between Indigenous peoples and European newcomers. They relate to two central topics, the role of European technology disseminated through the fur trade in shaping Aboriginal history and the nature of violent conflict in pre-state societies.

Older historical studies often emphasized issues of European-perceived technological superiority and inferiority as critical, explaining social change among postcontact Indigenous societies as a process of rapid cultural deterioration caused by the influence of European technologies, weapons, and materials. These views emphasized alleged weaknesses of Indigenous technology, while the assumed superiority of European weapons, tools, and materials was seen as the key element to later European domination of North American Aboriginal peoples.<sup>13</sup> Indeed, both European and

Indigenous observers often considered firearms to have had a major impact on military relations between different Aboriginal groups.<sup>14</sup>

On the other hand, numerous writers have indicated the many technical flaws and logistical problems connected to muzzle-loading, single-shot firearms. These arguments present contradictions that seem especially stark for the Northern Plains, where the introduction and use of firearms has been connected to momentous changes in the military relations between different Indigenous groups, but where bows and arrows remained in use alongside firearms as combat and hunting weapons until the destruction of the bison herds in the late nineteenth century.<sup>15</sup>

Similarly, in the Subarctic, the introduction of firearms and edged metal weapons supposedly revolutionized Omushkego-Cree material culture, hunting methods, and subsistence patterns. Living on the western and southern shores of Hudson Bay and on the west coast of James Bay, the Omushkego, known to English speakers as the Swampy Cree, were at the source of the Hudson's Bay Company fur trade from its very beginning in 1668–69. Of all the Aboriginal groups in northern and western Canada, they probably had the longest exposure to Europeans and their technology. Omushkego communities supplied guides for European missions of inland exploration and trade and later came to form the core of the so-called homeguard bands of mostly

Cree people who lived near the trading posts and worked closely with fur traders. European traders also depended on the central Cree as guides and mediators with other Aboriginal groups to the west of them, using the river systems coming from the Rocky Mountains to access the western Plains and its fur resources. Without such guides and mediators, much of the western fur trade would not have been possible.

Yet, to earlier researchers, this long exposure of the Omushkego-Cree to European traders and their goods, culture, and diseases was proof enough of their early and growing dependency on the Europeans. Many of these early studies, however, suffered from a lack of attention to detail. Often they did not differentiate between different types of firearms, such as smoothbore weapons and rifles, or muzzle-loading single-shot firearms and repeating firearms. Their authors tended to assume a general superiority of every type of firearm over Aboriginal weaponry and drew almost exclusively on source documents that supported their views.<sup>16</sup> They rather uncritically left out the many disadvantages that early firearms suffered from, and they also ignored the advantages that Aboriginal weapons such as bows and arrows, lances, or stone cutting tools could have under certain circumstances and in certain environments.

A major limitation of these studies was their reliance on mainly materialistic explanatory

models for technological change in Aboriginal North America. They also often overlooked the fact that technologies were exchanged in both directions. European newcomers frequently adopted Aboriginal technologies and implements because these were better suited to specific tasks than European items were. Well-known cases in point are the adoption of Aboriginal footwear, snowshoes, and birchbark canoes by European explorers, traders, and settlers, but Plains Indian archery gear and tipis were also adopted by non-Aboriginal sojourners.<sup>17</sup> Thus, a closer examination of Aboriginal weapons and equipment, and also the nonmaterial connotations and meanings around them, can contribute to a more precise understanding of the nature of survival and conflict among Indigenous societies in the Northern Plains and Central Subarctic.

#### Indigenous and European-Introduced Weapons Technology: Sources and Research Approaches

Because the impact of firearms and iron-based edged weapons was supposedly greatest in the contexts of survival and conflict, this work closely examines the big game hunting and combat methods and technology utilized by select groups of Aboriginal people in the Northern Plains and Central Subarctic, focusing on the eighteenth and early nineteenth centuries. The research presented here is based on the comparison and evaluation of a variety of sources. Written historical documents left mostly

by non-Aboriginal observers, such as explorers, travelers, traders, and soldiers, for example, from the Hudson's Bay Company Archives in Winnipeg, are among the principal sources utilized.

However, such documents present specific challenges to interpretation. Each observer's cultural background and bias influenced the content of the documents they created, as well as their views on the Native people they encountered. Furthermore, these documents were not created for the same target audiences. Various motives, from fostering trade between fur traders and Native people to higher book sales of exotic travel literature, may have influenced the writing, editing, and final content of these documents.<sup>18</sup>

Ethnographic accounts present other interpretive challenges. They often contain normative information, reflective of cultural ideals. This information was either filtered through the value systems of the Indigenous people presenting the information, or it consisted of isolated observations by non-Aboriginal outsiders who came to spend a limited and often relatively brief amount of time with a particular Native community. Therefore, the range and scope of such accounts can be limited and may only contain a small part of the variations of cultural and technological practices of a particular Aboriginal community. Furthermore, some accounts may contradict each other, which could

either represent the range of variation that occurred in a specific community, or may reflect changing practices over time. Thus, relying on a single ethnographic source may lead to a rather limited understanding of a particular community's practices in regard to the manufacture and use of weaponry.<sup>19</sup>

Historical photographs provide another important source of information. To document their visits for posterity, Native American dignitaries invited to seats of government in Washington DC, Ottawa, or Europe commonly had their portraits painted. After 1850, photography increasingly replaced painting for this purpose. At the same time, the first amateur and professional photographers began to arrive in the Trans-Mississippi West and Canadian Plains, producing some of the earliest photographic images of Native people in their homelands. As anthropologists began to conduct fieldwork on western reservations and reserves during the latter nineteenth and early twentieth centuries, photography came to be of increasing importance as a means to document their work.<sup>20</sup>

However, these images present certain interpretive problems. Similar to painters such as George Catlin, Karl Bodmer and Paul Kane, who had traveled through western North America earlier in the nineteenth century, some early photographers claimed as a major motive the documentation of Native lifeways before they would be changed

and permanently altered by approaching non-Aboriginal settlement. Much like painters, early photographers commonly chose to arrange their subjects and compose their images. To some extent the long exposure times in early photographic techniques made this necessary. Just like paintings by eyewitnesses of western Native life, these early images were not unaltered “snapshots” but often highly composed, intended for a specific non-Aboriginal audience and a specific purpose. For example, some photographers sought to document conflicts between Native peoples and the U.S. military in the western United States during the second half of the nineteenth century. Others accompanied scientific or surveying expeditions in the western half of North America, attempting to create ethnographic documentation of Native cultures in the areas they traversed.

From the late 1800s to the 1940s, anthropologists began to take anthropometric photographs as databases for their research.<sup>21</sup> Wild West shows and pageants, such as the Calgary Stampede and Banff Indian Days, as well as the burgeoning motion picture industry, provided further material for early photographic images. With these developments the influence of non-Aboriginal expectations and stereotypes about Native people on the creation and composition of photographic images grew. Thus, such images need to be carefully assessed within the cultural and historical context that led to their creation. They

do not necessarily constitute unaltered depictions of Native life at a specific time. Frequently, photographers provided their own props and accoutrements to adorn their subjects according to their own preferences and ideas. For example, photographs taken in the context of the Powell Expedition in 1873 show Paiute people from the Grand Canyon area in Plains Indian clothing that originated with the White River Ute in Colorado and was supplied to the expedition from the collections of the Smithsonian Institution.<sup>22</sup>

Because Aboriginal points of view are essential for a more accurate understanding of this period, this study also draws on the traditions of Aboriginal peoples as they have been documented through close cooperation with Aboriginal elders. For example, Louis Bird has been active in recording Omushkego-Cree oral histories and traditions from his elders, as well as his own life experiences as a hunter, hunting guide, and trapper in the Central Subarctic for over thirty years. The result of Bird's extensive research and collecting activity is several hundred hours of audio material, much of which has been transcribed and published through projects based at the Centre for Rupert's Land Studies at the University of Winnipeg, Manitoba, and is partially accessible through the World Wide Web at [www.ourvoices.ca](http://www.ourvoices.ca).

Linda McEvoy (Sioux Valley First Nation, Manitoba), Margaret and William Dumas (Fox Lake Cree Nation, Manitoba), Horace Massan (Split Lake First Nation, Manitoba), Jerry Potts (Peigan First Nation, Alberta), Clifford Crane Bear (Siksika First Nation, Alberta), and Mike Bruised Head (Kainai First Nation, Alberta) shared their knowledge in personal communications. A large number of typescripts of interviews with Blackfoot and other Aboriginal people from the Rocky Mountain Plateau and Northern Plains, some of them available at the Glenbow Archives in Calgary, were important sources of information. Comparing this information to fur trade documents and surviving artefacts makes it possible to gain insights about cultural and technological change among the peoples of the Northern Plains and Central Subarctic from Aboriginal perspectives.

A major portion of the research in this study involved a close examination of archery artefacts collected from Central Subarctic and Northern Plains peoples, now housed at the Manitoba Museum in Winnipeg, the Royal Alberta Museum in Edmonton, the Glenbow Museum in Calgary, the McCord Museum in Montreal, the Canadian Museum of Civilization in Ottawa-Hull/Gatineau, the Montana Historical Society in Helena, Montana, the Northwest Museum of Art and Culture in Spokane, Washington, the Pitt Rivers Museum in Oxford, England, the Lindenmuseum in Stuttgart, Germany, and the Ethnologisches

Museum (Museum of Ethnology) in Berlin, Germany.

With Louis Bird, I examined Aboriginal weapons and tools from the ethnological and Hudson's Bay Company collections at the Manitoba Museum, and with Siksika elder Clifford Crane Bear, I studied collections at the Glenbow Museum. The collections of Duke Paul von Württemberg and Prince Maximilian of Wied, who traveled in the Great Plains in the 1820s and 1830s, and of Edward Hopkins, secretary to Sir George Simpson, governor of the Hudson's Bay Company, were especially important. Research with these collections provided crucial information on the material culture of Aboriginal people over a period when they experienced substantial change.

For this study, I examined 113 bows and 502 arrows.<sup>23</sup> The recording of construction details through sketches and/or photographs and the gathering of provenance information and collection history of each artefact, wherever possible, provided a substantial base for interpretation. Comparing the measurements of original bows to those of contemporary reproductions, whose performance data have been recorded, allows inferences about the likely performance of original bows. Based on the examination of these artefacts and on information from Aboriginal people, I manufactured and tested working reproductions of Aboriginal bows

and arrows to develop a realistic understanding of the capabilities of Aboriginal artefacts and technology from a practical perspective.<sup>24</sup>

Provenance information about Aboriginal artefacts can be very limited, incorrect, or absent. Furthermore, artefacts did not necessarily always originate in the communities they were collected from. Nonetheless, Aboriginal people living in the same region experienced the same climatic and material constraints and faced similar challenges in

regard to archery. Therefore, when interpreting documents, oral sources, or artefacts, sometimes the information gained can to some extent be extrapolated to other groups in the same culture area or region.

The archaeologist and anthropologist Frederic W. Gleach referred to this technique as “controlled speculation.” Comparative materials are selected from the most closely analogous historical or cultural contexts. Using techniques from history and anthropology, speculative inferences can be developed where information is lacking or obscured in the original sources. However, these inferences have to be carefully grounded in the historical, ethnographic, oral, and archaeological records.<sup>25</sup> In regard to text documents generated by non-Aboriginal traders, travelers, and sojourners, historian David Smyth referred to this approach as “upstreaming,” or “to forecast retrospectively.”<sup>26</sup>

The following chapters closely examine and compare Plains and Subarctic peoples' use of firearms and their most widespread distance weapon, the bow and arrow, in regard to technical aspects, efficiency in combat, and modes of use. The comparison and combination of documentary sources, Aboriginal oral traditions, actual artefacts, and the practical experience of reproducing and testing Aboriginal archery gear afford new insights into the workings and efficiency of this major traditional North American hunting technology and its significance for Aboriginal history.



2.

## Indigenous Subsistence Patterns of the Hudson Bay Lowlands and Northern Plains

In order to analyze continuity and change in Aboriginal peoples' use of big game hunting and military technology, their subsistence patterns, modes of conflict, and social organization at the time of contact need to be understood. Various sources contribute information on these topics. For the Northern Plains and Subarctic there are various Indigenous sources of information that have been transmitted orally. Some of these reach back into the times before contact. Others explicitly deal with the changes brought on by the adoption of European technology.

Furthermore, fur traders like David Thompson and Peter Fidler traveled through the Central Subarctic, as well as the Northern Plains, on their way from Hudson Bay to trading posts, leaving ethnographic accounts about the Aboriginal peoples they encountered. The first accounts of European outsiders about Hudson Bay and the Subarctic provide information on Aboriginal lifestyles and technology that, within reasonable limits, can be extrapolated to conditions just before contact.

For the Plains this is more difficult, because some European goods, especially metal weapons and firearms, reached Aboriginal peoples in the Plains

through Indigenous trading networks before the first Europeans arrived, already contributing to technological change before the process could have been observed by Europeans.

Archaeological information also contributes toward a more complete understanding of Aboriginal peoples' lives around the time of contact. The remains of Aboriginal settlement sites and camps allow us to draw conclusions about dwellings and social organization. Artefacts and refuse reveal Aboriginal subsistence patterns, diet, hunting methods, and technology. The forensic analysis of human remains can provide insight into Aboriginal peoples' physique, the state of their health, and their lifeways.

To understand Aboriginal peoples' subsistence strategies, a closer examination of the geography, climate, flora, and fauna of the Central Subarctic and Northern Plains is necessary. The ecological and cultural boundaries between these two regions were fluid. The Northern Plains are connected to the northern boreal forests by a Parklands zone, a belt of patches of forest, brushlands, grasslands, and lakes. People from the Plains and Central Subarctic utilized this Parkland region. Thus, it is difficult to draw sharp distinctions, especially for the Western Cree, some of whom moved back and forth between these different ecological zones and thus adopted cultural traits reflecting all these regions.<sup>1</sup>

Central Subarctic

For the purposes of this study, “Central Subarctic” refers to the west coast of James Bay, the south and west coast of Hudson Bay, and the northern halves of the modern provinces of Manitoba and Saskatchewan. In the mid-nineteenth century, Aboriginal peoples living in these areas were the Algonquian-speaking Swampy Cree (Omushkego) and Rock Cree (Asiniskawidiniwak), and the northern Ojibwas or Sauteaux. To the north of these groups lived various Athapaskan-speaking peoples (Déné), such as the Chipewyan.

David Mandelbaum and other early twentieth-century scholars stated that Cree people had expanded westward with the fur trade in search of new and untapped fur resources. In this process they were said to have gained an alleged military superiority through firearms and edged metal weapons acquired from fur traders, thus enabling them to displace or subdue other western Native peoples. Based on an analysis of fur trade records in regard to the location and seasonal movement patterns of Cree-speaking peoples, Dale Russell and James G. E. Smith were able to disprove this notion and demonstrate that Cree-speaking peoples had been living in the Subarctic-Parklands area from the west coast of Hudson Bay as far west as eastern Alberta well before the beginning of the Hudson Bay fur trade.<sup>2</sup> Linking archaeological evidence to fur trade documents, David Meyer argued that by the late 1600s, Cree-speaking peoples occupied much

of what is now central Manitoba and Saskatchewan into eastern Alberta. Residing to the south of them, as far west as south-central Saskatchewan, were various groups of Assiniboine. Their immediate western neighbors were Blackfoot and Gros Ventre peoples.<sup>3</sup>



**Map 1.** Approximate locations of Aboriginal peoples in the Hudson and James Bay Lowlands and surrounding area during the late eighteenth and early nineteenth century. Base map by Weldon Hiebert, Department of Geography, University of Winnipeg.

In 1694 the Jesuit missionary Father Gabriel Marest traveled the region near the mouth of the Nelson River, probably wintering there. His description of the area contains information that is crucial to understanding the challenges Aboriginal people faced in their subsistence efforts:

The fort is near latitude 57 degrees and situated at the mouth of two beautiful rivers. But the soil is very barren. The country is marshy with many wet meadows. There is little wood and what there is, is very stunted. Within thirty or forty leagues of the fort there is no heavy timber. That is caused, no doubt, by the violent sea winds which are usually blowing, the great cold, and the almost continual snows. The cold begins in the month of September and is then severe enough to fill the rivers with ice and sometimes to freeze them quite over. The ice lasts till about the month of June, but the cold does not cease even then. It is true that during that time there are very hot days but not for long (for there is little intermediate between great heat and great cold). The north winds, which are frequent, soon dispel this early heat and often, after perspiring in the morning, you

are frozen in the evening. The snow lies on the ground eight or nine months but it is not very deep. The greatest depth this winter has been two or three feet.

The long winter, although it is always cold, is not, however, equally so at all times. There are often, in truth, excessively cold days, on which one does not venture out of doors without paying for it. There are few of us who have not borne the marks of this extreme weather; and, among others, a sailor lost both his ears, but there are also fine days. What especially pleases me is the absence of rain and that, after a snowstorm or blizzard (or *poudrerie*, as a fine snow which penetrates everywhere is called) the air is pure and clear. If I had to chose between winter and summer in this country I do not know which I should prefer, for, in summer, besides the scorching heat, the frequent changes from extreme heat to extreme cold, and the rarity of three fine days on end, there are so many mosquitoes or black flies as to make it impossible to go out of doors without being covered and stung on all sides. The flies are more numerous here and stronger than in Canada. Add that the woods are full of water and that there is no going far into them without going up to the waist.<sup>4</sup>

Marest's description closely resembles that of the French military officer Bacqueville de la Potherie, who participated in a French naval expedition to

capture and destroy the English bayside fur trade posts in 1697.<sup>5</sup> Both descriptions emphasized the long winters, the extreme cold, and the abundance of biting insects in the short, hot summers. These conditions were crucial in shaping the migratory patterns of animals, notably caribou, which formed the basis for the subsistence patterns of Aboriginal peoples. In the summer the swampy and marshy ground limited travel. The scarcity of wood and its stunted growth placed severe restrictions on Aboriginal peoples' options for the manufacture of wooden tools and weapons.

Just as it was three hundred years ago, marshy wetlands still dominate the James Bay–Hudson Bay Lowlands but are interspersed with more forested pockets.<sup>6</sup> On the coastline a thin strip of tundra vegetation extends from about the mouth of the Churchill River to the northern shore of Akimiski Island in James Bay. This tundra area provides a favored habitat for caribou and other lowland animals.

Much of the Subarctic is characterized by a “continental” climate, with short summers and low winter temperatures. Fewer than four months have a mean temperature higher than 10 degrees Celsius. In the central Hudson Bay Lowlands, mean daily temperatures reach up to 15 degrees in July, dropping to minus 25 degrees or lower in January. The maximum frost-free period is 100 to 120 days per year in the regions west of Lake Superior and along the boundary between the

boreal forest and the plains-parklands environment stretching across the continent. For the Central Subarctic a frost-free period of forty to sixty days is more typical.<sup>7</sup>

Coniferous trees characterize the vegetation in most of the Subarctic. Moisture conditions, temperature, and wind determine the species present in any given location, but the level of species diversity is relatively low. Coniferous trees dominate the vegetation of the upland forests. White spruce (*Picea glauca*) is the most common tree in the boreal forest and is found in well-drained sites and on south-facing slopes. Black spruce (*Picea mariana*) and tamarack (*Larix laricina*) inhabit relatively wet sites. Balsam fir (*Abies balsamea*) and jackpine (*Pinus banksiana*) occur as well.<sup>8</sup> The few species of deciduous trees, such as birch (*Betula papyrifera*), poplar (*Populus balsamifera*), and aspen (*Populus tremuloides*), grow in limited numbers throughout the Subarctic.<sup>9</sup> The paper birch is absent from the lowland region. The most common trees in the lowlands are spruce, tamarack, and willow.<sup>10</sup> Several shrubs and dwarf shrubs such as dwarf birch (*Betula glandulosa*), crowberry (*Empetrum nigrum*), alder (*Alnus crispa*), and labrador tea (*Ledum groenlandicum*) are found in the tundra and transitional areas.<sup>11</sup>

Massive herds of barren-ground caribou (*Rangifer tarandus groenlandicus*) at one time migrated

along the coastal strip of tundra vegetation of the Hudson Bay Lowlands in summer to feed and calve. Besides the migratory barren-ground caribou there were also indigenous woodland caribou (*Rangifer tarandus caribou*) in some of the more forested areas and in the boreal forest of the uplands.

Moose (*Alces alces*) were rare in the Hudson Bay Lowlands. Moose populations in the uplands adjacent to the coastal lowlands declined during the fur trade period, disappearing entirely by the early nineteenth century. However, moose populations have increased over the past 150 years. These animals now frequent the lowlands all the way to the coast.<sup>12</sup>

The population of snowshoe hares (*Lepus americanus*) in the area provided an important source of food and raw materials to local Indigenous people, but it was subject to extreme fluctuations. After reaching a peak every nine or ten years, the population would suddenly decline sharply.<sup>13</sup> Besides hares, Aboriginal people hunted other rodents for food and furs, including beaver (*Castor canadensis*), muskrat (*Ondatra zibethicus*), and the hoary marmot (*Marmota caligata*, also known as groundhog), porcupines (*Erithizon dorsatum*), and arctic ground squirrels (*Spermophilus undulates*).<sup>14</sup>

Marshes along the coast provided seasonal gathering and feeding places for large numbers of

waterfowl, such as Canada geese (*Branta canadensis*), Richardson's geese (*Branta canadensis hutchinsii*), lesser snow geese (*Anser caerulescens caerulescens*), blue geese (*Chen caerulescens*), and various kinds of ducks and swans.

Of the numerous fish species in the lowlands' rivers and lakes, the lake sturgeon (*Acipenser fulvescens*), northern pike (*Esox lucius*), also called jackfish, and various kinds of sucker were important food sources.<sup>15</sup> Black bears (*Ursus americanus*) and polar bears (*Ursus maritimus*) were occasionally hunted for their hides and also to some extent as a food source.<sup>16</sup> White or beluga whales (*Delphinapterus leucas*) and harbor seals (*Phoca vitulina*) were of some importance as a source of food to the Hudson Bay Lowland Cree, but more so as sources of raw materials, such as sinew and hides for cordage.<sup>17</sup>

#### Subsistence Activities of the Omushkego Cree around the Time of Contact

Oral traditions of the Omushkego Cree in the Winisk region maintain that their ancestors lived along the Winisk River and its tributaries long before the arrival of Europeans there.<sup>18</sup> Archaeological evidence documents prolonged human habitation in the region before contact.<sup>19</sup> For

example, a fishing site on the Shamattawa River, which flows into the Winisk River, has yielded

the earliest recorded date for year-round human habitation in the Hudson Bay Lowlands, with a radiocarbon date of 3,920 plus or minus 180 years before present.<sup>20</sup>

Despite a seasonal abundance of game animals, the Hudson Bay Lowlands are a challenging environment with a limited capacity to sustain large groups of people for extended periods in a single location. Therefore the local population has been small and has had to disperse over vast areas for a substantial part of each year. The Hudson's Bay Company officer Andrew Graham stated in the 1770s, "I am certain that the total of Indians along the whole coast of Hudson's Bay [within the lowlands] would not exceed two thousand."<sup>21</sup> Not long after Graham wrote this, the smallpox epidemic of 1782–83 took a devastating toll among the Lowland Cree, reducing their numbers to about half, but by the 1820s the total population had returned to approximately the pre-epidemic level.<sup>22</sup>

Fish, waterfowl, and caribou were the only game animals accessible in large numbers to Subarctic hunters. Otherwise game was scarce in the northern boreal forests and the Hudson Bay Lowlands, causing Aboriginal peoples to live in relatively small groups during most of the year. Usually two extended families, often those of two brothers, would spend the long winter and most of the spring and fall together hunting and gathering.<sup>23</sup> In the summer larger groups would

congregate at preappointed places in fishing and goose hunting camps or at berry gathering sites. Such gatherings could include over two hundred people, while the number of persons in each hunting camp rarely exceeded thirty people.<sup>24</sup> Referring to precontact and early contact times, Omushkego-Cree elder Louis Bird stated that according to his people's oral traditions, the Winisk River system and its tributaries within the lowland region could sustain about twenty families.<sup>25</sup>

The climate of the Subarctic means that agriculture is practically impossible, while edible roots and berries are far from abundant for most of the year. Therefore hunting and fishing were the main means of securing food. Even then, large game was limited, and smaller animals such as fish and rabbits played an important part in the diet of Central Subarctic peoples.<sup>26</sup> By the nineteenth century the increasing scarcity of large game favored individual hunting over communal hunting.<sup>27</sup> Rabbits and other small game were often snared or trapped rather than actively pursued, since this conserved human energy. Later, the fur trade enhanced this emphasis on trapping, which in the Subarctic was concentrated on procuring beaver pelts, but also the furs of medium to small predatory animals such as river otters, martens, and fishers.

In the late seventeenth and early eighteenth century Aboriginal people in the Subarctic

followed a relatively consistent pattern of seasonal migrations and activities throughout their territory in order to access various resources where and when they became available. For example, for the Omushkego-Cree, the annual cycle began in March.<sup>28</sup> From their inland wintering sites they moved to the coast of Hudson Bay in spring to hunt ducks and geese and to escape mosquitoes, flies, and other parasitic insects, which were more numerous in the interior than near the sea. They knew that large mammals such as caribou also moved to the coast in spring and early summer to avoid these insects.<sup>29</sup>

By the end of March and the beginning of April large herds of caribou from the upland forest began to arrive in the coastal lowlands. These animals migrated along the coastline and then dispersed to their breeding grounds as far south as Cape Henrietta Maria and Akimiski Island in James Bay. In late summer they re congregated and took up the return journey. Once they reached the upland forests again, they dispersed into smaller herds for the winter. During these great migrations the caribou herds numbered in the tens of thousands, as several Hudson's Bay Company employees observed during the eighteenth century. In anticipation of the spring migrations of caribou, Cree peoples set up hunting camps in late winter, close to the migration routes at places where the caribou could be hunted with relative ease.<sup>30</sup>

There were several ways to hunt caribou herds. According to Louis Bird, caribou were often driven into enclosures or narrow passageways between two converging lines of rock or snow piles. Hunters then waited at the narrow spot or at the enclosure to kill the animals with spears, bows and arrows, or later, with firearms.<sup>31</sup> Just like Inuit and Alaskan Aboriginal peoples, the Omushkego-Cree, Northern Ojibwa, and Montagnais also hunted these animals in large “caribou drives.” Aboriginal peoples in the eastern and central Subarctic practiced this hunting method well into the first quarter of the nineteenth century.<sup>32</sup>

During the spring caribou migration, when the rivers were still frozen, fences or hedges were built with openings that contained snares to catch the animals’ heads. European fur traders copied this Aboriginal invention and in some instances built such hedges not far from a fur trading post.<sup>33</sup> James Isham, a leading Hudson’s Bay Company officer active in the lowlands during the mid-1700s, described a caribou hedge made by Lowland Cree people:

Their snares are made of Deer, or other skins Cutt in strips, platting [plaiting?] several things [thongs?] together,—they also make snares of the Sinnew’s of beast after the same manner, they then make a hedge for one or two mile in Length. Leaving Vacant places,—they then fall trees and Sprig them as big as they can gett,

setting one up an End at the side of the Vacant place, fastning the End of the snare to one of these trees, then setting the snare round they Slightly studdy [i.e., fasten or secure] the snare on Each side, the bottom of the snare being about 21/2 foot from the ground, Driving stakes under'ne that they may not creep under, they then Leave them when the Deer being pursued by the Natives other way's they strive to go thro these Vacant places, by which they are Entangld and Striving to gett away the tree falls Downe, sometimes upon them and Kills them if not they frequently hawl these trees for some miles tell a growing tree or stump brings them up,—when the Indians going to the snares the next Day, trak's them and Knock's them on the head;—they Killing abundance after this manner, in the winter seasons,—the Uskemau's Kills these Deer with Launces in the water, and upon the Land with bows and arrow's.<sup>34</sup>

Caribou hedges required many people to build and maintain, as did the processing of the meat and hides after the hunt. Evidently many Cree people congregated at caribou hunting camps close to York Factory.<sup>35</sup> When the rivers were open, hunters speared the caribou from boats while the animals were crossing the river.<sup>36</sup> This method was also employed in the fall, when the animals crossed the rivers again in great herds on their way to their wintering grounds.

In spring, caribou were less desirable as a food source, commercial resource, or source of hides because the animals were still lean from the strains of winter, and their hides were infested with the larvae of the warble fly, which ate holes in the hides, making them extremely difficult to process and almost useless for most purposes.<sup>37</sup>

Nevertheless, the Swampy Cree killed many caribou in spring and fall because it was at this time that just a few short weeks offered the opportunity to gain an abundance of meat and raw materials. Even though the quality of the meat and hides was low, the rest of the year caribou were scarce and it was much harder for individual Cree to hunt these animals. Louis Bird stated about the caribou hunt:

In those times there were plenty of caribous. They were coming in and they [the Omushkego-Cree] know that they're not gonna kill them all off. So that's the time they do that. These are migrating caribous. They migrate from some place and they travel here, they will travel only in a certain month. So that's when you kill as much as you can, but don't kill them all off, because they're plenty anyway. Sometimes you see maybe 25, maybe 15, you can do that. But when they're declining, the caribous come and go, every 25 years or so, so there are plenty and then after that, not because you killed them off, because they move to other place.

It was done in such a way because people knew this is the only month that they can do that, March and April, May it's a bit too late to do that. Only March and April that they can do that very easily. And you know that in May they're not gonna be able to hunt big game animals because of slush. So they have to have extra, something that they can cache at their camp, during that time. That's the only reason they do that. They have a reason when to kill many animals. Other than that you just don't shoot them for anything. There's no sport hunting. There's no such thing.<sup>38</sup>

The most southerly location of caribou in the summer during the fur trade period was Akimiski Island. Cree hunters would move south in the summer to kill caribou there.<sup>39</sup>

Not all the Omushkego-Cree went downriver in the summer. Some stayed either at the headwaters, or about halfway downriver, wherever hunting was good. After the Hudson's Bay Company established Fort Severn in 1685 near the mouth of the Severn River, Omushkego people went downriver to trade for European goods such as firearms, ammunition, metal tools, and weapons.<sup>40</sup>

Shortly after the spring migration of caribou, large numbers of geese, ducks, swans, and other migratory birds arrived in the Hudson Bay

Lowlands in time for the spring breakup of rivers, lakes, coastal ponds, and sloughs. Migratory birds used these ponds and sloughs as a main feeding area. Several species of fish were also abundant in the Hudson Bay Lowlands during their spawning periods.<sup>41</sup>

In March the people left their winter camps to go goose hunting or “spring trapping.” This was finished in June. By the end of June they moved to the mouths of the rivers, or to a site along the river above the mouth, to get together in larger groups. At these gatherings they arranged and conducted marriages and held ceremonies and competitive sports events with singing, dancing, and drumming.<sup>42</sup>

While Canada geese and Brant geese remained in the coastal lowlands to breed, the onset of warmer weather in early summer drove most other geese to their breeding grounds north of the Hudson Bay Lowlands. Most Lowland Cree spent most of the summer in the coastal lowlands, hunting geese and individual caribou.

Fishing also continued in the summer but was generally not so productive in this season. Beluga whales were hunted in the estuaries of the larger rivers, where the animals were mostly speared with harpoons from canoes. To prevent upsets, several canoes would be lashed together tightly. Another method of whale hunting was to drive the animals into shallow water until they were beached on the tidal

flats. Usually the Lowland Cree did not eat the flesh or the fat of white whales, but rather fed it to their dogs or sold it to European traders.<sup>43</sup> The whale skin was a source of large amounts of rawhide, while the long sinews situated along both sides of the whales' backbones yielded fibers for threads. Both materials could be used to make cordage.

Summer was also a season to gather various kinds of berries, such as gooseberries, cranberries, strawberries, raspberries, crowberries, or mawsberries, and plants for food and medicinal purposes. Aboriginal traders from other areas brought maple sugar north to the Hudson Bay Lowlands. Andrew Graham noted that such traders also brought "Indian corn," which was probably wild rice rather than maize.<sup>44</sup>

By fall, people and large mammals began to move inland again, because by then the insects had sufficiently diminished. Once the insects were gone, people moved upriver again to find a wintering site on one of the tributaries of the Winisk or other river, somewhere between one hundred and two hundred miles inland. This was done to ensure good fishing. People knew that the fish would come downriver before January. Thus they set up fish traps, not only to catch fish for immediate use but also to dry them and later in the winter to freeze them in a cache. Fish weirs were mostly used in the fall. They served to catch most species except the larger fish, such as sturgeon,

which were speared. Fish were also shot with arrows.<sup>45</sup>

Fish was the main staple food of the Swampy Cree throughout the winter, especially when larger game animals were scarce. Fish trapping therefore was one of the most important economic activities for the Lowland Cree. Aboriginal people in the Subarctic fell back on fishing whenever other resources failed. For instance, Andrew Graham observed in the 1740s that Ojibwa people resorted to fishing “when their gun and ammunition fails, or other food fails.”<sup>46</sup>

As far as meat was concerned, caribou were in prime physical condition in early fall after having fed throughout the summer on coastal grasses and other vegetation. The meat of mature male caribou was considered especially good eating before these animals exhausted themselves in the rutting season in late fall. However, hides were not in prime condition yet. This would only be the case in late fall and winter when all the injuries to the skin caused by parasitic insects had healed.<sup>47</sup>

The major caribou river crossings in the fall occurred some weeks before the fall goose hunt. Duck hunting preceded the goose hunt, because ducks arrived earlier than the geese from farther north. Therefore the Lowland Cree would set up camps near the regular crossing places in anticipation of the event. These lay from thirty to

one hundred miles inland from the coast on the Severn and Hayes Rivers. Polar bears were also hunted in the fall for their fur and for their meat.<sup>48</sup>

In winter the Lowland Cree moved inland, away from the coast and into the forests, to hunt caribou, which were scarce near the coast at that time. During the cold season, woodland caribou were hunted mainly in the forested river valleys. The hides of these animals were in prime condition during the winter. Occasionally hunters also found caribou on Akimiski Island in winter.<sup>49</sup>

Winter was also the prime season to harvest fur-bearing animals, when their pelts were at their best, but these were trapped and hunted for food throughout the year as well. Women hunted, trapped, and claimed the pelts of immature beaver, muskrats, and other small mammals. They traded these at the posts for “beads, vermilion, bracelets and other trinkets.”<sup>50</sup> Not only the male hunters but also the women, children, and elderly of several families participated in beaver hunting. While the meat obtained in these hunts was distributed among family members, the skins of the mature beavers belonged to the person who had first discovered the beaver house.<sup>51</sup>

Snowshoe hares were also an important food resource throughout the winter. Their skins were used to manufacture winter garments, especially the so-called rabbit-skin blankets, woven from twisted strips of their hides. Fishing was also important in winter, especially for provisioning

people employed at and near the coastal posts.<sup>52</sup> Several bird species were hunted for subsistence and later also for commercial purposes. For example, during the eighteenth century and even more so during the nineteenth century the Hudson's Bay Company (HBC) sought to obtain swan skins and swan and goose quills to send to Europe for the manufacture of clothing and writing utensils.<sup>53</sup>

The willow ptarmigan (*Lagopus lagopus*), often referred to as "partridge" by HBC men, was an important food source. Several species of grouse, commonly referred to as "pheasants" by HBC personnel, were important as winter resources. Aboriginal people hunted waterfowl in large numbers even before the introduction of firearms, especially fowling pieces. They used nets as well as bows and special bird arrows for this purpose. Willow ptarmigan were most often caught in nets, but boys also shot them with bows and arrows; for instance, in 1769 Lowland-Cree boys near Severn House shot over one hundred ptarmigans with their arrows. About a century earlier fur trader and explorer Pierre Radisson claimed to have seen Aboriginal people kill three ducks with one arrow.<sup>54</sup>

These seasonal patterns and subsistence activities of the Omushkego-Cree were based on the exploitation of a wide variety of mostly scarce resources. The introduction of European tools and weapons, the growing involvement of the Cree in

the fur trade and provisioning business, and the gradual decline of big game populations all reinforced the increasing importance of trapping and individual hunting and a gradual decline in group hunting that involved the participation and coordination of large groups of people who would afterward share the resources they had harvested.

### Northern Plains

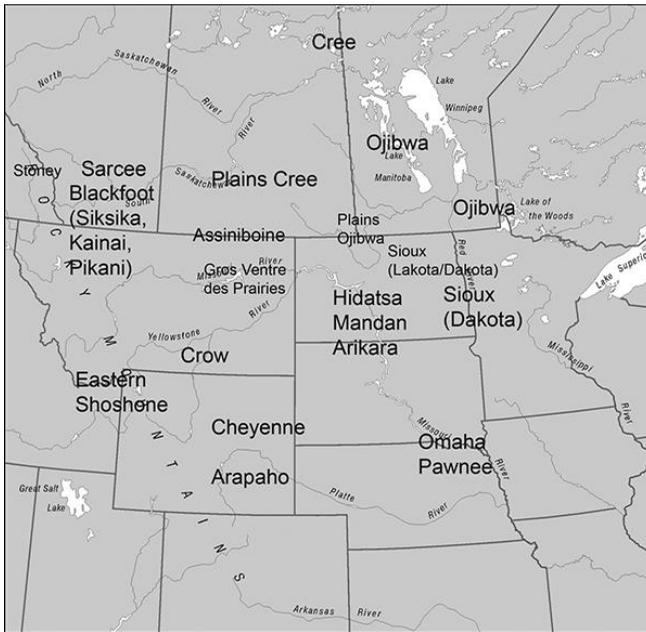
Until the establishment of reservations and reserves in the mid- to late nineteenth century, the Northern Plains saw extensive movements and displacements of Native peoples. By the mid-nineteenth century the Native inhabitants of the region included sedentary agricultural peoples such as the Mandan, Hidatsa, and Arikara living along the Missouri River and its tributaries in what is now central North and South

Dakota. More mobile bison-hunting cultures living to the west, north, and south of them were the Dakota/Lakota, Assiniboine/Stoney, Cheyenne, Arapaho and Gros Ventre des Prairies, the Blackfoot, Plains Cree, Plains Ojibwa, Sarcee, Crow, and Eastern Shoshone.<sup>55</sup>

The terminology used to refer to different Aboriginal peoples in the Plains at different times is somewhat problematic because names applied to a particular group by outsiders have often entered into common usage in English, even though they do not represent the self-designation of the people referred to. Varied spellings and shifting political implications of these terms over

time have further complicated the issue. For example, in Canada the term “Blackfoot” generally includes three subgroups, the Peigan, Blood, and Siksika. Their contemporary self-designations are Aputohsi-Pikuni or Piikani First Nation, Kainaiwa First Nation, and Siksika First Nation.<sup>56</sup> However, because the establishment of the U.S.-Canadian border cut through their homelands, part of the Peigan ended up living in what came to be northern Montana. Thus, in the United States they are referred to as Piegan and sometimes as Blackfeet, which in American usage can also refer to all Blackfoot-speaking peoples.<sup>57</sup> Their self-designation is “Amskapiikani (Southern Piegan).” Because some of the text documents used in this study relate to a time before the establishment of the international border, I chose to use the term “Pikani” to refer to the southernmost division of Blackfoot-speaking peoples at that time. In the same way, I use the term “Blackfoot” to include all Blackfoot-speaking peoples.<sup>58</sup> One of the self-designations used by Blackfoot-speaking peoples is “Niitsitapi.” However, this has not entered common usage in English. Therefore, while it is ethically preferable to use the appropriate self-designations of Aboriginal peoples, to avoid confusion I decided to use those terms that are now common in English.

The Northern Plains is a vast geographical area in the heartland of the North American continent, bounded to the west by the Rocky Mountains and to the north by the North Saskatchewan River. It includes the southern parts of the Canadian provinces of Alberta and Saskatchewan, parts of southern Manitoba, and the states of North and South Dakota, northeastern Wyoming, and eastern Montana.<sup>59</sup>



**Map 2.** Approximate distribution of Aboriginal groups in the Northern Plains and surrounding area in the first half of the nineteenth century. Base map by Weldon Hiebert, Department of Geography, University of Winnipeg.

Most of the region's rivers have their sources in the Rocky Mountains. The North and South Saskatchewan Rivers comprise the northernmost major river system of the Northern Plains, draining into Lake Winnipeg and ultimately into Hudson Bay. During the fur trade, this waterway was one of the most important travel routes between the northwestern Plains and the central and eastern boreal forest. Farther south, the Missouri-Mississippi River system provided another important access route to the Plains. Many of the rivers of the Plains are rather shallow and can dry up during the hottest summer months. The Plains are interrupted by a number of low to medium mountain ranges and hills, such as the Beaver Hills, south of the North Saskatchewan River; the Hand Hills, just north of the South Saskatchewan River; the Cypress Hills, just north of the Milk River; the Bear Paw Mountains; the Little Rocky Mountains between the Milk River and the Missouri River; and the Black Hills in western South Dakota.<sup>60</sup>

Sparse precipitation and extreme summer and winter temperatures characterize the continental climate of the Northern Plains. Due to the rain shadow effect of the Rocky Mountains, the average annual precipitation in the Plains from southern Alberta as far east as southern Manitoba can be as low as 250 millimeters. In large areas of the Plains the amount of available moisture, either for growing crops on the Upper Missouri or for grazing in the more western portions, is often

marginal.<sup>61</sup> Strong and almost ceaseless winds are another crucial factor in shaping the climate of the Northern Plains. They subject the region to some of the most sudden weather changes. The Chinook winds, for instance, can bring midwinter temperatures to well above freezing within only a few hours, while blizzards coming down from the north or northeast can quickly push temperatures well below freezing.<sup>62</sup>

From the last ice age to the last quarter of the nineteenth century, the Great Plains was populated by vast herds of bison, antelope, deer, and elk, feeding on a wide variety of different prairie grasses. The hunting of the bison herds to near extinction during the late nineteenth century, combined with attempts at turning the arid and semiarid Plains into farmland, which led to the demise of native grasses, have changed this environment beyond recognition.

Due to their height, the small mountain ranges east of the Rockies receive more precipitation than the surrounding plains. These higher elevations are characterized by cooler summer temperatures, which translate into less evaporation. They therefore sustain a more robust and rich plant growth than the surrounding mostly treeless plains. It was in these elevated regions that most of the forests of Northern Plains were located. These mountains and hills supported among others,

lodgepole pine (*Pinus contorta*), jack pine (*Pinus divaricata*), white spruce (*Picea glauca*), and Douglas fir (*Pseudotsuga menziesii*). Deciduous trees such as cottonwood (*Populus balsamifera* spp. *trichocarpa*) and, farther east, elm (*Ulmus procera*), white ash (*Fraxinus americana*), and green ash (*Fraxinus pennsylvanica*) and conifers such as juniper (*Juniperus* spp.) grew in the sheltered river valleys.<sup>63</sup> The plains around these mountains supported a wide variety of grasses, which were the mainstay of the region's population of large ungulates. A greater availability of forage in the foothills and river valleys meant that plant-eating animals were more abundant and more consistently found in these regions than on the open plains.

Aboriginal people of the region gathered a wide variety of plants for food or medicinal purposes. They included prairie turnips (*Psoralea esculenta*), the groundnut (*Apios americana*), and the hog peanut (*Amphicarpaea bracteata*).<sup>64</sup> Other food plants included the Jerusalem artichoke (*Helianthus tuberosus*) and the purple poppy mallow (*Callirhoe involucrate*). Several types of berries were also collected and consumed fresh or dried. These included wild plums (*Prunus* spp.), chokecherries (*P. virginia*), silver buffalo berries (*Shepherdia argentea*), Saskatoon berries or Juneberries (*Amelanchier alnifolia*), and hackberries (*Celtis occidentalis*).<sup>65</sup>

Due to its sparse precipitation, extreme temperatures, short growing seasons, and high winds, most of the Northern Plains was unsuitable for Indigenous agriculture. While on the eastern fringe of the region an Indigenous way of life based on a combination of agriculture and hunting had emerged, the inhabitants of the High Plains relied on gathering and on hunting big game animals. In contrast to other hunter-gatherer cultures that obtained the main portion of their food through gathering, the bison-hunting cultures of the Northern Plains and the peoples of the Subarctic relied more on harvesting animals, because the High Plains and especially the Subarctic environment contained very few edible plants.<sup>66</sup>

The major species of large mammals in the Plains were the American bison (*Bison bison*) and the pronghorn antelope (*Antilocapra americana*). Mountain sheep (*Ovis canadensis*) were found in the foothills of the mountains and in other rough areas, such as the badlands of modern North and South Dakota and Alberta. Brush areas and the wooded river valleys provided a habitat for woodland and forest-edge species, such as mule deer (*Odocoileus hemionus*), elk (*Cervus elaphus*), and occasionally moose (*Alces alces*). All these were hunted for food, hides, and other raw materials, such as sinew, antlers, or bones. However, only the bison and pronghorn antelope occurred in large herds and were hunted in large “drives.”

Mountain sheep were occasionally hunted in smaller drives as well. Elk, deer, and moose occurred in smaller groups or even as individual animals. They were mostly pursued by individuals or by very small groups of hunters.

Smaller mammals included the beaver (*Castor canadensis*), the raccoon (*Procyon lotor*), the muskrat (*Ondatra zibethicus*), the desert cottontail (*Sylvilagus audubonii*), and the jackrabbit (*Lepus* spp.).<sup>67</sup> Predatory mammals of the Northern Plains included the grizzly bear (*Ursus horribilis*), black bear (*Ursus americanus*), mountain lion (*Felis concolor*), wolf (*Canis lupus*), coyote (*Canis latrans*), lynx (*Lynx canadensis*), bobcat (*Lynx rufus*), wolverine (*Gulo gulo*), river otter (*Lutra canadensis*), marten (*Martes americana*), fisher (*Martes pennanti*), mink (*Mustela vison*), and different species of fox, such as the kit fox (*Vulpes macrotis*) or the North American red fox (*Vulpes fulva*).<sup>68</sup>

Bird species from eastern and western North America shared habitats in the Northern Plains. For instance, the wild turkey (*Meleagris gallopavo*), a major source for some of the best-quality feathers for arrow fletching, ranged as far west as there were trees to roost in and grasshoppers to feed on. Other birds hunted for food and feathers included the sharp-tailed grouse (*Tympanuchus phasianellus*), greater prairie chicken (*T. cupido*), and the sage grouse (*Centrocercus urophasianus*).<sup>69</sup> Resident

waterfowl and large numbers of migrating ducks, geese, and swans congregated at waterholes and upland ponds. A wide variety of smaller birds were present, and there were also various species of eagles, hawks, buzzards, owls, and other raptors.<sup>70</sup> These supplied materials for decorative, ceremonial, and ritual items, but also for weapons accessories, such as arrow fletchings.

### Indigenous Peoples' Subsistence Patterns and Hunting Strategies

In the Northern Plains the adoption of horse technology in protocontact times and just after contact brought about gradual but significant changes in Aboriginal hunting methods and subsistence strategies. Documents created by outside observers in early contact times provide information on subsistence patterns, social organization, and material culture, and they offer some insights into Aboriginal peoples' lifeways in precontact times. Documentary evidence on the locations of specific Indigenous peoples is largely absent until the later eighteenth century. However, archaeological information provides some clues about which Aboriginal groups inhabited which parts of the Northern Plains during the times immediately before contact. Scholars of the Great Plains have long tried to link Aboriginal groups known from historical documents to archaeological evidence stretching back far beyond the times of first contact between Aboriginal peoples and Europeans. Such efforts

have produced hotly contested debates, because it is often difficult to link archaeological remains with more recent cultural communities.

There is, however, consensus that two archaeological cultures, Old Women's and One Gun, dominated the northwestern Plains at the time that European horses reached the area. The distribution of archaeological materials from the Old Women's phase at the end of the pedestrian era matches the distribution of the Blackfoot bands when Europeans first encountered them. This suggests that their ancestors probably left most of the artefacts now classified as Old Women's ware.<sup>71</sup>

Furthermore, when Europeans first encountered Blackfoot peoples, their lifeways bore a greater resemblance to those of other Plains peoples than to Woodland or Subarctic cultures.<sup>72</sup> This evidence, combined with oral history, strongly suggests that the Blackfoot have ancient roots in the northwestern Plains. While groups ancestral to some of the Plains Cree were resident in the Saskatchewan River basin in the 1600s, other Algonquian speakers, such as the Arapaho and Cheyenne, migrated to the Plains more recently.<sup>73</sup>

Documentary and archaeological evidence also links the carriers of the archaeological culture known as "One Gun" to the Hidatsa, proto-Crow, and Crow peoples of the Northern Plains between 1675 and 1750. These groups, as well as the

Mandan, had strong ties to and probably emerged from the Middle Missouri archaeological tradition.<sup>74</sup>

### Subsistence Patterns

Some Aboriginal groups in the eastern area of the Northern Plains, as far west as the Mandan, Hidatsa, and Arikara, practiced a mixture of hunting on the open plains and agriculture in the fertile river bottom lands of the Missouri and its tributaries, living in permanent earth-lodge villages. However, most other Indigenous peoples of the Northern Plains lived a more mobile existence and largely depended on the bison as the major game animal. In order to understand Indigenous peoples' subsistence patterns and yearly cycle of activities, those of the bison need to be understood. Scholarly opinion on bison behavior during historic times is divided. While some scholars see the bison's migrating behavior as totally erratic and unpredictable, others, such as Theodore Binnema and Trevor Richard Peck, argue that bison migrated within narrowly defined regional boundaries, following an established routine and utilizing different plant foods in different locations at different times of the year.<sup>75</sup> According to these views of fairly predictable and localized patterns of migration, bison moved from parkland and riverine habitats in spring to various prairie and plains environments through the summer, following the growing seasons of different types of grasses.<sup>76</sup> For the winter they

returned to the parklands, the sheltered river valleys, and the foothills of the mountains to begin this cycle anew in spring.<sup>77</sup> In spring, bison herds were still small and widely dispersed. Hunters found it difficult to depend on these animals then, so they gathered bitterroot, prairie turnips, and camas in the spring and early summer. War expeditions were rare in spring, because food could be scarce and Aboriginal bands were busy preparing for the endeavors and activities of summer.

By July, the warmest month in the Plains, food had become sufficient for bison herds to slowly begin to congregate. The bison rut approached in early July and peaked in early August, when mature bulls, who formed separate herds for most of the year, came together with the cowherds, establishing few but very large herds. By late summer, especially in dry years, many water sources in the Northern Plains had disappeared. When the weather cooled in August, the growth of prairie grasses slowed. Then the bison gravitated again to the moister prairie and riverine habitats, because water and forage were more plentiful there, and because the open plains were relatively inhospitable to them during the winter.<sup>78</sup>

During the equestrian era, Plains peoples' largest annual gatherings of the year took place in June or early July. At this time families and individuals strengthened their social and political bonds and renewed their relationships during the annual Sun

Dance. This was also the time for communal bison hunts to provide summer hides and food for the annual summer gatherings.<sup>79</sup> Most war and raiding expeditions also took place in summer. Even though large numbers of horses required frequent short-range location changes in order to access fresh pasture, large encampments were easier to maintain during summer because of the abundance of provisions that could be obtained from the gathering bison herds and the prolific Saskatoon berries. Women gathered berries to be eaten fresh or dried and stored in bags for later use. Men could travel considerable distances on horseback to find bison herds and transport meat.<sup>80</sup>

In early winter most of the bison had migrated toward sheltered river valleys or the foothills of the mountains to avoid the brutal winter winds and food shortages on the open plains. Not only bison but also other large mammals such as elk tended to congregate in the river valleys during winter for the shelter, water, and food the valleys provided. People took advantage of this migration pattern to be closer to the animals they hunted and also to find fuel and shelter in the forested river valleys. In late fall and early winter the bison were still in good condition and had already developed a dense winter coat, which was desired to make robes and other items of winter clothing. Therefore this was the time for the second major communal bison-hunting efforts of the year.<sup>81</sup>

Before the use of horses in bison hunting, fall and early winter had been the principal season for large communal gatherings, because this was also the principal time that pedestrian bison hunters could use bison jumps and pounds. However, the increasing utilization of horses enabled selective hunting of two- to five-year-old female bison, which Native hunters preferred for their better meat and smaller hides, which were easier to process. The use of horses also caused a gradual shift of the main hunting season from fall-winter to summer, which consequently shifted the main season for communal gatherings into summer as well.<sup>82</sup>

### Early Communal Bison-Hunting Methods

Before the adoption of the horse, the preferred communal bison-hunting method consisted of driving a herd of bison over a cliff or into an enclosure where the animals were either fatally injured from the fall or could be killed with spears or bows and arrows at close range. To guide the bison toward the kill, Native people took advantage of the natural features of the landscape as much as possible, placing two lines of obstacles, over a mile in length, in a V shape, converging at the entrance to the pound or at the lip of a cliff. Prominent bison jumping sites were in use by various Aboriginal groups for thousands of years. One of the most well known is the Head-Smashed-In Buffalo Jump in southwestern Alberta. Beginning about 5,500 years ago, various

Indigenous peoples killed bison at this site. Evidence of material culture from the Old Women's cultural complex, believed to represent the ancestors of the Blackfoot, spans the time from ca. AD 850 to the later nineteenth century at the site.<sup>83</sup> During the nineteenth century, Blackfoot-speaking peoples lived in the area of the Head-Smashed-In Buffalo Jump and continued to use such sites as late as 1872.<sup>84</sup>

The use of bison pounds extended far into Blackfoot peoples' past and was deeply rooted in their mythology. Robert Nathaniel Wilson, who served with the Northwest Mounted Police in Alberta in the early 1880s and who later became an Indian agent among the Peigan and Blood, recorded the following account from Blackfoot people about the origins of this hunting method:

People were at first the progeny of Buffalos, which were in the habit of eating people and caught them in a pound. Napi [the Blackfoot culture hero, with attributes of creator and trickster] came across the people in the mountains where they were hiding from the Buffalo and told them that state of affairs was not right. "Buffalo," said he, "are intended for people to eat and I will fix these things as they should be." He showed them how to make the bow and flint-headed arrow.<sup>85</sup>

In the winter of 1792–93, Peter Fidler, a trader and surveyor, and John Ward, an Orkney laborer, both working for the Hudson's Bay Company, accompanied a large band of Pikani-Blackfoot under the leadership of Sakatow on a journey from the HBC's Buckingham House on the North Saskatchewan River to their wintering grounds near the Rocky Mountains in the Bow River area.<sup>86</sup> During this trip Peter Fidler recorded some Pikani hunting methods. He visited several buffalo jump sites and pounds and described how they were used. For example, on one occasion hunters drove twenty-nine buffalo over a cliff. Three of these animals survived with broken legs and were killed with arrows.<sup>87</sup> When a hunt failed because the bison broke through the funnel barriers leading to the cliff, the men killed several by galloping after them on horseback and shooting them with arrows.<sup>88</sup>

Pronghorn antelope and mountain sheep were also hunted using surrounds or cliff drives. During the nineteenth century the Cheyenne were most noted for their large antelope surrounds, and this hunting method remained in use into the 1870s.<sup>89</sup> Peter Fidler also noted that the Pikani constructed pounds to hunt mountain sheep in great numbers.<sup>90</sup>



**Fig. 3.** Plains Cree bison pound showing converging lines of hunters and obstacles, guiding the animals into the pound. Colored wood engraving after an unknown original made on the Henry Hind expedition of 1857–58.



**Fig. 4.** Romanticized view of a buffalo jump as envisioned by the American painter Alfred Jacob Miller, who traveled through the Northern Plains in 1837. Image courtesy of the Walters Art Museum, Baltimore, Maryland, accession number 37.1940.190. Title: *Hunting Buffalo*, by Alfred Jacob Miller (1837).

Aboriginal people of the Plains utilized bison not only as a major food supply but also as a source of raw materials. After the hunt the bison had to be skinned and butchered, the meat had to be cut up and dried to preserve it for future use, and some of the internal organs were cleaned and made into containers. Peter Fidler observed that the Pikani preferred deerskins for making brain-tanned leather to manufacture “Jackets—Stockings, shoes etc., which is much more durable & neat than the buffalo leather.”<sup>91</sup> The heavier bison hides were made into robes and other winter garments. With the hair removed they were made into tent covers and liners. Aboriginal people used soft-tanned bison hides or bison rawhide to make a wide variety of containers, such as saddlebags, hunting pouches, quivers, bow cases, and parfleches. Bison hides were also made into ropes. Hide scrapings left from the cleaning and tanning process were boiled into hide glue. Fleshers, arrow-making tools, and weapons were made from bison bones. The tendons and back sinew yielded fibers necessary to make thread for sewing and embroidery, for wrapping arrow points onto arrow shafts, or for fixing the fletchings to arrow shafts. Sinew was also used to make bow backings, bowstrings, and cordage in general, such as sewing thread or nooses for snares.

As a horse culture developed in the Plains, although bison were still driven into pounds or over cliffs, from the mid- to late eighteenth

century they were also increasingly hunted on horseback with bows and arrows.<sup>92</sup> The tendency of bison to herd together as they stampeded facilitated this type of the hunt. Because bison had greater endurance than even the fleetest horses, the chase lasted only as long as the horses could keep up.<sup>93</sup>

At least in equestrian times, the relatively constant abundance of bison in the Northern Plains as a food source enabled Aboriginal people to sustain themselves in relatively large groups.<sup>94</sup> Most Plains groups would congregate in even larger numbers during the summer to hold annual ceremonies and hunt bison communally.

In contrast, in the Subarctic, especially in the Hudson Bay Lowlands, such large gatherings could be maintained only for very brief periods because so many people living in any one place for an extended period would soon exhaust food supplies. The decline of the caribou and moose populations in the Hudson Bay Lowlands during the second half of the eighteenth and the early nineteenth century reinforced this development. Large gatherings of Subarctic people took place mostly during the fishing season, because fish provided a more reliable food source.

Different environmental constraints in the Plains and the Subarctic led to different types of social organization among the Aboriginal peo

ple who inhabited these two regions. People adapted to the Subarctic environment by living in small family groups throughout most of the year. Such restrictions were not as necessary in the Northern Plains where the large herds of herbivores provided a more consistent food source. This made it possible for larger groups of people to stay together longer. During the equestrian era the trend toward larger bands and villages in the Plains persisted, even though camps had to be moved frequently for short distances to find fresh pasture for the horses.



3.

### Bows of the Northern Plains and Subarctic

This study is concerned with a comparison of Aboriginal peoples' use of Indigenous distance weapons and European firearms. Because firearms were mostly used in big game hunting and combat, this examination of Aboriginal archery also primarily focuses on these activities, even though bows had other uses, such as hunting rodents or birds. Other distance weapons, such as lances, spears, spear throwers, and darts, were important long before Europeans arrived, but they lie beyond the scope of this study. This chapter describes major bow types of the Northern Plains and Central Subarctic. Different types of arrows are discussed in later chapters.

The details of Aboriginal archery present numerous interpretive problems. Scholars unfamiliar with the technology have sometimes misinterpreted the archery gear they examined, and modern "inventions of tradition" have obscured past practices. The asymmetrical bow of the Northern Plains and the so-called Penobscot double bow, as we shall see, have both been subjected to these problems. Careful comparisons of Aboriginal traditions with accounts by non-Aboriginal outsiders, study of surviving artefacts, and experience gained through the manufacture and testing of reproductions of Aboriginal archery gear have led me to a great

appreciation of the capabilities of these weapons and the ingenuity of Aboriginal technology.

The exact time of the introduction or emergence of archery technology in North America is still debated by archaeologists. Because organic materials such as wood, hide, and plant and animal fibers do not preserve as well as stone and ceramics, the study of ancient weapons in North America relies mainly on the comparison of lithic tools and projectile points. It is beyond the scope of this study to provide a detailed analysis of precontact lithic projectile point types; rather, it focuses on the period after European goods became available to Aboriginal peoples in the Subarctic and Northern Plains.

In interpreting changes in lithic projectile point size and type, Brian O. K. Reeves suggests that archery replaced atlatl (spear thrower and dart) technology in the Northern Plains between AD 450 and AD 750, because arrows supposedly required much smaller projectile points than the darts used with the atlatl.<sup>1</sup> Interpreting the relatively small side-notched lithic projectile points of the Avonlea complex as arrowheads, archaeologist John Blitz suggests an even earlier date of AD 200 for the introduction of the bow and arrow to the Northern Plains.<sup>2</sup> Based on the appearance of small, arrowhead-sized projectile points of the Pelican Lake archaeological phase, archaeologist Philip Duke stated that bow and arrow technology

may have been present in the Northern Plains as early as 1500 BC.<sup>3</sup>

Some of the oldest clearly identifiable archery artefacts of North America come from the Mummy Cave site in Wyoming and have been dated to approximately AD 730. These artefacts include shaft fragments identifiable as arrow parts because of their notched ends, which would accept a bowstring, but not the hooked protrusion of an atlatl, or spear thrower.<sup>4</sup> Regardless of the course of its emergence, archery technology was well developed by the time European trade goods and horses reached Aboriginal people in North America.

### Some Bow Physics and Archery Terms

Before discussing specific bow types, some technical terms and some of the physics of archery need to be discussed. A bow is essentially a two-armed spring with a string connecting its ends. When an arrow is put on the string and the bow is drawn, it stores energy, which is transferred to the arrow upon release of the bowstring. However, when the bow is drawn, tensile stress builds up along the back, or outside curve, while compressive strain develops on the belly, or inside curve. Regardless of design or materials used, every bow has to accommodate these forces in order to successfully propel an arrow and to avoid breaking in the process.

On most North American Indigenous bows, the string needs to be loosened on one end when the weapon is not in use in order to preserve the bow's elasticity. Only when the bow is about to be used is it bent and the string put on. This process is referred to as "stringing." The side of the bow that in shooting is facing the target is referred to as the "back," the side facing the archer is referred to as the "belly." A bow can be envisioned as a person, facing and bending toward the archer, just as a person bends more readily toward the belly than the back.

A "reflex" denotes a bow with a permanent curve toward the target or toward its back when it is unstrung. This enhances its draw weight and possibly the distance it can cast an arrow.<sup>5</sup> A bow that curves toward the belly when unstrung is said to "follow the string." Such a permanent curve toward the belly causes the bow to store less energy when it is drawn, which is usually detrimental to the cast of the bow and lowers its draw weight, but it also renders the bow safer to use, because it is strained less when strung and drawn. A bow with its outermost parts (tips) bending toward the target when the bow is relaxed, is recurved. The recurves help to store more energy in each bow limb, but recurves also increase the stress the limbs of the bow have to endure. Apparently, true recurves were rare in the Plains-Plateau region but were fairly common in the Great Lakes area and in parts of California and the West Coast.

## Bow Types of the Northern Plains and Adjacent Regions

Aboriginal bows can be classified using several criteria, for example, their length, shape in side view or front view, or orientation of the grain.<sup>6</sup> However, archers tended to fit their equipment to their individual needs and their preferred method of shooting. Thus, too rigid a classification can obscure important adaptive techniques and strategies.

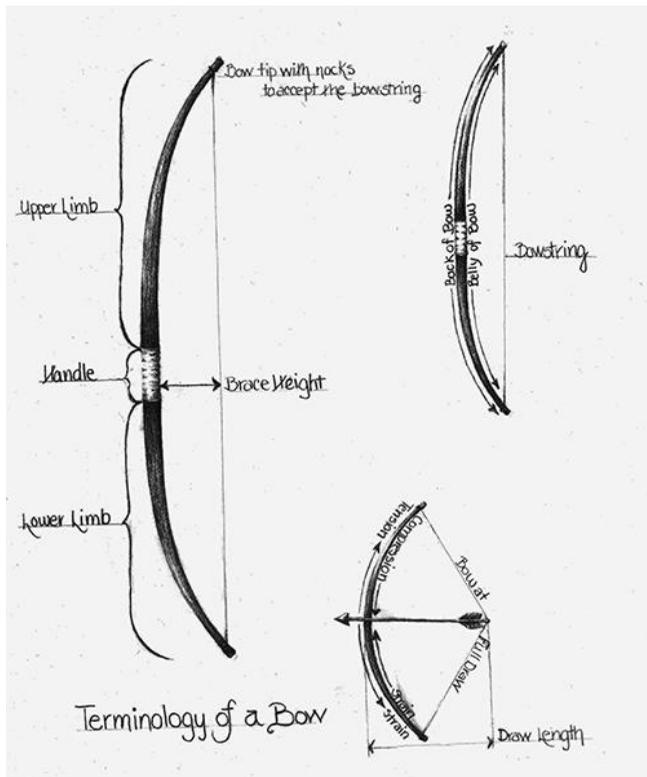


Fig. 5. Parts of a bow, showing tension and compression strain. Drawing by Margaret Anne Lindsay.

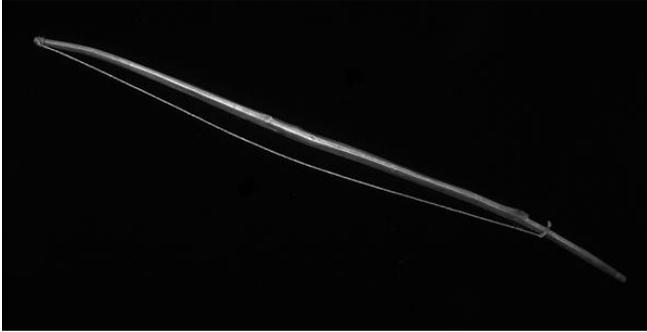
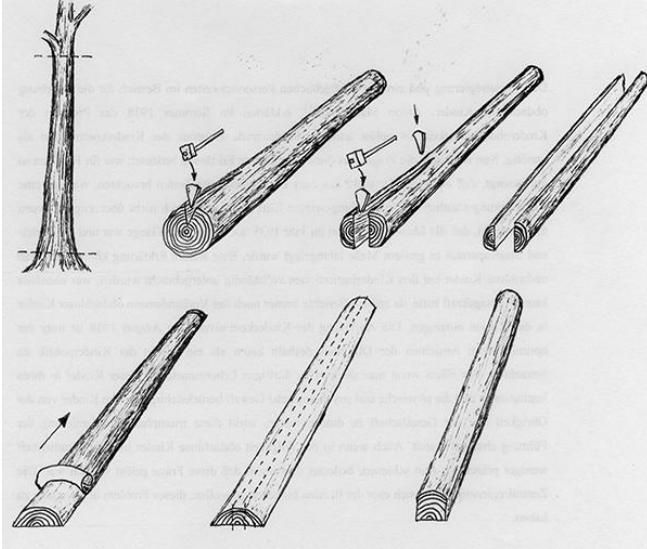


Fig. 6. Unstrung Plains Cree self bow, collected by Major George Seton in the Red River Settlement, now at the British Museum. An inscription on the bow reads: “Cree Indian Bow—Fort Garry Ruperts Land 1858.” Note the permanent bend toward the string, or “string follow.” Image copyright Trustees of the British Museum, Coll. No. AN308525001-Am1982,28.15.a.



**Fig. 7.** Basic construction steps from tree to bow stave, from upper left to lower right: (1) felling of suitable tree; (2) initiating split parallel to the long axis of the tree trunk; (3) widening and extending split with multiple wedges; (4) completed split; (5) removal of bark; (6) positioning and outlining dimensions of bow stave within the larger piece of wood to avoid knots and other difficult spots; and (7) removing excess material from the sides of the bow stave. Note how one uncut growth ring from the outside of the tree forms the back of the bow. Drawings by Roland Bohr.

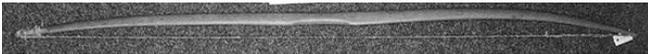


**Fig. 8.** Lakota self bow with growth rings cut through on the back, resulting in a catastrophic break from the back when the bow was drawn or bent. Note the sequence of cut growth rings appearing as a chevron pattern to the left of the break (A). The break occurred exactly at the

intersection of two cut growth rings (*B*). Courtesy of the Northwest Museum of Art and Culture, Spokane, Washington, Clarence H. Colby-Collection (Colby 69.33). Photographs by Roland Bohr.

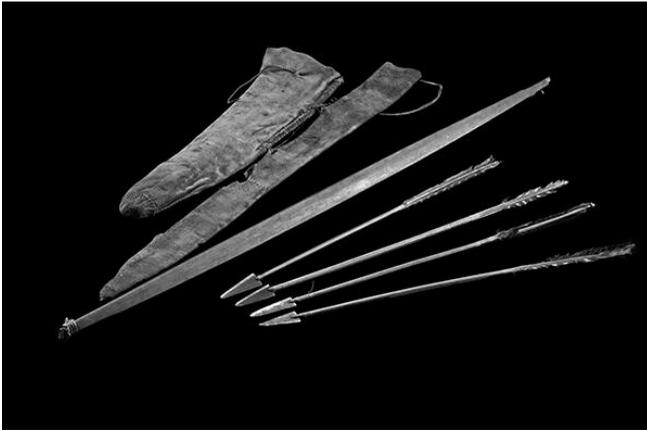


**Fig. 9.** The same Lakota self bow as in Figure 8, viewed from the back. The break and cut growth rings are visible near the middle of the right limb, where most of the bending stress would occur when the bow is drawn. This bow is 113.6 cm long. Photograph by Roland Bohr.

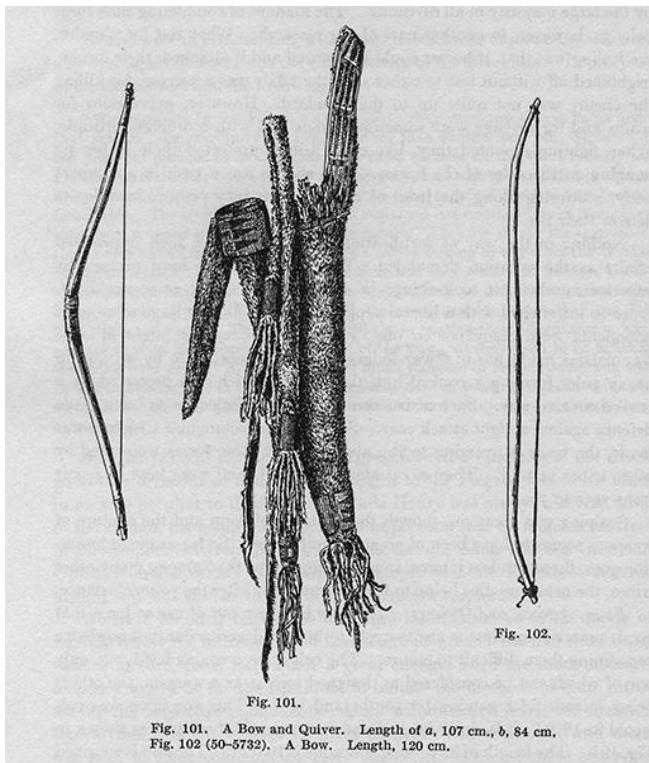


**Fig. 10.** Omaha self bow with an intact, uncut growth ring as the back. Note the smooth texture on the back of the bow and the absence of chevron patterns, which would indicate cut growth rings. Measured along the back, this bow is 126.8 cm

long. This bow was made before 1898 for a collection for the Ethnologisches Museum, Berlin, compiled by Francis LaFlesche from his own Omaha community. Courtesy of Staatliche Museen zu Berlin, Ethnologisches Museum (Cat. No. IV B 2189). Photograph by Roland Bohr.



**Fig. 11.** Osage bow with arrows and cases, collected by Duke Paul von Württemberg in 1824. The bow is made from Osage orange wood, with an intact growth ring as the back. Note the absence of chevron grain patterns, indicative of cut growth rings. This bow is 120 centimeters long and is now at the British Museum. Image copyright Trustees of the British Museum, Coll. No. AN166096001-Am.5206.a.



**Fig. 12.** Blackfoot bows, arrows, and quiver/bow case at the American Museum of Natural History. The sinew-backed bow on the left is shown unstrung, with the string on the “wrong” side (i.e., toward the back). This bow is highly reflexed. It was collected in 1870, together with the arrows and the quiver/bow case of otter fur. The strung bow on the right is a self bow of more recent manufacture than the first bow, according to Wissler. It resembles the Plains Cree (Red River) self bow shown in Figure 6.

A more helpful approach, based on documentary evidence and surviving artefacts, is to classify Aboriginal bows of the Northern Plains (and the adjacent Parklands and Plateau regions) into three main categories according to the materials used in their construction: so-called self bows, sinew-backed wooden bows, and sinew-backed horn or antler bows.<sup>7</sup> Of the 113 bows that I examined, seventy-four were self bows, thirty-two were sinew-backed wooden bows, and seven were horn or antler bows.

Self bows were made from a single piece of wood, often taken from a sapling or small tree. In order to accommodate the tensile stress along the back of such a bow, the bow stave was often laid out in such a way that a continuous and uncut growth ring formed the back of the bow. Sometimes, only the bark was removed and the outermost growth ring of the tree became the back of the bow, if it was considered thick enough to bear the tension strain. In regard to self bows used by Native people in the Plateau area immediately to the west of the Plains, North West Company fur trader Alexander Henry the Younger observed in 1811: “The plain wooden bow is a slip of Cedar or Willow or Ash wood, the outside is left untouched further than taking off the Bark.”<sup>8</sup> This indicates that an uncut growth ring formed the back of the bow. Aboriginal elders Louis Bird and Clifford Crane Bear, in explaining the usual technique for the manufacture of self bows among Swampy Cree and Blackfoot peoples, respectively,

emphasized the importance of maintaining an uncut, intact growth ring as the back of the bow.<sup>9</sup> Contemporary traditional bow makers continue to stress this construction feature as important for the manufacture of successful and durable self bows.<sup>10</sup>

The growth rings of a tree consist of layers of long wood fibers running parallel to its vertical axis. If these fibers remain uncut within one entire growth ring, they stand a much better chance of sustaining tensile stress. If a tree's sapwood is not strong enough to bear the tension stress, the bow maker can expose the heartwood down to a growth ring that is thick enough to form the back of the bow.<sup>11</sup> In this case, all the wood above the chosen growth ring is removed, while taking care not to cut into the underlying growth ring in any way. The backs of such bows show a smooth surface without any grain pattern.

If a growth ring has been cut on the back of a bow, a grain pattern of chevrons or ovals is visible on the back. If such a bow is drawn, the damaged layers of growth rings tend to peel apart under the tension strain, causing the bow to fracture, especially after the wood has seasoned. Bows made by Aboriginal people in the very late nineteenth or twentieth century often show cut growth rings on their backs and fractures at the intersections of the rings, but surviving Plains self bows from earlier in the nineteenth century often show smooth backs with intact growth rings.<sup>12</sup>

Clifford Crane Bear described how he made bows from the wooden handles of hockey sticks when he was a child in the 1950s. Because of the way the wood had been milled, without concern for intact growth rings, they did not hold up well under the tension strain when the bow was drawn, and soon broke. Sometimes Aboriginal people did make successful bows from milled lumber, such as boards and wagon parts. However, the cutting angles of such machined pieces of wood made different bow-making techniques necessary.<sup>13</sup>

Another useful technique in the manufacture of self bows is referred to as “decrowning.” For example, if the curvature on the back of the bow, seen in cross section, is too great and would thus concentrate all the tension strain along a narrow strip or ridge at the very top of the arch along the back of the bow, the growth rings can be cut in an attempt to create a level and almost perfectly flat surface on the back.<sup>14</sup> In such a bow, the dividing layers between growth rings will show as parallel dark lines, running along the long axis of the bow and not as chevrons or triangles. None of the Aboriginal bows I examined showed this design feature.

A variant of this technique, especially useful when making bows from small-diameter branches or saplings, is to reverse the bow stave and use the inside of the split branch as the back of the bow. The outside of the tree thus forms the belly, with a semicircular cross section, concentrating the

compression strain along the highest point of the arch on the belly. However, among the seventy-two self bows I examined, only one had this construction feature.<sup>15</sup>

In 1787 the fur trader and explorer David Thompson spent a winter among the Pikani in what is now southern Alberta. His host and informant was Saukamappee, a Cree by birth, who had married into the Pikani community as a young man and who may have been in his eighties when David Thompson stayed with him. Saukamappee described the relatively long bows that he, his father, and other Parkland-Cree warriors had used in the early 1700s as made of larch and reaching up to the chin in length. In Canada, larch is also called tamarack (*Larix laricina*). Louis Bird pointed out that tamarack was a common bow wood used by the Cree and other Aboriginal people in the northern boreal forests.<sup>16</sup> Saukamappee's account does not mention any backing on these bows; therefore these weapons were likely self bows, made from a single piece of wood. In contrast, he described the bows used by their "Snake Indian" (possibly Shoshone) adversaries as follows: "their Bows were not so long as ours, but of better wood, and the back covered with the sinews of the Bisons which made them very elastic, and their arrows went a long way and whizzed about us as balls do from guns."<sup>17</sup> This is clearly a description of the second category of bows to be discussed here, the short

sinew-backed wooden bows that were so common in the Plains and Plateau regions until the last quarter of the nineteenth century.

In 1811 Alexander Henry the Younger observed about sinew-backed bows made by Native people in the eastern Plateau area: “The Bows used by the natives to the Westward of the Mountains are very neatly made and of three kinds: the Horn bow, the Red Cedar, and the plain Wooden bow. . . . The red Cedar bow is made out of a slip of that wood and over laid with sinew and glue in the same manner as the Horn bow. The inside is well polished. They are near four feet long, and will throw an arrow to a great distance.”<sup>18</sup>

The German naturalist Prince Maximilian of Wied, who traveled in the Upper Missouri region in 1833–34, observed:

The weapons of the Mandan and Manitaris [Hidatsa] are, first, the bow and arrow. The bows are made of elm or ash, there being no other suitable kinds of wood in their country. In form and size they resemble those of the other nations; the string is made of the sinews of animals twisted. They are frequently ornamented. A piece of red cloth, four or five inches long, is wound round each end of the bow, and adorned with glass beads, dyed porcupine quills, and strips of white ermine. A tuft of horsehair, dyed yellow, is usually fastened to one end of the bow.<sup>19</sup>

As accounts by Saukamappee (David Thompson), Alexander Henry, and Prince Maximilian indicate, compared to eastern North American, Subarctic, or Parkland bows, those from the Northern Plains and the Rocky Mountains were rather short, doubtless because of the scarcity of bow wood of suitable length, straightness, and freedom of knots. In the windswept Northern Plains the few straight and tall hardwood trees, such as ash, occurred almost exclusively in the sheltered river valleys. Owing to the construction of large reservoirs along the Missouri and other major rivers of the Plains, this source of bow wood has largely disappeared. For bows I manufactured as part of an anthropological study at the University of North Dakota in 1995–96, I used ash wood taken from the shelterbelt of a field. The search for this wood was conducted not only on foot but also by car, driving cross-country, and it took many hours to find a young ash tree of sufficient quality and straightness in a densely planted shelterbelt.<sup>20</sup>

Even before the construction of dams and reservoirs, serviceable bow wood may have been hard to find in the Northern Plains. In regard to the regional scarcity of wood, Hudson's Bay Company fur trader Peter Fidler noted in 1792: "Very little wood here of any kind & to the South extensive plains, which continues several Hundreds of Miles nearly in that direction without a single Tree, to be seen. This I have partly proved to be true in my Journey to the Rocky Mountains

in the following winter, & from the united testimonies of every Indian I have spoke to on the subject.”<sup>21</sup>

Because good bow wood was rare, bowyers had to make do with shorter, more knotty pieces of wood taken from shrubs such as chokecherry (*Prunus virginia*) or Saskatoon berry (*Amelanchier alnifolia*, also known as Juneberry, sarvisberry, or serviceberry). However, bows made from such pieces of wood distributed tensile stress much less evenly than longer bows made from straighter wood.

To overcome the problems of working with inferior wood, Plains Aboriginal bow makers glued one or more layers of animal sinew to the back of their bows, using hide glue or fish glue.<sup>22</sup> When the combined matrix of glue and sinew dried, it clung tightly to the wood and absorbed the tension strain, thus protecting the bow from breaking. This allowed bow makers to use much shorter and more flawed pieces of wood than would have been needed for longer self-bows.

According to George Bird Grinnell, who obtained information from Piegan people in the late nineteenth century, ash was their preferred wood for making bows. They used to collect it from an area close to the Sand Hills of what is now southeastern Alberta. When ash was not available, chokecherry was a second choice, but it was said to lack strength and elasticity.<sup>23</sup> Confinement on

reserves and reservations from the last decades of the nineteenth century onward may have prevented access to ash wood from the Sand Hills, and locally available woods such as chokecherry were primarily used for the manufacture of bows from then on. John Ewers, who collected information from Blackfoot peoples much later than Grinnell, learned that chokecherry was the preferred bow wood among Blackfoot-speaking peoples.<sup>24</sup> My own efforts at making Plains bows from this wood have largely turned out unsuccessful, likely because I used wood that had been seasoned for several years and perhaps was dried out too much. When I mentioned this to Kainai elder Mike Bruised Head, he acknowledged that chokecherry was preferred among his people, but that all major woodworking needed to be done while the wood was still “green,” or unseasoned. After this, the bow stave was covered in grease or oil and left to season. Only the “tillering,” the fine-tuning of the bend of the bow, was done after the wood had seasoned.<sup>25</sup>

Aboriginal people in the Northern Plains occasionally obtained wood for bow making through trade from regions outside the Northern Plains. The Crow Indian Two Leggings recalled that when he was a young man in the 1860s, he traded several hickory staves from the Gros Ventre to make bows.<sup>26</sup> Based on his observations while traveling the Missouri River region in Montana in 1833–34, Prince Maximilian believed

that the country of the Blackfeet did not produce any wood suitable for bow making and stated that therefore they traded “bow wood,” or “yellow wood (*Maclura aurantiaca*) from the river Arkansas.”<sup>27</sup> The yellow color suggests that it may have been Osage orange (*Maclura pomifera*), a wood that Southern Plains people such as the Kiowa, Comanche, and Osage regarded highly for bow making. A year prior to Maximilian’s visit in the area, the American painter and explorer George Catlin met with Blackfoot-speaking peoples in the Upper Missouri region and claimed to have observed their use of short sinew-backed wooden bows, made from ash and Osage orange.<sup>28</sup> Indeed, the bowyer Jim Hamm mentioned two surviving bows made of Osage orange, collected from the Blackfoot.<sup>29</sup> If such trade occurred on a regular basis, it is likely that instead of rough and fairly large pieces of wood, nearly finished bows or even completed weapons were traded.<sup>30</sup> Alex

ander Henry the Younger stated that “these people [Flathead, Kutenai, Pend-d’Oreille, Nez Perce and other Plateau peoples] make by far the handsomest bows I have seen in this Country and they are always preferred by other Indians. I have seen a Peagan [Piegan/Peigan] pay a Gun or a horse for one of those sinew bows.”

Aboriginal people may also have obtained finished bows from outside their homelands as gifts or as war trophies. Especially among the

Blackfoot, the capture of an enemy's bow or gun in battle counted as a high war honor and was viewed as a very prestigious accomplishment.<sup>31</sup> For example, in 1833 at Fort McKenzie in present-day Montana, Prince Maximilian met with the Piegan White Buffalo, "who often visited us, [and] one day brought a very beautifully ornamented bow, taken from the Flatheads, which, however, he could by no means be prevailed upon to sell. On making a higher offer, he answered, 'I am very fond of this bow.'"<sup>32</sup> In a similar example, a steer hide painted in 1892 with the war exploits of three Piegan men, Shortie White Grass, Sharp, and Wolf Tail, shows White Grass's capture of a Pend d'Oreille bow, arrow, and quiver during a night raid on a combined Flathead–Pend d'Oreille camp in 1862. Other images on the same robe indicate White Grass's capture of bows, arrows, and quivers from the Gros Ventre des Prairie on another raid, too.<sup>33</sup> However, while some bows may have been obtained from other regions, most Plains bows were likely made from locally available materials.

Aboriginal bow makers, especially in the Plateau region but also in the Northern Plains, created a third category of bows. These were also sinew backed, but mountain sheep horn or elk antler replaced the wood for the belly of the bow, because these materials can endure far greater compression than wood. Combining a sinew backing with a horn or antler belly made a

desirable bow, but horn or antler were difficult to obtain in the proper quality, and manufacturing them into a bow was an extremely time-consuming and laborious task.<sup>34</sup> Alexander Henry the Younger observed:

The Horn bow is made out of a slip of the Horn of the Grey Ram [mountain sheep]. The outside is left untouched, when it is over laid with several successive laying of sinew & Glue, for the thickness of about one third of an inch, and over all a coat of the skin of the Rattlesnake. The inside is very smoothly polished and displays several ridges of the Horn [i.e., traces of these ridges were still visible in the structure of the material but could no longer be detected by touch because the belly of the bow was worked level and polished smooth]. These bows are about three feet long, very neat, and will throw an arrow to an amazing distance.<sup>35</sup>

Their small dimensions made these bows appear like toys, but contemporary bow makers have manufactured very powerful weapons of dimensions similar to the original artefacts, using the same materials and largely the same manufacturing methods as the original bow makers.<sup>36</sup>

Henry also recorded important details in regard to the care and maintenance of sinew-backed bows: “To preserve those bows demands great care and

attention from the owner, as in hot weather the sinew bow, whether Horn or Cedar, becomes too much braced, and in moist weather too much relaxed, as the sinews are but seldom so justly proportioned as to compress with the strength of the Horn or Wood which frequently causes it to warp, whereas the simple wooden bow requires no particular care and is at all times ready for service.”<sup>37</sup>

To apply the sinew, bow makers used various types of glues made from animal parts. The most common glue was made from hide scrapings, but fish bladder glues were sometimes used as well. The sinew and glue were applied wet. As they began to dry, the sinew clung to the wood or horn and shrank, usually pulling the bow into a reflex, which increased the amount of energy the bow could store when drawn.<sup>38</sup> However, sinew backings were affected by changes in temperature and humidity, especially since the glues used in their application were water soluble. Too much humidity would eventually make the bow sluggish and unresponsive. I have noticed with my own reproductions of sinew-backed wooden bows that they lose some of their draw weight in humid weather. Conversely, I once left a strung sinew-backed ash bow exposed to the hot summer sun for too long and it lost much of its original reflex, which since then it has not recovered.

Gluing snake

skin to the back of a bow could help to protect a sinew backing from moisture, or even rain.

Unequal amounts of sinew on each limb can cause a bow to warp. To counteract this, the Canadian bow maker Jaap Koppedraye, for example, goes so far as to weigh the sinew before it is glued to the bow, to ensure that exactly equal amounts of sinew are applied to each limb.<sup>39</sup> Contemporary users of horn bows in South Korea, where traditional archery is a popular competition sport, spend much time adjusting the bend of their horn bows after stringing, using heat and pressure. They store their bows in humidity- and temperature-controlled cabinets in their clubhouses and use various heating and bending devices to adjust the bend of their bows after each stringing, before the bows can be used. Reproductions of North American Plains-Plateau horn or antler bows require such adjustments to a much lesser degree than Korean composite bows. However, they still need to be checked for proper alignment of the limbs after each stringing and before shooting commences.

Even though sinew-backed bows were labor-intensive to make and required much care and maintenance, there was a decided advantage to their use. For example, the Hidatsa bow maker Henry Wolf Chief related to ethnographer Gilbert Wilson in 1911: “To one used to a wooden bow, a Rocky Mountain sheep horn [bow] would seem easily bent, but it had a relatively powerful cast. One unaccustomed to such a bow would be surprised at the range it had. After he had used one for a while he would find it hard to adapt

himself again to a wooden bow. A big horn bow could be used in war and hunting. It was a powerful weapon, better than wooden bows. But it was a very costly weapon.”<sup>40</sup>

In the summer of 2010, I met the bow maker Francis Cahoon from the Flathead Reservation in Montana. He manufactures sinew-backed bows of Rocky Mountain sheep horn and gave me the opportunity to shoot such a bow, which I had never done before. The bow that I brought along to this meeting was a self bow of Osage orange wood, which I had made in the style of Native American bows from the Southern Plains. It had a draw length of ca. 61 centimeters (24 inches) and a draw weight of ca. 23.6 kilograms (52 pounds). This bow represented the upper end of what my physical strength and level of expertise could accommodate in terms of shooting. Francis Cahoon gave me one of his sheep horn bows to try. At ca. 66 centimeters (26 inches) of draw, it pulled well over 27 kilograms (60 pounds). However, its draw weight felt much lighter than that of my own Osage orange self bow. My experience was exactly as outlined by Wolf Chief in 1911, and after a long afternoon of shooting such a wonderful and elegant horn bow, it was hard to give it back and to return to my own sturdy Osage self bow.

The Inverted Plains Bow and Other European Misconceptions

By the time anthropology emerged as a scholarly discipline in North America, military archery had been out of use in Europe for over two centuries. However, during the late nineteenth century, archery experienced a renaissance as a sport, in both Europe and North America. This new enthusiasm was spurred on by the writings of two Americans, Maurice and Will Thompson. As veterans of the Confederate forces in the American Civil War, the Thompson brothers were not allowed to own firearms after the war. Because of this, they made their own bows and arrows to hunt with in the Florida Everglades. Maurice Thompson eventually began to write and publish about their hunting exploits, and his writings met with great success.<sup>41</sup> At a time when national parks were being created in the United States and in Canada, and when the middle classes were discovering the outdoors, the Thompsons' stories of adventure, woodcraft, and hunting became an inspiration to many. Although their writings were full of allusions to North America's Indigenous people, the Thompson brothers' archery was in fact rooted in Anglo-Saxon traditions.<sup>42</sup>

In that period, popular opinion in Europe and North America held that European technology and weaponry, including archery, was far superior to anything Native American. This view was supported by a selective emphasis on documents that portrayed Aboriginal archery in rather

negative ways over other accounts describing Aboriginal bows and arrows as formidable weapons. Such ethnocentric views had deep roots in the past. For instance, when Sir Francis Drake encountered Aboriginal people on the California coast in 1579, he was rather unimpressed with their archery: “Their bowes and arrowes (their only weapons, and almost all their wealth) they use very skillfully, but yet not to do any great harm with them, being by reason of their weakness more fit for children than for men, sending the arrowes neither farre off nor with any great force.”<sup>43</sup>

Military archery had still been in general use on English warships only three decades earlier and continued there into the 1580s.<sup>44</sup> For example, over 130 longbows and over 3,500 arrows were recovered from the warship *Mary Rose*, which sank in 1545 and was raised again in 1982.<sup>45</sup> Judging by reproductions made of these bows, they likely had very high draw weights, between 40 and 50 kilograms (80 and 100 pounds), which enabled them to propel armor-piercing arrows for 200 meters or more. Drake and other explorers were interested almost exclusively in the potential harm Indigenous weapons could cause in battle. While Drake acknowledged the skill of Californian archers, he was not impressed with the performance of their weapons, overlooking the fact that they were primarily made to take deer and smaller animals, often at very close range.

Drake did not recognize that coastal Californian people had no access to the long and straight yew staves necessary to make a so-called proper English bow. They had to content themselves with juniper and yew scrubs and other bushes and small trees. This forced them to make short and wide sinew-backed bows, which were an ingenious and efficient adaptation to the local environment.

During the nineteenth and early twentieth centuries, researchers seeking proof of European technological superiority over Indigenous people cited accounts like Drake's, overlooking his contemporaries, such as Martin Frobisher, who had encountered the formidable archery of Indigenous peoples in the Arctic and on the East Coast of North America. They read such accounts with little attention to the cultural context and environmental constraints that led Aboriginal people to develop their own unique forms of archery. Ideas of cultural relativism lay still ahead in the future.

More than three centuries after Drake, another enthusiast of the English longbow commented on his firsthand experiences with Californian Aboriginal archery. Dr. Saxton Pope acted as physician to a Yana or Yahi man who came to be known as "Ishi." He had appeared out of California's scrubland near Oroville in 1911, likely the last survivor of his community. Ishi came under the tutelage of Dr. Alfred Kroeber,

who employed him at the University Museum of Anthropology in San Francisco as a janitor. Kroeber and Pope, an avid archer and hunter, took Ishi on hunting trips into his old homeland in the Mount Lassen area. Ishi also made bows and arrows at the museum, where Pope and Kroeber documented his work in great detail.<sup>46</sup>

After Ishi's death in March 1916, Pope began to manufacture his own archery equipment. He built European longbows, which he compared to Ishi's bows as well as to a wide range of other Aboriginal bows from the museum's collection in San Francisco. This study was groundbreaking because of its practical approach.<sup>47</sup> However, Pope's tests were badly flawed. His sole criterion for evaluating a bow was the distance it cast an arrow. The greater its cast, the more highly Pope ranked it. Since not every bow was originally intended for distance shooting, these tests took Indigenous archery systems out of their cultural context, especially because Pope used the same arrow for all his tests, instead of using those arrows that actually belonged to each of the bows he tested.<sup>48</sup>

Furthermore, Pope compared his newly made longbow to old Aboriginal bows that had not been strung and shot in decades and had often suffered mishandling while in storage or on display. Several of the bows were damaged or had even broken during testing. Under the circumstances it is amazing that these Aboriginal bows performed

as well as they did. However, if the weapons could not reach the range of his prized longbow, even when they were not designed for it, Pope dismissed them as inferior. The introduction to Pope's study sheds some light on the views that informed his work: "A contest of strength between peoples will always interest human beings; rivalry in the arms and implements of war is one of the fascinations of national competition. It is therefore a matter of interest both to the anthropologist and the practical archer to know what is the actual casting quality and strength of the best bows of different aboriginal tribes and nations of the world."<sup>49</sup>

The allusion to competition between nations in regard to military technology, combined with Pope's very negative conclusions about Indigenous archery in comparison to the archery of medieval Europe, indicate the social Darwinist views that informed Pope's work. In the course of his 1923 study, Pope tested a very long Native Paraguayan (rain forest) bow, made from a wood species that he referred to as "ironwood." Pope considered this tropical hardwood to be an excellent material for bow making, but he was disappointed with this bow's sluggish performance. Not taking into account the dampness and greater humidity of the rain forest environment that this bow had originated in, which made the greater length necessary, Pope shortened and retiltered the weapon to follow the lines of an English longbow, to improve its cast.

Afterward he remarked: “This demonstrates what intelligence can do in the bowyer’s art.”<sup>50</sup> However, if returned to its place of origin in the rain forest, this reworked bow would probably have performed inadequately.

Researchers continue to credit Pope’s study because of its practical aspects, and often fail to recognize its flaws and cultural bias.<sup>51</sup> Pope’s writings influenced scholarly and popular opinions on Aboriginal archery for decades, fostering a tendency to dismiss Aboriginal archery gear as largely inefficient and much inferior to East Asian and European bows and arrows and especially firearms. Forrest Nagler, whose writings contributed to popularizing bow hunting in North America based on Anglo-Saxon traditions, reinforced this tendency. In 1937 Nagler cited Saxton Pope as an important influence on his work, stating: “Native bows all over the world are usually very inferior.”<sup>52</sup> Even as late as 1970, Robert Heizer, commenting on the “general inferiority of the American Indian bow,” wrote in regard to the archery involved in encounters between coastal Californian peoples and the Drake expedition in 1579: “The English at the time were equipped with the famous longbow, and this was clearly a superior weapon to the California Indian’s bow. No English bows of this period have survived, and the *only reliable information* [my emphasis] we have on these comes from

experiments made by Saxton Pope, about 1920.”<sup>53</sup>

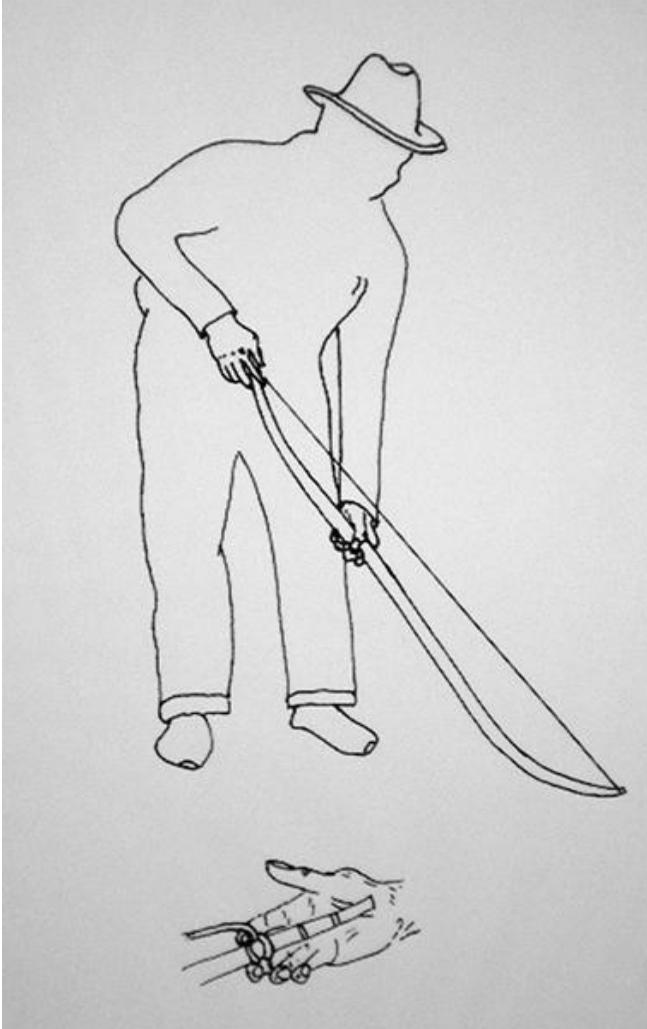
Gilbert L. Wilson was one of the few early twentieth-century ethnographers with a practical understanding of archery. He was an accomplished archer, using European equipment. Although he had little experience in actual bow making, he was one of the few outside observers who could appreciate and evaluate the information he obtained from a practical perspective. Unlike Pope, Wilson did not dismiss features of Aboriginal archery he did not understand, but described them carefully. One such feature was the marked asymmetry of many Hidatsa bows.

Wilson documented Mandan and Hidatsa culture in North Dakota from 1906 to 1918. He obtained information on Northern Plains archery from the Hidatsa elder Henry Wolf Chief, who not only had hunted and fought using archery equipment but also was an accomplished maker of bows, arrows, and strings. Wolf Chief told Wilson that among the Hidatsa the upper limb of a bow was usually made longer and thinner, with a greater bend than the lower limb. Wolf Chief stated: “Shaping the bow thus made the upper arm springier than the lower, which was relatively more stiff, and heavy. Our object in making a bow thus, was to secure steadier and straighter flight for the arrow. We felt very sure that this shape of the bow was a distinct help. That bow of yours [G. L. Wilson’s], which you say is an English bow,

has both arms of equal strength. We Indians would have considered such a bow useless. I could not use such a shaped bow at all.”<sup>54</sup>



**Fig. 13.** Asymmetrical ash bow made by Wolf Chief, collected by Frederick Wilson before 1918. Its length is 125 centimeters. The upper arm of the bow with the permanent tie of the bowstring is on the left. Photograph courtesy of the Minnesota Historical Society, MHS 9598.22.



**Fig. 14.** Stringing method for asymmetrical Plains bows used by the Hidatsa, Omaha, and other Aboriginal groups in the Northern and Central Plains. The small drawing below shows the position of the archer's right hand when pulling

the bowstring into its notch on the lower end of the bow. Adapted from a photograph of Wolf Chief (Minnesota Historical Society) taken in 1911. Drawing by Roland Bohr.

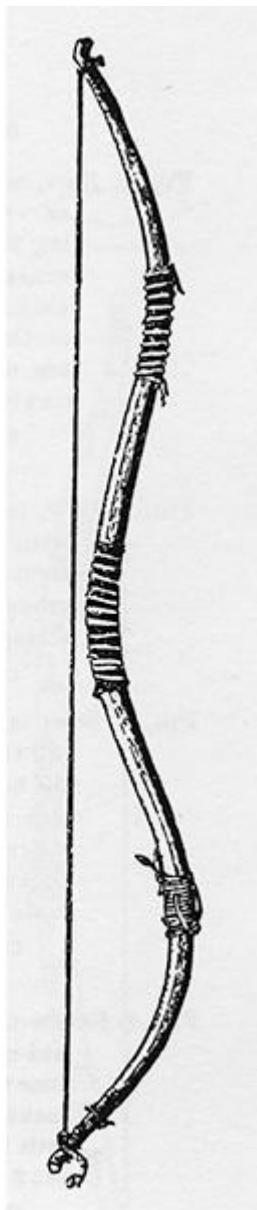


Fig. 15. Asymmetrical sinew-backed Hidatsa bows, shown upside down. The bow on the left (cat. no. 8418, USNM) was made of hickory; its length is 104.14 centimeters. The bow on the right is of horn and is 91.44 centimeters long. The original drawings were detailed enough to show the slip nooses of the bowstrings on the shorter, less bending bow limbs, which are usually the lower and not the upper limbs.

---



Fig. 16. Asymmetrical Blackfoot self bow, shown upside down, as in Saxton Pope's book. Note the slip noose of the bowstring on the limb with the lesser curvature.



Fig. 17. Asymmetrical sinew-backed Plains bow of ash, made by Roland Bohr in 1995. The upper arm of the bow has the greater bend and length. Drawing by Margaret Anne Lindsay.

Wilson remarked that he did not understand this design feature, but wrote that a Sioux man had given him the same explanation for it as Wolf Chief.<sup>55</sup> Often, western European bows, as well as Aboriginal bows from the Great Lakes region, also have a slightly longer upper limb, to compensate for the handgrip. However, even though slightly different in length, both arms are usually of equal strength.

The asymmetry of these Mandan and Hidatsa bows allowed for a stringing method that differed from European stringing methods. Asymmetrical bows from the Mandan and Hidatsa carried the permanent tie of the bowstring at the top of the bow, not at the bottom as in English bows. Wilson described this clearly in his field notes: "It will be

noted by any archer trained in the English school that the ‘eye’ [the slip noose of the bowstring] runs on the lower arm instead of the upper, as with us. It will also be noted that that the permanent tie is at the end of the upper arm, instead of on the lower horn, as in English archery.”<sup>56</sup>

This positioning of the bowstring made it possible to string the bow very rapidly, which allowed an archer on foot to quickly prepare the bow for shooting when sighting game or enemies. The archer held the bow in the left hand, gripping it at the handle with the back of the bow pointing forward. Then he merely bent down at the waist, setting the upper end of the bow on the ground, while pressing down at the handle with the left hand and pulling the slip noose of the bowstring into place on the lower limb of the bow with the right hand. A practiced archer could string a bow and have an arrow on the string, ready to shoot within a few seconds.<sup>57</sup> Unfortunately, this information remained largely inaccessible because Wilson’s field report remained unpublished until 1979.<sup>58</sup>

Long before Wilson’s work with the Hidatsa, other ethnographers had already made the erroneous assumption that in regard to tying the bowstring, North American Aboriginal bows were generally similar to European bows. They concluded that the arm of the bow with the

permanent tie of the bowstring was the lower arm. This led to a misunderstanding and misrepresentation of asymmetrical Plains bows. For example, in 1893 the anthropologist Otis Tufton Mason published a report on North American Indigenous archery equipment, based on his examination of bows, arrows, and quivers in the collections of the Smithsonian Institution. This report included illustrations of two asymmetrical bows collected from the Hidatsa, depicting them as strung and upside down. Mason described one of these sinew-backed bows: “Bow—made of hickory, with a double curve—the lower curve larger than the other.”<sup>59</sup>

In the early 1920s, Saxton Pope tested an asymmetrical ash bow collected from the Blackfoot.<sup>60</sup> Because this self bow did not have a string, Pope supplied his own when he tested this weapon. When bracing the bow he correctly put the permanent tie of the string on the limb with the greater curve. However, the illustration in his book shows the bow upside down, the limb with the greater curve pointing downward, just like the asymmetrical Hidatsa bows in Mason’s Smithsonian report.

Since Pope illustrated and likely shot the bows he tested with the permanent tie of the bowstring at the bottom, it is possible that he tested this Blackfoot self bow upside down. The bow still cast Pope’s test arrow an astonishing 145 yards

without breaking. However, Pope was not impressed and wrote about this specimen: “If this is the type of a Plains Indian hunting bow, that bow was a poor one.”<sup>61</sup> Based on such observations, Pope concluded: “The aboriginal bows are not highly efficient, nor well made weapons.”<sup>62</sup>

This error in regard to the orientation of the asymmetrical Plains bow has persisted into some recent publications on North American Aboriginal archery that still depict these bows upside down.<sup>63</sup> Only a few researchers with access to Wilson’s field notes recognized the asymmetrical Plains bow as a distinct type.<sup>64</sup> From 1994 to 1996, one such researcher, the North Dakota bow maker and artist Ron Taillon, manufactured working reproductions of asymmetrical Plains bows based on the field notes of Wilson and Wolf Chief. These bows were used with the longer, more curved limb upward. His experiments verified Wolf Chief’s statements about the asymmetry of the bow causing a flatter trajectory of the arrow. A flat trajectory makes aiming much easier and enables an archer to shoot directly at targets up to 40 meters’ distance without having to compensate for an arched trajectory of the arrow as would be necessary with more symmetrical bows.<sup>65</sup> Taillon’s work was published in a traditional archery magazine and also in a German magazine of North American history, but it remained largely inaccessible to scholars of

Aboriginal history and anthropology. The view that asymmetrical Plains bows were badly constructed and hardly functional, due to the “lower” limbs being warped, remained firmly in place.

Although they were far from being the only bow type among Aboriginal people of the Northern Plains, asymmetrical bows were quite common and were used by various Aboriginal groups, including the Sioux, Cheyenne, Mandan, Hidatsa, and Blackfoot. However, researchers consistently emphasized asymmetrical bows as examples of faulty design and craftsmanship and then applied these negative views to Northern Plains Aboriginal archery in general.<sup>66</sup>

Because Mason’s and Pope’s works have been so influential in shaping views on the subject, researchers unfamiliar with the practical aspects of archery and bow making have often uncritically accepted them. Even when Aboriginal people manufactured bows and arrows under the observation of non-Aboriginal researchers, the researchers often did not understand and thus did not accurately record what they saw. Adding to the problem, information provided by elders, who were still familiar with traditional skills, was often translated by younger persons who had much less familiarity with their people’s archery. Then non-Aboriginal observers with little knowledge of the topic recorded this information and went on to

make interpretations that were highly misleading.<sup>67</sup>

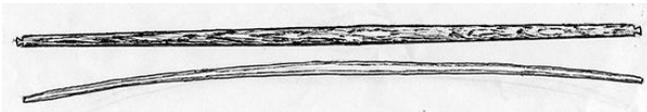
### Some Bow Types of the Central Subarctic

While the dramatic image of the mounted Plains Indian hunter using a short bow in the pursuit of buffalo has been deeply ingrained in popular representations of Native Americans for at least a century, the Indigenous people of the Central Subarctic have not been particularly noted as archers. This perception appears to be based to some extent on three factors. First, firearms were more readily available to Aboriginal people of the Hudson Bay Lowlands and adjacent regions to the south and west at a much earlier stage than they were to people in the Northern Plains. As a consequence, historians and ethnographers tended to assume that Aboriginal people of the Central Subarctic discarded most of their traditional weaponry in favor of European firearms and metal weapons soon after these became available.<sup>68</sup>

Second, the Central Subarctic environment is not home to trees that are ideal for bows. Prime raw materials for bow making—eastern hardwoods like ash (*Fraxinus americana*), black locust (*Robinia pseudoacacia*), hickory (*Caraya cordiformis*), and Osage orange (*Maclura pomifera*)—are not available in the region. The Omushkego-Cree, for example, mainly relied on tamarack (*Larix laricina*), birch (*Betula* spp.), and black spruce (*Picea mariana*) for bow making.<sup>69</sup>

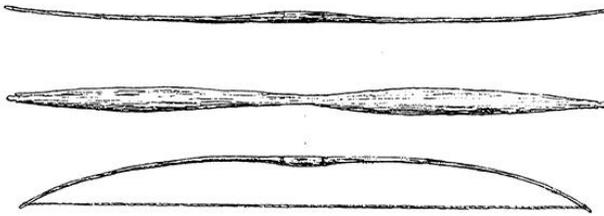
Neither wood is ideal for bow making, due to their lack of tensile or compressive strength.<sup>70</sup> Extreme cold was also a problem for Aboriginal archers. Louis Bird and other Cree elders noted that the extremely low temperatures in the Central Subarctic from about December to early March made bows and arrows unusable because they would freeze stiff, lose their elasticity, and break when under tension and compression stress.<sup>71</sup>

Finally, documentation on Indigenous archery in the Subarctic, especially for northern Cree and northern Ojibwa peoples, is also rare. Ethnological reports rarely mention archery in any great detail, and material culture collections from the Subarctic usually contain few archery items. When I met Louis Bird at the University of Winnipeg in 1999, we began to discuss many aspects of traditional Omushkego-Cree technology, including archery. Louis shared much information on this subject with me, which no previous researchers had asked him about.

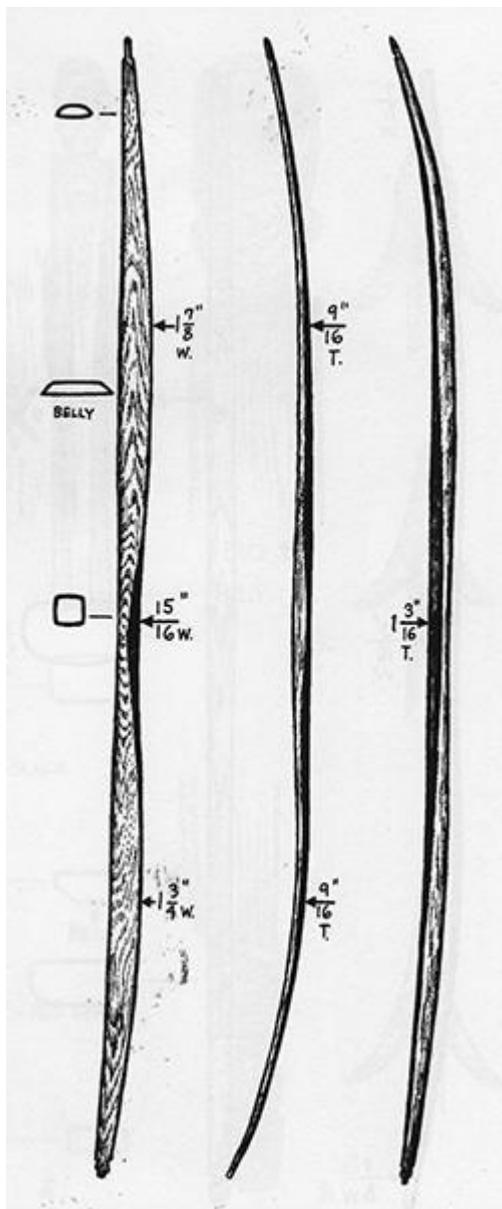


**Fig. 18.** Self bow collected from Nelson House Cree in northern Manitoba before 1941. Charles Clay Collection, Manitoba Museum, Winnipeg, H4.12.12. The top drawing shows the back of the bow; the drawing below shows the side view. Edges on the back and belly have been beveled.

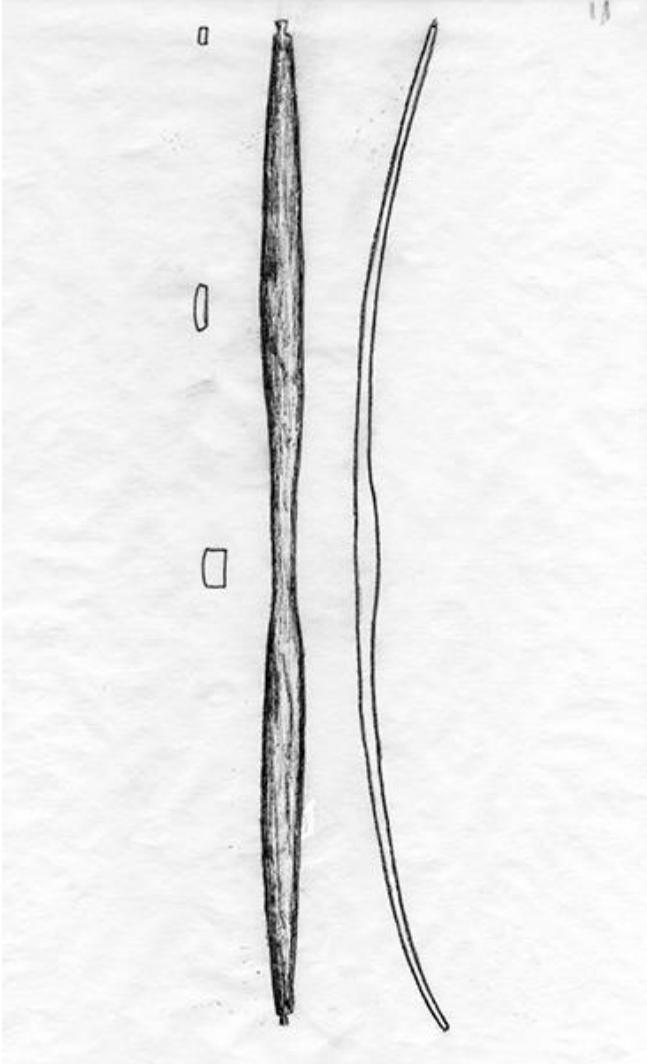
Growth rings on the back have been cut through and appear as chevrons and ovals. The maximum length of this bow measured along the back is 123.2 centimeters, the maximum width at the handle is 30 millimeters, and the maximum thickness at the handle is 20 millimeters. Drawing by Roland Bohr.



[Fig. 19.](#) Omushkego Cree self bow as described by Louis Bird. Such bows were typically from 140 to 160 centimeters long. Top: The bow is unstrung, with the belly of bow facing up. Bottom: The bow is strung and ready for use. Center: The back or outside of the bow shows one continuous uncut growth ring. Drawing by Roland Bohr.



**Fig. 20.** The Sudbury bow. This hickory self bow is just over 170 centimeters long and, except for the wood, shows remarkable similarity to bow designs of the Swampy Cree, as outlined by Louis Bird. The left image shows the belly of the bow with chevron patterns from tillering. Drawing by Steve Allely, reproduced here with the artist's permission.



**Fig. 21.** Ingalik self bow from western Alaska. The bow is 167.5 centimeters long and 3.51 centimeters wide at the widest point of the limb. The right drawing shows the bow seen from the

side; the left drawing shows the back of the bow, with cross sections. Note the similarity to the bow design described by Louis Bird (Fig. 19), as well as the Sudbury bow (Fig. 20). Museum of Ethnology in Berlin, Germany (Staatliche Museen zu Berlin, Ethnologisches Museum IV-A-5602). Drawing by Roland Bohr.

All the Central Subarctic bows examined for this study were collected in the twentieth century. These self bows are usually made from birch or coniferous wood and are widest at the handle area with a very gradual taper toward the tips. Their cross sections are almost rectangular, with the greatest thickness occurring in the handle area, gradually tapering in thickness toward the tips. Even though their dimensions make them appear quite stout, they were made from rather lightweight woods with little mass.

Although all the Subarctic bows examined for this study were self bows, the anthropologist Alanson Skinner mentioned in his 1911 report that the Swampy Cree had used short, sinew-backed bows in the distant past.<sup>72</sup> Cree elder Louis Bird also mentioned a kind of bow backing used by his people that he called “sturgeon spine” or “sturgeon sinew.” He did not seem to be familiar with the concept of sinew backing, either by gluing shredded sinew to the back of the bow with hide glue, as was practiced in the Plains and Plateau, or by applying a cable of braided or

twisted sinew fibers to the back of the bow, as was done by several Inuit groups and some Aboriginal people in the U.S. Southwest.<sup>73</sup> However, when shown a drawing of a southern Alaskan Inuit bow, he said that this was how such bows looked, in terms of the way the backing was applied and the front-view profile of the bow. The illustration showed a more or less straight, but wide and flat, wooden bow with a simple single sinew cable backing (see Fig. 24).<sup>74</sup>

According to Mr. Bird, O mushkego-Cree people used to make relatively long, flat self bows, preferably from tamarack. An intact, uncut growth ring usually formed the back of the bow. In front-view profile, these bows were narrow in the handle, gradually widening until they reached their greatest width at the middle of the bow limb, where the greatest tension and compression stress occurred. From there they tapered toward the tips.

If a backing was to be applied, a shallow groove with a semicircular cross section was cut into the center of the back, parallel to the longitudinal axis of the bow and running from one tip to the other. The backing was then placed into this groove, wrapped around the tips, and secured to the bow by means of wrapping with rawhide. The fact that the groove was semicircular in cross section suggests that it must have been made in order to accept material with a rounded cross section, such as a cordage cable.<sup>75</sup>

However, Mr. Bird expressed unfamiliarity with cable-backed bows of any type and said that he had not observed bows with a “sturgeon spine” backing in action; he knew about them mainly through his father, who had apparently owned such a bow in his youth. But he added that even the bows with a sturgeon spine backing could not be used in extremely cold weather because they would lose their elasticity and break when drawn. Therefore, during caribou drives in the winter, hunters would warm their bows over a low fire behind a hunting blind constructed from rocks and snow, while waiting for the caribou to be driven into an enclosure or pound by other hunters.<sup>76</sup>

Anthropologist Edward S. Rogers, writing on the material culture of the Mistassini Cree, also mentioned the use of wide-limbed flat bows that were about 97 to 127 centimeters (38 $\frac{1}{8}$  to 50 inches) long. The drawings he presented of such bows were similar to the drawings based on Mr. Bird’s descriptions (Fig. 19), but Rogers stated that these bows, made of tamarack, birch, or black spruce, were self bows and did not have any backing.<sup>77</sup>

This bow design with wide, long, and flat limbs is similar to that of one of the oldest North American bows from the postcontact period, collected in 1660 in Sudbury, Massachusetts. It was made from hickory and is 170.21 centimeters (67 $\frac{1}{8}$  inches) long.<sup>78</sup>

Ingalik self bows from western Alaska, collected in 1882–83 by the Norwegian ship captain Johan Adrian Jacobsen for the Museum of Ethnology in Berlin, Germany, exhibit a similar layout.<sup>79</sup> These wide-limbed flat bow designs were much better suited to distribute tension and compression strain more evenly, especially if wood species with low compression and tension tolerance had to be used.<sup>80</sup> However, it is not clear whether this design was in general use from the Eastern Seaboard to the boreal forest, and as far west as the west coast of Alaska, before the widespread adoption of firearms.

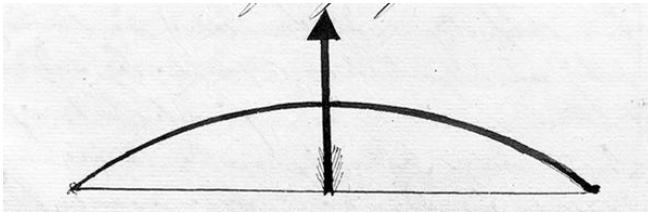


Fig. 22. Indian bow by James Isham, 1743. Pen and ink drawing. Isham's caption read: "An Indian Bow of Berch [*sic*]. The Arrow with a Sharpe Iron at the End." Image courtesy of the Hudson's Bay Company Archives, Archives of Manitoba, Winnipeg (HBCA E.2/1 fo. 73d).



Fig. 23. Samuel Hearne's drawing of a Déné self bow, titled "Indian Implements." Plate 5 in Hearne's *Journey... to the Northern Ocean* (Dublin edition of 1796 reprinted in 1968). HBCA 1987/363-s-79/21.



Fig. 24. Western Arctic type of sinew cable-backed Inuit bow. The bow limbs are widest where the greatest bending stress occurs.

When ethnographers and anthropologists began their work with Central Subarctic Aboriginal peoples during the early twentieth century, bows and arrows had already fallen out of use as weapons for big game hunting and combat and were mainly used to hunt small fur-bearing animals and birds.<sup>81</sup> Therefore bird blunts became the most common type of arrow collected from Central Subarctic people during this period. Central Subarctic Aboriginal people also sometimes made archery artefacts for anthropologists, in order to demonstrate what the local archery had been like in the past. When the anthropologist John M. Cooper briefly visited Ojibwa communities at Lake of the Woods and Rainy Lake in northwestern Ontario in September 1928, two of his Aboriginal coworkers made archery outfits for him and pointed out that

weapons like the ones they had made had been in use among their people until recently.<sup>82</sup>

No bows from early Central Subarctic communities appear to have survived. However, the Hudson's Bay Company fur trader James Isham included a drawing of a Swampy Cree bow and arrow in his mid-eighteenth century observations on Hudson's Bay.

Samuel Hearne, too, included an illustration of what was probably a Déné self bow from northern Manitoba in his mid- to late eighteenth-century travel reports.

The image shows a low-strung, relatively long bow with a single curve, similar to surviving bows that were later collected in the region. The diamond-shaped nocks on the ends of the bow in Hearne's illustration are particularly reminiscent of those found on other Subarctic self bows. Unfortunately, neither James Isham nor Samuel Hearne included drawings showing these bows from the back. Thus, it is not possible to compare them to Louis Bird's descriptions of older Swampy Cree bows.

I have so far not been able to trace any surviving Central Subarctic bows that were collected during the 1700s and early 1800s, when Indigenous distance weapons were giving way to European firearms. The few surviving bows collected from Aboriginal peoples during the seventeenth century in what is now the eastern third of the United

States are similar in shape to the bows described by Mr. Bird, but they were made from hardwoods such as hickory.

Descriptions of Arctic Inuit bows, however, offer some contrast to those just discussed. Northern Cree and Déné peoples on occasion entered into combat against Inuit people and encountered these rather different weapons. Furthermore, European travelers and sojourners in the Hudson Bay region sometimes encountered Inuit and Cree or Déné and left descriptions of their hunting equipment. Because arctic bows were often made from woods with low tensile strength, the Inuit skillfully added a sinew backing that consisted of a very long strand of braided sinew, wrapped back and forth from one bow tip to the other and secured to the back of the bow through various knots and half-hitches.<sup>83</sup>

The formidable power and ingenious craftsmanship of Inuit bows inspired European observers, such as the chroniclers of the Frobisher expeditions, to leave relatively precise descriptions of these weapons and their capabilities. In contrast, they commented far less frequently and favorably on the archery of the Hudson Bay Lowland Cree and the Chipewyan. As mentioned earlier, little information regarding Cree archery gear from the seventeenth to the early nineteenth century has been recorded. Most information on Subarctic archery comes from the early to mid-twentieth century, when it was no

longer commonly used for big game hunting, and from the memories of elders such as Louis Bird. These accounts indicate that self bows were in general use among Central Subarctic Aboriginal peoples. Although we have hints about the manufacture and use of sinew-backed bows among the Lowland Cree, it seems likely that they did not adopt the use of sinew-backed bows on a large scale.

The “Penobscot War Bow”: A Traditional Bow or an Invented Tradition?

The interpretive challenges that bows and their images present come to the fore in the case of the making of the 1930 motion picture *The Silent Enemy*. Madeline Katt Theriault, an Ojibwa woman from Bear Island, Lake Temagami, Ontario, participated in the film as one of the many Aboriginal people hired as extras, and she left an autobiographical account of her role in it.<sup>84</sup> Besides acting, Theriault also made many of the costumes used in the film. After the filming, Theriault participated in an ethnographic pageant, portraying traditional Northern Ojibwa culture, put on for visiting tourists and held at Bear Island. Mr. A. Goddard, then the owner of the Temagami Hotel, filmed this pageant in 1938. Theriault stated that several local Aboriginal men and boys made archery gear for the pageant and demonstrated its use to the tourists.<sup>85</sup>

Although performed by actors largely unfamiliar with life in the bush, the snaring methods shown

in the movie *The Silent Enemy* closely corresponded to snaring methods used by actual Subarctic hunters and recorded by the anthropologist John M. Cooper in the 1930s.<sup>86</sup> However, the bows used in the movie reveal some interesting diversity. Most of the male supporting actors carried bows corresponding to the twentieth-century Subarctic self bows discussed previously. In contrast, the actors playing the two main characters carried bows of a rather rare design, supposedly coming from the Penobscot of present-day Maine.<sup>87</sup> This design consists of a shorter and a longer wooden bow lashed together at their handles, so that the belly of the shorter bow rests on the back of the longer bow. The tips of the smaller bow are connected to the tips of the longer bow by strings. When the large bow is drawn, the smaller one on its back absorbs most of the tension strain of the larger bow. Some modern bow makers believe that this bow design considerably relieves tension stresses.<sup>88</sup>

The two “Penobscot” bows were actually used in the film, but only one Subarctic self bow was shown in action. Although the actress Molly Spotted Elk (Nelson), who played the female lead in the movie, was actually Penobscot, the “Penobscot” bows in the film may have been misplaced artefacts. If so, they were among many others: the movie was filled with paraphernalia belonging to other cultures, such as Plains war bonnets, porcupine quill-embroidered shirts from

the Northern Plains, and women's dresses from the Southern Plains.<sup>89</sup>

The American Museum of Natural History and the University of Pennsylvania Museum for Archaeology and Anthropology hold most of the few original bows of this type in existence today. Their records indicate that at least three of these bows were collected from a Penobscot elder by the name of Gabriel Paul in Maine during the 1920s and 1930s. Paul may have manufactured most if not all of these bows. The rarity of this bow design outside Maine, and the fact that most of these bows were probably made by the same person, suggest that this design does not reflect a widely adopted approach to bow making used by Aboriginal people throughout the eastern half of North America, but rather represents an individual's favorite bow design.<sup>90</sup> Nonetheless, various publications on Aboriginal peoples of northeastern North America treat it as a genuine artefact of Penobscot culture that was in widespread use at some point in the past.<sup>91</sup> Contemporary manufacturers of traditional archery gear even advertise their Penobscot bows as having “evolved over 1,000 years as a Moose bow, and a weapon to ward off invading ships entering the harbor.”<sup>92</sup>



**Fig. 25.** So-called Penobscot double bow. This bow, made by Gabriel Paul, was a gift of Dr. Samuel Fernberger to the University of Pennsylvania Museum in Philadelphia in 1933 (accession no. 33-3211 UPA). Drawing by Steve Allely, reproduced here with the artist's permission.

These examples demonstrate how a combination of a lack of information, misunderstanding, and ethnocentrism has contributed to the emergence of uncritical views about Aboriginal technology and weaponry. Non-Aboriginal scholars in the late nineteenth and early twentieth century frequently applied “knowledge” gained through studies such as Saxton Pope’s in comparisons of European metal and firearms technology. When evaluating Aboriginal military and hunting technology on such a basis, writers might praise the Penobscot bow but would dismiss other items as being inferior to European technology, rather than recognizing their sophistication and their adaptability to local conditions and needs, and their integration into local cultural contexts.

The next chapter will examine different types of arrows used with these bows. It will highlight Aboriginal adaptations of European-introduced

materials such as metal arrowheads, and the complementary use of them in tandem with Aboriginal technology.



4.

#### Arrows and Arrow Makers

Aboriginal Plains and Subarctic arrows show a wide range of types adapted to a variety of purposes. Uses of European-introduced materials such as metal for arrowheads exemplify the complex ways Aboriginal people combined European materials with their own technology to create articles uniquely suited to their needs. A look at the social aspects of arrow making and arrow use contributes to our understanding of these developments.

The bow and arrow form a combined weapon system. While the bow propels the arrow, it is the arrowhead that accomplishes the desired effect on the target. Aboriginal archers knew that in an emergency they could fashion a crude bow from almost any strong sapling, small tree, or branch, but making well-balanced, true flying, dependable arrows was another matter. The Hidatsa arrow maker Henry Wolf Chief told the ethnographer Gilbert Wilson in 1911, “A good arrow could not be made in a hurry.”<sup>1</sup>

Despite the seemingly simple appearance of an arrow, arrow making was a highly complex process that demanded great skill and knowledge. To assure consistent shooting, the elasticity of every arrow shaft had to match the draw weight and the draw length of the bow, and the finished

arrows had to be as uniform in size and weight as possible.<sup>2</sup> Therefore, when shaping the arrow shaft, the maker had to keep in mind the weight of the arrowhead, the fletching, the sinew wrapping, and the glue before the different parts of the arrow were assembled, in order to achieve the correct weight for the finished arrow. Because the weight of each component influences the flight characteristics of the completed projectile, all components had to be in correct proportion to one another. If, for instance, the arrowhead was either too light or too heavy, the arrow would not fly straight. All this precision work had to be accomplished without modern weighing technology. Just as clothing is often tailored to fit, a bow and its arrows had to be made compatible to the body dimensions, strength, and shooting technique of the archer.<sup>3</sup> This was especially difficult to achieve if the maker and user of the archery gear were not the same person, as was often the case.

A close examination of changes in the manufacturing features and quality of these weapons sheds light on the changing importance of traditional weaponry in Aboriginal societies, reflecting changes in their subsistence strategies and combat methods. Surviving Aboriginal arrows in museum collections still reveal much of the ingenuity of their makers. I examined over five hundred arrows for this study. This included taking measurements of their dimensions,

sketching and/or photographing construction details, and checking for uniformity in arrow sets.

### Arrows of the Northern Plains

In 1833–34 Prince Maximilian observed:

The arrows of the Mandans and Manitaris [Hidatsas] are neatly made; the best wood is said to be that of the service berry (*Amelanchier sanguinea*). The arrows of all the Missouri nations are much alike, with long, triangular, very sharp, iron heads, which they themselves make out of old iron. . . .

They know nothing of poisoning their arrows. The arrow-heads were formerly made of sharp stones: when Charbonneau first came to the Missouri, some made of flint were in use, and in the villages they are still met with, and in all those parts of the United States where the expelled or extirpated aborigines formerly dwelt. We were told that, in the prairie, near the Manitari villages, there is a sand hill, where the wind has uncovered a great number of such stone arrow-heads. . . .

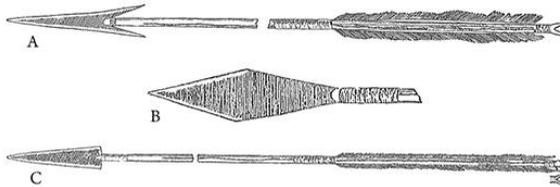
Though all arrows appear, at first sight, to be perfectly alike, there is a great difference in the manner in which they are made. Of all the tribes of the Missouri, the Mandans are said to make the neatest and most solid arrows. The iron heads are thick and solid, the feathers glued on, and the part just below the head, and the lower end, are wound round with very

even, extremely thin sinews of animals. They all have in their whole length, a spiral line, which is to represent the lightning. The Manitaries make the iron heads thinner, and not so well. They do not glue on the feathers, but only tie them at both ends, like the Brazilians. The Assiniboines frequently have very thin and indifferent heads to their arrows, made of iron-plate.<sup>4</sup>

Arrows display a wide range of construction details. Because the short nineteenth-century Plains bows did not permit long draw lengths, their arrows had shaft lengths between 56 and 61 centimeters (22 to 24 inches), much shorter than arrows collected from Central Subarctic communities.<sup>5</sup>

There were two ways to make wooden arrow shafts. The first method used the trunks of large trees. The trunks were split down the middle and each half was then further split into flat planks or boards, beginning at the center of the tree, which already had a flat surface from the first split. Each plank was then split into long, squared dowels, which were planed to a round diameter. Mandan and Hidatsa people used this method, especially for war arrows made from ash, because split ash was said to yield tough and durable shafts that seldom broke.<sup>6</sup> This method of making arrow shafts was not very common in the Plains, but was more so in areas with predominantly coniferous woods, such as the Central Subarctic and West

Coast, where arrow shafts were mainly made from black spruce, cedar, or pine. However, in his 1923 study on North American Indigenous bows and arrows, Saxton Pope stated, “Aboriginal shafts are universally small straight limbs of shrubs, or reeds. . . . Seldom if ever is any attempt made to employ split timber in their manufacture. The better developed methods of arrow making, however, make use of split timber, which is later planed and turned into cylindrical shafts.”<sup>7</sup>



**Fig. 26.** Northern Plains arrows with metal arrowheads, from the second half of the nineteenth century. *A*: Barbed arrowheads were often used for combat. The sparse sinew wrapping of the arrowhead facilitated its detachment from the shaft so it would stay in the wound. (Sioux; collected by M. M. Hazen, Cat. No. 154016, USNM.) *B*: The diamond shape of this arrowhead makes removal from a wound easier, for example, after killing and before skinning an animal. (Collected by Mrs. A. C. Jackson, Cat. No. 131356, USNM.) *C*: An “all-purpose” arrowhead, suited for hunting and combat. These arrows have

flaring, or “raised,” arrow nocks, which aided the archer when using a pinch-grip arrow release. (Hidatsa; collected by Dr. Washington Matthews, U.S. Army, Cat. No. 8418, USNM.)

The second method, which was most common in the Plains, was to use natural shoots, saplings, or branches for arrow shafts. According to Henry Wolf Chief, Hidatsa people used three species of wood to make arrow shafts. These were Juneberry (*Amelanchier alnifolia*, also called serviceberry or Saskatoon berry), “snakewood,” and ash.<sup>8</sup> Other species commonly used in the Northern Plains were red osier dogwood (*Cornus stolonifera*), common wild rose (*Rosa woodsii*), and chokecherry (*Prunus virginiana*).<sup>9</sup> While Plains people used every wood known to yield serviceable arrow shafts, the selection of a species largely depended upon its regional availability.

The shaft diameters of the arrows I examined ranged from 7.5 to 11 millimeters (0.29 to 0.43 inch) at the center of the shaft. Many arrow shafts were slightly barreled, meaning that they were thickest near the center and tapered toward their ends. Such a “cigar-shaped” design accomplished at least two objectives. First, it helped to reduce the weight of the shaft and thus made the arrow fly faster. More importantly, it kept the arrow shaft stiffer as it bent around the grip area of the bow when the arrow was released in shooting. A shaft that is stiffer at its center

bends less and stabilizes earlier in flight than a more elastic one of equal length, because it undergoes less of a wavy sideways motion when leaving the bow.<sup>10</sup>

In order to illustrate this, one needs to understand the phenomenon known as “archer’s paradox,” an important part of archery physics. Robert P. Elmer, an archery writer and researcher, introduced the term “archer’s paradox” in the 1930s. High-speed photography by Clarence Hickman made the phenomenon visible in its individual stages.<sup>11</sup>

Right-handed Aboriginal archers usually placed their arrows to the left of the bow handle. Therefore the arrow had to wind around the handle in a somewhat wavy motion in discharge and would only straighten out at some distance from the bow. This caused an arrow with a too-elastic shaft to pass to the right of the target and an arrow that was too stiff to pass the target on the left. Therefore the arrow shaft’s elasticity had to be such that the arrow leveled out into straight flight as soon as possible. This meant that the elasticity of each arrow shaft had to be matched to the bow from which the arrow was to be shot. With the shorter Plains Indian arrow shafts this was less of a problem compared to longer arrows used in the Subarctic.

With few exceptions, arrows generally need to have fletchings attached at the end of the shaft to provide directional stability during the arrow’s

flight. Native arrow makers most commonly used various kinds of bird feathers for fletchings. The most common fletching method was to split or strip feathers along the quill and then attach three of these split feathers equidistant to each other at the rear portion of the arrow shaft, using sinew to wrap the quills to the shaft. Some arrow makers glued the quills to the shaft using hide glue, while others only wrapped the front and rear parts of the quill to the arrow shaft. Once the feathers were attached, Native fletchers usually trimmed them down somewhat by cutting or burning off excess length of the vanes.

The long and low-cut fletching of Plains Indian arrows may have been another feature designed to stabilize the arrow's flight as quickly as possible and enhance accuracy. When shooting at close range, stabilizing the arrow early in flight may have been more important than a slight gain in shooting distance. In mounted bison hunting or close combat, for instance, the shooting distance was often only a few meters. Therefore, in order to be aimed accurately, Plains Indian arrows had to level out almost immediately after leaving the bow. This would have been very difficult if Aboriginal archers had used the long shafts and short fletchings common in European archery.

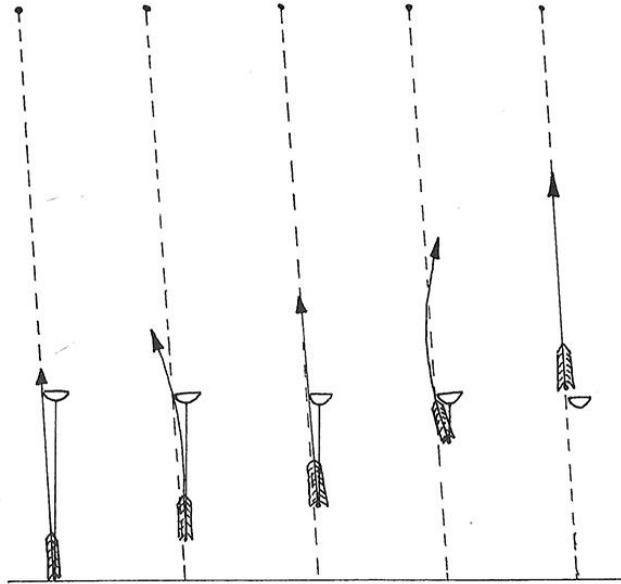


Fig. 27. "Archer's paradox," or stages of the motion an arrow undergoes in discharge as it passes the handle of the bow. Drawing by Roland Bohr.

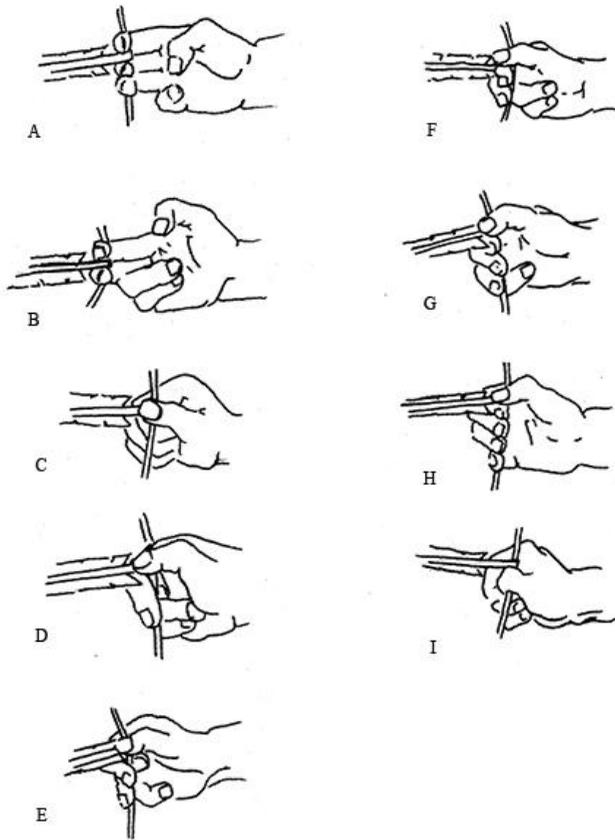


Fig. 28. Arrow releases used by Aboriginal people. *A* and *B*: Variations of the Mediterranean release, common among Algonquian-speaking peoples in the Subarctic. *C*: Simple pinch-grip release. *D*, *E*, *F*, *G*, and *H*: Variations of an assisted pinch-grip release. *H* is sometimes referred to as the Sioux release. *I*: Mongolian release, common on the Northwest Coast, in California, and among Subarctic Athapaskan

peoples. The Mongolian release is also known as the thumb draw. Drawings by Margaret Anne Lindsay.

Most Plains arrows had a so-called raised nock, or flared nock, meaning that the end of the arrow shaft with the notch for the bowstring was left thicker than the shaft itself for better handling with a pinch-grip arrow release, which was common in the Plains.<sup>12</sup> With this type of arrow release, which is ideal for shorter draw lengths, the archer holds the nock of the arrow between the thumb and the side of the index finger. From one to three of the remaining fingers are placed on the bowstring to support the thumb and index finger in pulling back the bowstring.

Misinterpreting information gathered by Saxton Pope and T. M. Hamilton, H. Henrietta Stockel argued in her book *The Lightning Stick: Arrows, Wounds, and Indian Legends* that arrow releases could be ranked according to the amount of impact force they supposedly made the arrow impart on the target.<sup>13</sup> Stockel stated:

Further, the way an arrow is released from the bow also influences the type of damage it causes. Spencer L. Rogers described five forms of arrow release used by Native Americans and ranked them according to the power they generated, with the “primary” form being the weakest. . . . The primary, secondary and tertiary releases constitute a primitive type of

shooting, and the Mediterranean and Mongolian types are more refined forms. Thus, according to Roger's reasoning, tribes were more or less adept at slaying or wounding according to how they held and released their arrows.<sup>14</sup>

However, it is the energy that a bow is able to store, that is, the draw weight at a specific draw length of the bow, and not the type of arrow release, that "generates power." The ranking of arrow releases developed by E. S. Morse and others was based on a social Darwinist approach to ranking different cultures and their achievements, portraying those cultures as more advanced that had developed bows with very high draw weights, primarily for military purposes, which made specific kinds of arrow release necessary to handle them efficiently.<sup>15</sup> For example, the use of the Mediterranean or Mongolian release was considered necessary to draw bows of extremely high draw weights, such as some types

of Asiatic composite bows or specimens of the "English" longbow of 100 pounds' (ca. 45.4 kilograms) draw weight or more. It would be next to impossible to bring such bows to a full draw of 28 to 31 inches (ca. 71 to 79 centimeters) or more using a primary pinch-grip release. However, Native American bows usually did not have such high draw weights. Based on contemporary reproductions and their comparison to surviving original Plains bows, these weapons seem to

commonly have been in the range of 50 to 65 pounds (ca. 22.7 to 30 kilograms), at draw lengths from 22 to 26 inches (ca. 56 to 66 centimeters). It is possible to use an assisted pinch grip, such as the secondary or tertiary release, to bring such bows to full draw and shoot them effectively. This is evidenced by the prevalence of raised nocks on Plains arrows, which were shaped to assist in a pinch-grip release.

Of course, the Mediterranean release could be used with these bows just as effectively. However, the type of release would not change the impact force delivered by the arrow to the target. If a bow is always drawn to its maximum draw length, it will deliver the same amount of energy to the arrow with each shot, regardless of the type of arrow release that is used. Therefore, given a bow of moderate draw weight, it is not the type of release that dictates how much energy the bow will store and transfer to the arrow, but the bow's draw weight at a specific draw length. In this case, the release type does not influence the amount of energy that the arrow will deliver to the target. Except for the primary version of the pinch-grip release, any of the arrow releases shown in Figure 28 would be sufficient to handle bows of up to 65 pounds of draw weight. Varying degrees of damage, using the same bow and arrow, could only be achieved by using different draw lengths with each shot. If the arrow is not drawn to the bow's full draw length, it will gather less energy and have less impact force. Thus, Stockel's

statement about different types of arrow release causing varying degrees of damage is incorrect in a Native American context. In fact, describing the shooting experiments that he and Will Compton conducted, Saxton Pope stated: “The methods of shooting were of two types. Mr. Compton shot with a Sioux release: all fingers and thumb on the string, the nock of the arrow steadied between the thumb and forefinger, the arrow discharged from the left of the bow [see Fig. 28H]. This would be classified by Morse as a tertiary type. I shot with the English release or Mediterranean type. *There was no apparent difference in the cast of the bows dependent upon these conditions* [my emphasis].”<sup>16</sup>

#### Transitions to Metal Arrowheads

Lithic projectile points formed an important component in Aboriginal weapons systems beginning in the earliest documented periods of human habitation in North America. The changing shapes and manufacturing techniques of projectile points constitute important diagnostic features in archaeology.<sup>17</sup> Researchers have interpreted the shift from lithic to metal projectile points as a momentous change in Aboriginal material culture because projectile points from metals introduced by Europeans, such as iron and steel, were said to have quickly replaced traditional projectile points manufactured from lithic or organic materials. This supposedly influenced the military balance of

power in favor of those Native communities who had access to iron and steel projectile points.<sup>18</sup>

Archaeologist Philip Duke saw projectile points as reflective of differences in male status. He argued that a craving for “newness” may have been an important rationale for the shift from one lithic point shape to another and especially for the shift from stone to metal arrowheads in the Plains, besides functional advantages of one material or shape over others.<sup>19</sup> However, the actual spread of metal arrowheads and their influence on Indigenous archery systems is not very well understood, and the broad generalizations about this topic often found in scholarly publications and in popular perceptions need to be examined. While this technological change has been documented, the details of this transition process remain obscure.

Early on in this process, Native people may have manufactured iron arrowheads from used or discarded ironware. For example, Hudson’s Bay Company fur trader and explorer Peter Fidler observed about Pikani arrows in 1792: “Their arrows in general are shod with pieces of Iron work old kettles & old pieces of Iron battered out thin between 2 stones.”<sup>20</sup> In 1811 fur trader Alexander Henry the Younger observed about arrows used by Native peoples of the Plateau: “The arrows these people use are much longer than those of our Indians on the eastward of the Mountains. Theirs are near three feet long

[possibly indicating arrows with foreshafts; see Fig. 36], very neatly made, being slim pointed and feathered. They are shod [tipped] with Flint, but of late years, they procure Iron for that purpose, which saves them an immense deal of trouble in working down the Flint to the proper shape and size.”<sup>21</sup>

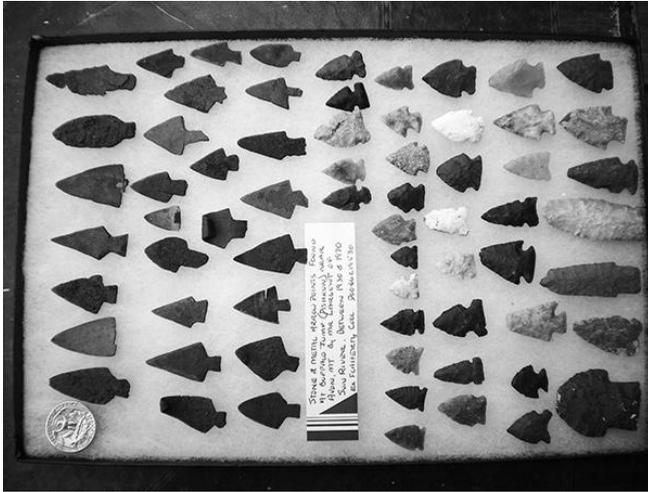
During his visit to the Mandan villages in 1806, Alexander Henry noted about Native manufacture of arrowheads: “I saw the remains of an excellent large Corn mill [provided by the Lewis and Clark expedition], which the foolish fellows [Mandan people in Black Cat’s village] had demolished on purpose to barb their arrows, and other similar uses. The largest piece of it which they could not break nor work up into any weapon they have now fixed to a wooden handle and make use of it to pound marrow bones to make grease.”<sup>22</sup>

Buffalo Bird Woman, the sister of the Hidatsa arrow maker Henry Wolf Chief, described to the ethnographer Gilbert Wilson how her father, Small Ankle, used to manufacture arrowheads from scrap or sheet metal:

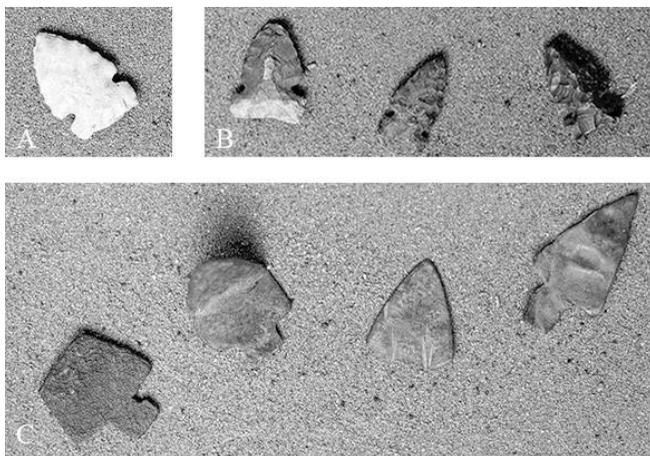
In my father’s earth lodge was a stone sunk level with the floor, which Small Ankle used for an anvil. It stood near the fireplace between it and the rearmost of the posts from which swung the drying pole over the fire. I think every lodge in the village had such an anvil.

Upon his stone anvil my father pounded bits of metal he wished to straighten. Especially he used it for making iron arrow heads. He heated the iron in the fire red hot, laid it on the stone and cut out the arrow heads with chisel and hammer. Small Ankle got his iron and chisel of the traders, as also a little pair of tongs, which he used to pick up the hot iron. His hammer was made of elk horn.<sup>23</sup>

However, it is often not possible to clearly distinguish whether Native people or Europeans manufactured archaeologically recovered metal arrowheads.<sup>24</sup> Metal arrowheads recovered from archaeological sites in the Northern Plains sometimes resemble lithic projectile points in shape, evoking their ancestry. Metal arrowheads recovered from archaeological sites in Saskatchewan, Alberta, and parts of the Upper Missouri region, indicate that projectile point size seems to have increased over time, from about 1740 to 1860.<sup>25</sup> For example, compare the smaller arrowhead sizes in Figure 29, recovered from the Avon bison jump in Montana, to larger arrowheads from after 1850, shown in Figure 26.



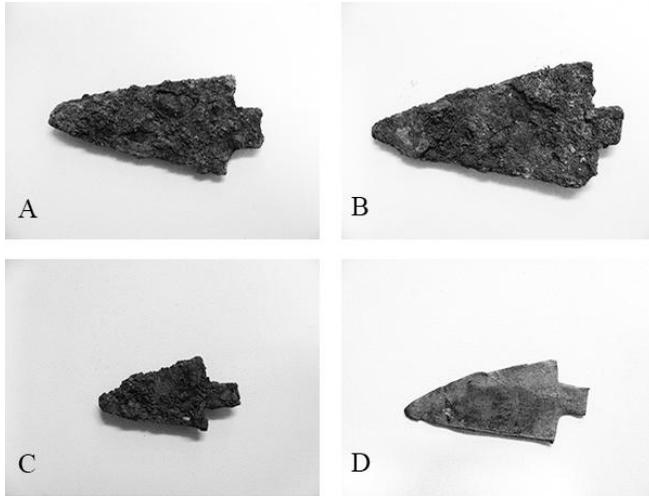
**Fig. 29.** Projectile points recovered from a bison jump near Avon, Montana, between 1930 and 1970. Lithic projectile points are at the right, metal points are at the left. Note the similarities in shape and size between some of the metal and stone arrowheads. None of the metal points in this display resemble the so-called trade points found on many mid- to late nineteenth-century Plains arrows. Preston Miller, Four Winds Trading Post Collection, St. Ignatius, Montana. Photograph by Roland Bohr.



**Fig. 30.** Stone (*A*, *B*) and metal (*C*) arrowheads recovered from the Morkin site, near Claresholm, Alberta. They date back to ca. 250 years ago. Note the similarity in shape between the stone points in *A* and *B* and the metal points in *C*. Images courtesy of the Royal Alberta Museum, Edmonton.



**Fig. 31.** Small, heavily corroded iron projectile point from a possible early nineteenth-century Cree burial at Elk Point, Alberta. This projectile point is almost identical to the triangular stemmed points from Fort George. Image courtesy of the Royal Alberta Museum, Edmonton Point (F10r-1/24).



**Fig. 32.** Intermediate-size metal arrowheads recovered from the Pine Fort site, Manitoba. *A*: Pine Fort DkLt-1 9188. *B*: Pine Fort DkLt-1 7185. *C*: Pine Fort DkLt-1 8447. *D*: Pine Fort DkLt-1 8485. Total length: 30 mm. Pine Fort was a North West Company post in south-central Manitoba on the Assiniboine River, northwest of modern Brandon, Manitoba. With interruptions, it operated from 1768 to 1811. Images courtesy of the Manitoba Museum, Winnipeg. Photographs by Amber Zimmerman-Flett.

Plains peoples employed a wide variety of arrow points for different hunting or combat situations. Arrows with triangular points were used for big game hunting and combat. Most well known are those of lithic materials, such as flint or obsidian (a volcanic glass). However, Aboriginal people also made triangular arrowheads from broken

glass vessels, wood, rawhide, and sinew. Native copper was used to some extent to make arrowheads in eastern coastal North America and in the eastern Great Lakes area. Aboriginal people there made pressure-flaking tools from native copper for the manufacture of stone arrowheads.<sup>26</sup>

David Thompson's account of the eighteenth-century Cree/Pikani elder Saukamappee did not describe the arrows used by his people or by their "Snake Indian" (Shoshone) adversaries in great detail, except for the materials from which arrowheads were manufactured. He described the arrows of the Cree, Pikani, and Assiniboine as having mostly stone points. Furthermore, according to Thompson, in Saukamappee's first battle, when he was sixteen years old, roughly only a fifth of the Cree arrows had metal arrowheads. By the time he fought in his second major battle against the Snake (Shoshone and allies), when he was in his twenties, the number of metal arrowheads used by the Cree had increased. Thompson's rendering of Saukamappee's account did not describe the shape of the arrowheads. However, concerning the Snake

arrows, he related that "they were all headed with a sharp, smooth, black stone which broke when it struck anything."<sup>27</sup>



**Fig. 33.** Barbed metal arrowheads from Pine Fort, Manitoba. *A*: Pine Fort DkLt-1 7186. *B*: Pine Fort DkLt-1 8387. Images courtesy of the Manitoba Museum, Winnipeg. Photographs by Amber Zimmerman-Flett.

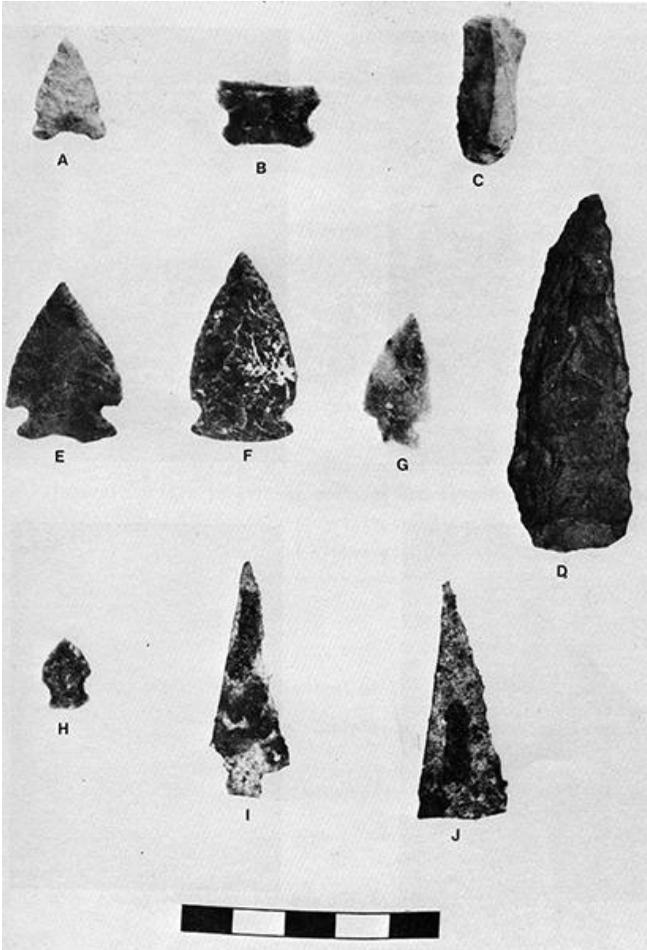
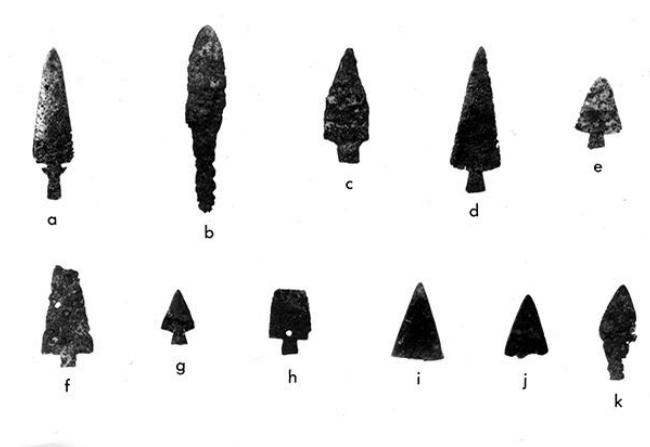


Fig. 34. Projectile points and other artefacts recovered from Writing-on-Stone, Alberta, including two metal projectile points (*I* and *J*). These metal points are closer in shape to late nineteenth-century “trade points” but are still of relatively small size. They do not resemble the late prehistoric proto- contact lithic projectile

points *A*, *G*, and *H*, which date approximately to AD 1500. Image courtesy of the Archaeological Survey of Alberta.

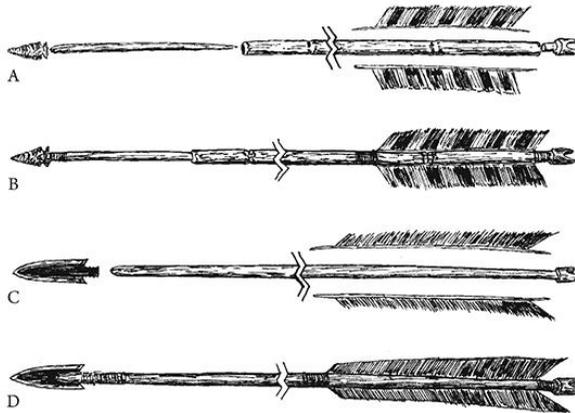


**Fig. 35.** Metal arrowheads excavated at Fort George, Alberta. The longest point (*B*) is 7.8 cm long. Note the similarity of the brass point *G* and the iron point *E* to lithic arrowheads from the protocontact period. Fort George was a North West Company post in what is now eastern Alberta, adjacent to the Hudson's Bay Company's Buckingham House. It was used from 1792 to 1800. Courtesy of the Royal Alberta Museum.

Richard Glover suggested in his edition of Thompson's narrative that the stone the Snake Indians made their arrowheads from was flint.<sup>28</sup> Nevertheless, the qualities and the black color of this stone that Saukamappee pointed out, likely

contrasting it to the variety of stone used by the Cree, Assiniboine, and Pikani, suggest that it was obsidian, a volcanic glass common in the Rocky Mountains of what is now Wyoming and Idaho. The Eastern Shoshone used such stone points into the late 1850s.<sup>29</sup>

George Bird Grinnell stated, regarding the Cheyenne, that the range and penetrative force of their arrows were greatly enhanced by the use of metal arrowheads, to a degree that could not have been achieved with arrowheads made from bone or from lithic materials.<sup>30</sup> When brass and iron became available through European traders, these new materials found favor, and in the Plains, flat, oblong-triangular metal arrowheads eventually replaced stone points. The cutting edges of well-made stone points, especially those made from obsidian, were much sharper than those of metal arrowheads, but they did not keep their edge as long, were more difficult to resharpen, and were so brittle that they often shattered upon impact on a hard target, as Saukamappee noted.<sup>31</sup> David Thompson related that Saukamappee had told him that metal arrowheads used by the Pikani and Cree stuck in their opponents' rawhide shields but could not pierce them.<sup>32</sup> Stone arrowheads remained in use, at least among some Plains groups, well into the nineteenth century. Henry Wolf Chief, born in 1849, told Gilbert L. Wilson in 1911 that the Hidatsa still used stone points when his father was young.<sup>33</sup>



**Fig. 36.** Arrow components (top to bottom): *A*: Disassembled components of a foreshafted arrow, consisting of a stone projectile point, wooden foreshaft, main shaft made from reed, separate hardwood piece for the nock, and fletching feathers. *B*: The same arrow shown in *A*, assembled. *C*: Parts of a “typical” mid-nineteenth-century Plains arrow: metal projectile point, one-piece solid hardwood shaft, and fletching feathers. *D*: The same arrow shown in *C*, assembled. Drawings by Roland Bohr.

Based on a comparison of lithic projectile points with surviving postcontact arrows from the Blood (Kainai), the archaeologist Heinz W. Pyszczyk suggested that arrows with large metal points, attached directly to a solid wooden shaft, came to replace arrows with stone points attached to a wooden foreshaft fitted into a main shaft of reed,

such as were found at the Mummy Cave site in Wyoming, dating to ca. AD 730.<sup>34</sup>

If stone points fracture upon impact, they may splinter the shaft in the process. The use of a foreshaft made it possible to reuse the main shaft, even if point and foreshaft were destroyed or damaged. Metal points, in contrast, were more durable and were less likely to splinter the main shaft. Their greater weight may have made it necessary to dispense with the foreshaft to save weight in order to retain the arrow's flight characteristics.<sup>35</sup> Aboriginal people may have switched from foreshafted arrows to solid shafted arrows to maintain the same arrow weight and performance characteristics because metal points may on average have been heavier than stone points. Weight had to be saved to maintain their flight characteristics. That could be accomplished by omitting the wooden foreshaft.<sup>36</sup>

This factor may also explain the initially smaller size of early metal arrowheads and their similarity in shape to lithic projectile points, if indeed these metal projectile points were attached to foreshafts, similar to the method of assembly of the arrows found at the Mummy Cave site in Wyoming.

When European fur traders recognized the demand for metal arrowheads, they began to sell them at their trading posts. However, documentary evidence for the gradual displacement of lithic arrowheads by iron and

steel points is contradictory. As early as 1670 the Hudson's Bay Company's trade goods included arrowheads.<sup>37</sup> The York Factory account books list 345 arrowheads shipped from England for the year 1688 and 343 for the year 1689. In 1690 the number in stock fell to 156. As of 1693, there were 126 arrowheads remaining at the post, indicating that over the course of five years, only 219 arrowheads had been traded.<sup>38</sup> Even when the company lowered the price per arrowhead by 50 percent, local Native people did not buy the remainder.<sup>39</sup>

At Albany in 1695, 298 arrowheads were in stock, to be traded at 12 per beaver skin.<sup>40</sup> Only 118 arrowheads had been traded by the closing of the accounts for 1695. At the same time, the trade volume in firearms, ammunition, and gun accoutrements at that post included 11,653 pounds of shot, 4,956 pounds of powder, 5,555 flints, 396 guns of 4.5 and 3.5 foot length, 272 gun worms, and 201 powder horns.<sup>41</sup> After 1693, no arrowheads appeared in the York Factory account books until 1759–60, although sales figures for firearms and ammunition remained consistent. Arrowheads received at the bayside posts in the second half of the 1700s could not be sold locally either. This may indicate that either these arrowheads were not of the quality or design that the Lowland Cree preferred, or that archery, beginning in the late 1600s, had been gradually

losing its predominant role in big game hunting and combat.

In 1759–60 York Factory received 390 metal arrowheads from Richmond Post on the east coast of James Bay because they could not be sold there.<sup>42</sup> The next listing of arrowheads was for 1786, when York Factory received 1,200 arrowheads from England. In 1792 this number had increased to 3,456. For 1793, the inventory included 3,168, and for 1794, 2,592 arrowheads.<sup>43</sup> By 1796 some 2,160 arrowheads were left. The accounts for that year include a note stating that these English arrowheads could not be traded, as Native people would not buy them. This same number of arrowheads remained unchanged in the inventory until 1799, but by 1801 the number had decreased to 1,728.<sup>44</sup> In contrast, the trade list inventory of the HBC's Buckingham House indicates that from 288 to 720 "arrow barbs" were sent inland each year from 1791 to 1795.<sup>45</sup> A letter from HBC post manager William Tomison at Hudson House to William Walker, from September 22, 1788, indicates among the unsold trade goods that Tomison sent to Cumberland House were "200 arrow barbs."<sup>46</sup> On January 27, 1791, "the Sussew and Southward Indians arrived, seven of these I was obliged to rig." Tomison gave them presents, although he was low on goods. He gave "[each of?] them an arrow barb to cut their Tobacco with."<sup>47</sup>

It may be that arrowheads manufactured in Europe proved more difficult to sell than those made by local blacksmiths at the trading posts frequented by Native customers. For example, in 1706 at Albany, 146 arrowheads were “made and fitted here in the Factory by the governor his order the following particulars [*sic*].”<sup>48</sup> In 1814 Alexander Henry the Younger observed about the Chinook leader Comcomly on the West Coast: “[He] came in with a long piece of bar iron to get made up into arrows points &c by our blacksmith, but as we find him rather troublesome and a great beggar. We conceive it necessary to give him to understand that we are not bound to have so much work done for him as heretofore has been the case here. Trifling jobs we are always ready to have done for him, but not to work up whole bars of iron.”<sup>49</sup>

While blacksmiths at different trading posts may have manufactured arrowheads for Aboriginal customers, these were probably not very uniform, because each post’s blacksmith likely had his particular style. Furthermore, although there is at present no evidence for this, it is possible that Aboriginal customers provided manufacturing directions for the shape and size of the arrowhead patterns they wanted, thus individualizing the product even more.

Hudson’s Bay Company records indicate that as early as the late 1600s, arrowheads imported from Europe were difficult to sell in posts along the

shores of Hudson and James Bays, either because local Aboriginal archers preferred to make and use their own or had already switched from bows and arrows to firearms as their main distance weapon for big game hunting and combat. The consistent sales of firearms, ammunition, and firearms accessories, compared to the relatively low sales figures for imported arrowheads, seem to indicate a growing reliance on firearms by Native people in the Hudson Bay Lowlands and adjacent Subarctic regions. By the late 1700s, when the Hudson's Bay Company and its Montreal-based competitors established permanent posts in the Plains, the sales of metal arrowheads increased, likely because Plains peoples preferred the bow and arrow over muzzle-loading firearms for bison hunting from horseback, thus creating a demand for these projectiles. This is supported by the fact that by the 1830s, arrowheads were even mass-produced in the United States specifically for the "Indian trade."<sup>50</sup> George Catlin observed in 1832 that American traders on the Upper Missouri commonly sold metal arrowheads to the Blackfoot, Crow, and other Northern Plains peoples.<sup>51</sup> The Crow leader Plenty Coups related to Frank Linderman in the 1930s: "When I was seven, my arrows had good iron points which my father got from the trader on Elk River. This trader's name was Lumpy-neck."<sup>52</sup>

However, as with metal arrowheads recovered in archaeological contexts, it is difficult to distinguish between surviving metal arrowheads of European or U.S. manufacture and those of Aboriginal manufacture. Some commercial manufacturers marked their arrowheads.<sup>53</sup> Some arrowheads with wide holes drilled through them may represent trade points because these holes made it possible to string the arrowheads on a cord in dozens, for instance, for easier shipping and trading.<sup>54</sup>

In his 1999 collector's guide to Native American archery artefacts, John Baldwin presented a photograph of nine metal arrowheads from a private collection. It bears the following caption: "Nine arrow points of iron. The seven smaller points were [until] recently packed together in an original Hudson's Bay Trading Company's wax paper wrapped packet of 50 points. Their non-studied owner unknowingly unwrapped them and discarded the paper. These points represent typical Indian trade points."<sup>55</sup>

These seven arrowheads display a very distinct shape that is consistent with some rare metal arrowhead shapes used by Northern Plains peoples. They are triangular, with a tang for attachment to the arrow shaft protruding from the base of the triangular blade. The base of the blade is straight and rather wide. The tips of the blades are pointed, not rounded, and the cutting edges of the blades are rather narrow. In four of these

seven arrowheads the ratio of base width to blade length is 1:2.5. In contrast, most nineteenth-century Plains Indian metal arrowheads I have examined have slightly rounded tips and fairly wide cutting edges on their blades.<sup>56</sup> Their ratios between base width and blade length are at least 1:4, often reaching even 1:6. While the alleged Hudson's Bay Company trade points described by Baldwin were short and wide, mid- to late nineteenth-century Plains Indian metal arrowheads were commonly narrow and long.

Arrows with metal arrowheads similar to the alleged HBC trade points were collected in the early to mid-1900s from the Blood in south-central Alberta, Stoney in southwestern Alberta, and Hidatsa in central North Dakota.<sup>57</sup> These peoples either traded directly at Hudson's Bay Company posts or were within reach of Aboriginal middlemen who traded with the HBC. However, arrowheads like the ones illustrated by Baldwin are rarely encountered on arrows in museum or private collections. Commenting on two of these arrows now at the Glenbow Museum in Calgary, Siksika elder Clifford Crane Bear stated that these arrowheads were far too wide at the base to penetrate well, their proportions resembling those of a shovel more than an arrowhead.

Metal arrowheads with a diamond shape were easier to withdraw from a wound than arrowheads

with a straight and wide base, or with barbs; thus the diamond-shaped ones were ideal for hunting (see Fig. 26B). Unlike barbed arrowheads, diamond-shaped arrowheads did not cause excessive damage to the animal skin when withdrawn, and they remained attached to the arrow shaft and thus could easily be used again in another hunt. In contrast, arrowheads meant for war often had barbs to make withdrawal of the arrowhead difficult or impossible.<sup>58</sup> Such arrowheads were only lightly wrapped to their arrow shafts with a few turns of sinew. When they entered an opponent's body, the blood softened the sinew and the arrowhead would detach and remain in the wound when the shaft was withdrawn (see Fig. 26A).<sup>59</sup>

A common misconception about North American Aboriginal arrows is that arrowheads meant for hunting were attached parallel to the notch for the bowstring at right angles to the ground, so that they would pass between the ribs of a standing animal. By the same reasoning, arrowheads meant for fighting were supposedly attached at right angles to the string notch, horizontal to the ground, so they would pass between the ribs of a standing human.<sup>60</sup> However, regardless of the type of arrowhead or fletching used, an arrow spins in flight. While advantageous and necessary to stabilize the arrow, this spinning in flight also makes it impossible to predict at which angle the arrowhead will strike its target.<sup>61</sup> It is very

unlikely that Aboriginal arrow makers believed that they had to mount metal arrowheads meant for war differently from those meant for big game hunting, because through extensive practice, they were aware of the unpredictability of the arrowhead's impact angle. Clark Wissler noted that none of his Blackfoot informants seemed to have heard of such a distinction.<sup>62</sup> However, shooting experiments with reproductions of Plains arrows with long fletchings, which I conducted along with the bow maker and horse archer Jay Red Hawk of Box Elder, South Dakota, in the summer of 2012, showed that such arrows spin much less in flight than arrows with shorter fletchings.

The Plains arrows examined for this study showed little consistency in the placement of metal arrowheads. They were inserted into the shafts at almost any angle, but that angle usually varied from the angle of the string notch. Placing the arrowhead at a different angle from the string notch made the shaft less likely to split upon impact.

Most of the Plains arrowheads I examined did not have a diamond shape, nor did they have pronounced barbs. They were of an “all-purpose” type: flat, with an oblong and triangular shape, and a straight or slightly forward-slanted base of the blade. Such arrowheads were equally suited for hunting and combat (see Fig. 26C). This type

seems to have become common during the nineteenth century. Most of these metal arrowheads from the Northern Plains were from 6 to 10 centimeters (2.5 to 4 inches) long and from 1 to 2 millimeters (ca. 1/16 inch) thick.<sup>63</sup> Southern Plains metal arrowheads were mostly shorter, narrower, and lighter, that is, of a more delicate shape, to reduce weight. This may have been necessary because the slightly longer bows of the Southern Plains required longer arrow shafts than those used in the Northern Plains.

Northern Plains people also employed several types of arrows with club-shaped, bulbous heads for killing small game and birds. Such arrows were mostly made from a fairly large, thick branch or shoot of the same diameter as the desired pear-shaped or bulbous arrowhead. The rest of the shaft was then reduced to its final diameter.<sup>64</sup>

Arrows with their shafts whittled to a point were used in target practice, to kill rabbits or fish, and sometimes also in combat.

Wolf Chief stated that he never heard about or saw arrowheads of bone in use among the Hidatsa. However, his coworker Gilbert Wilson noted that bone and horn arrowheads had been found in refuse heaps at old Mandan and Hidatsa village sites near Mandan, North Dakota. Wolf Chief and his sister Buffalo Bird Woman stated

that sometimes the Hidatsa made arrowheads from bison horn.<sup>65</sup>

From his father, Small Ankle, Wolf Chief learned that in the past the Hidatsa made arrowheads from the front teeth of beavers. The teeth were boiled in water for a long time until they were somewhat flexible. Then they were pressed flat with a heavy stone until dry. This procedure was repeated several times to completely flatten and straighten the beaver teeth. Because they were already extremely sharp, they did not need an extra edge. According to Wolf Chief, such arrowheads had great penetrative force. Because the cutting edge of a beaver tooth is straight and the tooth is more rectangular than triangular, I assume that such arrowheads were mounted with their cutting edge at a right angle to the shaft, similar to the chisel-shaped stone arrowheads used by Neolithic peoples in western Europe. Recent shooting experiments with the latter showed that they had great penetrative capability.<sup>66</sup> However, so far no actual examples have been found in North America. Such beaver-tooth arrowheads may have been in use in other areas outside the Plains where beaver were more abundant.

### Plains Fletchings

Radial fletchings, made from three large bird feathers with their quills split and flattened and attached equidistant to each other on the arrow shaft, were most common in the Plains. The front and rear ends of the feathers were bound to the

shaft with sinew. On most of the examined Plains arrows the feathers were also glued to the shaft with hide glue. A few arrows had the front and rear parts of the quills of their feathers only wrapped to the shaft but not glued. This technique seems to have been especially prevalent among Cheyenne and Blackfoot-speaking peoples.<sup>67</sup> Attaching the fletching feathers without glue and only with wrappings of sinew does allow for easier realignment of the feathers or the quick exchange of damaged feathers. However, without glue, the individual feathers will eventually work themselves loose under the constant strain of shooting and handling the arrow, especially since the sinew was not threaded between the vanes of the feathers in a long spiral along the shaft, but was wrapped around only the front and rear protrusion of the quills. The tradeoff might thus have been between sturdier construction of fletchings attached with glue and greater ease of maintenance of those attached without glue.

Plains fletchings were very long, between 15 and 22 centimeters (ca. 6 to 8.5 inches), and the vanes of the feathers were trimmed rather low, between 5 and 9 millimeters (ca. 3/16 to 3/8 inch). When feathers were in short supply, sometimes only two instead of three split feathers were used. However, in my experience such arrows stabilize less well and are more difficult to aim accurately than those with three split feathers.

Most of the Plains arrows I examined had three split feathers placed on the shaft equidistant from each other in what is known as a “cock feather” arrangement. In this type of fletching, one feather, referred to as the cock feather, is set at right angles to the nock for the bowstring. The remaining two feathers are each placed equidistant from the first. Arrows with this feather arrangement must be nocked with the cock feather pointing outward, away from the bow, so that the arrow clears the bow handle with less resistance. If the arrow is nocked and released with the cock feather toward the bow, the feather could scrape against the handle and be damaged as it passes the grip.



**Fig. 37.** Bird-hunting arrow, in which thorns or crosspieces are lashed to the front end of the main shaft. The use of variants of this kind of arrowhead has been documented for Hidatsa, Navajo and Inuit peoples. Reproduction arrow manufactured by Roland Bohr. Drawing by Margaret Anne Lindsay.

Another type of fletching consisted of a very long single split feather, with its quill attached to the shaft in a long spiral. Arrows with such fletchings could be used for shooting upward, for instance at

birds taking flight or at squirrels in trees. The spiral fletching allows a powerful but rather short flight and then abruptly stops the arrow, preventing it from going too far. A bird-hunting variety of these arrows often had three or more large thorns attached equidistant from each other about 10 to 15 centimeters (ca. 4 to 6 inches) from the sharpened tip of the arrow. An arrow with such protrusions could bring down two or three small birds with one shot when shot into a flock of birds.<sup>68</sup> Aboriginal people in the Subarctic, Northern Plains, and Southwest made and used such arrows.<sup>69</sup> Equipped with triangular metal points, spirally fletched arrows were occasionally also used in battle, at least by the Hidatsa.<sup>70</sup>

With the increasing availability of metal arrowheads, the rich diversity of Aboriginal arrowheads in the Northern Plains began to diminish. Making arrowheads from native materials such as stone, bone, or wood was time-consuming and labor-intensive, while metal arrowheads could often be obtained readymade at the trading posts. Metal arrowheads were of sufficient quality to accomplish most of the tasks traditional arrowheads had been used for, and they were more convenient and often more durable than arrowheads of stone or bone. However, while arrowhead technology changed, the bow and arrow remained in use in big game hunting and combat in the Plains well into the 1870s.

Arrows of the Central Subarctic

According to Louis Bird, the Omushkego-Cree made arrow shafts either from willow shoots or from split coniferous wood, such as black spruce. None of the archery collections I examined held Subarctic arrows made from natural shoots. Rather, all Subarctic arrows I examined were made from split wood.

Most surviving Subarctic arrows are so-called bird blunts. They have very large pear-shaped arrowheads used to kill small mammals or to disable larger birds such as geese. These arrows look massive but are actually quite lightweight. In order to build up enough critical mass to cause sufficient damage to the target, they need to be quite big, because the wood they are made of becomes very light once it dries.

Louis Bird also mentioned that wide arrow points of sharpened bone were used to hunt big game such as moose and caribou. Four such arrows at the Manitoba Museum in Winnipeg, made from split coniferous wood and collected from the Granite Lake Cree in central Saskatchewan, are equipped with such points.<sup>71</sup> The shafts of these arrows varied in length from 62 to 66.5 centimeters (ca. 24.5 to 26 inches). All four arrows are equipped with large points of a triangular or diamond shape, made from large, thick, flat bones. These massive points are up to 8.5 centimeters (ca. 3.4 inches) long, 4.2 centimeters (1.65 inches) wide, and are around 7 millimeters (0.27 inch) thick.<sup>72</sup> Only one of these

arrows has fletchings, made from three split feathers wrapped to the shaft in a radial arrangement with a fine white commercial thread.<sup>73</sup> The quills are not glued to the shaft. The other three arrows do not have any fletchings at all.

The nock ends of these arrows have been flattened and the notches for the strings are wide and deep, a feature also found on arrows from the Northwest Coast, from Inuit, and from other Aboriginal peoples from northern boreal forest environments, such as the Naskapi and Montagnais.<sup>74</sup> The flattening of the nocks facilitates the use of a Mediterranean-style arrow release, especially when a shooting glove of some sort is used. Louis Bird mentioned the use of a shooting glove, and in demonstrating the kind of arrow release most common among the Omushkego-Cree, he indicated that the bow string was pulled back with the index and middle fingers only. The index finger was placed above and the middle finger below the arrow nock. This kind of arrow release is a variation of what is often referred to as the Mediterranean arrow release (see Fig. 28A and 28B).<sup>75</sup>



Fig. 38. Subarctic blunt-headed arrow from central Manitoba (University of Winnipeg, Anthropology Collection E5-294). Subarctic people sometimes flattened the nocks of their arrows to make it easier to use a shooting glove in combination with the Mediterranean arrow release. Drawing by Margaret Anne Lindsay.

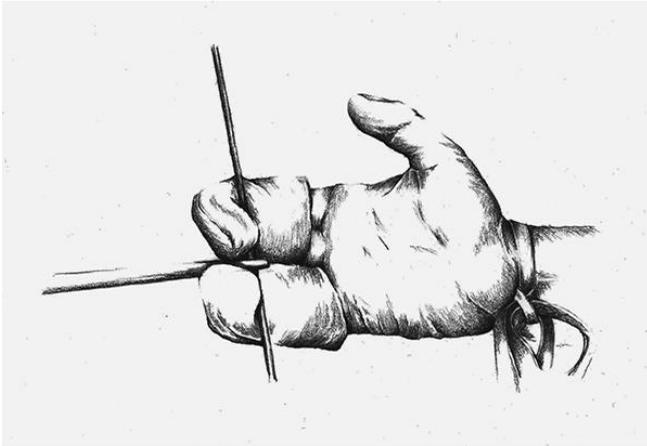
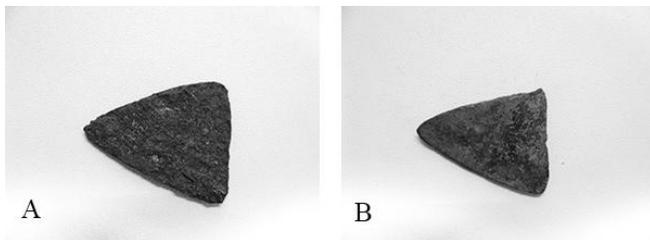


Fig. 39. Subarctic shooting glove. Subarctic peoples, for example the Naskapi, occasionally used a shooting glove made from brain-tanned leather. Drawing by Margaret Anne Lindsay, based on an artefact collected by Frank Speck from the Naskapi in the 1930s, now at the University of Pennsylvania Museum, Philadelphia.



**Fig. 40.** Possible metal arrowheads recovered from northern Manitoba. *A*: Churchill River HiLp-1 10361. *B*: Nelson River GjLp-14-3. Note similarity to arrowhead in James Isham's drawing in Figure 22. However, these flat pieces of metal may not have been projectile points at all, but may have been intended to be rolled into tinkling cones. Photographs by Amber Zimmerman-Flett, courtesy of the Manitoba Museum, Winnipeg.



**Fig. 41.** Possible Subarctic arrow (cat. no. H76.100.136-138 Royal Alberta Museum) with stone point. Maximum length of this point is ca. 25 millimeters. Note the similar shape of this arrowhead compared to the artefacts in Figures 22 and 40A,-B. Courtesy of the Royal Alberta

Museum, Ethnology Program, Edmonton.  
Photograph by Ruth McConnell.

A set of blunt-headed, club-shaped arrows for hunting small mammals and birds is representative of this type of arrow, which is frequently found in the Subarctic. This set from the Nelson House Cree consists of four arrows and was collected with two self bows.<sup>76</sup> The overall length of the arrows ranges from 41 to 52 centimeters (16.14 to 20.47 inches). The short draw length suggests that they were not made for an adult archer. They were made from split coniferous wood. The arrowheads are all round in cross section. Their diameter is about 2.7 centimeters (1.063 inch) at the front end of the club, which then gradually blends into the arrow shaft itself. The massive shafts range in diameter from 1 to 1.15 centimeters (0.39 to 0.45 inch) at their center. The nock ends are of the same diameter as the shaft, neither raised nor flattened.

Such bird blunts can fly straight without any fletchings at the back end. The heavy arrowhead already provides enough weight at the front end and thus enough steerage to make the arrow fly straight, at least for short distances. The same might apply to the previously discussed Subarctic arrows with massive bone arrowheads. Even though James Isham recorded the use of bladed metal arrowheads among the Lowland Cree in the mid-eighteenth century, none of the Subarctic

arrows I examined was equipped with a bladed metal arrowhead of any kind.<sup>77</sup>

Metal arrowheads recovered from archaeological sites on the Churchill and Nelson Rivers in Manitoba display a wide range of shapes, from lanceolate with tangs to large equal-sided triangles without any tang for attachment to the arrow shaft.<sup>78</sup> These latter arrowheads are rather similar to those drawn by James Isham, published in his 1743 *Observations on Hudson's Bay* (compare Fig. 22).<sup>79</sup>

If these pieces of metal were indeed arrowheads, it is not clear how they could have been hafted efficiently. However, a Subarctic arrow now at the Royal Alberta Museum in Edmonton is still equipped with a stone projectile point of similar shape (see Fig. 41).

Louis Bird mentioned distinct coastal Cree terms for arrows with bone, stone, or metal points: *oshkan akask* (bone arrow for big game), *assiniwakask* (arrow with stone), *piwaapisko akask* (arrow with a steel head), *piwaabiskostekwan akask* (arrowhead and part of the shaft made out of steel, for shooting fish).<sup>80</sup>

### Bowyers and Arrow Makers

Because arrow making required extensive skill and took years to learn, one might wonder if all Aboriginal archers made their own equipment or if specialists performed this task.<sup>81</sup> Ethnographic

evidence and historic documents offer contradictory information on the existence of specialized makers of archery gear in Plains societies. While some sources indicate that Aboriginal archers usually made their own equipment, others state that specialists crafted most archery gear. Reliance on specialists may have been more prevalent among peoples with age-graded societies, such as the sedentary and agricultural Mandan and Hidatsa of the Upper Missouri River and the mobile, bison-hunting Blackfoot of the Northern Plains.

Closer examination may serve to refine these generalizations. When anthropology emerged as a scholarly discipline during the late nineteenth century, researchers assumed that in so-called primitive cultures the user of an object usually also was its maker.<sup>82</sup> Specialization was seen as a trait of proto-industrial and industrial societies and was assumed to be lacking in “simple” societies of hunters and gatherers. This view, which favored the notion that every Aboriginal man made his own archery equipment, greatly influenced anthropological research at the time.<sup>83</sup>

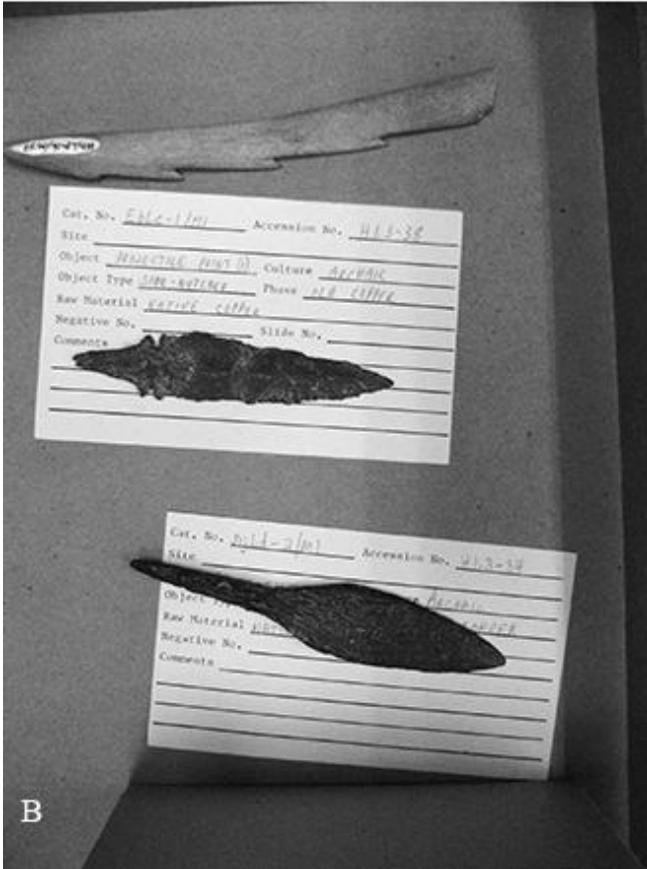
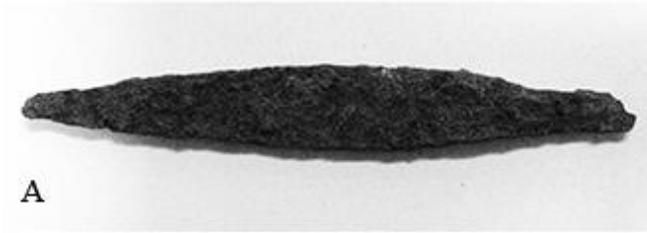
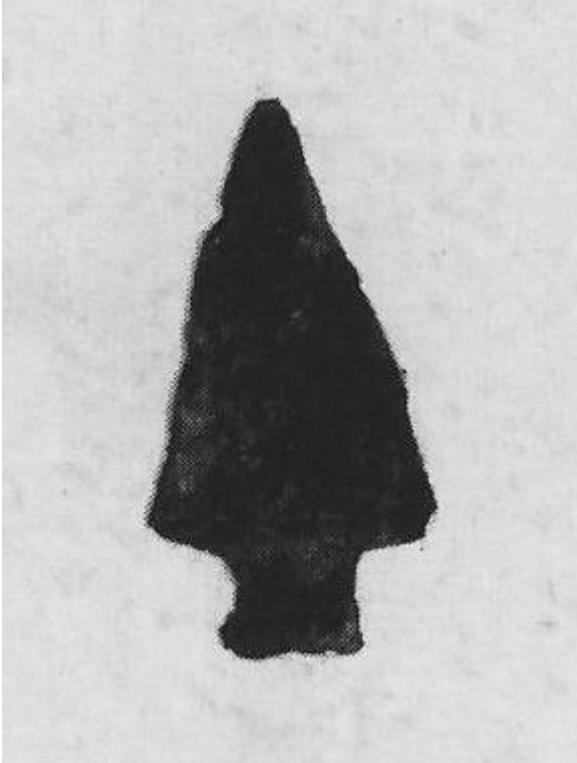


Fig. 42. Unusual oblong, lanceolate metal projectile points from Manitoba. A: Nelson River GILr-29-24. B: Pine Fort DkLt-1-7185 (bottom).

Courtesy of the Manitoba Museum, Winnipeg.  
Photographs by Amber Zimmerman-Flett.



**Fig. 43.** Iron arrowhead from the Tailrace Bay excavations in north-central Manitoba. This arrowhead is similar in shape and size to some of those recovered at the Plains post of Pine Fort (see Fig. 32). Total length: 42 millimeters.

At least the basics of bow and arrow manufacture were likely general knowledge among many

Aboriginal groups, however. For instance, in interviews with the ethnographer Kenneth Kidd in the 1930s, the Blackfoot Spencer Owl Child stated that boys were commonly taught the basics of arrow manufacture, while old men were able to devote more time to mastering the fine points of this art.<sup>84</sup> In the 1860s the Crow Two Leggings made a snakeskin-covered bow from hickory wood he had traded from a group of Gros Ventre des Prairies. He also made a matching set of arrows from chokecherry saplings for this bow. However, Two Leggings did not consider himself to be a specialist in the manufacture of archery gear. He was orphaned early in life and raised by his older

brother. Lacking influential relatives, they lived on the margins of Crow society. Making an archery outfit was part of Two Leggings' quest for military honors and prestige in order to rise among his people. He stated that for him, making this archery set was mainly a meaningful pursuit to fill the long and empty winter months, assembling weapons that could be helpful in increasing his warrior status in the future.<sup>85</sup>

A hunter or warrior had to be able to manufacture basic archery equipment in order to quickly replace a bow or arrows lost on a hunt or while traveling. Such emergency scenarios and how to deal with them were part of Aboriginal peoples' stories and legends. Resourcefulness, self-sufficiency, and independence were considered important attributes in Aboriginal

cultures, where men were expected to fulfill the roles of provider and protector of their families. For instance, the Crow legend of “Bear White Child” mentions an orphaned boy who, not unlike Two Leggings, made his own archery set while traveling on a long journey. The deer the boy killed with these weapons provided him with food during his entire journey.<sup>86</sup>

U.S. Army officer William Philo Clark commented on the resourcefulness of Aboriginal men in the Northern Plains. During the closing decades of the nineteenth century Clark was part of a scout unit, working mostly with Northern Cheyenne men. While traveling, they found it necessary to have a bow. Within a few hours, using only their heavy hunting knives, Clark’s Aboriginal companions made a perfectly serviceable self bow from a broken ash wagon bow.<sup>87</sup>

Among some Aboriginal groups, women also held knowledge pertaining to the manufacture of archery gear. According to Cheyenne traditions, a woman initiated the use of sinew bowstrings. Before the Cheyenne moved into the Plains they used bowstrings made from plant fiber. However, these were not sturdy and did not last long.<sup>88</sup> While butchering bison after one of the first hunts in the Plains, a woman noted the long and wide sinews running parallel to the animal’s spine from head to hip. She mentioned to her husband that these sinews might make better bowstrings, and

from then on the Cheyenne were said to have used sinew bowstrings.<sup>89</sup>

Among the Subarctic Omushkego-Cree, women were generally not supposed to use or even touch a war bow and its arrows.<sup>90</sup> However, many Omushkego-Cree men preferred their wives or daughters to attach the fletchings to their arrows, because women were considered more skillful at such delicate work than men. As Louis Bird related,

The women were good at that [applying the fletching], because they can make string with the sinew from the animals, sometimes just the beavers and the otters sometimes make a fine, fine sinew. And that's what they used to wrap around these feathers and so they won't hurt on the hand, the finger of the man, in here [Louis Bird indicated the right side of the left index finger between the knuckle and the middle joint where the arrow would slide across during discharge. Smoothing the wrapping of the arrow shaft was important because any protrusion or rough spot could cause severe cuts to the hand.] They were good at that. So the women usually used to make that. But the men would put the head, if there is a big game animal. And if it's a goose they had just a little sharp thing, very easy to go through. And sometimes they got the big head, just to knock it down.<sup>91</sup>

Some Omushkego-Cree men, in contrast to their sensitivity about war bows and arrows, liked to have their wives or daughters touch their hunting bow and arrows before they set out to hunt, because they believed this would bring them luck.<sup>92</sup>

The Blackfoot Joe Little Chief, who in the 1950s collected oral traditions and accounts of his community's history, stated that in the past among his people, "[the women] also learn how to shoot with bow and arrows some are very good at it."<sup>93</sup> Hugh Munroe, a former employee of the HBC who had married a Piegan woman and lived with the Piegan beginning in 1823, stated in 1886 that he knew a Crow woman, the wife of the American trapper Jim Beckwourth, who had used lance, tomahawk, and bows and arrows in combat. She was said to have gone on war parties and killed many enemies.<sup>94</sup>

Henry Wolf Chief's sister Buffalo Bird Woman (Hidatsa) made a toy archery set for her young son Goodbird. She mentioned that Hidatsa mothers commonly made such toy archery sets for boys.<sup>95</sup> Goodbird said that with this equipment he hunted mice and other small rodents within his family's earth lodge when he was about four years old, but he never killed any animals because they were too fast for him.<sup>96</sup>

Among the Hidatsa, women were commonly not allowed to make and use adult archery gear. However, the fact that Buffalo Bird Woman and other Hidatsa women manufactured fully functional toy bows and arrows shows that they had at least a working knowledge of the basic principles of bow and arrow manufacture. Buffalo Bird Woman also gave detailed information on various aspects of the manufacture of bows and arrows intended for big game hunting and combat. If such knowledge was commonplace among the women, the average Hidatsa man surely had even greater knowledge of the manufacture of archery equipment, because men in Plains Aboriginal cultures were involved in archery-related matters on an almost daily basis. For example, in February 1793 Peter Fidler observed while among the Pikani, “the men all also busily employed making arrows—of the Sascuttem wood, which is very hard & solid when dry—there is great plenty of it here along the river.”<sup>97</sup> The anthropologist Alfred W. Bowers confirmed this pattern for the Mandan, stating that it was common for every adult Mandan male to manufacture arrows.<sup>98</sup>

On the other hand, some sources report the existence of highly specialized bow and arrow makers among Aboriginal peoples. Ojibwa traditions indicate that at least among the south-central Ojibwa, and possibly among other Algonquians, there was a particular class of men,

before the introduction of firearms, called “makers of arrowheads.”<sup>99</sup>

Several Cheyenne mentioned to George Bird Grinnell that the father of a man named Shell was a highly qualified arrow maker.<sup>100</sup> Shell’s family was wealthy and well respected, partly because Shell’s father made high-quality arrows for other warriors who paid him for his work. As a boy, Wolf Chief owned very good arrows, which his father, Small Ankle, had made for him. As the son of an arrow maker he was always supplied with first-rate arrows.<sup>101</sup> Wolf Chief later became an accomplished arrow maker himself, possibly after formally entering into an apprenticeship with his father.<sup>102</sup>

Mandan and Hidatsa society was ranked and based on the formal recognition of seniority and experience. The transfer of knowledge was highly restricted and followed a precise protocol, established deep in the past. Knowledge and skills were divided into ordinary and ancient or sacred. Quillwork embroidery, the manufacture of ceramics, and the catching of eagles were all considered “ancient” knowledge. No one was allowed to acquire these skills simply by imitating more experienced people. A potential candidate, in order to acquire the right to learn and practice a certain craft, had to formally approach a master craftsman or craftswoman and enter into a formal apprenticeship. Throughout their training,

apprentices were expected to make valuable gifts to their mentors as payment for knowledge gained. In exchange, they could eventually take over the positions of their mentors when the training was complete.<sup>103</sup>

Among the Mandan and Hidatsa, the knowledge and skills to make sinew-backed sheep horn or elk antler bows were evidently restricted and had to be acquired in a formal apprenticeship; the making of simpler self bows, however, was not restricted. Several Mandan claimed to the anthropologist Alfred W. Bowers in the 1930s and 1940s that the right to make arrows was also restricted and was connected to the acquisition and possession of certain sacred bundles. Such bundles could originate with instructions received from a spirit being encountered in a dream or vision. To secure the help of this spirit guide, the recipient would manufacture a sacred bundle, containing items seen in the vision. Through a transfer ceremony, the powers inherent in the bundle, as well as the right to perform activities related to it, could be bestowed on another person. Subsequent owners of the same bundle might add to its contents, and over time the value and prestige accorded to the bundle by the community would grow. In this way, sacred bundles were not just objects of spiritual power but became repositories of knowledge and social prestige. According to some Mandan, only the owners of these bundles and those who had purchased some of the rights and privileg

es that went with them were allowed to make arrows, so that only a few expert arrow makers among the Mandan supplied all other people with their products at a price. Bowers was told that unauthorized persons were not even allowed to watch the arrow makers at work.<sup>104</sup>

The Snow Owl bundle of the Mandan, for instance, contained arrow-making tools such as a multipurpose tool for straightening and grooving arrows, made from a bison rib. There were also wooden blocks having a straight groove of half-rounded cross section to hold a piece of leather with sand glued to one side, used to reduce the arrow shafts to their proper diameter (Aboriginal sand paper).<sup>105</sup> The Snow Owl myth tells of the mythic character Black Wolf, who received arrow-making tools as payment for services rendered to an arrow maker.<sup>106</sup>

The Eagle-Trapping, Big Bird, and Woman-Above bundles also incorporated arrow-making rights, all associated with birds of prey. The Big Bird bundle was associated with spiritual beings referred to as “Thunderbirds.”<sup>107</sup> The presence of arrow-making tools and the association between arrow making and sacred bundles lend credence to the idea that arrow making was restricted among the Mandan.

At least some Blackfoot groups may have exhibited similar patterns. Blackfoot-speaking communities, past and present, had an age-graded

society system like the Mandan and Hidatsa, and their spiritual activities revolved around sacred bundles and the rights to specific knowledge that came with their purchase. According to the Peigan elder Jerry Potts, the Blackfoot acquired many aspects of their spirituality from the Mandan and Hidatsa, and each group had influenced the other.<sup>108</sup> However, the Blackfoot Joe Little Chief recorded that while knowledge about the manufacture of bows and arrows involved specialized skills, it was widely shared by those who knew: “They [Blackfoot boys] learn how to make bow and arrows there is a man that teaches the flint heads for the arrows how to make them when they know how to make them what kind of green sticks to use then they learn how to shoot with Bow and arrows they go with a man that teaches them how to shoot with the Bow and Arrows they then have to make the Bow and Arrows and keep them at their tepees and they can hunt.”<sup>109</sup>

Joe Little Chief related that his great-grandfather’s name had been A-no-wa, “Making Arrows,” because he used to go through the camp of his band to tell the people to keep making arrows every day.<sup>110</sup> This again implies that there were few if any restrictions on the manufacture of bows and arrows, and Blackfoot men commonly learned how to make their own archery gear when they were still boys. However, they acquired this knowledge from specialists.

Similarly, Wolf Chief and other Mandan and Hidatsa working with Gilbert Wilson in the 1910s did not mention limitations in arrow making. Wolf Chief clearly indicated that although there were arrow-making specialists among the Mandan and Hidatsa, no man was forbidden to make arrows. This apparent contradiction may be resolved by examining the age of Wilson's and Bowers's Aboriginal coworkers. Bowers interviewed people on the Fort Berthold Reservation in North Dakota from the 1930s to the 1950s, several decades after Wilson did his work. These men and women belonged to the last generation who had spent their childhood in Like-a-Fishhook, the last prereservation village of the Mandan, Hidatsa, and Arikara, which was given up soon after the establishment of the reservation and the enforcement of U.S. land-allotment policies after 1887.

The devastating smallpox epidemic of 1837 forced the few survivors of the Mandan and Hidatsa to leave their separate villages and move into a single village, Like-a-Fishhook, in 1845. They also faced a steady stream of non-Aboriginal settlers moving into the area and attacks from the more numerous Dakota, Lakota, Assiniboine, and Cheyenne who on occasion waged war on the sedentary and agricultural people of the Upper Missouri.

Many bundle owners, spiritual leaders, and craft specialists died in the epidemics before they could

pass on their knowledge to their designated successors. Thus much knowledge was lost, and many traditions were not continued. During their four decades at Like-a-Fishhook, people from different Aboriginal groups also had to organize and regroup into a single community and political entity, which was further complicated when the surviving Arikara joined the village in 1862. The coexistence of three ethnic groups with mutually unintelligible languages, divergent religious concepts, and different political systems, as well as the loss of elders and ceremonialists through epidemic diseases, combined to loosen old concepts and change traditional views.<sup>111</sup>

In the late 1880s, under the 1887 Dawes, or Allotment, Act, the U.S. government enforced the abandonment of Like-a-Fishhook and settled families on separate farm plots or homesteads, while the “surplus” land was opened to non-Aboriginal settlement. This dispersal of Aboriginal families was intended to foster assimilation through making them learn to value private property, and it aimed to destroy the traditional community and reduce the influence of the bundle owners as spiritual leaders. The heavy-handed enforcement of assimilation policies eventually caused a backlash among the people of Fort Berthold, who began a more or less covert reorientation toward the remnants of their traditional culture.<sup>112</sup> It was from this perspective that Bowers’s informants supplied their information in the 1930s and 1940s. Many of their

accounts pertained to the first three decades of the nineteenth century, the time before the major smallpox epidemic of 1837. Few if any of them had lived through those times; rather, they passed on information obtained from their elders. Bowers's Aboriginal consultants at the time he interviewed them were under the pressure of enforced assimilation and the loss of their traditional ways of life and their land, which was soon to be inundated under the waters of Lake Sakakawea and the Garrison Dam. They may well have romanticized and idealized a "golden age" of Mandan and Hidatsa culture from about 1800 to 1837.

In contrast, most of Gilbert Wilson's consultants belonged to an older generation. Buffalo Bird Woman was born about 1839 and her brother Wolf Chief in 1849; and Black Chest, a Mandan, was approximately the same age as Wolf Chief. In their youth they had experienced the devastation, insecurity, and instability during the aftermath of the smallpox epidemic of 1837 and the early years of Like-a-Fishhook. They all seem to have been pragmatists with little need to idealize their culture and restore its past. In a sudden, cruel, and inexplicable way the smallpox had transformed their world into a chaotic and dangerous place. In order to survive, it was of outmost importance to always be resourceful, alert, and ready to defend against the Lakota and other Plains peoples.

This was one of the reasons Mandan, Hidatsa, and Arikara men joined U.S. military campaigns against the Lakota, Cheyenne, and Arapaho in the 1860s and 1870s. At this time bows and arrows were still used in combat and for hunting while on campaigns. Therefore, military necessity could have caused the old restrictions on the manufacture of archery gear to become a liability. It is likely that at this time many warriors made their own arrows. A few select specialists may have maintained their activities, even though by then firearms were displacing archery in importance as combat weapons. The majority of the bows and arrows manufactured by Mandan, Hidatsa and Arikara men, while still fully functional, may no longer have been of the same high quality, compared to the time before the epidemic of 1837.

The Pawnee showed a range of patterns in arrow manufacture. According to the anthropologist Gene Weltfish, every Pawnee man made his own arrows, bow, and bowstring. In contrast, among the Skidi-Pawnee there were supposedly only five specialists who made arrows for every man.<sup>113</sup> This they allegedly did free of charge to ensure the availability of a high number of first-rate arrows, which was an important contribution to the defense of their village against the seemingly all-powerful Lakota. It also contributed to success in bison hunting and thus to the livelihood and security of the arrow makers and their families.<sup>114</sup>

The Omaha had specialists not only for making bows and arrows but also for the manufacture of bowstrings.<sup>115</sup> Some specialists even focused only on certain steps of arrow manufacture, such as the cutting of grooves into arrow shafts. The Omaha had few if any restrictions on arrow making. Most men made their own arrows. But specialists provided superior archery products that surpassed average workmanship. The Hidatsa Buffalo Bird Woman related: “I remember that there were two men in our village that were very expert in making sinew backed bows. A tanned buffalo skin was the price of one. Such bows were popular.”<sup>116</sup>

These examples suggest that while most Plains Indian archers had a fair knowledge and ability of bow and arrow manufacture, the making of horn and antler bows or very high quality arrows remained in the hands of specialists. However, younger men who sought to establish their reputation as hunters, warriors, and eventually war leaders may have had little inclination to spend time learning the fine points of arrow making, which could be mastered only after years of training. Older men were thus more likely to devote their time to the manufacture of arrows, because they were no longer very active as war leaders and hunters and had few military obligations.

In the context of the strong warrior ethos prevalent among most Plains Indian peoples

throughout the nineteenth century, it was often considered more desirable for a man to die in battle at the height of his power than to become old and feeble and thus a burden to his family.<sup>117</sup> However, men who had acquired prestige and recognition in their warrior years may have considered the making of arrows a worthwhile pursuit for their old age. To Aboriginal people, arrows were more than simply ammunition. A well-made arrow could make the difference between a successful hunt and starvation or between survival and death in battle. Such arrows were highly valued. Archers did not simply discard a lost arrow but spent a lot of time searching for it so that they could place it safely back in its quiver.<sup>118</sup>

Whoever has watched a well-made arrow fly and strike its target will realize upon close inspection that such a projectile is a work of art. Among the Hidatsa, ten well-made matching arrows were worth as much as a horse.<sup>119</sup> The Arapaho considered bows, arrows, and quivers valuable wedding presents, often regarding them even more highly than horses.<sup>120</sup>

Among the Cheyenne, connecting two families through marriage involved reciprocal gift giving. In order to represent the new connection between the families, the groom would present his bride's younger brother with an archery set. In Cheyenne traditions, arrows often

appeared as wedding gifts to young men from the bride's family.<sup>121</sup> Expert craftsmanship and their high price made such arrows symbols of prestige and high status.<sup>122</sup> Thus, a young warrior from a leading family, striving for success, might enhance his prestige by obtaining his arrows from a renowned craftsman, rather than making his own. Being chosen by one of the leading families to manufacture such essential items as arrows enhanced the status of the arrow maker as well. Such contract work could therefore lead to a reciprocal gain in prestige for the customer and the craftsman.

A man who had lost the ability to hunt big game or to lead war parties, either through old age or injury, could still substantially contribute to his family's and his community's sustenance, defense, or even wealth by making arrows. Bowers, for instance, mentioned two Mandan men who had lost the use of their legs through injury. These men became expert arrow makers and sustained their families solely through the sale of their products.

### Ownership Marks on Arrows

Many arrows in the Plains were painted with one or more colors at the back, underneath the fletching. Among most Plains peoples, each archer had his own way of painting his arrows, and these marks clearly indicated to whom an arrow belonged. After a hunt the marks helped determine which hunter had killed which animal.

If several arrows belonging to different hunters hit the same animal, the ownership marks showed whose arrow had delivered the killing wound.<sup>123</sup> Because practically every able Plains Indian male was an archer who owned at least one quiver full of arrows, Plains encampments or villages all had a multitude of arrows. However, their specialized construction characteristics meant that arrows were not necessarily interchangeable and made it difficult to use someone else's arrows. Therefore clear individual ownership markings helped prevent arrows from getting mixed up.

An archery set examined at the Manitoba Museum has different markings for different types of arrows. The markings were all done in the same color sequences, perhaps indicating the same owner, but arrows with bladed metal points were marked in a pattern different from that applied to small game arrows or bird blunts. This made it easy for the archer to recognize each kind of arrow quickly by glancing into the opening of his quiver, without having to pull out the entire arrow and examine the arrowhead to determine its function.<sup>124</sup> Most men were probably familiar with the arrow markings of every archer in their community. Some may even have recognized the markings of relatives and friends in other bands and villages. In the same way warriors were probably able to recognize the arrow markings of individual enemies they had fought, whose arrows they had seen up close.

The highly individualistic nature of Plains Indian warfare, at least during the mid- and late nineteenth century, was reflected in the importance that was given to the identification of whose arrow had made a kill. The practice also helps us to understand another Plains Indian custom, often considered a manifestation of wanton brutality and extreme violence by non-Aboriginal people. The Cree/Pikani elder Saukamappee related to David Thompson in 1787 that for the Cree, Assiniboine, and Blackfoot it was important for spiritual reasons to clearly determine which warrior had killed which enemy. This became difficult when his people first used firearms in battle, because bullets did not have ownership marks and were difficult to retrieve.<sup>125</sup> The slayer of an enemy killed by an arrow, on the other hand, could be identified by the ownership marks on the arrow. As Peter Fidler, then in charge of the HBC post of Brandon House, wrote in September 1817: “A few Cree went in search of the Indian lately missing. They found him shot thro the Body. Two arrows sticking in the same part and scalped—but no otherwise mutilated—and all his clothes left on him, but his arms & ammunition missing. They found 4 balls on the Ground near where he lay & some powder spilt, & they imagine he took this in his last attempt to defend himself.”<sup>126</sup>

Apparently the missing man had been shot with a firearm and with two arrows. While his assailants likely had taken his weapons, they had left their

own arrows in his body. Similar events occurred in the Great Plains during the Indian Wars where U.S. soldiers were found with several arrows in their bodies.<sup>127</sup> The Crow Two Leggings mentioned the same practice among his people. Each member of Two Leggings' war party shot an arrow into the body of a Piegan warrior after Two Leggings had killed this opponent in single combat.<sup>128</sup> To Plains Indian warriors, shooting arrows into the body of an already-killed enemy was not an act of random violence. Their enemies likely knew some of their individual opponents' arrow markings, and shooting an arrow into the body may have been akin to leaving their personal signature to claim responsibility and to issue a personal challenge to the kinsmen of the slain person. Photographs from the late 1860s of U.S. soldiers killed by Plains Indians show bodies full of arrows, most of them shot into the bodies after death, indicating that the custom prevailed into the late nineteenth century, long after repeating firearms had entered the arsenal of the Plains peoples.<sup>129</sup>

Among the Comanche, arrows that had already taken a human life were not to be used again.<sup>130</sup> Wolf Chief related that Hidatsa warriors did not pick up spent enemy arrows during a battle because they believed that someone who would do so was likely to be hit by an enemy arrow as well.<sup>131</sup>

Writers have often made claims about determining the ethnic origin of an arrow on the basis of certain construction details, such as the shape of the nock or the fletching. There are numerous movie scenes where trappers, scouts, soldiers, or settlers pull enemy arrows from log cabins, covered wagons, or the dead bodies of their comrades and after a cursory examination pronounce the ethnic affiliation of the archer who sent the missile, such as “Comanche,” “Cheyenne,” or “Apache.” Some publications on Aboriginal archery also link certain shapes of arrow nocks with specific ethnic groups.<sup>132</sup> It is possible that specific nock shapes were prevalent among specific groups, but that does not mean that each group only used one type. The manufacture of arrows was a highly individual pursuit, and it is possible that each arrow maker used his favorite nock shape as a kind of trademark. His acquaintances were thus able to ascertain his product and also his identity. However, not all Lakota arrow makers, for instance, used the same shape for their arrow nocks.<sup>133</sup>

In sum, there is little evidence for any system of “tribal” markings. However, when traveling across the plains of southern Saskatchewan and Alberta in the 1750s, Anthony Henday’s Cree guides gave him some general identification of arrows from other Aboriginal groups: “Found a dead Buffalo; it had been wounded by the Archithinue Indians; several of their arrows were

sticking in it.”<sup>134</sup> However, “Archithinue” is a derivative of a Cree word that meant simply “stranger” or “enemy” and could have been applied to a number of Aboriginal groups other than Cree.<sup>135</sup> Possibly Henday’s guides, coming from the Hudson Bay Lowlands, used longer arrows. When they entered the grasslands, they eventually encountered people who used a shorter, Plains-type arrow.

Joe Little Chief recorded a Blackfoot story about confrontations with Crow people. In this story, manufacturing characteristics that differentiated Crow from Blackfoot arrows were important, but their markings also pointed to the owner of a certain set of Blackfoot arrows.<sup>136</sup> By examining the ownership marks of an arrow, someone who knew most archers in a region could have been able to identify the owner, and therefore also that person’s ethnic affiliation. Arrows with unfamiliar markings likely belonged to outsiders. The Crow woman Pretty Shield related that after a bison hunt some Crow hunters found an unfamiliar arrow in the body of one of the animals they had killed. Some thought that it might have been from the Cheyenne, but Pretty Shield did not say how they arrived at this conclusion.<sup>137</sup>

To Aboriginal people who were familiar with their hunting territory and its adjacent regions, the materials used in an arrow could reveal something about the area of its origin and thus possibly about the identity of its owner. For instance, certain

wood species for arrow shafts were peculiar to specific areas. The material used to make a stone arrowhead also might reveal something about the origin of the arrow's owner, but then again, obsidian and Knife River flint were traded to places far away from their sources, so that not every arrow tipped with Knife River flint was necessarily Mandan, Hidatsa or Arikara.

Since arrows are not easily identified with particular groups, it is difficult to identify arrows in museum collections. It is possible to determine the broad region an arrow came from, such as "Northern Plains" or "West Coast," based on construction materials and on construction characteristics such as the type of fletching or the shape and length of the shaft. However, "tribal" labels should not be applied on such a basis alone.

Arrows and arrow making held great importance among Aboriginal people. Being more than simply ammunition, well-made arrows were objects of prestige, affecting the status of their makers and their owners. Through their ownership marks they also served as a means of personal identification in hunting and in war. Aboriginal peoples in the Central Subarctic and in the Great Plains had spent generations in developing and perfecting their archery equipment. At the time of contact, their traditional weapons systems were well adapted to their specific needs and environment.

When firearms arrived, Aboriginal people adapted them, just as they adapted bows and arrows, to their specific needs and purposes. The next chapter examines the major types of firearms that Aboriginal people acquired through the fur trade and also highlights some Aboriginal adaptations of firearms and their use.



5.

### Aboriginal Peoples and Firearms

Europeans' introduction of firearms to Aboriginal peoples has often been considered a major catalyst for momentous changes in political, economic, and military relations between different Aboriginal groups and also between Aboriginal people and Europeans.<sup>1</sup> In 1940 David Mandelbaum stated: "Even before the days of white influence, the Cree seem to have been an aggressive, warlike people. Upon being provided with firearms by the English, they easily overrode opponents who as yet had only aboriginal weapons. For a time the only limit to the extent of Cree conquests was that of sheer distance separating the regions of their farthest forays from the base of European supplies."<sup>2</sup>

Scholars have also often explained European ascendancy over Indigenous peoples in the Americas largely in terms of technology.<sup>3</sup> For example, Jared Diamond stated about the Spanish conquest of the Inca empire: "Pizarro's military advantages lay in the Spaniards' steel swords and other weapons, steel armour, guns, and horses. To those weapons, Atahuallpa's troops, without animals on which to ride into battle, could oppose only stone, bronze or wooden clubs, maces and hand axes, plus slingshots and quilted armour. Such imbalances of equipment were decisive in

innumerable other confrontations of Europeans with Native Americans and other peoples.”<sup>4</sup>

However, critics of such views have pointed out the many disadvantages of early firearms, especially in comparison to the bow and arrow and other indigenous North American weapons systems.<sup>5</sup> Nonethe

less, European and Aboriginal observers during the late eighteenth and early nineteenth centuries considered firearms to have had a major impact on Aboriginal intertribal military relations.<sup>6</sup> For example, fur trader and explorer David Thompson noted that during the late 1700s and early 1800s, “iron heads for their [Pikani] arrows are in great request but above all Guns and ammunition. A war party reckons its chance of victory to depend more on the number of guns they have than on the number of men.”<sup>7</sup> In regard to the Swampy Cree on the coast of Hudson Bay, Thompson went even further by stating that if they were deprived of guns, they would no longer be able to provide for themselves by using bows and arrows.<sup>8</sup>

On the other hand, contemporary writers have indicated the technical flaws and logistical problems connected to muzzle-loading, single-shot firearms.<sup>9</sup> These apparently contradictory assessments seem especially stark for the Northern Plains, where the introduction of firearms has been connected to momentous changes in the military relations among different

Indigenous groups, but where bows and arrows remained in use as combat and hunting weapons until the destruction of the bison herds in the late nineteenth century.<sup>10</sup>

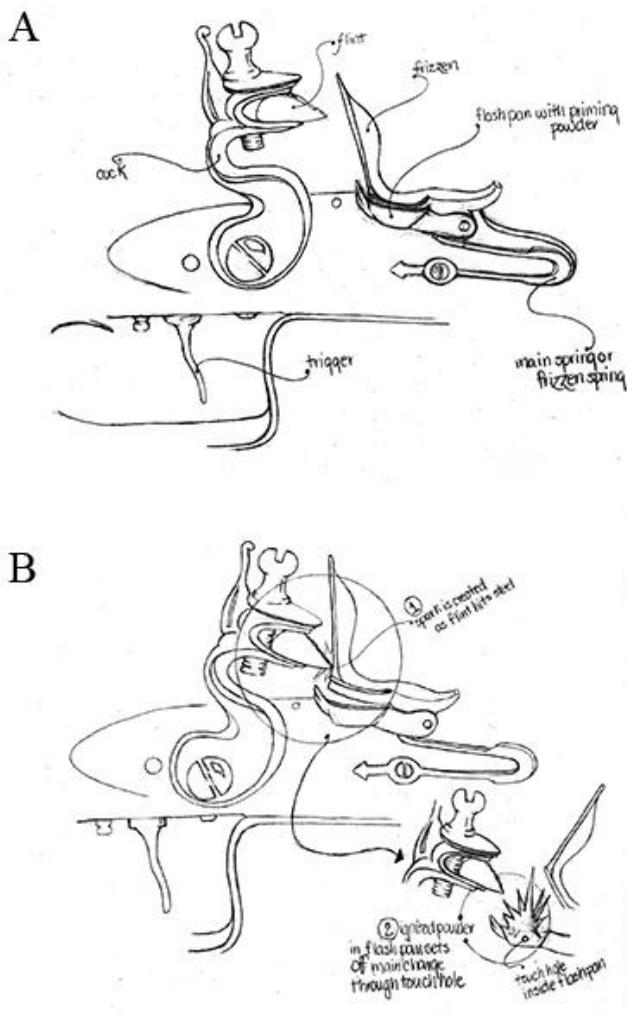
To shed more light on these questions it is necessary to closely examine the major types of firearms available to Aboriginal people through the fur trade and to describe the manner of their use. It is beyond the scope of this study to cover every type of firearm available to Aboriginal people from 1670 to 1870. Rather, muzzle-loading, smoothbore long guns will be emphasized because these were the first firearms introduced to Aboriginal peoples of the Plains and Subarctic, and they comprised the majority of firearms available to these people until the mid- to late nineteenth century. It is the introduction of these guns that is generally credited with having altered Aboriginal cultures, hunting methods, and military relations. By the time breech-loading or repeating firearms became available, specific patterns of firearms use had already developed in the Plains and Subarctic, based on Aboriginal experience with smoothbore, muzzle-loading firearms.

#### Types of Firearms Sold in the Fur Trade

English gun making was not very well developed in the seventeenth century, and many guns sold by English companies were of Dutch or German manufacture. However, by the late seventeenth century English gun making had improved and

expanded.<sup>11</sup> From approximately 1650, muzzle-loading smoothbore firearms were the standard weapons in Europe and among Europeans in North America. Muzzle-loading rifles, guns with spiral grooves (rifling) inside the barrel to increase range and accuracy by increasing the spin of the bullet, were primarily manufactured for sportsmen and hunters, while smoothbore guns remained the main weapon for military purposes into the 1850s, when ammunition in metal cartridges and breech-loading guns began to gain prominence.<sup>12</sup>

Muzzle-loading firearms differed mostly in their lock types. Most of these weapons needed two kinds of powder. They had to be loaded with coarse powder for the main charge, often followed by a patch or wad and a lead ball or shot. The main charge was then ignited by fine priming powder in the pan. The pan was connected to the inner end of the barrel by a small bore, so that when the fine priming powder in the pan was ignited, the flame from the priming powder could reach the main charge. Major improvements in muzzle-loading firearms consisted mainly of different ways to ignite the priming powder.<sup>13</sup>



**Fig. 44.** Flintlock mechanism. *A*: Parts of the flintlock mechanism. *B*: The ignition system of the flintlock mechanism. Drawings by Margaret Anne Lindsay.

Throughout the seventeenth century, muzzle-loading matchlock weapons were common. In matchlock weapons, a burning match cord was pressed into the pan to ignite the priming powder. Matchlocks had several disadvantages, and Swampy Cree traditions tell of frequent accidents with them.<sup>14</sup> Because these weapons required a constantly burning match when in use, accidents with unintentionally ignited powder were common. The smoke from the burning match made concealment of the user difficult, and the smell may have alerted enemies or animals to the hunter's presence. Furthermore, they were very heavy and had to be supported on a forked rest when firing. This made it very awkward to fire the weapon from a crouching position or at moving targets, as was commonly necessary when hunting.

By the early eighteenth century the more reliable and less complicated flintlock superseded the matchlock. Its main advantage was that the constantly burning match was replaced by a piece of flint, held in the hammer of the flintlock. When the trigger was pulled, a spring pushed the hammer down. This made the flint strike the frizzen and cause a spark. The spark then fell into the pan and ignited the priming powder, which ignited the main charge (see Fig. 44).<sup>15</sup>

Although the flintlock was much safer and more convenient than the matchlock, it still had several disadvantages. The powder in the pan caused a

highly visible flash and created a great deal of smoke. The flashes of pan and muzzle and the cloud of smoke hanging in the air after the shot all revealed the gun's position. Keeping the powder dry was another major problem. As well, reloading the weapon in the regular manner was slow. This factor has often been pointed out as the major disadvantage of flintlock firearms in comparison to bows and arrows.

### Rate of Fire of Firearms and Bows

Loading and firing a muzzle-loading flintlock gun in the regular manner involved several steps and considerable effort. The hammer had to be placed at the "half cock" position and a priming powder charge had to be poured into the open pan, which was then closed by pulling back the steel (frizzen).<sup>16</sup> Then the butt of the gun was placed on the ground, powder was poured down the muzzle and the wadding and ball were inserted. The ramrod was drawn from its position underneath the barrel, turned and inserted into the muzzle to push wadding and ball down the muzzle and firmly seat them against the powder charge. This step was important, since a gap between the powder charge and the ball could result in the breech of the gun exploding into the user's face and hands. Sometimes a second piece of wadding was added to prevent the musket ball from rolling away from the powder charge and out of the barrel. Next, the ramrod was withdrawn from the muzzle and placed back into its fittings

underneath the barrel. Then the piece could be cocked and fired.<sup>17</sup>

The loading speed further depended on whether the weapon was a smoothbore or had a rifled barrel. With smoothbores, balls of a considerably smaller diameter than the inner diameter of the barrel could be used, which made them glide down the barrel much more easily, thus reducing loading time, but at the expense of accuracy and range. With a rifled barrel, the ball had to fit tightly for the rifling to impose a spin on the bullet in order to increase accuracy, but forcing it down the barrel took more time than inserting a loose-fitting one.<sup>18</sup> There are several estimates of the rate of fire that could be achieved with smoothbore military firearms of the late eighteenth century, such as the British “Brown Bess,” which was the standard weapon of British troops during the late eighteenth and early nineteenth centuries. The average estimate was that a well-trained soldier could fire three shots per minute, so long as no careful aiming was required.<sup>19</sup>

While ethnographers and anthropologists recorded several accounts of older relatives or tutors training Aboriginal boys in archery, there is little information on how and from whom Aboriginal people acquired knowledge in the use and maintenance of firearms.<sup>20</sup> HBC officer Andrew Graham recorded: “When I commanded Churchill Factory Anno Domini 1773, 4 and 5 I trained up

four young Esquimaux to use fire-arms, and left them fully a match for our best Indians, either at an object sitting or on the wing.”<sup>21</sup>

In the early twentieth century, the Blood Indian Three Bears related a story detailing how the Blood received their first firearms as gifts of peace from the Cree in exchange for horses. The Cree were said to have set up targets and taught the Blood leaders how to use these weapons.<sup>22</sup> Another account recorded in the 1950s by Joe Little Chief, a Blackfoot from Cluny, Alberta, described how European traders came to the Blackfoot country by boat, sold the first firearms to the people, and taught them how to load and fire these weapons.<sup>23</sup> However, it is likely that for the most part, after some initial instruction by fur traders or Aboriginal middlemen who sold the weapons, or by some more experienced fellow tribesmen, Aboriginal people gained their mastery of firearms largely by trial and error.<sup>24</sup>

While this manner of learning could be dangerous and accident prone, it left the learners free to take an approach to handling firearms that could differ from European military regulations. Aboriginal people had no military practice manuals or drill sergeants to worry about, yet they were very keen to achieve the results they wanted with the equipment available to them. Free of military drill and regulations, an experienced user could overcome the slow loading speed by using several risky shortcuts in loading and priming a

muzzle-loading weapon, especially if it was a flintlock. Keeping a powder charge in the gun long before the shot, and then only adding the bullet when needed, was one way to cut back loading time. Aboriginal people in the Plains often kept a second powder charge ready in one hand and several musket balls in their mouths, ready to spit them into the muzzle in order to save time when reloading.<sup>25</sup> This was especially important when using a muzzle-loading gun on horseback at high speeds. However, while it was possible for experts to reload their muzzle-loading firearms on horseback at a gallop, most gun users had to dismount to reload their weapons.<sup>26</sup>

As Maurice Doll has demonstrated, for smoothbore weapons the use of a ramrod and wadding could be avoided by simply banging the gunstock on the ground sharply, to make a more loosely fitting bullet slide down the barrel and rest directly against the previously inserted powder charge. Instead of using fine powder from a special dispenser for priming the pan, the weapon could be tilted on its side so that the canal between priming pan and main chamber pointed slightly downward. A sharp rap against the side of the breech would then cause some powder from the main chamber to spill onto the pan. Thus, the weapon could be primed in an instant. Using such quick but risky loading methods, users could fire a flintlock smoothbore musket up to six times a minute.<sup>27</sup>

Also pointing to such quick-loading methods are some Blackfoot stories dealing with supposedly magical ways to fire guns without powder and lead, yet with deadly effect. The Piegan elder James White Calf told linguist Richard Lancaster in the late 1950s that certain men among the late nineteenth-century Piegan had obtained magical control over

firearms in dreams or visions. However, Lancaster believed that what White Calf described was actually a quick reloading and shooting method for muzzle-loading guns used by frontiersmen and Aboriginal people alike.<sup>28</sup> This method was similar to that demonstrated by Maurice Doll—one made to appear as if there were no powder and bullets involved in the process, because the time-consuming steps of using priming powder and a ramrod to push the ball down the barrel were omitted.<sup>29</sup>

But even if such shortcuts were used, archers could still far surpass users of muzzle-loading single-shot weapons in their shooting speed. In the time it took to even quick-load a muzzle-loader, a well-practiced archer could shoot three arrows or more. Archery games and contests were very popular in the Plains. One involved an impressive rapid shooting technique: the objective of the game was to keep as many arrows in the air, before the first arrow, launched as high as possible, returned to the ground. According to the American artist and ethnographer George Catlin, who in 1832 observed this game being played at a

Mandan village in present-day central North Dakota, experts could shoot eight arrows before their first one hit the ground.<sup>30</sup>

Catlin commented in detail about the use and mode of shooting among the Mandan and other Plains peoples. His observations are crucial to understanding the actual use of the bow and arrow by Plains peoples in combat and in bison hunting on horseback.

I have seen a fair exhibition of their archery this day, in a favourite amusement which they call “the game of the arrow,” where the young men who are the most distinguished in this exercise, assemble on the prairie at a little distance from the village, and having paid, each one, his “entrance fee,” such as a shield, a robe, a pipe, or other article, step forward in turn, shooting their arrows into the air, endeavouring to see who can get the greatest number flying in the air at one time, thrown from the same bow. For this, the number of eight or ten arrows are clenched in the left hand with the bow, and the first one which is thrown is elevated to such a degree as will enable it to remain the longest time possible in the air, and while it is flying, the others are discharged as rapidly as possible; and he who succeeds in getting the greatest number up at once, is “best,” and takes the goods staked.

In looking on at this amusement, the spectator is surprised; not at the great distance to which the arrows are actually sent; but at the quickness of fixing them on the string, and discharging them in succession; which is no doubt, the result of great practice, and enables the most expert of them to get as many as eight arrows up before the first one reaches the ground.

For the successful use of the bow, as it is used through all this region of country on horseback, and that invariably at full speed, the great object of practice is to enable the bowman to draw the bow with suddenness and instant effect; and also to repeat the shots in the most rapid manner. As their game is killed from their horses' backs while at the swiftest rate—and their enemies fought in the same way; and as the horse is the swiftest animal on the prairie, and always able to bring his rider alongside, within a few paces of his victim; it will easily be seen that the Indian has little use in throwing his arrow more than a few paces; when he leans quite low on his horse's side, and drives it with astonishing force, capable of producing instant death to the buffalo, or any other animal in the country.

The bows, which are generally in use in these regions, I have described in a former Letter,

And the effects produced by them at the distance of a few paces is almost beyond belief,

considering their length, which is not often over three, and sometimes not exceeding two and a half feet. It can easily be seen, from what has been said, that the Indian has little use or object in throwing the arrow to any great distance. And it is very seldom that they can be seen shooting at a target, I doubt very much whether their skill in such practice would compare with that attained to in many parts of the civilized world; but with the same weapon, and dashing forward at fullest speed on the wild horse, without the use of the rein, when the shot is required to be made with the most instantaneous effect, I scarcely think it possible that any people can be found more skilled, and capable of producing more deadly effects with the bow.<sup>31</sup>

Some contemporaries, such as the ethnographer George Bird Grinnell, who also had had extensive contacts with Northern Plains peoples, considered Plains Indian archery at least as effective as early revolvers: “At the most effective range—say from forty to seventy yards—an Indian could handle a bow and arrows more rapidly and more effectively than the average man could use a revolving pistol of that time. . . . Stories are told of an occasion when the Cheyennes armed with [sinew-backed] bows kept off an attacking party of Crows who had some guns.”<sup>32</sup>

Because of this high shooting speed and the often very short distances of combat, victims of

Aboriginal archery often received multiple arrow wounds, and probably a higher number of serious injuries, thus disabling an opponent more quickly.<sup>33</sup> Thus, under equal conditions, an experienced archer could exceed the shooting speed of even an experienced user of a single-shot muzzle-loading firearm. This superiority of bows and arrows began to fade only with the advent of revolvers in the late 1830s and the introduction of breech-loading and repeating firearms using cartridge ammunition in the 1860s.<sup>34</sup>

#### Emergence of the “Northwest Gun”

When the “Brown Bess” was adopted as the standard English military firearm in 1705, it probably freed large numbers of older and lighter English military guns for sale.<sup>35</sup> At this time, the common English light sporting or general-purpose musket was referred to as a “fusil.” These weapons were similar to a military musket but were of a lighter caliber. They comprised the majority of firearms traded to Aboriginal people at the time.<sup>36</sup>

A list of standard HBC trade goods from 1748 includes “Guns, 4 foot . . . 31/2} foot . . . 3 foot.”<sup>37</sup> This probably refers to guns of barrel lengths of 48 inches (4 feet), 42 inches (3.5 feet), and 36 inches (3 feet), implying a certain degree of standardization in firearms manufacture. These weapons were the precursors of a smoothbore flintlock weapon that became most popular among

Aboriginal peoples in North America after the fall of New France in 1760. It was known as the “Northwest Gun.” This term referred to the area where these weapons were sold and not to the North West Company of Montreal, which was founded later. Another name for this firearm was “London fusil,” after the city where most of them were manufactured.<sup>38</sup>



**Fig. 45.** Generic “Northwest” trade gun. The Hudson’s Bay Company, the North West Company, the American Fur Company, the Mackinaw Company, and the U.S. Indian Trade Office all sold or distributed such weapons to Aboriginal people during the nineteenth century. Drawing by Margaret Anne Lindsay.

Montreal merchants recognized the demand for more reasonably priced firearms among the Aboriginal people of the Great Lakes region. They requested English gunsmiths to manufacture a light and cheap but serviceable firearm that could be used with ball and shot. The resulting product incorporated as many manufacturing shortcuts as possible. The curved butt plate was replaced by a straight one made of sheet brass, and the

ornamental trigger guards were replaced by plain ones of iron, but were made wider to allow the use of mittens and gloves when firing the weapon. Decoration was reduced to a side plate in the shape of a sea serpent or dragon, which could be cheaply cast in a mold (see Fig. 49).<sup>39</sup>

Despite all these shortcuts, trade guns were still not cheap. At York Fort in 1689–90 a “short” gun cost ten marten pelts and a “long” gun twelve, while four marten pelts corresponded to one beaver pelt in value.<sup>40</sup> John Oldmixon recorded in 1708:

**The STANDARD how the *Company’s* Goods must be barter’d in the *Southern Part* of the *Bay*.**

Guns. *One with the other 10 good Skins; that is, Winter Beaver; 12 skins for the biggest sort, 10 for the mean, and 8 for the smallest.*

Powder. *A Beaver for half a Pound.*

Shot. *A Beaver for four Pounds.*

Powder-Horns. *A Beaver for a large Powder-Horn and two small ones.*<sup>41</sup>

In 1715 the HBC paid 20 shillings per gun, while the British Board of Ordnance paid 22 shillings for each Brown Bess musket.<sup>42</sup> However, these prices fluctuated depending on how much the HBC was willing to pay its gunsmiths. For example, the

company paid 21 shillings in 1713–14, 20 shillings in 1715–16, and 23 in 1717, probably because of varying quality and price agreements with the gunsmiths. In 1716 James Knight complained that the guns he had to sell did not meet the quality of those he had sold in 1714. In this instance poor quality may reflect an attempt by the HBC to reduce costs.<sup>43</sup> Overall, from 1680 to 1728 the price the HBC paid for guns remained fairly stable, around 22 shillings, with a price increase up to 26 shillings in 1698, while 24 shillings was common in the first decade of the eighteenth century.<sup>44</sup>

In France each trade gun cost 10 francs and 10 sols in 1701. In North America the French Canada Company sold a pound of shot or three gunflints for one beaver skin in 1742. A pound of powder cost four skins, a pistol cost ten, and a gun cost twenty skins.<sup>45</sup> The HBC also charged twenty beaver skins for a trade gun at that time and still maintained this price a century later.<sup>46</sup> During the late eighteenth and early nineteenth century the North West Company and American fur trade firms also sold trade guns of the Northwest type in great quantities. In 1833 Prince Maximilian observed at Fort Union on the Upper Missouri in western North Dakota that “most of the Assiniboine people [who visited the fort] have guns, the stocks of which they ornament with bright yellow nails, and with small pieces of red cloth on the ferrels [“ferules”]

for the ramrod.”<sup>47</sup> These were “the common Mackinaw guns, which the Fur Company obtains from England at the rate of eight dollars a-piece, and which are sold to the Indians for the value of thirty dollars.”<sup>48</sup> In the United States these weapons were not only sold by fur traders but also distributed by the U.S. government as part of treaty payments after American independence in 1783. The Northwest gun eventually became the principal firearm not only for Aboriginal people but also for trappers and Métis.<sup>49</sup>

Northwest guns used the lightest ball that could still be effective against big game, yet its bore was large enough to use the weapon as a shotgun. Because it was a smoothbore, even makeshift projectiles could be used when regular ammunition was lacking. Northwest guns were mostly 24-gauge (about .58 caliber) and were bored for using a 30-gauge ball.<sup>50</sup>

Trading companies generally stocked guns with barrel lengths from 76.2 to 121.92 centimeters (30 to 48 inches). These barrel lengths were the same as those of other muzzle-loaders used by non-Aboriginal people on the frontier at that time.<sup>51</sup> According to Arthur J. Ray, shorter guns of about three feet in length became popular with the Parklands and Plains peoples, while Aboriginal people living in the northern forest seem to have preferred the longer four-foot models. Natives in boreal forest regions often

hunted individual animals such as moose at greater distances, requiring an accurate shot at medium to long range, which was facilitated by a longer gun barrel. In dense underbrush, bullets were not deflected by branches as arrows might be, an important consideration when shooting at a distance of 20 meters or more in dense bush. Furthermore, a bullet could kill an animal instantly, while an arrow wound might not cause instant death, obliging the hunter to track it for some distance. In the Parklands and Plains, however, long-distance shots were not of such crucial importance. A gun's ease of handling on horseback was a more important consideration in the Plains and may explain the Plains peoples' preference for shorter guns.<sup>52</sup>

Most Aboriginal people preferred a firearm that was powerful enough to kill big game at close range but light enough to be carried all day with comfort. Judging by recovered weapons fragments from archaeological excavations at Iroquois village sites in upstate New York, dating from the mid-seventeenth to the mid-eighteenth century, Iroquois people used light but sturdy weapons, adequate for hunting and close-range combat.<sup>53</sup> In 1808 a party of Kainai (Blood) and Gros Ventre des Prairies attacked American trappers working for Manuel Lisa on the Missouri. Subsequently they brought some of the items taken from the Americans to Edmonton House where the post journalist recorded: "Amongst other plunder, they have brought us a

rifle Gun which, on account of its weight, they consider as of little Value.”<sup>54</sup>

By the middle of the eighteenth century double-barreled shotguns, at first with flintlocks, became popular among those Aboriginal groups with regular access to trading posts.<sup>55</sup> According to Louis Bird, Omushkego-Cree people considered these weapons a great improvement from the earlier single-shot weapons: “One other thing about the gun is that the first one only shot once and then they improved and a new design was a double barrel and that’s improved more. And improved their hunting technique and also improved their lifestyle; after that it was the repeating rifle that was very good for the big game animals.”<sup>56</sup>

In the 1820s another ignition mechanism, the percussion lock, was introduced. With this new system, flint, frizzen, pan, and priming powder were replaced by a percussion cap that already contained a priming charge. This system was much less affected by wind and dampness than the flintlock. Its disadvantage to Aboriginal people was that they had to purchase percussion caps suited to their model of gun at a trading post, while material for gunflints for a flintlock could be picked up wherever flint naturally occurred. However, many flintlock trade guns were converted to the new ignition system and eventually even manufactured with the percussion lock.

Pistols, too, were also popular with Aboriginal people. They were easier to carry than guns, could be concealed under clothing, and could be used more easily when fighting inside buildings, such as trading posts.<sup>57</sup> Pistols were also well suited to the closeup style of fighting that increasingly came to dominate combat, at least among the Plains peoples. On occasion, Aboriginal people in the Plains shortened the barrels of their trade guns for easier handling on horseback. Sometimes the barrels were cut extremely short and most of the gunstock was cut off to convert the gun into a heavy pistol.<sup>58</sup> The cut-off Northwest gun barrels were sometimes recycled into hide fleshing tools that resembled earlier types made from bison or elk leg bones.<sup>59</sup>

On January 6, 1789, William Walker at the HBC's South Branch House on the lower South Saskatchewan River wrote to William Tomison requesting more "Guns, Pistols, Bayonnets flat, cloth and a few Hatchets." According to Walker, these items were in great demand among the Aboriginal people near his post.<sup>60</sup>

### New Types of Firearms and Improvements in Firearms Technology

The great breakthrough in firearms technology came with the invention of the Colt revolver in 1836. Texas Rangers first used these weapons in combat on a large scale against Comanche people

and other Aboriginal groups in the Southern Plains. Compared to the cumbersome muzzle-loading single-shot Kentucky rifles the rangers had used earlier, revolvers provided greater firepower and a higher rate of fire. Furthermore, revolvers were much easier to use from horseback than the long-barreled Kentucky rifles. Earlier the Texas Rangers had to dismount and use their long-barreled rifles from hastily constructed fortifications. This meant that the initiative always lay with their Aboriginal opponents, who fought from horseback and thus had greater mobility and speed. However, the new revolvers enabled the rangers to fight while mounted and to successfully pursue raiding parties deep into their homeland. By the early 1840s the Texas Rangers began to use revolvers with increasing success against the Comanche and other Southern Plains peoples.<sup>61</sup> In 1851 an improved model, the Navy Colt cap and ball revolver, was introduced.<sup>62</sup> A similar firearm was the Star revolver .44, introduced in 1863.<sup>63</sup> The advantages of the revolver made this weapon desirable to Aboriginal people in the Plains, and eventually they acquired increasing numbers of these firearms.

By the mid-nineteenth century, fixed-cartridge ammunition and breech-loading firearms were developed. These weapons quickly gained prominence, especially among non-Aboriginal civilians on the frontiers of North America. From

the mid-1860s onward, breech-loading single-shot carbines and repeating rifles became highly popular among the Plains peoples. After the American Civil War, Blackfoot groups such as the Piegan, who traded with American traders in north-central Montana, and also Métis people, gained access to large numbers of surplus U.S. military carbines, as well as various types of repeating rifles. James Willard Schultz, who lived and traded among the Blackfoot, wrote that he sold dozens of Henry repeating rifles to the Blackfoot, Cree, and Assiniboine during the 1870s.<sup>64</sup> Nevertheless, Blackfoot people also continued to purchase the standard smoothbore trade guns from the HBC. Schultz described trade guns he saw among the Blackfoot in the 1860s and 1870s: “The old Hudson’s Bay Company flintlock guns were about the length of the powder and ball muzzle-loaders that our army used in the rebellion of the Southern States, and the balls were thirty to the pound. The Indians always profusely ornamented the stock and forearms with brass tacks.”<sup>65</sup>

Aboriginal people manufactured some of the accoutrements necessary to use a firearm. For example, gun cases made from Native tanned leather, sometimes elaborately decorated with quill- or beadwork, from Subarctic and Plains cultures can be found in many museum collections. Two Leggings related that his older brother Wolf Chaser bought a muzzle-loading gun for him and that he subsequently manufactured his

own powder horn and buckskin shot pouch, wearing these items attached to the same carrying strap. He also carried a long forked stick as a support for the barrel of his gun, similar to sixteenth-century Spanish firearms.<sup>66</sup> Prince Maximilian observed: “Like all the Indians[,] they [the Assiniboine] carry, besides, a separate ramrod in their hand, a large powder horn, which they obtain from the Fur Company, and a leather pouch for the balls, which is made by themselves, and often neatly ornamented or hung with rattling pieces of lead, and trimmed with coloured cloth. All have bows and arrows; many have these only, and no gun.”<sup>67</sup>

The Hudson’s Bay Company stuck to its established product, the muzzle-loading trade gun, and refused to sell repeating firearms of any kind to Aboriginal people. By the 1860s and 1870s only a few of these Northwest guns were flintlocks, as most were percussion models. The HBC’s refusal to sell repeating firearms put the Plains Cree and Assiniboine at a serious disadvantage in their hostilities with the Blackfoot.<sup>68</sup>

As violent conflict in the Plains intensified and more advanced firearms technology became available to Aboriginal people, muzzle-loading smoothbore firearms faded in importance. When a group of Lakota and Cheyenne surrendered their weapons to the U.S. military in 1877, there were 160 muzzle-loaders among them. Two of these

were flintlocks and only one was a smoothbore; all the others were percussion locks, nearly all of them rifles.<sup>69</sup> Although breechloaders became relatively common among the U.S. Plains Indians during the 1870s, muzzle-loading percussion rifles continued to be of importance. A Cheyenne explained it thus: “The muzzle-loaders usually were preferred, because for these we could mold the bullets and put in whatever powder was desired, or according to the quantity on hand.”<sup>70</sup> Apparently the slower reloading speed of muzzle-loading rifles did not cause Cheyenne warriors to stop using these weapons.

The HBC introduced percussion trade guns in 1861, but the older flintlock models remained in stock for decades thereafter, although their production numbers declined. In its percussion-cap version, the Northwest gun was still in effective use by Aboriginal people in northern Canada in the 1880s.<sup>71</sup>

#### Quantities of Firearms Sold to Aboriginal People in the Fur Trade

Numbers of gun sales to Aboriginal people are difficult to obtain for the period before 1800. The minutes of HBC board meetings list 170 fowling pieces, together with powder and shot as cargo in an outgoing ship in 1670 and 200 fowling pieces and ammunition in 1671.<sup>72</sup> In 1683 the HBC sold a total of 363 guns, thirteen at Rupert River in the

southeast of Hudson Bay, twenty-six at Hayes Island on the Moose River (an early site of Moose Fort), and 324 at Albany River (Albany Fort).<sup>73</sup> Yearly shipments varied greatly, from a high of 1,273 to as low as 100 for 1688.<sup>74</sup> Most of these firearms probably went to Aboriginal people in the Hudson Bay area. T. M. Hamilton estimated that on average the HBC sold approximately 476 guns per year.<sup>75</sup>

From 1775 to 1780 a total of 3,947 firearms were sold at Fort Michilimackinac.<sup>76</sup> Aboriginal middlemen then traded many of these weapons to Aboriginal groups living farther west. After an initial glut in the 1760s, the numbers of firearms sold to Aboriginal people in the Northern Plains during the last two decades of the eighteenth and through the early nineteenth century seems to have been rather low. If the eighteen guns and four pistols in stock at Manchester House in April 1787 were representative, it would point to a rather low number of firearms being sold at HBC posts in the region. Similarly, four years later William Tomison complained about not having enough guns and pistols to trade. He wrote that he even had to borrow three pistols from his own employees to trade to his customers.<sup>77</sup>

In November 1792 Tomison, trading with Sarcee people at the HBC's Buckingham House, noted: "finished trading with the [Sarcee] Indians and they went away, these have brought 550

parchment Beaver, which is the most I ever saw this Tribe bring, I had 28 Guns when they came but now they are reduced to 18.”<sup>78</sup> A few months later the supply of firearms for sale to Aboriginal people was almost depleted at Buckingham House. James Tate, then in charge of the post, wrote to his superior on March 1, 1793: “My Trade at present amounts to 4000 parchment Beaver and 500 Wolves with very little of any other kind, and there has been no Muddy river Indians [Pikani] in since the fall, and very few of Blood Indians and what I am to do with them for want of Guns I know not, as I have but 5 left, it grieves me to lose Indians for want of goods.”<sup>79</sup>

In December 1831 a group of Piegan trading with James Kipp of the American Fur Company turned in 6,450 pounds of beaver, receiving 160 guns in exchange. They intended to use them against their western neighbors.<sup>80</sup> Looking at sales figures for the HBC posts Brandon, Cumberland, and Carlton House from 1811 to 1814, Arthur J. Ray was able to show that the total numbers of firearms sold at these three posts were such that only one in ten families of Aboriginal customers ended up owning a gun.<sup>81</sup> At first glance such sales figures seem rather low, but without more precise information on the population numbers of the Aboriginal groups who came to trade, it is difficult to estimate how many Aboriginal people carried firearms and what percentage of their community they represented. Furthermore, other

traders competing with the HBC were active in the region and Aboriginal people could have obtained some of their firearms through Aboriginal middlemen as well. This makes it very difficult to assess the total numbers of firearms sold to Aboriginal people.

In order to determine how well armed the Northern Plains peoples were, it would be beneficial to relate firearms sales figures to the population numbers of the Aboriginal customers.<sup>82</sup> However, this is difficult, because often fur traders did not specify the numbers of persons, or “lodges” or “tents,” in the Aboriginal groups who came to trade at their posts. In a rare instance, William Tomison noted in early December 1793 that four tents of Sarcee traded ten guns at Buckingham House. This was more than half the total number of guns Tomison had at his post.<sup>83</sup> Unfortunately, Tomison did not specify how many people lived in one tent, whether they were middlemen trading with other Aboriginal groups, or whether they bought these firearms for their own use only. The Blackfoot White Eagle mentioned a wealthy late nineteenth-century Blackfoot named Elk Bull (Po-nok-se-ta-mek) and his wife, Only Woman (Ne-je-ta-ke). Elk Bull was so well off that he owned “4 guns, 2 bows and arrows, 1 Medicine Pipe 2 axes and a lot of horses.”<sup>84</sup>

Over the next two and a half decades the numbers of firearms available at least to some Aboriginal

groups in the Plains rose sharply. In early 1818 Peter Fidler observed at the HBC's Brandon House that "the Mandan now at the Cree Tents 40 miles off will soon return, some others came with him from the villages but their wives prevailed on them to return our Inds say some of the Mandans have from 6 to 10 Guns and every Man one at least keeping them carefully for Defence."<sup>85</sup>

Unfortunately, it is extremely difficult to correlate the numbers of firearms among the Mandan with their population. Population estimates for the Mandan before the smallpox epidemic of 1837 vary widely, and the 1781 smallpox epidemic may already have left fewer than fifteen hundred individuals.<sup>86</sup> When George Catlin visited the Mandan villages in 1832, he estimated the population at two thousand persons. Prince Maximilian, who visited the Mandan a year later, thought there were between nine hundred and one thousand. In 1835 and 1836 the annual report of the U.S. Commissioner of Indian Affairs listed the Mandan with a population of fifteen thousand. However, the report for 1837, before the epidemic, gave a figure of only thirty-two hundred.<sup>87</sup>

Population estimates for the different Blackfoot groups who were major customers of the HBC are similarly confusing for the first half of the nineteenth century. Population numbers were of practical importance to fur traders because they needed to know the number of potential customers

in an Aboriginal group and also the number of warriors, in case of impending hostilities. Fur traders who counted Plains Indian populations in terms of lodges generally assumed seven to ten people lived in one lodge, of whom three were considered warriors. The Blackfoot Eagle Ribs stated in 1938 that “a good sized band comprises 20 tipis (each full of people). This is the best number for efficiency’s sake.”<sup>88</sup> According to the traders’ estimates, this would put the number of persons in the band at 140 to 200.

In 1809 Alexander Henry the Younger estimated the total population of the Piegan/Peigan, Blackfoot, and Blood at 650 lodges with 1,420 warriors. Allowing an average of eight persons per lodge, this would make a total of approximately fifty-two hundred people. In 1832, when George Catlin visited with Piegan people at Fort Union on the Upper Missouri (on the present Montana–North Dakota border), he obtained very different information from his Piegan hosts. He estimated the total Blackfoot population at 16,500 persons, averaging ten persons per lodge. His estimate, however, is still lower than that of Prince Maximilian, who in 1833 estimated the total Blackfoot population at eighteen thousand to twenty thousand persons.<sup>89</sup> In 1854 James Doty, assistant to the newly appointed governor of Washington Territory, Isaac Stevens, again estimated lower total population numbers for the Blackfoot groups. In his estimate there were 850 lodges with a total of 7,630 persons. Of these,

2,550 were warriors.<sup>90</sup> The devastating smallpox epidemic of 1837 may account for the lower population numbers.

Judging from the number of surviving trade guns from the period after 1820, and also from 1780 to 1820, Charles Hanson argues that a very large number of these weapons must have been sold to Aboriginal people. Applying an estimated “rate of survival,” Hanson compared the numbers of firearms purchases of the American Fur Company with the numbers of surviving similar specimens today and arrived at a ratio of about one in a hundred.<sup>91</sup>

However, the fluctuation in the number of firearms sold to Aboriginal people needs to be considered. In some years only a few weapons reached their customers, while in other years large numbers of guns and pistols were sold. Furthermore, it can be assumed that those Aboriginal people with direct access to a trading post obtained higher numbers of firearms than those who had to trade through Aboriginal middlemen or had no access to European trade goods at all. The Upper Missouri villages, for instance, were a major trade center linking Aboriginal customers from the Plains and the Parklands with European trade from Hudson Bay, Montreal, and St. Louis. Therefore, the Mandan were in an ideal position to obtain large numbers of firearms. The Mandan carefully chose whom to trade them with, making sure these weapons

would not be turned against their former owners. The Blackfoot-speaking peoples and other Plains groups who traded directly with the HBC and the Montreal-based traders also obtained a more or less steady supply of firearms and ammunition. On the other hand, Aboriginal groups in the Rocky Mountains, such as the Eastern Shoshone and the Kutenai, had comparatively little access to European trade and firearms.

### Servicing of Firearms

Muzzle-loading flintlock guns came into such universal use that Aboriginal people eventually learned the basics of gunsmithing to service their own weapons. Over time, specialists emerged, similar to the expert bow and arrow makers discussed in the previous chapter. A large cache of seventeenth-century gun parts was found in the 1950s at a New York Iroquois site. Another cache of flintlock parts came from a Pawnee village in modern Nebraska, dating approximately to 1820–45.<sup>92</sup> This archaeological evidence shows that at least some Aboriginal groups in the Eastern Woodlands and Great Plains took care of minor repairs or exchanged damaged parts of their firearms.

However, gun repair often required the use of a forge, an anvil, and other specialized tools not usually available to Aboriginal people. This and the inferior quality of certain gun parts, such as springs, made the refurbishing of firearms before sale almost a standard practice at HBC posts. It

often involved considerable work and sometimes included the replacement of not only springs and locks but also gunstocks, which were frequently manufactured at the posts.<sup>93</sup> Before the introduction of the Northwest gun, firearms were individual, more or less “custom made” weapons. Thus no two guns and their individual parts were exactly alike. From the 1760s on, with the advent of the Northwest gun, a certain degree of standardization entered large-scale firearms manufacture. Northwest guns were relatively standardized for mass production. Therefore parts were interchangeable to some extent. These guns were considerably less expensive than rifles of the period.<sup>94</sup> However, industrial mass production of firearms, and thus the interchangeability of parts, did not occur on a larger scale until the first decades of the nineteenth century.<sup>95</sup>

The HBC provided liberal technical support for Aboriginal peoples’ firearms purchased from the company, often as an inducement for newcomers to continue trading with the HBC. Post journals frequently referred to the post blacksmith or the armorer repairing Aboriginal peoples’ firearms, often on credit. At Albany in 1784, for example, the armorer was “repairing Indians guns several of whom took debt.”<sup>96</sup>

Similarly, in the Plains, the Buckingham House journal shows the entry “the Smith repairing an Indian Gun” three times for the period from

January 5 to February 18, 1793.<sup>97</sup> Servicing of a firearm was also provided to an old Blood Indian man, who had come to Manchester House with his family for the first time, as an inducement for him to come back. He had probably obtained his gun from other Aboriginal people, before directly trading with HBC personnel.<sup>98</sup> Servicing firearms was also provided for a whole encampment of Gros Ventre des Prairies (Fall Indians).<sup>99</sup> However, when in November 1786 an Aboriginal man brought a so-called French gun, which had probably been obtained from the North West Company, to Manchester House for repairs, servicing was refused, likely because the weapon had come from the HBC's competitors.<sup>100</sup>

While poor quality of firearms could prove a serious obstacle to selling these weapons to Aboriginal people, their appearance also influenced Aboriginal customers' response. Thus, James Bird at Carlton House noted in a letter to his superior George Sutherland at Edmonton House in 1796 that "I find our Guns this year very indifferent both in their Locks & Stocks those are in general a dark red and of course not much fancied by the Indians: our Neighbours Guns far surpass them in appearances."<sup>101</sup>

The quality of these early firearms, while still fluctuating, was apparently eventually raised to a level acceptable to Aboriginal customers, because

these weapons became increasingly popular in the western Plains. According to William Walker, in charge of Manchester House in March 1790, the Blackfoot, Blood, and Pikani would travel far just to get an “English gun.” He also noted that his supply of such firearms was so low that he couldn’t satisfy the customers’ demands.<sup>102</sup>

The popularity of the firearms sold by the HBC seems to have become such that the competition eventually took to counterfeiting the HBC’s gun labels to increase their own sales. William Tomison noted that in March 1788, an Aboriginal man had brought in a gun 31/2 feet long, which had been brought from “Canada.” It was stamped with the same marks as the guns sold by the HBC. Tomison exchanged it for another gun and planned to send it to England as proof of counterfeiting undertaken by the competition.<sup>103</sup>

Usually Northwest guns sold by the North West Company were stamped with a sitting fox-like animal, facing

right, enclosed in a circle. Hudson’s Bay Company guns, at least after 1821 but probably also earlier, carried a similar fox mark, but their animal faced left and was often enclosed in a frame in the shape of a tombstone.<sup>104</sup>

Furthermore, proofmarks and side plates identified the origin of weapons. As mentioned, Northwest guns usually had cast brass side plates in the shape of a sea serpent or dragon. The side plates used on French military and civilian

weapons differed considerably from those on the Northwest guns.<sup>105</sup>

### Manufacturing and Material Problems of Firearms

Early firearms such as the smoothbore muzzle-loading matchlock, wheel lock, and flintlock weapons have been much maligned as not only inaccurate and slow to reload but also prone to a wide variety of technical failures that could cause severe if not fatal injuries to the user. The traders of the Hudson's Bay Company frequently faced problems such as lack of quality in manufacturing, as well as of the materials used in gun construction. Many post managers were earnestly concerned about these problems, since they could result in serious harm to their customers and drive them to trade with the competition. Thus, John Kipling at the HBC's Gloucester House north of Lake Superior wrote in the fall of 1782: "I am sorry to observe the badness of our guns becomes a General Complaint among all the Indians."<sup>106</sup>

While early firearms worked well in Europe, even in the damp British winters, their problems in North America may have been due in part to the metal parts not being able to withstand the extreme cold on Hudson Bay or the Northern Plains. Thus, HBC trader William Tomison at Manchester House on the lower North Saskatchewan River wrote 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>107</sup> Eventually the springs of almost all the trade guns at Manchester House needed to be replaced before the weapons could be offered for sale.<sup>108</sup>

Problems with metal parts not functioning properly in extremely cold weather extended to items other than firearms. On several occasions Tomison complained about ice chisels and hatchets not working properly: “1793 January, 2nd Wednesday . . . smith & 1 man making hinges for Doors out of bad Ice Chizzels which Indians has refused and gone without and would not take them for nothing by sending such bad articles to his part of the Country is a means to diminish the Trade in the [illegible] of promoting it.”<sup>109</sup> Tomison observed further: “Smith and 1 man making awl blades out of what was sent up for beaver Hooks but unfit for that purpose.”<sup>110</sup>

According to Louis Bird, Omushkego-Cree traditions also frequently mention the malfunctioning of firearms’ metal parts in the cold.<sup>111</sup>

During the seventeenth and early eighteenth century many Europeans believed that places of similar latitude had a similar climate, and that therefore metal parts manufactured in England should function properly on Hudson Bay.

However, the continental climate of North America lacks the climatic moderation brought to Britain by the Gulf Stream. In addition, from roughly 1450 to 1850 the “Little Ice Age” affected northern North America and parts of Europe. During this time the mean summer position of the arctic front was farther south, placing Churchill and York Factory in the arctic climatic region. After 1760 the climate warmed, moving the line of the arctic front north. This placed York Factory but not Churchill in the boreal forest climatic region, where even from 1930 to 1960 the average year-round temperature was still only minus 7.3°C.<sup>112</sup> Notwithstanding British perceptions that climate at the same latitude should be the same, fur traders like Alexander Mackenzie, who had years of exposure to the northern North American environment and the climate observations of Aboriginal people, clearly recognized the effect the vast open waters of Hudson Bay and the prevailing north winds had on the country’s climate, leading to much longer and colder winters in North America than in areas of the same latitude in Europe.<sup>113</sup>

Technical liabilities sometimes extended to large gun parts that could not be replaced easily, such as the breech. Thus, in November 1795 several Pikani-Blackfoot returned their newly acquired firearms to Edmonton House as useless. William Tomison, then in charge of that post, urgently pointed out to his superiors the flaws of the firearms the HBC was

selling: “My reason for sending for the Smiths’ tools is by reason of the badness of Guns want of Nails fire steels etc., many of the Guns the Indians has brought back that they had in Credit some of which has not been more than once fired out of, being split two Inches from the Britchs [breech], several Indians were disabled last season by their hands being shot away this with other circumstances will reduce the Trade very much.”<sup>114</sup>

While en route from Cumberland House to the east end of Lake Athabasca, Peter Fidler made a similar observation: “The Indian burst 6 Inches from the Muzzle of his gun in firing at Swans.”<sup>115</sup>

It is impossible to tell whether these accidents were caused by inferior manufacturing quality of the weapons or by improper use, such as overloading the gun or neglecting to clean the barrel, which would result in powder residue from the main charge eventually clogging up the gun barrel. This clogging made reloading difficult and hazardous because the weapon might explode when the barrel was too clogged. To be as safe as possible, black-powder firearms had to be cleaned thoroughly after each use.

It is important to take into consideration that Aboriginal people acquired the skills to handle European weapons, as with archery, in a gradual learning curve. However, mistakes in handling firearms could quickly lead to serious injury or death, which was rarely the case with archery

equipment. Robert Jefferson, observing mounted Plains Cree bison hunters using firearms in the later nineteenth century, described such accidents:

The guns, as discharged, are loaded again while racing:—a measure of powder poured into the muzzle haphazard, next a bullet rolled down the barrel from a store kept in the mouth, with a cap from a little circular arrangement on which they are stuck—and the hunter is ready for the next shot; no wads or paper or anything to keep each part of the load in its place. Of course the gun barrel must be kept in a semi-upright position till it can be aimed and discharged at the same moment. Many were the hands maimed, fingers blown off and other mischances by guns bursting owing to the bullet sticking in a dirty barrel.<sup>116</sup>

Problems with gun parts and metal tools not functioning properly likely reflect European misconceptions about the North American climate and the level of European metal technology at the time, rather than inferior workmanship per se. In the long run, manufacturing deficiencies and material problems did not prevent Aboriginal people from using firearms, but to be of advantage to them, firearms had to perform at least as well as their traditional weapons. Jefferson's account makes this clear, because during the same bison hunt he also observed some Plains Cree hunters using bows and arrows with just as much success as other hunters used their guns.

It is important to put views about the impact of firearms on Aboriginal people into cultural and historical context. The presence of firearms and metal weapons alone is not sufficient to explain changes or variations in Aboriginal hunting methods and subsistence patterns, or in their combat methods and military relations. Aboriginal people adapted these European weapons to their own needs, often lacking awareness of, or deliberately disregarding, the precepts and safety measures that trained European users considered essential. To make their firearms fit their needs, Aboriginal people often subjected them to conditions and modifications these weapons were not built for, but which they often endured nonetheless. Aboriginal people also used their firearms differently from Europeans, especially in big game hunting and combat. In order to illuminate these differences in firearms usage, the following chapters will compare the practical applications of weapons use among Aboriginal peoples, beginning with a comparison of gunshot wounds and injuries caused by arrows.



6.

### Injuries Caused by Arrows and Firearms

The seemingly “primitive” bow and arrow could cause remarkably severe injuries. There are numerous reports of Plains Indian arrows passing entirely through an adult bison or through a person.<sup>1</sup> For example, on a bison hunt in the late nineteenth century the Blackfoot Stiimiksato’si was observed to have shot an arrow through a buffalo so that it went out the other side.<sup>2</sup> Among the Mandan and Hidatsa, but also among the Omushkego-Cree, bows intended for combat were often made with a significantly higher draw weight than those intended for hunting. Such bows propelled arrows with great speed and force.<sup>3</sup>

However, many people survived substantial injuries caused by arrows. Testimony by Aboriginal people and also from U.S. military medical personnel in the “Indian Wars” shows that many arrow wounds were not instantly lethal. Injuries to the spinal cord or heart, or direct hits to the main arteries, were often immediately fatal. But even arrow points that pierced a person’s skull and brain did not have immediate “stopping power” in every case. Rather, the infections and internal blood clotting that they caused could eventually lead to death. Even hits to the lungs, although mostly lethal, would not always instantly

disable. If the arrowhead was metal and could be removed from the wound, the chances of complete healing and recovery were often good.<sup>4</sup> Stone points were more likely to cause an infection due to minute particles breaking off the arrowhead and remaining in the wound.

The most impressive feature of early firearms in regard to combat

value was the extreme damage that a musket ball could cause, resulting in almost instant death. This applied especially to earlier muzzle-loading firearms, such as seventeenth-century muskets with their lower muzzle velocities. The relatively slow but large bullets fired from these weapons transferred enormous shocking power to the target, especially at close range.<sup>5</sup>

While arrow hits on vital organs other than the spinal cord or the heart were likely deadly, they would not instantly disable a human opponent or a large animal. On the other hand, a hit in the torso with a musket ball, especially when the firearm was loaded with the proper amount of powder charge and fired at short range, would almost certainly have been lethal and would instantly have disabled its victim.<sup>6</sup>

An experimental shooting trial conducted in the 1980s at the state armory in Graz, Austria, may illustrate the terrifying effect that these weapons had on humans at close range. This trial was conducted with a musket of the Montecuccolli

type, a smoothbore, muzzle-loading weapon from 1686. A lead ball of 17.5 millimeter caliber (0.689 inches), weighing 30.93 grams (477.3 grains), fired from this weapon reached a muzzle velocity of 494 meters per second (1,621 feet per second) and an initial kinetic energy of 377.4 Joules. At a distance of 30 meters (ca. 33 yards), after piercing a steel sheet 4 millimeters thick (0.1575 inches), the projectile entered a further 183 millimeters (ca. 7.2 inches) into dry pinewood.

To measure the potential tissue damage caused by projectiles, the weapon was also fired at a 30 centimeter (0.98 feet) cube of ballistic soap, used to simulate human tissue. At a distance of 9 meters (9.843 yards) the lead ball created a cavity of 530.2 cubic centimeters (0.1204 gallons) in the soap. The entry opening had a diameter of 60 millimeters (2.362 inch) and the exit hole a diameter of 20 millimeters (0.787 inch).<sup>7</sup> Modern reproductions of Northwest guns, the standard firearm sold to Aboriginal people through the fur trade from the late eighteenth to the late nineteenth century, with barrel lengths from 71 to 81 centimeters (28 to 32 inches), reached similar projectile velocities.<sup>8</sup>

During the struggles between the HBC and the North West Company and Métis at the Red River Settlement in the summer of 1815, Peter Fidler observed the tremendous penetrating power of such firearms. He recorded that “they [the “Canadians & half

breeds”] fired above 150 shots at us which penetrated the Logs of the Houses in many places.”<sup>9</sup>

While en route to Manchester House from York Factory, HBC post manager William Tomison observed an Aboriginal man killing a grizzly bear with only two shots from his musket. The first shot contained a load of two musket balls and probably a double charge of powder, while the second contained only the regular single musket ball.<sup>10</sup>

The effect of such projectiles on humans could be even more devastating. The Manchester House post journal contains notes about Sarcee and Cree people wounded or killed in conflicts. One Sarcee man had a ball pass entirely through his thigh.<sup>11</sup> When several Cree fell out among themselves, one young man was stabbed. He called out to his companion, a post hunter for William Walker at Manchester House, to assist him. This man loaded his gun with two bullets and fired, killing one woman and wounding two men severely with this one shot.<sup>12</sup>

In 1832 the American painter and ethnographer George Catlin observed a skirmish between Blackfoot and Plains Cree people near Fort McKenzie in what is now Montana. He described the gunshot wounds of a Blackfoot man who had been mortally injured during this fight: “The man who had been shot was still living, though two

bullets had passed through the centre of his body, about two inches apart from each other; he was lying on the ground in the agonies of death, and no one could indulge the slightest hope of his recovery.” Under Catlin’s observation, this person passed away shortly after having been injured.<sup>13</sup>

The historian Marcus Junkelmann contrasted the shooting trial results of the Montecuccolli musket with data gained through test shooting the reproduction of a “Sassanidian” composite bow, as was used by the late Roman military in the fourth century AD. Following the general design of Asian composite bows, this weapon consisted of layers of horn, wood, and sinew laminated with hide glue. Measured along the back of the bow, the weapon was 155 centimeters (61.2 inches) long and had a draw weight of 28 kilograms (ca. 56 pounds) and a draw length of 87 centimeters (ca. 34 inches). The arrow used with this bow was 92 centimeters (36.22 inches) long and weighed 50 grams (771.6 grains).



**Fig. 46.** Northern Plains archery set made by Roland Bohr in 2004. Sinew-backed reflexed snakeskin-covered ash bow, unstrung, 115.7 centimeters long (top); quiver and bow case combination made of deer hide (middle); and arrows with metal and bone points (bottom). Photograph by Roland Bohr.

The initial velocity of the arrow was 50 meters per second (164 feet per second) with an initial kinetic energy of 62 Joules. The arrow pierced a steel sheet 0.75 millimeters (0.029 inch) thick and continued to penetrate into dry pinewood for another 30 millimeters (1.181 inches) without any damage to the arrow. The arrow even pierced a steel sheet 1.5 millimeters (0.059 inch) thick and penetrated for another 12 millimeters (0.472 inch) into pinewood. However, this time the metal arrowhead was pressed into the wooden arrow

shaft for about 8 millimeters (0.315 inch) but did not break off. If the arrow hit its target at an oblique angle, the point snapped off upon impact. This reduced the arrow's penetrative force to a minimum.

The arrow also completely pierced a shirt of mail, made of unbolted metal rings, and continued to penetrate for another 15 centimeters (5.906 inches) into a hay bale that served as a support for the shirt of mail. Without the shirt of mail, the arrow pierced the hay bale completely and continued to penetrate for another 2 centimeters (0.787 inch) into a board behind the hay bale. The arrow was also shot at a 30 centimeter (0.98 foot) cube of ballistic soap. It completely pierced the soap cube and caused a wound tunnel 8 millimeters (0.315 inch) in diameter. This would have destroyed 24 cubic centimeters (0.005 gallons) of tissue. If the arrowhead had lodged in the tissue, its removal would have substantially increased the tissue damage.<sup>14</sup>

To compare Junkelmann's results from the composite bow to North American Aboriginal bows, I made a Northern Plains sinew-backed bow and arrows in the summer of 2004. The bow was made from ash wood taken from Netley Creek, Manitoba, and backed with sinew from the leg tendons of deer and moose. Later, a second layer of sinew and two small rattlesnake skins were applied to protect the sinew backing against

moisture. Its overall length was 115.7 centimeters (45.55 inches), and the draw weight was ca. 25 kilograms (52 pounds) at 55.6 centimeters (22 inches). Test shooting with two light arrows with Juneberry shafts and brass field tips yielded the following results.<sup>15</sup> The first arrow weighed 16.84 grams (260 grains) and reached a velocity of ca. 40 meters per second (122 feet per second). The second arrow weighed 13.3 grams (205 grains) and reached a velocity of ca. 38 meters per second (115 feet per second).<sup>16</sup> After the second layer of sinew was applied and had sufficiently dried, the arrow speed for the first arrow increased to 40.54 meters per second (133 feet per second).

Edward McEwen, a British bowyer who made the bows and arrows for Junkelmann's tests, also conducted shooting trials with reproductions of North American Aboriginal archery items. McEwen used a "Sioux" self bow that was 111.7 centimeters (46.26 inches) long and had a draw weight of 24.9 kilograms (54.9 pounds), with a matching arrow of dogwood (*Cornus stolonifera* or *C. stricta*) weighing 30 grams (463 grains) and having a draw length of 58 centimeters (22.83 inches). This projectile reached a velocity of 30 meters per second (98.43 feet per second). The replica of a sinew-backed Apache bow, which was 119.3 centimeters (46.97 inches) long and had a draw weight of 17.2 kilograms (37.92 pounds), and a *Phragmites* reed arrow with a mesquite wood (*Prosopis fuliflora*) foreshaft, weighing 28

grams (432 grains), reached a projectile velocity of 43 meters per second (141 feet per second).<sup>17</sup>

**Table 1. Comparison of bows and their projectile velocities.**

TYPE OF BOW	LENGTH (CM)	DRAW	DRAW	ARROW	ARROW	KINETIC ENERGY (J)
		LENGTH (CM) [INCHES]	WEIGHT (KG) [POUNDS]	WEIGHT (G) [GRAINS]	VELOCITY (M/S)	
Sassanidian composite bow <sup>1</sup>	155	87 [ca. 34]	28 [ca. 56]	50	50	62
Northern Plains sinew-backed bow <sup>2</sup>	115.7	55.6 [ca. 22]	25 [ca. 52]	16.84 [260]	ca. 40*	No data
Sioux self bow <sup>3</sup>	111.7	58 [ca. 23]	24.9 [over 50]	30 [463]	30	No data
Apache sinew-backed bow <sup>3</sup>	119.3	No data	17.2 [ca. 38]	28 [432]	43	No data

<sup>1</sup>Reproduction used by M. Junkelmann.

<sup>2</sup>Reproduction used by R. Bohr.

<sup>3</sup>Reproduction used by E. McEwen.

\*122 feet per second, increased to 133 feet per second after application of second sinew layer.

## Table 1.

Junkelmann's comparison of firearms projectiles and arrows showed that the initial velocity of the musket ball was about ten times greater than that of the arrow, while the musket ball's initial kinetic energy surpassed that of the arrow by approximately a factor of six. This caused the penetrative force of the musket ball to be significantly greater than that of the arrow. The musket ball caused tissue damage about twenty-two times greater than that caused by the arrow. This means that the man-stopping force of the musket ball was much greater than that of an arrow with a cutting arrowhead. The rounded shape of the musket ball did not pierce as far as the arrow, but it distributed its immense shocking power throughout the body being hit, because

human and animal tissue is largely composed of incompressible fluids. Thus, people hit in the torso would be doubled over and knocked backward before they hit the ground, while the projectile would create a fist-sized entry wound.<sup>18</sup>

While Plains Indian and Subarctic bows may have had similar draw weights compared to the kind of military Asian composite bow Junkelmann used, their draw lengths would commonly have been shorter. However, the projectile velocity of the Montecuccolli musket was very similar to that of the Northwest guns sold in the fur trade. Therefore, when comparing Plains Indian and Subarctic archery gear with these firearms, the results would favor the firearms even more. This means that, assuming proper use, even the relatively simple early modern muzzle-loading smoothbore firearms had far greater penetrative force and stopping power as compared to any type of archery gear in use up to the late nineteenth century.

I had a discussion with the rancher Thomas Schlup about the advantages and disadvantages of Indigenous North American weaponry and armor, such as the bow and arrow and rawhide shields, in comparison to weapons introduced from Europe, such as muzzle-loading firearms. This led to a shooting experiment designed to test the protective value of rawhide shields. Tom and his wife, Sabrina, operate the Anpo Bison Ranch in

western Manitoba, where they also manufacture reproductions of Aboriginal artefacts from the fur trade era. There, I had the opportunity to try the effects of a 0.50 caliber muzzle-loader on an old and unfinished rawhide shield Tom had made from the throat skin of a mature bison bull. The shield was never finished because the rawhide had not shrunk to an even thickness. On one edge, the shield was only 5 millimeters thick, increasing consistently until it reached a thickness of 25 millimeters on the opposite edge.

When fired at a distance of 25 meters from a kneeling position, the lead balls passed clean through the thin part of the shield without dislodging it from its propped-up position on the ground. However, when a lead ball impacted the thick portion of the shield, it threw the shield high into the air and knocked it several meters away from its original position. Perhaps this is why this particular lead ball did not fully penetrate the shield on the thick portion and is still visible from the inside of the shield, stuck within the 25-millimeter-thick rawhide. If the shield would have been attached to the arm of a person wielding it, the lead ball may have penetrated fully. While this shot may not have immediately killed the shield bearer, it would likely have caused considerable injury, such as a broken arm.

In contrast, an arrow with a metal field tip like those used in modern target archery, launched at a distance of 25 meters from a reproduction of a

Southern Plains Osage orange self bow with a draw weight of ca. 50 pounds, only dented the rawhide shield slightly.

These examples demonstrate that once a musket ball hit its target, the damage could be instant, serious, and highly visual, especially at short range. Arrows, on the other hand, needed almost surgical precision by the archer in order to do instantly disabling damage. However, at short range the penetrative force of an arrow was still sufficient to completely pierce the body of a person without armor, or a bison, as long as the arrowhead did not lodge in a bone.<sup>19</sup>

### Arrow Wounds

Against the background of modern technology and the frightful effects of firearms, it may seem astonishing just how severe an injury an arrow could cause. It is equally surprising that humans often survived severe injuries caused by arrows. Testimony from Aboriginal people, as well as from medical doctors in the U.S. military, suggests that many arrow hits were not instantly lethal. Even arrowheads that pierced human skulls did not always kill instantly. The injured person often died from an infection of the wound but not from the direct impact of the projectile. Direct hits to the lungs might still take hours to kill a person, while some even survived such injuries. If the arrowhead was removed soon and a subsequent infection did not occur, the chances of recovery could be quite good.<sup>20</sup>

On the other hand, hits to the heart, the spinal cord, or major arteries were usually instantly lethal. Thus, unlike a musket ball, the stopping power of an arrow depended more on the precise marksmanship of the archer than on the kinetic energy of the projectile. For example, during an attack on an earthen fortification in the 1860s or 1870s, the Crow leader Plenty Coups shot an arrow into the skull of one of his Aboriginal opponents. The arrow pierced the person's face from the nose into the head. This injury was not instantly lethal and did not immediately stop the man from fighting back. Only a second arrow to the heart stopped and killed Plenty Coups' adversary.<sup>21</sup>

The use of poisoned arrows was not common in the Northern Plains and Central Subarctic, but recipes for arrow poison have been recorded from the Arapaho, Comanche, and other Southern Plains groups. Unlike Aboriginal people in South and Central America, however, North American Aboriginal people had no access to fast-acting poisons that paralyzed the heart or the respiratory tract. North American arrow poisons were based on processes of decay and infection of the wound, possibly leading eventually to blood poisoning and death.<sup>22</sup> There is very little evidence that Aboriginal people commonly used such poisons in combat. In any case, they would not have immediately disabled an opponent but would have acted with considerable delay. Most Aboriginal people probably considered the effect of

sharp-edged stone or metal arrowheads sufficient. A study of arrow wounds from the 1860s to the 1880s during the U.S. Indian Wars documented that none of the arrows used in the military conflicts that were examined in the study had been poisoned.<sup>23</sup>

However, Henry Wolf Chief related to Gilbert Wilson in 1911 that in earlier times the Hidatsa had used arrows made of “snakewood” for combat. They believed this wood to be poisonous.<sup>24</sup> The front ends of snakewood arrow shafts were whittled to a long slender point that was supposed to snap off inside the body of an enemy after impact and poison him. Wolf Chief told of an Aboriginal man from Montana who injured himself accidentally through a splinter of snakewood entering his thigh. This caused the wound to swell and fester, and he died in great pain the next day.<sup>25</sup>

Cheyenne, Pawnee, and Blackfoot men assured the ethnographer George Bird Grinnell that wounds caused by stone arrowheads were more likely to cause death than those caused by metal arrowheads.<sup>26</sup> In a corresponding statement, the Plateau-Salish leader Powiaken related that his people considered arrowheads of obsidian or glass to be poisonous.<sup>27</sup> This notion was based on the fact that minute particles of a stone arrowhead broke off on impact, even upon a soft target like skin and tissue. These particles

would remain in the wound and often cause a lethal infection. If the stone projectile hit bone, it either snapped into several larger pieces or remained stuck in the bone entirely.<sup>28</sup>

E. N. Wilson, a nineteenth-century Mormon settler in Utah, mentioned a similar instance of a lethal injury caused by a stone projectile point. As a boy, Wilson had lived with Chief Washakie's family among the Eastern Shoshone for two years, around 1855. Washakie's mother told him about the death of her husband, Washakie's father, who had died in battle: "Her husband was shot in the knee with a poisoned flint arrow, while fighting with the Crow Indians. He lived a little over a year after the battle, but suffered greatly before he died."<sup>29</sup>

During a large battle between Shoshone and Crow people, Wilson encountered a Shoshone man who "had been shot three times with arrows—in the arm, in the leg, and in his side. His side was the worst. The medicine man had to take out a part of two ribs, and the hole left was big enough for me to stick my fist in."<sup>30</sup>

Considering the medical knowledge of the time, this was actually an advanced way of treating arrow wounds. During the mid- to late nineteenth century most military surgeons still recommended leaving arrowheads embedded in bone largely untouched until the natural defensive reactions of the body loosened the projectile enough to be

easily extracted. However, a few U.S. military surgeons opposed these views. One of them was Joseph H. Bill, who since 1860 had worked as a military surgeon in the western United States. Because the conservative treatment of arrow wounds often led to infections, blood poisoning, or amputations, Bill recommended extracting the arrowhead as soon as possible. However, this often required a substantial enlargement of the wound in order to reach the arrowhead with extraction tools.<sup>31</sup> Aboriginal healers had likely come to the same conclusion much earlier and therefore took a similar approach to arrowhead extraction.

Arrowheads lodged in the skull posed a different problem. When working for the Pony Express in the early 1860s, E. N. Wilson had a fight with Aboriginal people at Spring Valley Station: “One of the Indians, who had hidden behind a tree, shot me in the head with a flint spiked arrow. The arrow struck my head about two inches above the left eye. . . . They [Wilson’s colleagues] tried to pull the arrow out, but the shaft came away and left the flint spike in my head.”<sup>32</sup>

Wilson was left in the field for a full day while his companions got a doctor to help. Finally a surgeon removed the arrowhead from Wilson’s wound. He was incapacitated for eighteen days but then recovered. Ever after the injury, he occasionally suffered from severe headaches.<sup>33</sup>

Even arrows without arrowheads, those with only their shafts tapered to a point, could be lethal projectiles. U.S. Army captain John G. Bourke related an incident during campaigns against Apache people in Arizona: “In July, 1870, a friend of mine, M. T. Kennedy, was mortally wounded by an Apache arrow which pierced his chest. The autopsy disclosed the fact that the arrow had no head.”<sup>34</sup> In the 1820s the German traveler Paul von Württemberg recorded a similar observation about Kansa arrows in the Central Plains: “Sometimes the tips of their arrows are only hardened in fire, and yet their effect is deadly.”<sup>35</sup>

However, eventually metal arrowheads became popular among the Plains peoples, even though they were not as sharp as the cutting edges of well-made lithic projectiles. To make the metal arrowheads as lethal as the stone points, a combination of features had to be added. The base of the point was formed into barbs and the tang of the arrowhead was set into a narrow slot at the tip of the wooden arrow shaft. The tang was secured in the slot by a few sparse wrappings of animal sinew. When such a projectile entered a body, the fluids would soften up the sinew and the barbs would cause the arrowhead to catch on the flesh and tissue so that when the shaft was pulled back in an attempt to withdraw the projectile, it would remain inside the body.<sup>36</sup> The Hudson’s Bay Company officer Peter Fidler at Brandon House recorded such an event in the summer of 1817.

Some Saulteaux captured horses at HBC posts in what is now southeastern Manitoba and headed toward Pembina:

3 Bungees lately stole 3 Horses from the Forks & passed Brandon House slyly & passed Moose head hill—and were shot at by several Indians supposed Mandans fired off their Guns & killed 2 of the 3 Bungees on the spot the other made his escape wounded on horseback 2 arrows in him one near his body & galloped to the House when the French pulled out the arrow but the Iron barb remained behind—the blood had softened the Sinew it was fixed to the [shaft] & remained—he is now in a lingering way. Now these 3 thieves are rightly served. [T]hey avoided the House here in passing that the Horses might not be recognized.<sup>37</sup>

In the 1820s Württemberg wrote: “The armament of [Kansa] arrows is made to serve one of two purposes, for war or for hunt. For the first, the tip is cut in acute angles and is provided with a barb to remain lodged in the wound. The other has obtuse angles and can be drawn out.”<sup>38</sup>

Württemberg further observed: “They [the Assiniboine] use two kinds of arrowheads, one for war and one for hunting. The first comes to a sharp point, has barbs and remains in the wound. The second has an obtuse point and can easily be

removed. The quivers are of native-tanned leather and the bow is carried in a special case.”<sup>39</sup>

Though not from the Northern Plains, another example further illustrates this point. During a battle with Pawnee warriors in 1862, an arrow hit the Kiowa leader Satamore (Set-ema'-i). While Satamore clung to the side of his horse to shield his body, a Pawnee warrior on foot approached him, unnoticed, from behind. From just a few steps' distance the Pawnee shot an arrow that pierced Satamore's buttock and entered his lower torso. The arrow shaft was removed immediately after the battle, but the metal arrowhead stayed inside the body. For some time after the battle Satamore passed bloody urine, but the wound healed soon, and after a few weeks he was well enough to be able to hunt bison from horseback again. More than six years later, in August 1869, Satamore began to suffer again from his wound and went to see U.S. Army surgeon W. H. Forwood at Fort Sill, Oklahoma. Forwood diagnosed a bladder stone, which when removed, revealed the iron arrowhead embedded in it.<sup>40</sup>

In order to make it possible to extract such loosely attached arrowheads, military surgeons admonished soldiers in the western United States to leave the arrow shaft in place if they were hit. In this way the arrow shaft served as a guide to the location of the arrowhead. Furthermore, by slightly moving the shaft, surgeons were able to find out if the arrowhead was lodged in a bone,

which was an important consideration when determining the mode of extraction of the arrowhead.<sup>41</sup>

If we consider only the projectile velocity and penetrative force of even the most primitive early modern firearms, we may judge them as superior to the most advanced Aboriginal archery equipment.<sup>42</sup> In case of a direct hit to the body, the stopping power of a musket ball was much greater than that of most types of arrows. The stopping power of smoothbore weapons was amplified when the barrel was double-charged, using more than one lead ball and a greater amount of gunpowder. Smoothbore weapons such as the Northwest gun could withstand such treatment, and with such double charges could produce high initial velocities.<sup>43</sup> A few persons survived arrow injuries and gunshot wounds sustained at the same time. These cases offer an opportunity to compare the effects of both types of weapons. In one case in 1870, Aboriginal warriors hit a settler on the Pecos River in Texas with three bullets (probably cartridge ammunition, not round balls from a muzzle-loader) and an arrow. The triangular flat metal arrowhead pierced the skull bone just past the right temple and was imbedded there. Seven days after the settler sustained these injuries, the gunshot wounds had begun to heal, but the arrow wound eventually caused a lethal infection.<sup>44</sup>

Treatment of Arrow Wounds

Among Aboriginal peoples of the Northern Plains were healers who specialized in the treatment of combat injuries such as arrow wounds. For instance, the Crow leader Plenty Coups described how the famed healer The Fringe healed a Crow warrior who had sustained an arrow wound in battle.<sup>45</sup> According to Plenty Coups, it was not customary for healers simply to offer their services, but rather a relative of the injured person had to request them. These were paid for with gifts such as arrows and other useful items.<sup>46</sup>

In this case, however, the healer requested a different gift for payment. A young Crow man had been injured by a Lakota arrow. The projectile had pierced his chest and was protruding from each side of his torso. In desperation, the young man's father requested The Fringe's help and granted him any choice of payment he was able to make. The Fringe and the young man's sister had secretly been lovers, and now The Fringe requested the right to marry her as payment for healing the young man, which he apparently managed to do.<sup>47</sup>

In warfare, a variety of mechanisms would detach the arrowhead from the shaft, causing the arrowhead to stay in the wound when the shaft was removed. Even if the arrowhead remained attached to the shaft, it would still enlarge the wound considerably while it was pulled back, or the barbs might catch and cut major blood vessels,

tendons, or muscles that the arrowhead had slipped past upon impact. Wolf Chief mentioned that if an arrowhead was only loosely wrapped to the shaft and the sinew wrappings had already softened inside the body, the arrow shaft had to be rotated back and forth between the palms while moving the arrow shaft backward, out of the wound. This considerably enlarged the wound, but according to Wolf Chief, was the only way to remove an arrow from a wound while preventing the barbed arrowhead from detaching from the shaft.<sup>48</sup>

Another method of removing barbed, bladed arrowheads from wounds consisted of splitting a willow shoot, cleaning it of the pith, and carefully rounding and tapering the ends. By guiding the willow shoot into the wound along the arrow shaft with the split end first, one could catch a flat bladed and barbed arrowhead with the split end of the shoot. The willow shoot had to be positioned along the arrow shaft in such a way that the split ends covered the barbs. Then the arrow shaft and the willow shoot were tied together and both removed from the wound.<sup>49</sup>

If the arrowhead was not removed from the wound immediately, treatment could become far more difficult. The Cheyenne Shell described such complicated and painful treatment.

In a certain fight a Cheyenne was shot in the shoulder blade with an arrow, the head of which entered the bone, and the shaft broke off.

His friends took a pair of bullet moulds [to use as pliers] and tried to extract the head, but could not get hold of it. They cut away the flesh on either side of the arrowhead, until the bullet moulds could grip the iron, and then, while four or five men held the patient down, another gave two or three strong pulls on the head, but failed to start it. They then took a sharp bladed knife and ran it down into the bone close to the iron on either side of the arrowhead, working the knife from side to side to loosen the arrowhead, and at last succeeded in pulling it out. During the whole operation the young man did not flinch.<sup>50</sup>

Often it was women who took care of men recovering from combat injuries, but the immediate surgical procedures to remove the arrowheads were performed by male healers and/or other warriors, often right on the site of battle. This may be one reason for training Aboriginal boys to endure pain. More than just a ritual of “toughness” or “manliness,” such training helped men to overcome the shock of being injured and seeing one’s own blood. It also helped to prevent panic, which would demoralize the group and worsen the chances of the injured person. Because Aboriginal men had to be prepared for combat injury or to assist wounded comrades, a working knowledge of human anatomy and basic surgery, such as setting fractures with rawhide or removing arrowheads from wounds, was likely part of their general knowledge.

With increasing exposure to arrow wounds during the Indian Wars, U.S. military surgeons improved their understanding and treatment of such injuries. Shortly before his death in 1885, Joseph H. Bill set down the following “seven commandments” for the treatment of arrow wounds: “An arrowhead has to be removed as soon as possible. Extensive enlargement of the wound is justified when searching for an arrowhead. An arrow can be pulled from the wound or pushed through the wound. During wound exploration the use of one’s finger is preferable to the use of a probe. Great care needs to be taken to prevent detachment of the arrowhead from the arrow shaft. Treatment should focus on primary healing. The surgeon should care for the patient’s well-being, . . . because arrow wounds often cause great mental distress.”<sup>51</sup>

The last point is of special interest because it refers to the treatment of the mental trauma and even physical paralysis that the sight of an arrow shaft protruding from one’s body could cause. Aboriginal healers likely had long been aware of the immediate psychological impact of arrow wounds, because pain endurance was included in the warrior training of boys, to prevent them from panicking when injured in combat.<sup>52</sup>

### Injuries Caused by Firearms

Injuries from muzzle-loading firearms could be instantly fatal. For example, in the Red River Settlement in 1845, Capenesseweet, a Saulteaux,

shot and killed two people with one shot, Ta-Tunga-O-Kay-Snay, a Sioux, and Apetway-wetungk, a fellow Saukteaux.<sup>53</sup> But in spite of the tremendous penetrative force of musket balls, combat injuries caused by firearms were not always fatal, as William Tomison observed at Buckingham House in April 1793: “This morning a Young Indian arrived, who informed me of another Indian being murdered and he narrowly escaped having been shot at three times and the bullet hit him twice but did not wound him.”<sup>54</sup>

In order to save powder, Aboriginal people sometimes loaded their muzzle-loading firearms with less than the proper amount of powder, especially when shooting at close range. At longer distances this could reduce the projectile velocity and thus the penetrative force enough to turn injuries that would otherwise have been instantly fatal into lighter wounds.

Unlike most cutting or piercing arrowheads, musket balls usually dragged bits of clothing into the wound. These were extremely difficult to remove and likely to cause a fatal infection if the person survived the initial wounding.<sup>55</sup> Because of this, Aboriginal warriors in the Plains tended to discard their clothing before a fight.<sup>56</sup> Frank Raymond Secoy suggested that this was also a major reason for Aboriginal people to give up body armor made of rawhide or quilted leather. While these

forms of protection were adequate against arrows, they did not offer much protection against musket balls fired at close range but rather increased the risk of wound infection.<sup>57</sup> Furthermore, a warrior without body armor was more nimble and could move more swiftly, which was a distinct advantage in many combat situations.

Accidents involving the unintended discharge of arrows were rare, but accidents with firearms were quite common, as several HBC officers noted in their post journals. In September 1782 John Kipling at Gloucester House wrote: “Late in the Evening 2 of Lieut. Newauchishickwabs young Men arrived here for Medicines and advice he having broken his Collar bone with the gun, which renders him unable to hunt, for his family.”<sup>58</sup>

George Sutherland at Albany on Hudson Bay also noted accidents with firearms, temporarily or permanently incapacitating Aboriginal men, women, or children: “The Indian with whom I Tent met with an axcedent afiring [*sic*] at Ducks a bit Broke out of the flint of his Gun Cut his Eye greatly so that already he is in danger of loosing [*sic*] his sight stayed at the Tent.”<sup>59</sup> Two days later Sutherland wrote: “Repitched to Day they tell me we are agoing Down a long way to the westward to see his friends Expecting they will Cunger [conjure] his Eye well.”<sup>60</sup>

Accidents with firearms were caused not only by material flaws and manufacturing defects but also by improper handling and usage. According to Charles Hanson, early accidents such as burst barrels were caused not so much by the low manufacturing quality of trade guns but mostly by overloading and other forms of mishandling.<sup>61</sup> Improper handling of the ammunition could also cause serious injuries or death. The Crow Two Leggings related the circumstances of the accidental death of his father: “My mother told me that when I was a few days old our camp moved to where the Elk River flows into the Big River (Yellowstone/Missouri confluence). My father traded for gunpowder from the trader there and when he came home spread it close to the fire to explain its use to my mother. It exploded, giving him such bad burns on his head and chest that he soon died.”<sup>62</sup>

Although this sounds like gross negligence in handling black powder, it was not uncommon to dry damp black powder by spreading it out in the sunlight.<sup>63</sup> Possibly this was what Two Leggings’ father was trying to do when the accident happened.

Improper cleaning of firearms could also lead to serious injuries. Robert Jefferson, describing Canadian Plains Cree hunting buffalo on horseback with muskets as well as bows and arrows in the later 1800s, noted the frequent

accidents with firearms, resulting from unsafe use on horseback.<sup>64</sup>

During a hunt, or in anticipation of immediate hostilities, firearms were often carried fully loaded and ready to fire. When people moved through dense bush or within the confines of a canoe, the triggers of their guns sometimes caught on branches or pieces of equipment, causing the accidental discharge of the weapon. This could lead to serious injury or the death of the person carrying the weapon or of those nearby. In May 1785 John Kipling at the HBC's Gloucester House observed: "In the evening came in Captn Jacob, Lieut. Abbitywesicome and half of their Gangs but very poorly Gooded they being starved all the winter & obliged to Eat the furs they had procured to keep them alive. . . . the Captn met with a bad Misfortune by a gun going off by accident in the Canoe, and shot an Orphan Girls arm off by the Elbow joint, and otherwise tore it in a bad manner."<sup>65</sup>

Bows and arrows represented a part of Aboriginal technology and weaponry developed and shaped over the course of centuries, if not millennia. The introduction of European components such as metal arrowheads to Aboriginal archery systems necessitated only minor adjustments. The introduction of and adaptation to firearms, however, brought substantial changes. In a gradual learning process, Aboriginal people acquired mastery of firearms, adapting these

weapons and their use to their specific needs in hunting and combat. This augmentation led to important changes in the ways Aboriginal peoples employed their traditional weaponry. These changes also affected peoples' spiritual beliefs, as they began to integrate European weaponry into their concepts of interaction between humans, the natural world, and the spiritual powers permeating it.



7.

### Archery and Firearms in Aboriginal Beliefs

Fur trader Alexander Henry the Younger observed about Blackfoot people in the early 1800s: “A Gun which they [Pikani warriors] carry in their Arms with a Powder horn and Shot pouch slung on their Backs are always considered a necessary appendage to the Full Dress of a young Slave [Pikani] Indian. The Bow and Quiver of arrows slung across the Back also are their constant companion at all times and seasons, excepting when sleeping or setting their Tents. It is then taken off and hung to a Pole of the Tent always within reach. But if occasion calls them abroad only for a few moments the Bow and Arrow must accompany them.”<sup>1</sup>

According to David Thompson, “the [Pikani] men are proud of being noticed and praised as good hunters, warriors and any other masculine accomplishments, and many of the young men [are] as fine dandies as they can make themselves.”<sup>2</sup>

These observations by Alexander Henry the Younger and David Thompson indicate the importance of archery gear and other weaponry in the dress code of Pikani men in the late 1700s and early 1800s. Archery symbolism was deeply embedded in Plains cultures and imbued with meaning beyond the functional aspects of the bow

and arrow as a weapon. For example, to cut the umbilical cord of a newborn, Blackfoot people used an arrowhead, not a knife, to symbolically and practically sever the new life from the old, associating the arrow with the renewal of life and the recurrence of generations.<sup>3</sup> The terms “bow,” “arrow,” and “quiver” were frequently part of personal names among the Blackfoot and other Plains peoples.<sup>4</sup>

The use of archery was deeply ingrained into Plains Indian gender roles. The proper use of a powerful bow required great physical strength. In early anthropological accounts, Crow, Hidatsa, and Cheyenne people expressed the view that no woman could live without a man who provided for her and defended her, using his bow. With some exceptions, most Plains peoples were said to have discouraged women from using archery gear.<sup>5</sup> However, this idea may express more about late nineteenth and early twentieth-century Euro-American views on gender roles than about actual Aboriginal practices. So-called women’s work—packing and moving camp, hauling water and firewood, butchering bison or tanning hides—required just as much physical strength as archery. If Plains people commonly held such views, they may have been employed to help keep a male-dominated order of society in place, leaving some room for exceptions.

To be shot accurately, a bow and its arrows must correspond to the user’s size and strength. For this

reason, bows for children were smaller and had lower draw weights than those for adults. Among Plains peoples, the ability to use an adult-strength bow with proficiency and ease could signify adulthood and masculinity. Therefore, when adolescent boys were able to shoot fairly accurately with a bow of higher draw weight, they may have considered themselves close to adulthood. The Hidatsa Wolf Chief described such an experience. When he was seventeen years old, he and his father traveling on horseback came upon a small herd of bison bulls. Wolf Chief suggested hunting them. His father agreed but recommended that Wolf Chief use a gun, thinking his son was not yet strong enough to use his bow properly. However, Wolf Chief refused the gun and insisted on using his bow and arrows. He galloped off over a ridge in pursuit of the bison and managed to kill a large adult bull with a single arrow. When his father caught up and saw the slain animal, he exclaimed: “You have done it just like a man!”<sup>6</sup> This episode shows the importance of proficiency in archery and having the physical capability of using a bow of adult draw weight. Had

Wolf Chief killed the bison with his gun, his father would certainly have been pleased, but because he did it with his bow and arrow, his father viewed this as the action of an adult hunter.<sup>7</sup> Similarly, the Blackfoot Crooked Meat Strings related that when he was fifteen years old, he was not yet strong enough to kill adult buffalo

with a bow and arrow. Therefore he used a gun until later in life, when he managed to kill fully grown bison with bows and arrows.<sup>8</sup>

Furthermore, according to the Lakota Runs-the-Enemy (Tok-kahin-hpe-ya): “The first thing that I remember is that my father made me a bow and arrow; it was a small bow and arrow, and made in proportion to my size, compared with the bows used in killing buffalo. . . . My father taught me how to use the bow and arrow, and also how to ride a horse, and soon it became natural for me to ride. *I soon grew to be able to use the bow and arrow that my father used; with it I killed buffalo* [my emphasis].”<sup>9</sup>

In contrast to Plateau cultures and Native peoples with Subarctic origins, for whom fishing and gathering were important activities along with hunting, evidence from Northern Plains peoples suggests that they tended to disdain eating fish and considered bison meat their most important and proper food. Because the bow and arrow was the principal weapon for mounted bison hunting, they considered killing adult buffalo with the bow and arrow as a prestigious sign of adulthood and masculinity.<sup>10</sup>

A Hidatsa girls’ song points to the connection the Hidatsa saw between the expert use of archery gear, masculinity, and adulthood. Young Hidatsa girls sang this song to mock their male age-mates

when the boys left the village in the morning to go bird hunting:

Those boys are all alike!

Your bow is like a bent basket splint!

Your arrow is only fit to shoot into the air!

Poor boys, you have to go barefoot!<sup>11</sup>

With underlying sexual allusions, the girls compared the boys' bows and arrows to thin, elastic willow twigs used in basketry, which the Hi

datsa considered to be women's work, and ridiculed their archery equipment as slack and powerless and the boys as childlike or even effeminate.

To be praised for powerful archery skills was flattering to boys and young men. In a Crow story told by the medicine woman Pretty Shield in the early 1930s, a young boy was lured into a magic world by the mysterious being Red Woman. Red Woman made the boy do her bidding by praising his archery skills as an expression of his masculinity and physical maturity.<sup>12</sup> Adolescents and men could be very susceptible to such flattery. Similar to the bow of Ulysses in Homer's *Odyssey*, a bow of such strength that only its owner could string it could be the mark of an exceptionally manly warrior.<sup>13</sup>

## Materials and Decorations of Bows and Quivers as Status Symbols

Among Plains Indians, not only the strength of a bow and its proficient use but also the materials and decorations of the bow, arrows, quiver, and bow case held meaning relating to the social status and/or the spiritual powers of their owner. Plains peoples carried their arrows in a quiver, while an oblong tubular container, the bow case, contained the unstrung bow. Both containers were attached to a long carrying strap. Such quiver–bow case combinations and the various ways of carrying them were well adapted to mounted use.<sup>14</sup>

In the 1830s George Catlin observed that Mandan men regarded their personal appearance very highly, and on special occasions they wore elegant clothing and richly ornamented archery equipment, including elaborately decorated quivers of mountain lion skin or otter fur.<sup>15</sup> According to Wolf Chief, among the Mandan and Hidatsa such quivers were not meant for use on the hunt or in combat. He explained that Mandan and Hidatsa men used to wear special archery equipment on dress occasions, including public appearances, official visits, or courting.<sup>16</sup> When they wanted to impress the women in their village, or when they went to visit their sweethearts, young Mandan and Hidatsa men wore quivers without a bow case. These were made of otter pelts or mountain lion skin, elaborately decorated with fringe and quill- or beadwork.<sup>17</sup>

When courting, a man wore an elaborately decorated quiver and carried his arrows with the fletchings at the bottom of the quiver, exposing the arrowheads.<sup>18</sup> The arrows carried on such occasions were not blunt-headed, club-shaped arrows for bird hunting, or mere pointed shafts to kill rabbits or fish, but metal arrowheads with razor-sharp blades for big game hunting and combat, heated to a beautiful dark blue shine. Besides the arrows, such a quiver usually contained a short, sinew-backed bow of horn or antler, decorated with quillwork and horsehair and displaying its owner's military honor marks.<sup>19</sup>

Mandan and Hidatsa bows often had an asymmetrical profile with a longer upper limb. When the unstrung bow was carried in a quiver, almost half its upper limb protruded from the opening. Even when the bow was in its case, the tip of the upper limb was still visible. Honor marks were displayed on the upper limb of such a bow. According to Wolf Chief, "The bow was always carried in the quiver, lower arm down. It would be ornamented [. . .] with porcupine bands and tassel or tassels of horsehair; and it would have on it any honour marks that the owner had the right to wear."<sup>20</sup>

Many of Karl Bodmer's paintings contain images of Northern Plains men wearing a bison robe or a blanket and carrying a bow and a few arrows in one hand. In this mode of carrying, the upper limb of the bow protruded from the robe or the blanket,

showing the owner's honor marks.<sup>21</sup> Imitating warriors, small boys displayed "honor marks" on their bows by cutting small notches into the upper limbs of their bows, marking the number of birds they had killed.<sup>22</sup>

Sitting for a portrait, or later, for a photograph, was a dress occasion requiring the wearing of finery. Bodmer and Catlin portrayed many Aboriginal men with highly decorated bows and quivers. George Catlin also painted portraits of several sons of leading Plains Indian families, carrying archery gear.<sup>23</sup> A large number of historic photographs, especially from the Southern Plains, show Aboriginal people wearing elaborate quiver and bow case combinations of otter or mountain lion

fur, indicating that this tradition continued into the late nineteenth century.<sup>24</sup> Because such images are so frequent and consistent in the work of different painters and photographers, it is likely that the archery items in those portraits were not always painters' or photographers' props, but belonged to the persons in the portraits themselves. If boys were portrayed carrying elaborate archery gear, perhaps it was their families' way of documenting their high social standing and future warrior status.

Besides expressing social status through the display of elaborate archery gear, Aboriginal people in the Plains accorded spiritual meanings to certain bows, arrows, and quivers. The Peigan

elder Reg Crowshoe listed bows and arrows among the society bundles used by certain men's societies. These bundles were considered sacred and needed a transfer ceremony when they were handed over from the care of one society member to another.<sup>25</sup> James Willard Schultz, who married into a Piegan community during the late nineteenth century, related a Blackfoot story of the making, capture, and recapture of a bow case made from albino otter skin.<sup>26</sup> He claimed that this story was based on events that happened in the 1840s and published it under the title "Theft of the Sacred Otter Bow Case."<sup>27</sup> According to Schultz, Jemmy Jock Bird, son of HBC fur trader James Bird and a Cree woman, and Jemmy Jock's brother-in-law Mad Wolf, went on a chase to recover a stolen sacred white otter bow case in the winter of 1846–47, traveling so far south that they reached Pueblo or ancient Anasazi buildings in the southwestern United States. However, according to historian John C. Jackson, the dates seem improbable because the journals of the Reverend Robert Rundle state that Jemmy Jock Bird was at Edmonton at the time.<sup>28</sup> Jackson pointed out that Schultz came to the northwestern Plains in 1886, married a Piegan woman, and over the next sixty years produced Blackfoot/Blackfoot stories that were "an indecipherable mix of recalled truth and suspect fiction."<sup>29</sup>

The aspect of this story that is important here is not its chronology but rather the spiritual

significance attached to this quiver or bow case. In particular, a great deal of importance was accorded white buffalo.

The Crow and Blackfoot, as well as the Swampy Cree, held ermine (white weasel) skins in similar regard.<sup>30</sup> Considering the importance of white animals, it is interesting that an important Piegan leader bore the name “White Quiver” (Ksiks Unopachis, 1850–1931). Perhaps this name alludes to the white otter skin bow case mentioned by Schultz.<sup>31</sup>



Fig. 47. The Mandan Sih-Sä (Red Feather) wearing a highly decorated fur quiver and carrying an asymmetrical bow that has hair decoration on the upper limb. Karl Bodmer (Swiss, 1809–1893), *Sih-Sä, Mandan Man*, watercolor on paper. Joslyn Art Museum, Omaha, Nebraska. Gift of the Enron Art Foundation, 1986.49.385.

The Siksika elder Clifford Crane Bear related that Blackfoot people used to make a certain type of bow case for “special occasions.” When examining a Blackfoot cowhide quiver–bow case at the Glenbow Museum, he mentioned that it was similar to Blackfoot otter skin quivers–bow cases.<sup>32</sup> The Smithsonian Institution holds a Piegan otter skin quiver–bow case that closely resembles the cowhide item in Calgary in its beadwork patterns and general layout.<sup>33</sup> Otters played an important role in Blackfoot beliefs and were considered sacred. They were viewed as spiritually connected to water and rain, reflected in the existence of sacred otter tipis or the presence of otter skins in various religious bundles.

Clifford Crane Bear stated that the “otter skin–style” quiver of cowhide now in the Glenbow Museum was made for a staged “hunt” to entertain British royalty around 1905. Correspondingly, Indian agent George H. Gooderham reported that Prince Arthur, son of the Duke of Connaught, visited Gleichen, Alberta, in 1906 on his way to Japan. On that occasion the Siksika were to stage a steer hunt for the prince. A massive Blackfoot man and famous hunter by the name of Dying Young Man was said to have brought down a large steer with “a bow and arrow fired from his racing cayuse.”<sup>34</sup> However, according to Clifford Crane Bear, the steer could not be killed by arrows and was eventually shot

with a firearm. The quiver and bow case later came into the possession of the wealthy and influential Berry family in Alberta. Records from the Glenbow Museum indicate that the Glenbow Archives once held a photograph showing Hugh Berry as a child, wearing the quiver and bow case, which were later donated to the museum.<sup>35</sup>

Quivers and bow cases for ordinary use in hunting and combat were made from plain but durable materials such as brain-tanned leather or hides of bison, cattle, horses, deer, and elk. Sometimes boot or saddle

leather produced by non-Aboriginal peoples was used, too.<sup>36</sup> Louis Bird also mentioned that among the Omushkego-Cree, quivers for everyday use in hunting were often made from rather stiff tanned hides similar to rawhide with the hair left on. Their stiffness protected the arrow shafts and their fletchings from being crushed by accident. The Omushkego-Cree considered quivers of soft-tanned leather, decorated with fringes or beadwork, as fancy items for wear on special occasions, and such quivers were rather rare.<sup>37</sup>

Among the Mistassini Cree, quivers were of moose or caribou hide. Sometimes Mistassini Cree hunters thrust their arrows through their belts instead of carrying them in a quiver.<sup>38</sup> While several elaborately decorated Subarctic Athapaskan quivers made from brain-tanned leather survive in museum collections, so far I

have been unable to locate a similar quiver of documented northern Cree provenance.

### Archery Items as Regalia of Northern Plains Men's Societies

A Plains Indian person could belong to one or more societies throughout the course of his or her life. These societies had specific functions vital to the community. Their members were organized into different ranks, from common members to “officers” and leaders. Specific paraphernalia identified each rank. Military societies were concerned with combat but also had internal policing functions. Among the agricultural peoples of the Upper Missouri and among some of the mobile bison hunters of the Plains, such as the Blackfoot, Arapaho, and Gros Ventre des Prairies, these societies were age-graded.<sup>39</sup> For example, among the Blackfoot, a young boy joined the Bees, then the Mosquitoes, and would work his way through various other societies until in his middle age he became a member of the Brave Dogs, the Horns, or the Old Bulls, the most respected and most influential men's societies.<sup>40</sup> The Pigeons or Doves Society was one of the first or lowest-ranking societies within the Blackfoot age-graded society system that male adolescents had to pass. According to anthropologist Clark Wissler, it was founded in the early 1850s among the South Piegan.<sup>41</sup>

Eventually it spread to the North Piegan, Siksika, and Kainai. In the early twentieth century

Blackfoot people related that a man named Change Camp founded this society.<sup>42</sup> Pigeons appeared to Change Camp in a dream and taught him the songs, dances, and rules of this society. In his dream the birds called on Change Camp to gather all the boys and noninfluential, powerless people. If all these persons would unite and follow the advice of the pigeons, they would become a powerful and respected society.<sup>43</sup>

Every Blackfoot boy of approximately fifteen years of age or older could join. Applicants had to purchase society membership from current members when these purchased a membership in the next highest-ranking society. Plain bows and arrows and a quiver were part of the society regalia carried by every new member at the time of the membership transfer. During the transfer ceremony a young and unmarried woman, selected for her outstanding virtue, sang with the six best singers of the society and also carried a bow and arrows.<sup>44</sup>

After the transfer ceremony the new members stormed out of the gathering lodge and shot their blunt arrows at the ground or at any unfortunate dog they happened to find. During ceremonies, four special members designated as “yellow pigeons” painted their bodies yellow and wore only a breechcloth. They carried bows of chokecherry or serviceberry wood, arrows, and a quiver made from the yellow hide of a buffalo calf. When they sang, they used their bows and

arrows as simple musical instruments, beating time on the strings of their strung bows with their arrow shafts, producing a low resounding tone.<sup>45</sup>

The members of the Doves Society participated in many kinds of organized mischief, playing tricks on people and bullying the wealthy and influential of the community. These tolerated their pranks, granting them a certain amount of fool's license, stating that the members of the Pigeon Society were still young and immature and that their actions were good training for raids on enemy encampments.<sup>46</sup>

Pigeon Society archery equipment was mostly used to shoot at animals or people, to tease and bother them. To prevent serious injury, the bows could not be very powerful and the arrows had to be blunt.

The Provincial Museum of Alberta in Edmonton holds five Pigeon Society archery sets from the Blood and the Siksika. Three of these appear to be of recent manufacture because they exhibit construction characteristics untypical of older Plains archery items. The three bows were made from a thin branch or sapling. Wood was removed on the belly side to reduce the limbs to proper thickness. However, the grip area was left at full diameter, forming a so-called riser. This design feature is reminiscent of modern Euro-American sporting bows. Older Plains bows normally had no riser.

The bowstrings were very thin and mostly made of commercial thread. Most of the arrows were made from rather crooked shafts with kinks and twists. The fletchings were much shorter than on conventional Plains arrows, and the vanes were left much longer than usual. Some of these arrows have crude stone points, but most shafts were whittled to an obtuse point. However, two of these five archery sets include bows similar to older plains bows and without a thick handle. The arrows with these bows have fairly straight shafts, but the fletchings are still different from more common Plains arrows.<sup>47</sup>

Three of these five archery sets were collected in 1965 or later. Their more “modern” design features suggest that while the knowledge of Plains Indian bow and arrow manufacture declined, the importance of the Pigeon society remained, and the cruder and simpler archery outfits used in its post–World War II activities were sufficient for the society’s purposes. Or perhaps the cruder workmanship was meant to reflect comical aspects of the purpose and occasion they were to be used in, similar to the concept of “clowns” or “contraries” in other Plains cultures, who were expected to do or say the reverse of what they meant.

The Blood Daniel Weasel Moccasin made at least three bows for the documentary film episode “Standing Alone,” about the life of the Blood elder and rancher Pete Standing Alone, filmed on

the Blood Reserve in 1982. The bows were made for a mounted archery demonstration, showing three young men from the Blood community shooting arrows at a hay bale on the back of Pete Standing Alone's pickup truck while galloping beside the vehicle. The film includes a brief sequence show

ing the bow maker thinning the bow limbs on the belly side by chopping off wood with a heavy hunting knife, leaving a thick handle in the center. This construction characteristic is very similar to the more recent Pigeon society bows at the Royal Alberta Museum discussed previously. Most arrows shown in the film resemble arrows of more recent manufacture, collected from the Blood as well.<sup>48</sup>

Stone arrowheads were part of the insignia of warrior societies, for example, among the Kit Fox Society of the Cheyenne.<sup>49</sup> However, the making and use of lithic projectile points by nineteenth-century Plains Indians has been disputed. Many early ethnographic accounts state that Plains Indians had no recollection of the manufacture and the use of stone arrowheads, and writers have argued that lithic projectile points frequently found in the Plains belonged to ancient precontact cultures.

When asked about the provenance of these projectile points, the Crows Plenty Coups and Pretty Shield replied that they were made by mythical beings called "Little People." Plenty

Coups told Frank Bird Linderman in the early 1930s that in precontact times, arrowheads had been made from bone.<sup>50</sup> Pretty Shield related that arrowheads of a reddish stone were the remnants of the burst bones of Red Woman, a monster from Crow mythology. She also stated that stone arrowheads found in the Plains always got lost somehow and that it was impossible to keep them for long.<sup>51</sup> Linderman concluded from this that the Crows and most other Plains Indians he encountered in Montana had no traditions of the manufacture of lithic projectile points and certainly had not made them in postcontact times. However, according to Arapaho traditions, their culture heroes taught them how to make arrowheads and knives from bones and wooden bows using stone tools.<sup>52</sup> Blood (Kainai) traditions state that Napi, or “Old Man,” the trickster, creator, and culture hero of the Blackfoot, taught the people how to make bows and arrows with flint points in order to hunt buffalo.<sup>53</sup> Similar traditions existed among the Plains Cree, whose culture hero “Pointed Arrow” was said to have been the earliest human being. They believed that he had earned his name because he invented the bow and arrow and taught its use.<sup>54</sup> Cheyenne people told George Bird Grinnell that their culture heroes had taught their ancestors how to make blades and arrowheads from stone. They had also taught them how to haft such blades and

arrowheads and how to make and use bows and arrows. The culture hero Heammawihio told the Cheyenne that soon after they received these instructions, they would encounter other peoples who used similar weapons and tools, whom he had also instructed in weapons manufacture.<sup>55</sup>

The Cheyenne made and used stone arrowheads in the nineteenth century, and their knowledge of making them dated back to precontact times.<sup>56</sup> They also described the tools necessary to make stone arrowheads. These included stone hammers or smaller hammer stones used to break large chunks of flint into smaller pieces to make arrowheads.<sup>57</sup> Some Cheyenne believed that arrowheads found in the Plains came from the arrows of the thunderbird.<sup>58</sup>

Among those Aboriginal peoples with age-graded societies, such as the Blackfoot, bows and arrows figured more prominently in the societies for adolescents than in those for adults. By the time anthropologists began to collect information from Plains Indians, the bison herds had long since been destroyed and the warrior ethos had lost much in importance. Archery had also lost much of its prestige as a weapon for adults. However, boys still used bows and arrows as toys or to hunt small game. Among most Plains Indian peoples, individual warriors strove to increase their prestige and to win military honors. However, killing an opponent from a distance was not

generally considered a deed of great valor.<sup>59</sup> This may explain why firearms were even less common than bows as insignia of warrior societies. Bows and close-combat weapons such as clubs and thrusting spears more explicitly symbolized courage and bravery in battle and were thus more likely to become insignia of warrior societies.

### Archery Items in Myths and Ceremonies

Archery gear figured prominently in the creation stories of several Plains peoples. The Awatixa, one of the three Hidatsa subgroups, named their creation myth after one of its central characters, “Sacred Arrow.”

Charred Body, the culture hero of the Awatixa, lived in a village in the sky. He had the ability to transform himself into an arrow to travel between heaven and earth. From his home in the sky he brought thirteen young couples to earth. These beings also had the ability to transform themselves into arrows. They founded the thirteen clans of the Awatixa. The “arrows” in this myth held spiritual and healing powers.<sup>60</sup>

Buffalo Bird Woman told Gilbert Wilson a story about an arrow that spoke to the Hidatsa, telling them that it would always serve them well as long as they maintained it properly and oiled it regularly.<sup>61</sup> When Hidatsa boys received arrows as gifts, adults told them that these arrows represented the culture hero Charred Body.

Therefore, they were to be well maintained and kept sacred.<sup>62</sup> A medicine bow was of importance in the Hidatsa grandmother myth. One of the sacred objects used in the corn ceremony was a wooden bow painted red. Although the bow used in the ceremony was made of wood, Wolf Chief explained that the bow in the grandmother myth was an elkhorn bow.<sup>63</sup>

The central event in Cheyenne spiritual life was the annual ceremony of the medicine lodge, also referred to as the Sun Dance. It was held to achieve the spiritual renewal of the entire creation. The Cheyenne installed a nest of branches at the top of the center pole of the medicine lodge, representing the nest of the thunderbird. The sacrifice made to the thunderbird on this occasion consisted of a bundle containing a digging stick and arrows.<sup>64</sup> The digging stick stood for plant foods, such as prairie turnips, gathered mostly by the women. The arrow symbolized meat, gained by men in big game hunting.<sup>65</sup> These items expressed a prayer for abundant food and represented the cooperation and equally valued contributions of men and women to the nourishment and well-being of the people.

The Red Woman story of the Crow expressed similar symbolism. In this story a monster pursued a boy-hero. While the boy used his medicine arrows to increase the distance from his pursuer, it was his mother's digging stick that enabled him to cross a river to safety, ensuring the boy's escape

and rescue.<sup>66</sup> The symbolism in this Crow story may have had a meaning similar to the sacrifices to the thunderbird among the Cheyenne. While men hunted and fought with bows and arrows, it was a woman's simple digging stick that saved the day, a hint at the importance of women's contributions to the subsistence of the people.

Bows and arrows were of importance in the ceremonial killing of bison. Several Sioux and Crow ceremonies required the fresh hide of a bison killed with a single arrow. If the arrow completely penetrated the animal's body, causing an exit wound, the cadaver and the hide could not be used and a different animal was chosen.<sup>67</sup> To be chosen as the hunter for such a task carried great prestige because it was public acknowledgment of exceptional hunting skills. At the same time it was also a tremendous responsibility, because the proper performance of the ceremony and thus the welfare of the entire people depended on the success of this hunt.<sup>68</sup> Two Leggings related that the Crow Bull Shield was once chosen for this role and performed it successfully. He was so sure of himself that he took only two arrows along when he set out on this hunt.<sup>69</sup>

The central Mandan ceremony was the Okipa, a reenactment of the Mandan creation myth. It was held every summer and lasted four days. It was meant to secure the fertility of the bison herds and

the general well-being of the people. This ceremony included the voluntary self-torture of Mandan men, who hung from the rafters of the ceremonial earth lodge on ropes tied to wooden skewers pushed through the skin and muscles of their chest or back. Their shields, quivers, bows, and arrows hung from other skewers pushed through their leg and arm muscles.<sup>70</sup>

Among the agricultural and matrilineal Mandans, women owned the fields, earth lodges, and most of the household items. A man's weapons, most of all his bow, arrows, and shield, were the most important of his few possessions. Therefore, these items were part of the men's rituals of the Okipa ceremony and were placed on the burial platforms of their deceased owners.<sup>71</sup>

### Physical and Spiritual Protection from Projectiles

Plains warriors commonly believed that they could harness spiritual protective powers through rituals and amulets and thereby render themselves impervious to arrows and bullets. This belief was most closely connected to the use of shields. Shields were made from rawhide taken from the neck section of a bison bull. The French referred to rawhide made by Native Americans as "*parfleche*." This term comes from the French *parer*, "to parry, or ward off," and *fleche*, meaning "arrow." It indicates Plains peoples' use of rawhide as a form of armor or shield at the time

the first French explorers met them in the late seventeenth century.<sup>72</sup>

Before horses arrived, shields were rather large, covering a warrior from chin to feet. Saukamappee related to David Thompson that in his youth in the 1730s, Cree, Assiniboine, Blackfoot, and Shoshone warriors used large shields covering them from feet to chin while fighting in close formations on foot.<sup>73</sup> With the adaptation of mounted combat and firearms, shields decreased in size. While several surviving Northern Plains shields from the first half of the nineteenth century have a diameter of 60 centimeters or more, those from the later nineteenth century are noticeably smaller.

The importance of the physical protective capabilities of shields declined after the introduction of firearms because at close range rawhide could not stop musket balls. As a result, Aboriginal people increasingly emphasized the spiritual protective powers of their shields. Eventually the importance of a shield's spiritual protective powers surpassed that of its physical protective capabilities. The Crow Two Leggings illustrated this fact when he stated that he carried a large round rawhide shield on his back on a war party during the 1860s or 1870s. It deflected an enemy arrow in battle and saved his life. In spite of this success, Two Leggings decided to use a smaller shield on his next war party because he thought the larger one too unwieldy. He stated

that the size of a shield did not matter because its spiritual powers, not its thickness or diameter, determined the degree of protection it could offer.<sup>74</sup>

Amulets were considered another source of spiritual protection from projectiles. Often stone arrowheads were part of such amulets. Cheyenne warriors wore them around their necks or tied them to their hair, along with small leather bags containing their personal medicines composed of certain plant parts. These bags were usually tied to the hafting tang of the arrowhead. Such amulets were meant to secure a long life for their wearer. To the Cheyenne, stone symbolized endurance and constancy. By wearing such amulets they hoped to obtain these characteristics.<sup>75</sup>

Cheyenne people also believed that the feathers of certain birds could protect humans from projectiles. For instance, arrows or bullets supposedly could not hit a man wearing the feathers of the immature bald eagle (*Haliaeetus leucocephalus*) or the blue or duck hawk (*Falco peregrinus*).<sup>76</sup> By wearing amulets or images of lizards, butterflies, or dragonflies, Cheyenne warriors hoped to gain these animals' agility and speed to evade projectiles in battle.<sup>77</sup> Amulets representing arrows or guns were thought to ward off projectiles.<sup>78</sup>

In the 1930s the Ojibwa leader William Berens of Berens River in northeastern Manitoba related a powerful dream he had to the anthropologist Irving A. Hallowell. In this dream, Berens survived a contest of powers with a spiritual being and was rewarded with a gift of protection from bullets if he should ever go to war. Because Berens never did so, even though he was offered a chance during World War I, he concluded that he did not need the blessing, and felt that he could tell about it:

I was walking along and came to a house [not a wigwam]. I went in. There was no furniture in the room I entered. All that I saw was a small boy in a red tuque [a knitted cap]. He said to me, "Oh, ho, so you're here." "Yes," I replied, "I'm here." This boy had a bow in his hand and two arrows. One was red and the other black. "Now that you've found me," he said, "I'm going to find out how strong you are." I knew that if he ever hit me that would be the end of me. But I went to the middle of the room, as he told me, and stood there. I filled my mind with the thought that he would not be able to kill me. I watched him closely and, as soon as the arrow left the bow, I dodged. I saw the arrow sticking in the floor. He had missed me. Then he fitted the other arrow to his bow. "I'll hit you this time," he said. But I set my mind just as strongly against it. I watched every move he made and he missed me again.

“It’s your turn now,” he said and handed me the bow. I picked up the two arrows and he went to the middle of the room. Then I noticed a strange thing. He seemed to be constantly moving yet staying in the same place. He was not standing on the floor either, but was about a foot above it. I knew that it was going to be hard to hit him. I let the black arrow go first and missed him. I made up my mind that I was going to hit him with the red arrow and I did. But it did not kill him. He took the bow from me, tied the arrows to it and laid it aside. “You have beaten me,” he said. I was very anxious to know who it was but I did not wish to ask. He knew what I was thinking, because he asked, “Do you know who you have shot? I am a fly . . . “ [smaller than a bulldog fly which is to be seen on flowers—but is constantly moving and does not stay still long]. [The boy went on to say that W.B. would never be shot and killed by a bullet unless the marksman could hit a spot as small as a fly.]<sup>79</sup>

This “duel” and the contestant’s use of “mind power” are reminiscent of the contests between Subarctic shamans. However, the red and black color duality of the arrows used in the duel resembles the sacred arrows of the Cheyenne, which were red and black. The spiritual protection from bullets as a reward may also point to connections or influences from the Plains.

Bows and Arrows as Grave Goods

Among Aboriginal peoples in the Plains, Subarctic, and Arctic, archery items became grave goods when they were placed next to their owner's body upon burial. Writing in the late seventeenth century, the French military officer La Potherie noted that Aboriginal people on the shores of Hudson Bay burned the bodies of the deceased and then collected the bones and buried them in the ground, along with grave goods: "When the father or mother dies the children or nearest relatives burn the body. They wrap up the bones in the bark of trees and bury them in the ground. They build a tomb, surrounded with poles to which they tie tobacco for the spirit to smoke who will look after them in the other world, with bows and arrows to enable him to continue his hunting if he is a hunter."<sup>80</sup>

During the first half of the eighteenth century Joseph Robson recorded in regard to the burial customs of the Swampy Cree:

When an Indian dies they usually bury all he possesses with him, because, they think he will want it in the other country, where, they say, their friends are making merry as often as they see an Aurora-borealis. The corpse being placed upon its hams, the grave is filled up and covered over with brush-wood, in which they put some tobacco; and near the grave is fixed a pole with a deer skin, or some other skin, at the top. This method of placing the corpse is no

longer observed by the people who resort to the English factories; but the upland Indians still retain their ancient customs.<sup>81</sup>

Similar practices prevailed among the Inuit of northwestern Hudson Bay. In 1813 Captain Stirling of HMS *Brazen*, while escorting HBC ships into the bay, came upon the burial site of an Inuit man in the hills near the shore. Stirling and his officers discovered “the dead body of an *Esquimaux*: it was closely wrapt in skins, and laid in a sort of gully between two rocks, as if intended to be defended from the cold winds of the ocean: by the side of the corpse lay the bow and arrows, spears and harpoon of the deceased; together with a tin pot, containing a few beads and three or four *English* halfpence.”<sup>82</sup>

The funeral of the baptized Mi’kmaq leader Membertou in 1611 combined European and Aboriginal customs and ideas. There was a funeral procession with a large cross and drums. Membertou was buried under a cross, but his bow and arrows were hung from it.<sup>83</sup>

Among Plains peoples such as the Mandan, archery items were often part of men’s burials.<sup>84</sup> The relatives of deceased Sioux leaders, medicine men, or warriors of rank, and also of male children from prominent families, often laid the deceased person’s archery equipment upon the burial platform to document their status.<sup>85</sup> As a boy the Mormon settler E. N.

Wilson, who had lived among the Eastern Shoshone during the late 1850s, witnessed the burial of a chief's son who had been killed in an accident. Wilson related that the mourning family "killed three horses and buried them and his bow and arrows with him."<sup>86</sup>

In the 1950s the mummified body of the Cheyenne leader High-Backed Wolf, who was killed on the North Platte in 1868, was exhibited with all his equipment in the House of Yesterday at Hastings, Nebraska (now the Hastings Museum of Natural History). His weapons included a bow and a supply of arrows, a stone-headed war club, an army camp knife, and a Henry repeating rifle.<sup>87</sup> However, among the Cheyenne the families of deceased warriors often gave especially valuable items, such as quiver and bow case combinations of mountain lion skin, to a close friend of the deceased instead of placing them on the burial platform.<sup>88</sup>

Archery items used as grave goods during the early contact phase between Subarctic Aboriginal peoples and Euro-Americans on the East Coast and in the Hudson Bay Lowlands represented an Aboriginal man's role as hunter, provider, and warrior. While this remained the case in the Plains until the reservation period, it changed in the Subarctic where firearms eventually superseded archery items in representing the role of the big game hunter and fighter.

## Firearms in Aboriginal Beliefs

For Aboriginal people, the process of adapting European goods and weapons included placing them within a framework of their own cultural understanding and worldviews. These adaptive processes were not uniform, but they evolved within already existing cultural practices and patterns. For instance, Aboriginal people in the Central Subarctic were much concerned with individual hunting medicine. During the early nineteenth century the fur trader George Nelson observed some of these beliefs at work or obtained information on them from his Aboriginal or Métis guides. In his memoir, Nelson related information about an Iroquois hunter who believed he had been bewitched.

He could not kill any animal with his gun until his Cree or Ojibwa wife cleaned his gun, along with the musket balls, by filling and washing it with lye overnight. After that, the hunter was said to never have missed a shot again.<sup>89</sup> Another freeman told Nelson of a similar incident: “At last one day prowling in my Canoe I met 2 other *free-men*, who, after mutual enquiries &c, told me the same thing had happened to him and that an Indian told him to file off a small piece of the *muzzle* of his Gun and wash it well with water in which *sweet-flag* [prob. *Acorus calamus*, an arum] had been boiled, and killed after that as before. I laughed at the idea, but reflecting that it was an innocent experiment and could not offend the

almighty, I tried, and the first animals I saw I immediately killed.”<sup>90</sup>

Nelson participated in a Cree shaking-tent ceremony and described some of the spirits that were said to have entered the lodge on this occasion: “The Sun enters—speaks very bad English at the offset, but by degrees comes to speak it very easily and fluently. *He is Gun Smith and watchmaker, or at least he can repair them* [my emphasis].”<sup>91</sup> According to Nelson, a Cree man brought his defective gun to this ceremony where the sun spirit fixed it.<sup>92</sup> During the ceremony, Nelson observed: “Some of them [the conjurers] to show their Power have had small sticks of the hardest wood (such as produces the wild Pear [Saskatoon berries, *Amelanchier alnifolia*] and of which the Indians make their arrows, and ram-rods, &c for Guns) about the size of a man’s finger, made as sharp pointed as possible, and dried, when they become in consequence nearly as dangerous as iron or bayonets.”<sup>93</sup>

The shamans lay down upon the sharp pointed ends of eighteen to twenty-four of these sticks during the ceremony, but afterward no marks of injuries would appear.<sup>94</sup> Cree peoples’ choice of the same wood for the manufacture of arrow shafts and ramrods indicates another connection between their own projectile weapons and European firearms.

In 1783 George Sutherland at the HBC's Albany post observed the funeral of the Cree leader Questach, who had been the "captain" of the post's goose hunters: "James Salter made a Coffin for Captn

Questach. . . . Myself with all the Indians on the plantation attended the remains of old Captn Questach to a woodin tomb built in a very permanent manner, he was buried with more solemnity and ceremony than ever I saw upon like occasion; Gave him the colour half mast high; In the evening the Indians made a grand feast upon the occasion and kept *firing guns all night* [my emphasis]."<sup>95</sup>

Similarly, Andrew Graham recorded that "no sooner is the breath out of the body than one of the men fire off a gun in the tent, in order to deter the spirit, or soul of the deceased from coming again and troubling them."<sup>96</sup>

In their mix of European and Aboriginal traditions, these funeral ceremonies were remarkably similar to the funeral of the Mi'kmaq leader Membertou, more than a century and a half earlier. Apparently the firing of guns held a special significance to the Cree that was not well understood by the European fur traders at the post. Almost thirty years later Peter Fidler made a similar observation among Déné people:

Last night 2 Shots & this Night 5 Shots were fired at the Canadian House at between 9 & 10 o'clock at Night. There is an Indian there in a

dying state & this is done by his Friends who attend him to keep away the Messenger of Death—according to their wonted custom.

[On the next day] The ailing Jepewyan nearly dead, & this morning by his own request they hawled him about 1 mile off to die.<sup>97</sup>

Both events involved Subarctic Aboriginal people. However, it is not clear if the firing of guns on this occasion held the same meaning for the Chipewyan as it did to the Cree in the funeral at Albany in 1783. The Cree fired their weapons at the funeral, whereas Fidler portrayed the actions of the Chipewyan as an attempt to help keep an ailing person alive. Whatever their reasons may have been, the actions of the Cree and Chipewyan indicate that by the late eighteenth century they had incorporated firearms into their spiritual beliefs and practices. Firearms were even connected to powerful spiritual beings, central to the beliefs of Aboriginal peoples in the Subarctic and Plains.

#### Guns, Arrows, Thunderbirds, and Underwater Panthers

The beliefs of many Aboriginal groups of the Algonquian and Siouan language families contained concepts of the thunderbird. This entity was seen as a powerful force inherent in many aspects of the natural world, manifesting itself in such phenomena as thunderstorms and lightning strikes, sometimes appearing in the shape of a

large bird. This force was associated with success in war and in medicine and healing.<sup>98</sup> If the explosive discharge of a firearm—the muzzle flash, noise, and smoke but mostly the tremendous destruction upon impact of the projectile—were interpreted as manifestations of the power of the thunderbird, whoever operated a firearm partook in an activity that was permeated by spiritual importance by harnessing that power. If those attacked with firearms held similar beliefs, they therefore considered themselves under attack by powerful enemies who could marshal immense spiritual powers against them. While this belief instilled fear and panic in those attacked, it also instilled great confidence in the attackers.<sup>99</sup> The Omushkego-Cree elder Louis Bird related:

There was something that I forgot to mention about the results of the firearm. In the Mushkego country some of our ancestors, when they have seen the gun, it has given them the idea how to use it in their own shaman power. And there is a story, it's about some miteos' personal practice. [Some] shamans were able to use the firearm, or a gun without reloading. They were able, supposedly, to keep aiming and cause it to fire as if it has been reloaded. This they have done during the time when other tribes used to come and attack them unexpectedly. And those who had shaman power, sometimes they would defend their families by using this, just the gun itself, but without any gunpowder and the slugs. And

were able to defend their family. So for that reason the gun, the firearm has given a strength to the First Nation and it has given some additional ideas because of the firearm. And there's a story about the greater shaman [who had] an idea how to harness his dream quest, hav

ing the thunder being as his helper, and was able to use a similar object as a gun barrel to guide the lightning bolt to kill his enemies. So the gun had brought an extra idea amongst the First Nation in Omushkego land. There is a story about this. The story is very fascinating and it's very powerful. They called it "The Omushkego Who Fought With Thunderbolt." So, there goes. Shows us how powerful an influence this firearm can be. And there were some who have tried [something] similar. Those who pretend to be a shaman, trying to use only the barrel to fire the gun, sometimes it did not actually work, they just tricked [pretended] to use it.<sup>100</sup>

Besides oral testimony, material evidence also suggests Aboriginal beliefs in a connection between firearms and thunderbirds. For instance, several shot pouches and hunting bags collected from Algonquian-speaking Eastern Woodland and Subarctic peoples during the late eighteenth and early nineteenth century were embroidered with thunderbird motifs.<sup>101</sup> Such bags or pouches held musket balls or shot, as well as gunflints, gun

worms, and other items necessary to keep a muzzle-loading firearm in working order.

The connections Aboriginal people saw between thunderbirds and firearms may have been based on precontact traditions of similar connections between thunderbirds and projectile weapons, especially arrows. For example, before shooting an arrow, Plains Indians used to point it skyward after the arrow was placed on the bowstring. Then the bow was drawn and brought down in a quick and fluid motion. When the arrow pointed at the target, it was released. Besides practical considerations of clearing the hands of horses' reins, fringes, or loose shirt sleeves that could get in the way and interfere with shooting, it may also have expressed a connection of arrows to the sky and thus to the thunderbird.<sup>102</sup>

The Cheyenne placed arrows as offerings in the nest of the thunderbird on the center pole of the Sun Dance lodge, but Cheyenne also recognized other connections between arrows and the thunderbird. For example, they believed that if they ever forgot how to make arrows, the thunderbird would instruct them again.<sup>103</sup> Gilbert Wilson noted that the Hidatsa saw a connection between their culture hero Burnt Arrow and a special kind of arrow with just one long split feather wrapped in a spiral around the back end of the shaft for fletching. Hidatsa bow maker Henry Wolf Chief stated:

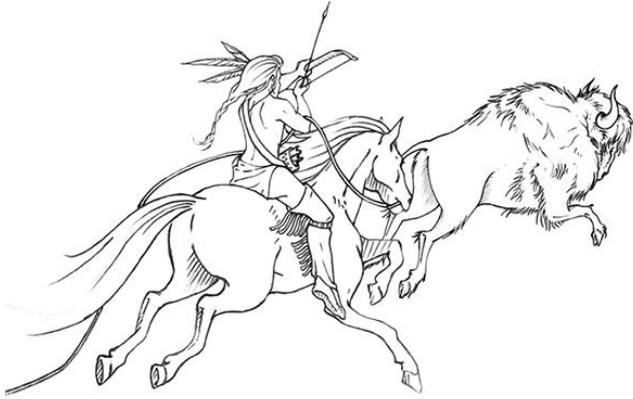
An arrow with a spiral feather was called Isu-dumite, or wing-twisted around. We did not say “arrow feather” but “arrow wing.” . . . Spiral feathered arrows, such as I just described above, were the first kind of feathered arrows a boy shot with. We would say to the boy, “This is Adapozis, Burnt Arrow and should fly straight. *Adapozis was a Thunderbird* [my emphasis]. You should keep this arrow sacred, and pray to it.” . . .

There were a few men in the tribe who always carried two of these spiral-feathered arrows in their quivers. These arrows they would not ordinarily use; but when they came close to the enemy, a man having these spiral arrows would take them out and pray to them, “Kill this enemy!” And he would shoot at the enemy with one of these arrows. In my time I never saw this custom used; but I have heard of it as being in our tribe in former days.<sup>104</sup>

According to Wolf Chief, the three wavy grooves cut into arrow shafts represented the Hidatsa culture hero Burnt Arrow or Charred Body. Burnt Arrow was said to have referred to these grooves as lightning, and he taught the Hidatsa to groove their arrow shafts.<sup>105</sup> Prince Maximilian noted that to the Mandan, spiral or wavy grooves on their arrow shafts represented lightning.<sup>106</sup> Cutting straight or wavy grooves into arrow shafts and associating them with lightning was widespread among Plains peoples, whereas shaft

grooves were much less frequently used among Aboriginal peoples in the Eastern Woodlands, Subarctic, or Plateau. The practice was apparently absent on the Northwest Coast and among the Inuit.<sup>107</sup>

The Big Bird medicine bundle of the Mandan included arrow-making ceremonies and rights and was connected to thunderbird concepts. The Big Bird myth contains elements of the struggle between snakes, both mythical and real, and thunderbirds as the leaders of all the large birds like eagles, hawks, and ravens. According to this myth, both thunderbirds and mythical snakes, some of whom were believed to live in the water and have horns, could shoot lightning.<sup>108</sup> The two main protagonists of this myth, Black Medicine and his younger brother, the sons of the Mandan leader Big Bird, were transformed into thunderbird eagles through hatching: “On each of the two eggs there was a straight and a zigzagged line representing the lightning, for sometimes the flashes are straight, other times zigzagged.”<sup>109</sup> Similar lines appear as straight and zigzagged grooves on numerous Plains arrow shafts, pointing out the connection between arrows and thunderbirds. However, Mandan people believed that not only thunderbirds but also snakes possessed the supernatural power of producing lightning.<sup>110</sup>



**Fig. 48.** Mounted bison hunter showing the Plains Indian method of pointing the arrow upward before the bow was fully drawn and the arrow was brought down on the target. Note the long bridle trailing on the ground to give the hunter an opportunity to recapture the horse if thrown off. The Lakota archers in Figures 1 and 2 hold their bows and arrows in a very similar way, although they are on foot. Drawing by Janet LaFrance.

Such beliefs may be reflected in the use of snakeskin on bows in the Northern Plains and the Plateau region. For example, among the Oglala Lakota in the second half of the nineteenth century, there existed a Sacred Bow Society whose leading officers wielded a bow lance in battle to which, among other items, rattlesnake skins were attached.<sup>111</sup>

Snakeskins also appeared as bow backings. When traveling through the Columbia Plateau in the early nineteenth century, David Thompson noted that local Aboriginal people used rattlesnake skins to cover the sinew backings of their bows.<sup>112</sup> Reginald Laubin examined an asymmetrical sinew-backed Hidatsa bow, possibly of elkhorn, the back of which was covered with a snakeskin.<sup>113</sup> The Crow Two Leggings also was related to have made a hickory bow with a snakeskin on its back.<sup>114</sup> Some sinew-backed bows, mostly of horn or antler, have quillwork decorations in alternating light and dark bands at the upper end. Because these are similar in appearance to the dark- and light-colored bands on the tail of a rattlesnake, they may represent a connection between the bow and the snake.<sup>115</sup>

Most of the snakeskin-covered bows I have examined were covered with the skin of rattlesnakes (*Crotalus* spp.).<sup>116</sup> However, at least three bows, possibly all Blackfoot, are covered with the skins of garter snakes (*Thamnophis radix*). These animals have three bright yellow and white stripes on the back and sides, against a dark background. This striking contrast is reminiscent of lightning against the background of dark clouds.<sup>117</sup> Another connection between snakes and thunder may have been based upon both being signs of coming summer, heralded by the first thunder of the year and the emergence of snakes from hibernation.

While the concept of thunderbirds was widely held in the Eastern Woodlands, Subarctic, and Great Plains, Algonquian peoples of the Subarctic and the Great Lakes area, and to some extent the Plains, also believed in the spiritual powers of beings like the underwater panther or similar feline-serpentine water beings like the “great water lynx” and the “sea serpent.” For example, West Main Cree legends included powerful underwater creatures living in lakes and streams.<sup>118</sup>

While both groups of spiritual beings were important for hunting, medicine, and warfare, the great water lynxes, or underwater panthers, were often perceived as the antagonists of the thunderbirds. Water lynxes and sea serpents were associated with water or underground spaces, usually inimical to humans. They were considered to be eternally at war with the thunderbirds, who in some Aboriginal cultures were considered protectors of humanity and were associated with the upper air and sky.<sup>119</sup>

To Central Subarctic Aboriginal people, firearms combined associations of powers attributed to these groups of beings. Archaeologists William Fox and C. S. Reid claimed a connection between the mythological being known as the underwater panther or “Mishipizhu,” Algonquian hunting medicine, and the brass dragon side plates on trade guns.<sup>120</sup>

Cree and Ojibwa people believed that through the practice of hunting medicine, they were able to influence game animals through the production and manipulation of images. Among the Mistassini Cree, the decoration of hunting equipment such as guns, gun cases, and ammunition pouches expressed respect to the prey, but was also meant to ensure that the “spirit” of the object would fulfill its task in the hunt.<sup>121</sup>

According to Ojibwa beliefs, underwater panthers had horns like a bison, brassy scales on their bodies, and metal tails.<sup>122</sup> Other Algonquian peoples, for example, the Menomini, also saw a connection between such underwater beings and metallic scales on their bodies and tails.<sup>123</sup> Therefore it is possible that the side plates on trade guns reminded Cree and Ojibwa of these powerful beings because they were cast in the shape of a sea serpent or dragon and were made from brass.

Several fragments of dragon side plates found near York Factory show evidence of intentional damage caused by attempts to wrench them off their guns and to remove the dragon’s head and/or tail. According to Ojibwa legends, the underwater panther’s head and tail were considered the most powerful and dangerous parts of the creature. When a trade gun was discarded, possibly after a burst barrel or similar accident, the ritual destruction of the dragon side plate may have taken place to “kill” the gun’s spirit, due to what

Aboriginal hunters may have viewed as a broken relationship between a hunter and a spiritual being.<sup>124</sup> The connection between underwater panthers and firearms is further confirmed by images of these beings embroidered onto hunting pouches and gunstock clubs.<sup>125</sup>



Fig. 49. Dragon side plates were mounted opposite the lock system on trade guns, to hold it in place on the gun. Drawing by Margaret Anne Lindsay.

According to Cree and Ojibwa views, in the struggle between the underwater beings and the thunderbirds, there was a basic alliance between humans and thunderbirds. Plains Cree elder Stan Cuthand related as part of a Cree creation story that in mythical times, ten heroic men married ten thunderbird women. This made humans relatives of thunderbirds.<sup>126</sup> The underwater panthers, lynxes, and sea serpents, on the other hand, were enemies of the thunderbirds and by extension of humankind, at least according to Stan Cuthand.<sup>127</sup>

Therefore, associating firearms with these beings came naturally to Aboriginal people because firearms, besides being hunting weapons, were used to a large extent in warfare against fellow human beings. In this way the destructive powers of the underwater beings and the thunderbirds could be harnessed through the use of a firearm.

While images of underwater panthers are more frequently found on objects from the Woodlands than from the Plains, perhaps some of these beliefs extended to Plains cultures, too. For example, there is at least one historic photograph showing a Blackfoot man wearing a breastplate made of six dragon side plates.<sup>128</sup> There are also examples of trade guns from the Plains heavily decorated with brass tacks, which may point to Aboriginal people there seeing a connection between firearms and underwater beings.<sup>129</sup>

Hinting at the spiritual significance of serpentine motifs and brass decorations, the Hudson's Bay Company trader Isaac Cowie had this to say about trade guns decorated by Native people in the Canadian Plains in the second half of the nineteenth century: "The wooden stocks of these guns ran out under the barrel to within an inch or so of the muzzle. The groove for the ramrod had brass clasps at intervals and two brazen serpents decorated the grip of the stock. To these 'Brummagem' decorations the Indians added others of their own device, in brass-headed tacks,

without which the weapon seemed unconsecrated in their eyes.”<sup>130</sup>

Subarctic Aboriginal people focused on individual big game hunting medicine, and during the nineteenth century they used their guns mainly for big game hunting and less for warfare, because by this time, warfare in the Central Subarctic may have diminished.<sup>131</sup> In contrast, in the Plains, hunting was to a large extent a communal affair, and firearms were mainly used for combat. The dragon side plates in the Blackfoot breastplate could have come from captured enemy trade guns. The same warrior also held a repeating rifle, showing that muzzle-loading trade guns were becoming obsolete by the time the picture was taken. While the Blackfoot had access to modern firearms through trade with Americans, the Plains Cree, who during the late nineteenth century were frequently at war with the Blackfoot and who were mainly HBC customers, still used muzzle-loading trade guns with dragon side plates. Such guns were the only kind of long gun the HBC sold, as the company refused to sell repeating firearms to Aboriginal people. Keeping this in mind, as well as the importance the Blackfoot placed on the capture of enemy weapons, especially firearms, it is possible that this breastplate was made from the dragon side plates of captured enemy guns.

Robert Hall pointed out another example of the deep spiritual connotations that Aboriginal people

in the Great Plains and southwestern Great Lakes region attached to traditional distance weapons and later to firearms. The sacred associations of tobacco for Aboriginal people are well documented. Similar associations existed for varieties of kinnikinnick, a preparation made from dried leaves (*Arctostaphylos*, especially *A. uva-ursi*, bearberry), bark, and wood shavings, sometimes mixed with tobacco.<sup>132</sup> Among the Menomini, Osage, and Hidatsa, some varieties were made from dogwood bark and wood scrapings that were a by-product of arrow manufacture. Later, they used such kinnikinnick as gun wadding to seat a musket ball firmly in the barrel of a muzzle-loading firearm. Among the Osage, Cheyenne, and other Plains peoples, arrows symbolized the renewal of life through abundance of food gained through hunting, and they symbolized safety through protection and defense in war. Thus, both arrows and kinnikinnick were connected to concepts of eternity. Through the use of kinnikinnick as gun wadding, similar concepts may have been transferred to the projectiles and the use of firearms.<sup>133</sup>

Another spiritual concept among Algonquian-speaking peoples of the boreal forest and the Plains was the idea of increasing one's spiritual strength by killing and absorbing the life force of others. From Saukamappee's account, David Thompson understood that the Parkland Cree and the Pikani believed that slain enemies

would become the slaves of their slayer's deceased relatives in the afterlife if the slayers or their relatives kept the scalps of the slain.<sup>134</sup> However, for this to work out properly, warriors needed to determine precisely who had killed which opponent. With the use of firearms in combat, this became difficult, since musket balls, unlike arrows, did not carry personal marks of ownership. Therefore, new ways to attribute warriors' claims had to be determined. For example, Saukamappee related how after a battle, he and his fellow warriors were allowed to wear a special face paint to distinguish them from other victorious warriors, as those who had been the first ones to use guns against the Shoshone and thus had brought about victory.<sup>135</sup>

Assuming that Thompson and other fur traders understood correctly the concept of absorbing the life force, it seems that this concept was eventually given up among Algonquian-speaking people of the Plains during the nineteenth century, since most anthropological accounts collected in the late nineteenth and early twentieth centuries do not mention it. This may indicate an adjustment or change in Aboriginal spiritual concepts caused by the introduction of firearms and their "impersonal" bullets.

Aboriginal people on the East Coast and in the Hudson Bay Lowlands encountered firearms almost a century before Aboriginal peoples on the Northern Plains. Their longer exposure to guns

and the increasing emphasis on individual big game hunting gave Central Subarctic Aboriginal peoples more time and incentive to develop deeper spiritual meanings and associations with regard to firearms while at the same time slowly disassociating these meanings from archery equipment and other traditional weaponry.

In the Plains, by contrast, firearms were added and incorporated into the Aboriginal arsenal without displacing archery. For the bison-hunting peoples, archery gear remained necessary until the reservation period, and it continued to hold its spiritual significance while spiritual contexts for firearms began to emerge as well. In both regions, Aboriginal people developed dependable distance weapons from locally available materials, in spite of the limitations in available raw materials in their homelands. When European technologies in the form of metal arrowheads and firearms became available, they integrated these into their belief systems and their hunting and combat methods. The following chapters will focus on the practical applications of archery and firearms, beginning with an examination of Aboriginal peoples' use of archery and firearms in hunting.



8.

### Archery and Firearms in Hunting

Through practical experience and observation, Aboriginal people of the Central Subarctic and Northern Plains acquired a vast body of knowledge about their environment and the interaction and interdependence of its plants, animals, climate, and weather patterns. Based on this knowledge, they fine-tuned their equipment to meet their needs, despite an environment that placed severe restrictions on their options for making tools and weapons—a harsh climate with few available wood species. Beginning in the early 1700s, the technology and methods of big game hunting and combat developed and used by Aboriginal people in these regions underwent tremendous changes, influenced by the introduction of European horses, firearms, and metal tools and weapons. This chapter discusses Aboriginal and European big game hunting weapons and the changes in hunting methods brought on by the introduction of these new technologies.

Archaeological evidence in the form of lithic projectile points interpreted as arrowheads indicates that shortly before contact with Europeans, Aboriginal peoples in central and northern Manitoba used archery extensively.<sup>1</sup> However, due to the unfavorable preservation conditions for organic materials, there is little if

any information on those components of their archery systems—bows, arrow shafts, fletchings, and bowstrings—that were manufactured from wood, feathers, rawhide, or sinew.

When Europeans entered into trading relations with Native peoples

on the shores of Hudson Bay in the late seventeenth century, metal arrowheads were part of the goods offered to Native people. For example, when Pierre Esprit Radisson and his brother-in-law Medard Chouart, Sieur des Groseilliers, set out on their first voyage from England to Hudson Bay, to assess the feasibility of trading with the local Native people directly from Europe on behalf of the investors who later formed the Hudson's Bay Company, they were directed to carry the following goods with them: "two hundred fowleing pieces & foure hundred powder hornes, with a proportionable quantity of Shott fitt thereunto, first bringeing patternes of the guns to bee bought, unto the next Committee, & more two hundred brasse kettles Sizable of from two to Sixteene gallons a piece, twelve grosse of French knives & two grosse of Arrow heads & about five or Six hundred hatchets."<sup>2</sup>

Gradually, however, firearms gained in importance while the number of metal arrowheads dwindled in the trade inventories. By the mid-eighteenth century there were few if any sales of metal arrowheads recorded for the Hudson Bay Lowlands, while the sale of firearms, gun

accoutrements, and ammunition gained in numbers. Even though the Hudson's Bay Company trade ledgers at the time do not include metal arrowheads, Native people may have manufactured their own from old kettles and other European metalwares. The ascendancy of guns and related paraphernalia, such as shot and gunpowder, however, seems to indicate a steady decline in archery as the principal distance weapon for big game, and a steady increase in the use of firearms.<sup>3</sup> The qualities of both weapons, firearms and bows and arrows, must be considered in order to gain a better understanding of some of the factors that may have influenced a hunter or warrior's choice of one over the other.

#### Reliability of Firearms and Bows in Wet and in Cold Weather

Severe cold or wet conditions could negatively affect both Aboriginal and European weapons. Depending on the tree or shrub species they were made from, the wooden bows of Subarctic people were liable to break after prolonged exposure to low temperatures, because they often did not have enough tensile and compressive strength to stand up

to hard use during extremely cold weather.<sup>4</sup> Fur traders and travelers recording ethnographic information on Algonquian- and Athapaskan-speaking peoples in the Central Subarctic observed the use of bows and arrows

predominantly in summer, and much less in winter.<sup>5</sup>

In the Northern Plains, Aboriginal people had access to wood of greater tensile and compressive strength; however, the lengths of wood they could choose from were mostly knotty and short, as their growth was shaped by extreme temperature changes and severe winds. In order to be able to make serviceable bows from such flawed materials, they applied a sinew backing to their bows. Because the woods available to Plains peoples could endure greater compression strain than those available to Aboriginal people of the Subarctic, and because Plains peoples often employed sinew backing, they could use their bows in winter without major problems. In fact, the reproduction of a short, sinew-backed Plains bow that I made in 1995–96 becomes somewhat snappier and stronger in dry, cold weather. The bow is made of ash wood and sinew from approximately seven deer-leg tendons, shredded into fine fibers and glued onto the back of the bow with hide glue. I have drawn and shot this bow in temperatures of minus 30 degrees Celsius ( minus 22 degrees Fahrenheit) in northeastern North Dakota and southern Manitoba without the bow sustaining any damage. However, these excursions never lasted more than two hours, while the bow was generally carried under my coat to keep it warm. A short Plains bow is also easier to keep warm in this way than a longer Subarctic self bow, which could be as long as the

person using it. As the Hidatsa bow maker Wolf Chief noted of his people's practice: "Frequently the [mounted] hunter, to keep his bow warm, thrust it down his back, under his blanket or robe, close to his body. He did not want the bow to become cold. A wooden bow exposed to intense cold would lose its spring and might break."<sup>6</sup>

The brittleness of Subarctic bow woods in very low temperatures meant that firearms were more reliable than bows in the extreme winter cold. The major problems associated with guns exposed to the cold were weak springs and freezing locks.<sup>7</sup>

The flintlock weapons sold to Aboriginal people during the late eighteenth and early nineteenth centuries featured springs made in Europe that were so weak that the guns would not fire in cold weather. Before use in northern North American winters, they had to be adjusted to local climate conditions. Fur traders learned to exchange the original springs for stronger ones at the posts before the weapons were sold.<sup>8</sup>

While firearms could at least be shot, if not loaded, using special gloves or mittens in the extreme winter cold, archers in the Plains commonly handled their archery equipment with bare hands, even in winter. When using their bows and arrows, they seem to have shunned the use of shooting gloves or other protection for their hands, regardless of the season. According to Wolf Chief, "we [the Hidatsa] never used gloves of any kind to protect the hand or the fingers

against the friction of the bowstring. We used the bracer on the wrist, but nothing else.”<sup>9</sup>

Short bows and arrows demanded short draw lengths to the chest. Such short draw lengths did not permit the archer to hold the bow and arrow at full draw for long in order to aim.<sup>10</sup> With the quick-shooting techniques that were common throughout the Plains, gloves, mitts, or pads might have reduced accuracy by dulling the archer’s sense of feel in his hands and fingertips. In contrast, Aboriginal peoples in the Subarctic and in the Eastern Woodlands generally used fairly long bows and arrows, which allowed them, when aiming, to employ long draw lengths and thus long moments of holding and anchoring the arrow hand against the face while the bow was at full draw. Such techniques permitted the use of mittens for the bow hand and shooting gloves for the arrow hand.

No matter how long the bow or what its manufacture, a person’s ability to effectively use bows and arrows bare-handed in severely cold weather is not boundless. In using Plains Indian archery gear in very cold weather, I have learned that after just a few shots the pain in the fingertips of the hand pulling back the bowstring becomes very distracting, while the sensation of the arrow gliding over the bare bow hand in discharge can also be fairly painful. Even experienced Aboriginal hunters, who had built up calluses from long practice, beginning

as small children, were bothered by this problem. The Lakota White Bull related that when he was nineteen years old, he killed eight buffalo cows in a single mounted winter hunt with his bow and arrows , but he could have shot more if his hands had not become too cold to handle his bow and arrows.<sup>11</sup>



**Fig. 50.** In this staged image, Joe Rich (Shushebish), a Naskapi (Davis Inlet Band), demonstrates the use of the bow and arrow to ethnographer William Duncan Strong, who lived

with Rich's community in Labrador for several months in 1928 and collected over five hundred ethnographic objects there. Only a generation before Strong's visit, Naskapi hunters had still commonly used such weapons to take small game at ranges of up to 25 meters. The bow and arrows in this image are very similar to Cree and Ojibwa specimens discussed in chapters 3 and 4. Note the archer's use of gloves and the Mediterranean arrow release. Image courtesy of the Field Museum, #CSA62084, William Duncan Strong Collection.

Damp and wet weather also negatively affected both archery gear and firearms. In order to function properly, gunpowder had to be kept dry at all times, and a firearm's barrel and moving parts had to be kept clean of corrosion. Percussion-cap firearms were less susceptible to dampness than flintlock weapons because they did not employ loose powder in the pan to ignite the main charge.

Contemporary black-powder enthusiasts, using only materials available during the fur trade era, have developed a variety of methods to keep their firearms operational in damp and even wet weather.<sup>12</sup> For example, a cover for the frizzen and a leather cover for the lock, called a "cow's knee" because of its shape, are necessary to keep the lock and the pan dry in wet weather. A little ridge of beeswax placed in front of the lock where

the gun barrel meets the stock helps to prevent water from running down the barrel into the pan.<sup>13</sup> Aboriginal people may have developed similar methods to ensure the functionality of their firearms in damp or wet weather.

Dampness and rain also limited the use of archery gear. Most bowstrings in the Subarctic were made from rawhide, while in the Plains they were made from twisted fibers of animal sinew. Both these materials soak up moisture, swell, and become soft when wet. Under tension, wet sinew bowstrings, if used for too long, might even disintegrate into their individual fibers. The bows themselves were also affected by moisture. Dampness and high humidity could make a wooden bow lose much of its elasticity and power. In the summer of 2001 I tested a 158-centimeter-long (62.2 inches) ironwood self bow I had recently made. The closer I came to the hot and humid floodplains and shore of the Assiniboine River in Winnipeg, the flabbier the cast of the bow became and the more draw weight and spring it lost, even though the bow had been well oiled to prevent moisture from entering the wood.

Once I moved away from the river into higher and less humid territory, the bow slowly regained its original spring and draw weight.

Sinew-backed bows were also affected by humidity, since the sinew backing would soak up moisture and the glue that bound the sinew fibers

to the wood or the horn of the bow was water soluble. Bows from the Plateau and Northern Plains sometimes had snakeskins or protective coats of powdered mica or pitch applied to the sinew backings. This helped to keep out moisture. Bows were also liberally greased for the same reason.<sup>14</sup>

Moisture and dampness also affected arrows, sometimes causing their shafts to warp, dissolving their water-soluble glue and causing sinew wrappings to soften or even to disintegrate. If the sinew wrappings became too loose, the fletching feathers might come off, which could render the arrow temporarily unusable. Once the fletching feathers soaked up moisture, their flight characteristics were adversely affected, as I know from shooting such arrows in drizzling rain.

Although wet weather and extremely low temperatures in winter could severely impede the use of firearms and archery gear, the examples discussed here indicate that there were ways to counterbalance these effects by making adjustments to the equipment or its use. Due to the low quality of available bow woods, it was mostly in the Subarctic that firearms offered clear advantages to Aboriginal hunters, especially in winter.

### Subarctic Caribou Hunting

The only large land mammals available in very large numbers in the Hudson Bay Lowlands were

caribou. While mass hunting of caribou, or so-called caribou drives, are more often associated with Inuit and northern Athapaskan Aboriginal cultures, Eastern Cree, Northern Ojibwa, and Montagnais also mass-hunted caribou into the first quarter of the nineteenth century.<sup>15</sup>

Hudson's Bay Company trader and explorer Samuel Hearne observed in regard to Chipewyan caribou hunting in the later eighteenth century:

Their bows and arrows, though their original weapons, are, since the introduction of fire-arms among them, become of little use, except in killing deer as they walk or run through a narrow pass prepared for their reception, where several Indians lie concealed for that purpose. *This method of hunting is only practiced in Summer* [my emphasis], and on the barren ground, where they have an extensive prospect. . . .

At other times I have seen eleven or twelve of them [caribou] killed with one volley of arrows; and if any gunmen attend on those occasions, they are always placed behind the other Indians, in order to pick up the deer that escape the bow-men. By those means I have seen upwards of twenty fine deer killed at one broadside, as it may be termed.

Though the Northern Indians may be said to kill a great number of deer in this manner during the Summer, yet they have so far lost

the art of shooting with bows and arrows, that I never knew any of them who could take those weapons only, and kill either deer, moose, or buffalo in the common, wandering, and promiscuous method of hunting.

The Southern Indians [northern Cree], though they have been much longer used to fire-arms, are far more expert with the bow and arrow, their original weapons.<sup>16</sup>

O mushkego-Cree caribou drives were similar to bison drives in the Plains. Hunters on foot drove the animals into enclosures where they could be killed. Two long lines of obstacles radiated from such an enclosure, forming a large “V” with the two lines almost converging at its entrance. Selected hunters lured and drove a herd of caribou into the opening of this “funnel.” As the animals passed, other hunters jumped up from behind the obstacles in the funnel and drove them toward the enclosure. When all the animals were inside the enclosure, it was closed and the animals were then killed at close range with lances, spears, or arrows. In this setting, traditional weapons were safer to use than firearms. Their projectiles had less impact force and would not carry as far as musket balls, therefore they were thus less likely to injure hunters on the opposite side of the enclosure.<sup>17</sup>

There were several other ways to hunt caribou herds. When the rivers were still frozen, fences or hedges were built with openings that contained

snares to catch the animals' heads. Several European observers wrote about such caribou hedges. In some instances they were built not far from a fur trading post.<sup>18</sup> Caribou hedges required many people to build and maintain, as did the processing of the meat and hides after the hunt. For these reasons many Cree people congregated at caribou hunting camps, for example, close to York Factory.<sup>19</sup>

When the rivers were open, hunters speared caribou from canoes while the animals were swimming across.<sup>20</sup> This method was also employed in the fall when the animals again crossed the rivers in great herds on their way to their wintering grounds. Andrew Graham observed such a hunt and wrote: "When the deer are pretty far advanced into the river, the canoes are all manned, and paddle after them, one party surrounding them and preventing their landing on the opposite shore; whilst the women, children and dogs by making a noise and throwing stones, hinder them from returning. The men in the other canoes immediately approach the unhappy victims, and stab them with spears, bayonets, knives, arrows, or even a stick sharpened at the point and hardened in the fire."<sup>21</sup>

This hunting method was still used long after the introduction of firearms. Edward Chappell, a lieutenant in the British Royal Navy who visited Hudson Bay during the War of 1812, participated in a similar caribou hunt, though on a much

smaller scale. Chappell's party and a Swampy Cree hunter, using a rowboat and a birch bark canoe, drove five caribou back and forth across a stream to tire them. The Native hunter paddled close to the animals and stabbed them with a lance and then shot them with his firearm. Chappell also used a spear and his gun. In this way they killed three of the five caribou.<sup>22</sup> According to Victor Lytwyn, the Lowland Cree purchased metal spear tips made specifically for hunting caribou. Blacksmiths at York Factory made them by reworking other metal goods.<sup>23</sup>

Even though Aboriginal people incorporated European technology into caribou hunting, their methods did not require any European technology and had probably been in use for a considerable time before contact, as suggested by archaeological evidence from a precontact site on the Ile de l'Ourson, twenty kilometers above Severn House. There, antler and bone fragments indicated a heavy focus on caribou as a resource for food and raw materials.<sup>24</sup>

### Hunting Moose, Bears, and Birds

As late as the early nineteenth century, Subarctic people sometimes killed moose by traditional means. At Fort Dauphin, Peter Fidler observed that local Aboriginal people "at this time of the year run them [the moose] in the Mornings when the snow is hard on the top and chase them with

Dogs & are seen killed frequently without firing a shot, but the meat thus run is not good.”<sup>25</sup>

Besides big game, fish and waterfowl were of great importance as food resources. Generally, fish weirs were used to catch most species except the larger ones such as sturgeon, which were speared.<sup>26</sup> Louis Bird also mentioned shooting fish with arrows. Andrew Graham wrote about Subarctic people in the interior resorting to fishing at all seasons, “when their gun and ammunition fails, or other food fails.”<sup>27</sup> According to Louis Bird, the Hudson’s Bay Company engaged their “own halfbreeds” from York Factory to fish for the posts, while local people began to specialize in hunting geese for the HBC.<sup>28</sup>

Scholars have disagreed about the changing importance of goose hunting to the Omushkego people. The anthropologist John J. Honigmann stated that by 1771, the Hudson’s Bay Company “looked for a special line of guns for the Indian trade.”<sup>29</sup> Europeans referred to these smoothbore muzzle-loaders as “fowling pieces” or “sporting guns.” These terms indicate that these weapons could fire solid lead balls for big game, as well as shot to kill birds. It was this versatility that made these weapons especially interesting to Aboriginal people in the Subarctic, because they had access to migratory waterfowl in very large numbers. Honigmann argued that “firearms altered and eased subsis

tence hunting; especially they allowed the Indians to rely on waterfowl as a seasonal staple food.”<sup>30</sup> Archaeologist Jean-Luc Pilon noted in contrast that, in precontact times, “although guns were not available, evidence from the Brant River suggests that waterfowl could be taken in significant numbers, especially during the moult, with technologically simpler means.”<sup>31</sup>

Louis Bird confirmed that because the birds could not fly during the molt, the Omushkego-Cree would walk into the nesting areas and simply pick up the number of birds that they wanted.<sup>32</sup> However, the flightless molting period lasted only a brief time, whereas bows and arrows and firearms also allowed the Omushkego-Cree to take waterfowl “on the wing.” Louis Bird mentioned that it was possible to kill up to three birds with one arrow at a time. Explorer and fur trader Pierre Radisson claimed to have observed Aboriginal people doing just that during his travels through the James Bay area in 1660.<sup>33</sup> The combined evidence from archaeological sites, Omushkego-Cree oral testimony, and Europeans’ reports indicates that waterfowl and especially geese were an important seasonal resource for the Hudson Bay Lowland Cree since precontact times. However, the introduction of firearms greatly enhanced the numbers of birds hunters could take. Using a fowling piece and shot, a proficient hunter could kill five or more birds with one shot.<sup>34</sup>

Geese were formerly hunted in large numbers with bows and arrows, James Isham noted, but Aboriginal people preferred shotguns and other firearms once they became available. It was rather difficult to kill more than one goose with one arrow, but with a shotgun or musket aimed at the heads of the geese as they were aligned while landing, just before touchdown, at least five or six birds could be killed with one shot.<sup>35</sup> According to Louis Bird, the availability of firearms, as well as the establishment of goose-hunting camps by the Hudson's Bay Company from the mid-eighteenth century onward, caused a steady depletion of the goose population in the Hudson Bay Lowlands.<sup>36</sup> He also noted that the introduction of guns brought about the competitive shooting of loons. Previously, loons had been difficult to kill with a bow and arrow, but a skilled marksman could easily kill them with a gun.<sup>37</sup>

From precontact times on, willow ptarmigans were caught in nets, but boys also shot them with bows and arrows. Thus, in 1769 Lowland Cree boys shot over one hundred ptarmigans with their arrows near Severn House.<sup>38</sup>

The introduction of firearms affected not only bird hunting but also the hunting of smaller fur-bearing animals. In the late seventeenth century Bacqueville de la Potherie, who was then comptroller general of the navy and fortifications in New France, observed Aboriginal people on

Hudson Bay using “darts and arrows” to kill beaver that had been driven or lured out of their lodges.<sup>39</sup> According to Lytwyn, guns made it easier to hunt beaver in the summer and were eventually preferred for this purpose.<sup>40</sup>

When noise had to be avoided—for instance, when enemies were presumed to be nearby—the relative merits of firearms might be overshadowed by the noise they made. Pierre Radisson claimed to have used bows and arrows to kill otters when silence was required due to the presence of an enemy war party nearby.<sup>41</sup>

Bears are among the most imposing and dangerous land animals in North America. Aboriginal peoples in the Subarctic and in the Great Plains held them in great reverence. While it is possible to kill black bears with wooden bows and arrows, Louis Bird suggested that before the introduction of firearms, black bears and polar bears were rarely killed except in emergency situations, for example, when humans had accidentally startled a bear, provoking an attack.<sup>42</sup> He stated that firearms killed large animals faster, due to their greater penetrative force and stopping power: “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. And at mating season the bull moose is very dangerous and charge you. 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 hightailing it, instead of running away.”<sup>43</sup>

David Thompson noted about Swampy Cree methods of hunting polar bear in the late 1700s that “the Nahathaway Indians are all armed with guns, and are good shots, but they only attack this species of Bear when they are two together, and one after the other keep a steady fire on him, but a ball in the brain or heart is directly fatal.”<sup>44</sup>

In the Great Plains, Aboriginal men of high prestige wore elaborately decorated necklaces of grizzly bear claws to document their exceptional skills as hunters and warriors.<sup>45</sup> The American ethnographer George Catlin painted dramatic illustrations of mounted Plains Indians in close combat with grizzly bears, using clubs and lances with metal points.<sup>46</sup> These images suggest acts of courageous daring and heroism on the part of the hunters.

However, contemporary eyewitnesses' descriptions paint a different picture of confrontations between people and bears. David Thompson claimed to have observed his host Saukamappee killing a bear with his gun. According to Thompson, three young Pikani hunters had attacked a bear with arrows that lodged in the shoulder blades and other bones. The angered bear attacked and killed two of the

hunters while the third one was mauled but escaped to call upon Saukamappee for help. The old man took up his gun and ammunition, and the wounded youth guided him back to the bear. When the animal reared up on its hind legs, Saukamappee shot it in the chest, hitting the heart and killing the bear instantly.<sup>47</sup> More than half a century later, E. N. Wilson and about fifty Shoshone men on horseback attacked two bears with arrows. They shot many arrows at them, ruining the hides, before the bears died.<sup>48</sup>

Bears were revered for their self-healing powers and especially for their cunning, which Louis Bird cited in describing his first polar bear hunt. When he was sixteen years old, he received a hunting rifle. After his marksmanship had become sufficient, he decided to go after a polar bear. The danger of this undertaking was increased by the fact that he had only one bullet when he set out. Eventually he came across a resting male polar bear and shot it. After the impact of the bullet, the animal remained motionless. Unsure whether the shot had been lethal, Louis did not immediately walk up to the animal, because hunters from his community had warned him that wounded polar bears sometimes “play dead” to lure their attackers close and then attack them. There fore he went back home to fetch his older brother, who also had a rifle and more ammunition. When the two returned, they saw that the bear had indeed moved after Louis had left, but it had died

a short distance away.<sup>49</sup> These examples illustrate that while it was possible to kill bears with traditional weapons if necessary, using firearms was far less dangerous. With proficiency in the use of firearms, the hunters' enhanced confidence may have led them to pursue bears more actively.

Subarctic people initially used firearms predominantly for hunting, especially in forested areas where branches and foliage could impede the flight of an arrow but not a musket ball. Though not a Subarctic example, in the summer of 1800, fur trader Alexander Henry the Younger observed Saukteaux/Ojibwa from the Red Sucker band on foot, using guns to hunt buffalo, east or southeast of present-day Portage La Prairie, in a territory that was too overgrown to permit the use of horses.<sup>50</sup>

According to David Thompson, Saukamappee explicitly mentioned that when he accompanied his father westward on a war party to aid the Pikani in the Plains, probably in the early 1730s, the Cree left their few firearms with their families for hunting: "There were a few guns amongst us, but very little ammunition, and they were left to hunt for the families."<sup>51</sup> In boreal forest environments, firearms had gained an early significance as hunting weapons, reflecting the specific hunting needs and types of game encountered by the Cree of the boreal forest and parklands. Describing early nineteenth-century Central Subarctic Athapaskan peoples traveling,

David Thompson noted that only the boys carried bows and arrows, while the men carried guns, indicating that by this time firearms had become their principal distance weapon.<sup>52</sup>

Other Aboriginal people also came to prefer firearms for hunting in forested areas. During his travels in the lower and central Missouri region in the early 1820s, Duke Paul of Württemberg observed that most of the Osage and Kansa people he encountered used firearms to hunt in forests. When he later met Plains Indians, he noted that they preferred their bows and arrows over guns as hunting weapons, especially for mounted bison hunting.<sup>53</sup>

At least since the mid-eighteenth century, Aboriginal leaders in the Northern Plains had pointed out to European traders and travelers that they did not need firearms to successfully hunt bison on the plains and that their horses and their archery gear were sufficient for this task. When Anthony Henday met Blackfoot or Gros Ventre peoples on the northwestern Plains in 1754–55, their leader mentioned that his people preferred to hunt with the bow and presented Henday with a finely crafted archery set.<sup>54</sup>

While Plains Indians expressed a preference for archery over firearms in mounted hunting, Hudson's Bay Company records from the Hudson Bay Lowlands document that by the late

eighteenth century, firearms had become important for both big game and bird hunting in that region. The HBC equipped Aboriginal people who worked as hunters for their posts with firearms and ammunition to kill waterfowl and caribou to supply the posts. Entries in the Albany Post Journal for the time read:

Three ducks said to be seen today. Some Indians came in for hunting guns and went away directly.

Began to serve Powder and Shot for the deer-hunt.

Sasquots family came in with ducks, Most of the Indians took powder and shot; Hurried Chickehenniss off to Moose with a letter; as they are in want of provisions gave them powder and shot to kill ducks by the way for his own factory.<sup>55</sup>

In the winter of 1792–93 Peter Fidler observed that the Kutenai, western neighbors of the Pikani, also adopted firearms after the Blackfoot and their allies had pushed them into the Rocky Mountains. Aside from occasional incursions into the Plains to hunt bison, the Kutenai subsisted mainly on “jumping deer” (mule deer, *Odocoileus hemionus*, or black-tailed deer, *Odocoileus hemionus columbianus*). Fidler recorded that due to the nature of these game animals, “the Gun is now much in use with them [the Kutenai] & the Bow is much on the decline & seldom used.”<sup>56</sup> However,

he also mentioned that the Kutenai often killed mountain sheep with bows and arrows.<sup>57</sup>

At this time firearms were probably still rather rare among Fidler's Pikani hosts. In November 1792 he recorded: "I also sold my Gun, the Indians borrowing it every day, to kill buffalo with on horseback,—and running great risks in falling and breaking it—which induced me to sell it."<sup>58</sup> Using a firearm, Peter Fidler's companion John Ward participated in these mounted hunts, along with the Pikani men. Fidler excitedly noted: "Men running buffalo & killed 4—John Ward also ran one on horseback & killed it with a Gun."<sup>59</sup> Ward repeated this feat on several occasions, eventually killing his fourth bison cow in this way.<sup>60</sup> This shows that it was possible to effectively use a muzzle-loading firearm in mounted bison hunting. Ward's exploits anticipated the hunting methods that the Red River Métis used in their annual bison hunts in the Plains in the early to mid-1800s.

However, rather than becoming a standard practice, mounted bison hunting with muzzle-loading firearms seems to have remained an exciting novelty to Fidler's Pikani hosts. They did not come to see it as a practical way to efficiently kill larger numbers of bison from horseback, and after an initial testing period they switched back to bows and arrows for that purpose. Even as late as the late nineteenth century, Blackfoot people considered the bow and

arrow more efficient for mounted bison hunting than muzzle-loading firearms. Blackfoot bison hunters had stated: “The most buffalo, more than 3 buffalo, up to 6, were killed with arrows, for with a gun you had to load up in between. With a gun you could not get more than 3.”<sup>61</sup> The Blackfoot hunter Bear Standing Up once chased a group of thirty-one buffalo and claimed to have killed thirty of them on horseback using thirty arrows. But Blackfoot hunters themselves considered this exceptional since even experienced hunters often needed two arrows to kill one buffalo.<sup>62</sup>

Aboriginal people from the parklands, such as certain Cree and Assiniboine groups who moved into the Plains and took up mobile mounted bison hunting during the mid- to late nineteenth century, may have been readier to use firearms for mounted bison hunting, as they had used them in their Subarctic existence for much longer than Plains peoples such as the Blackfoot.

### Bison Hunting

Communal bison hunting was a feature of Aboriginal cultures in the Plains for millennia. The rugged and undulating terrain of the northwestern Plains enabled Aboriginal people to drive bison herds over steep cliffs and precipices. The use of such bison jumps dates back at least fifty-five hundred years.<sup>63</sup>

Another method of communal bison hunting consisted of driving the animals into large enclosures, so-called bison pounds, or “piskun” in Blackfoot, and killing them from up close. This method was very similar to the caribou drives used by the Swampy Cree and other Subarctic Aboriginal peoples. The Pikani also used this method to hunt mountain sheep, and the Cheyenne killed antelope in the Plains in this manner.<sup>64</sup>

Peter Fidler and John Ward of the HBC spent the winter of 1792–93 with the Pikani leader Sakatow’s band in the Bow River area on the Alberta plains where Fidler observed the Pikani hunting methods in detail. He noted that his companion “John Ward crawled [*sic*] along the Ground and apprehended them [the bison] very near & killed 2 Good Cows—this is the manner usually practiced by the Europeans & Southern [Cree] Indians.”<sup>65</sup> Even though Fidler specified this method as primarily used by Europeans and the Parkland Cree, George Catlin described and painted Aboriginal hunters from the Upper Missouri, possibly Mandan or Hidatsa, using a very similar method. Equipped with short bows and arrows, these hunters wore wolf pelts over their heads and backs. Because Plains bison generally had poor eyesight and were not afraid of individual wolves, these disguises allowed hunters to crawl close to the bison, as long as they kept downwind from their prey.<sup>66</sup> In a similar way, fur

trader Alexander Henry the Younger shot a bison bull at “30 paces.”<sup>67</sup>

It is possible that Aboriginal peoples in the Plains employed such methods when they wanted to kill only a small number of bison, or when they were short of trained horses for bison hunting. By the time of Fidler’s stay among the Pikani, they already used horses as beasts of burden and as riding animals in hunting and combat. They had begun to adopt the use of horses only three generations (approximately fifty years) earlier, but already certain cultural aspects regarding their use seem to have been deeply ingrained into their society. Fidler observed, for example, that “the men in general ride—as it would be debasing themselves to walk, the women seldom or ever ride, whom they pitch along.”<sup>68</sup>

Along with the recently acquired horse technology, older hunting methods were still in use. Fidler described the process of driving the bison toward a jump or an enclosure, which required great skill and stamina:

The young men sleep out all night in general—when they bring the Buffalo to the Pound & sometimes they will bring whole herds above 40 miles off & sleep 2 or 3 nights according as they can drive them direct manner or not towards the Pound—the old men and boys attend the Dead men [two converging lines of obstacles] when the Buffalo is pretty

nigh—one or 2 men alternatingly keep a const. lookout to notice when the young men have brought a herd near—when the holler is made & every old man & boy immediately runs to the Dead men & lays down flatt on the Ground, before the Buffalo is very nigh—that they might see nothing stirring—The Tents are always pitched in a hollow that the Buffalo cannot see them until they are just at the Point of getting into the Pound—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—as it is such a wild animal & the sight of a single Person will frighten a whole herd—they will smell a person at an amazing distance when they are to the leeward of him & if one runs, should there be thousands in the herd, they will all run—but the Buffalo in the Plains will not run half so far when frightened as those that are found amongst the woods—these will sometimes run & gallop several miles before they even stop the beasts—Those in the Plains generally stand several shots particularly if the first shot kills—before they run away—Those in the woods seldom more than 1 shot.<sup>69</sup>

On a hunt in mid-December 1792, Pikani hunters drove twenty-nine buffalo over a cliff. Three of these survived with broken legs and were killed

with arrows. After the hunt, some hunters “brought a little meat about 8 or 10 Buffalo which in this part is not thought so much of as a Goose at Hudson Bay.”<sup>70</sup> On the next day the hunt failed because the bison broke through the funnel barriers leading to the cliff. “However, the men killed several upon horseback by galloping after & shooting them with arrows.”<sup>71</sup>

Over the next days Fidler and Ward witnessed similar events. Even when animals fell off the cliff, they sometimes survived unhurt and got away. The Pikani usually tried to kill all animals in a herd that was driven over a cliff, because they believed that any survivors would learn to recognize such a trap and could not be hunted in this manner again.<sup>72</sup>

Already in 1787–88, HBC fur trader David Thompson, wintering with a band of Pikani in the Bow River area, noted the seasonally changing bison hunting methods of his hosts: “Our subsistence was on the flesh of the Bison, hunted and killed on horseback to the middle of January, when the herds were driven into pounds to the middle of March.”<sup>73</sup>

Fidler’s hosts alternated between driving bison over cliffs or into enclosures. Fidler and Ward witnessed several such hunts, and Fidler gave a graphic and detailed description of “pounding” bison:

In the afternoon they brought several more heads—near the pound but they all broke out amongst the Dead men and not a single one got into the Pond [pound]—Yesterday a great ceremony of smoaking etc. was made in our Tent the principal part of all the old men assembling, & several speeches was made—the purport of which was that they might have good Luck in getting the Buffalo into the Pond & that they should run the way the Indian men wished—Our Chief is the Pond Master & when ever a heard

comes into the Pond he must go & kill the first one when after any body may kill that wishes—he generally shoots his one with a Gun—the young men kill the rest with arrows—Bayonets tyed at the end of a Pole & the Hatchet is frequently used & it is shocking to see the poor animals their heads up without any way of escaping—butchered in this shocking manner—some with a stroke of an ax will nearly open the whole side of a Buffalo & the poor animal runs some times a considerable while all thro' the Pond with all its interals dragging on the Ground & trode out by the others—before they dye—so soon the Buffalo gets into the Pound, they constantly keep running all round, never being a moment still, until they are all killed—when the women goes over the hedge & cuts up the Buffalo & takes the best parts. Sometimes the Buffalo a fresh herd will come into the Pound while the women are thus employed, which makes them

to run headlong over the hedge to escape—sometimes the Indians say that a few are killed by the Buffalo before they can get out of the Pound.<sup>74</sup>

Although Aboriginal people killed large numbers of bison in these hunts, they often used only a small portion of the animals they killed. Many bison carcasses were left unused in the pounds.<sup>75</sup> Peter Fidler noted: “At the Pound we left the 6th Instant the Pound being quite full laying 5 or 6 Deep one upon the other all thro’ which in the whole was above 250 Buffalo—when the wind happened to blow from the Pound in the direction of the Tents—there was an intolerable stench of the great number of carcasses etc.—on which account was the reason for our leaving it.”<sup>76</sup>

Fidler and party passed two other buffalo pounds, one of which had been used by at least twelve tents of Blood Indians all winter, “full of putrefied carcasses of Buffalo.”<sup>77</sup> Impressed with the vast numbers of bison his party encountered in the Plains, Fidler noted: “the Buffalo are still very numerous & the Indians running them on horseback & killed several—they are so plentiful that when the Indians run them they immediately fill up the space like waves in the Sea.”<sup>78</sup>

Fidler observed an important change in Pikani hunting methods, a result of their adopting mounted hunting. The first use of horses in mounted bison hunting was to drive the animals

toward a jump or enclosure. This practice eased the task of the young men who previously had driven the herds on foot, often for considerable distances. During several of the hunts that Fidler observed, the drivers were mounted. However, often their efforts did not bring the desired results because the bison broke out through the obstacles before reaching the jump or piskun.

The Pikani then moved to hunting buffalo directly on horseback.<sup>79</sup> This step required new skills. Horsemanship and mounted archery had to be learned and horses had to be trained for mounted hunting. Impressed with the archery of the Pikani, Fidler noted:

Men killed several cows by running them on Horseback & shooting them with arrows—they are so expert at this business that they will ride along side of the Cow they mean to kill & while at full gallop will shoot an arrow into her heart & kill her upon the spot—sometimes when they happen to miss their proper aim (which is very seldom) they will ride close up to the Buffalo while at full Gallop & draw the arrow out & again shoot with it—some of the men will shoot the arrow quite thro’ a Bull & fall down on the other side—but this is when the arrow happens to miss the rib bones.<sup>80</sup>

Almost forty years earlier Anthony Henday claimed to have participated in a mounted buffalo hunt with his Blackfoot or Gros Ventre hosts: “With the Leader’s permission, I rode a hunting

with twenty of his young men. They killed 8 Buffalo, excellent sport. They are so expert that with one, or two arrows they will drop a Buffalo. As for me, I had sufficient employ to manage my horse.”<sup>81</sup>

The Pikani also applied the methods they developed for mounted bison running to the hunting of wolves, whose pelts provided their primary article of trade with Europeans until the 1830s. Fidler observed that in hunting wolves near the bison pound, the Pikani used either snares or mounted archery. This latter method seems to have been in more general use. The night before the hunt they would kill a buffalo for bait, wait until the wolves had gorged themselves on the meat, and the next morning would run them down on horseback, shooting them with bows and arrows. Hungry wolves were said to easily outpace any horse, but with a full stomach they could not run fast enough to get away from the mounted hunters.<sup>82</sup>

Accounts of mounted bison hunting with the bow and arrow mention that in order to quickly kill one of these animals, the archer had to hit an area the size of a hand just behind the shoulder. Thus the arrow would pierce the animal’s lung and/or heart. This skill had to be acquired and honed in actual hunting. Wolf Chief gave a vivid description of how, as a teenager, he learned mounted bison hunting with the bow and arrow:

I first hunted buffalo when I was 16 years old in about 1865. My father had made some small arrows for me. I was then not strong enough to draw a man's bow. I killed some calves with these arrows.

The following winter my brother-in-law offered to teach me to kill adult buffalo. We set out on a hunt together. We came upon a large herd of buffalo. We gave chase on horseback. It was January, the ground was covered with snow. . . .

My brother-in-law called to me to approach his left side. As I was not yet an expert hunter it was necessary that I shoot from the right side of the buffalo. Few men, only exceptionally expert bowmen, were able to shoot right or left, as was needed. I was only a novice.

I galloped up to the side of a fat cow. I came up from behind her right flank. At a distance of fifteen feet, I prepared to shoot. "No," my brother-in-law cautioned, "Go closer—closer!" I drew nearer. Again I prepared to shoot; but my brother-in-law called, "Don't be afraid. She won't hurt you—closer, closer!" I struck the sides of my horse with my heels. I rode so close to the buffalo that the point of my arrow was scarcely over a yard away from it. I released the arrow. Directed by my brother-in-law, I shot at the buffalo. I wanted to pierce its lungs. . . .

As the arrow struck, the buffalo leaped up, and turned back in her tracks. My brother-in-law shouted to me: "Never mind, follow another one."

I moved on but looked back as I rode. The buffalo cow I had shot slackened her pace and dropped to a slow walk. I had continued onward perhaps a hundred yards when the cow dropped. Later, we found her lying on her left side with the arrow protruding from her right side. She was the fattest cow in the herd.

A buffalo shot by an arrow almost invariably leapt back and turned in the direction from which it had come.

My brother-in-law bade me pursue another buffalo. I overtook a cow and shot when about 20 feet away. My arrow buried itself about 5 inches in its carcass; but the buffalo continued to run. I followed. I shot whenever I had an opportunity until I had released about 10 arrows. All these arrows now projected from the buffalo. Some of them stuck upright in its hide; some hung down. The buffalo became enraged. Whenever I approached, it turned, forcing me to retreat.

At this point my brother-in-law approached, laughing heartily. "You are certainly causing the cow to suffer," he said. "What are you doing? Are you trying to kill her by torture? I will show you how to finish her." He galloped

around the buffalo cow in a circle. The buffalo turned as he turned and tried repeatedly to charge him. Finally the buffalo stood still. My brother-in-law drew in his pony. He released a shaft. I saw the arrow bury itself half the length of its feather. The buffalo stamped its right hind leg against the ground and ran a short distance. Then, with blood pouring from its nostrils, quivered, drew up first one foot, then another, knelt on its front legs, sank and dropped on one side.

“Let us return to your first buffalo,” my brother-in-law suggested. “I will dress that carcass first, because it is the fattest. I myself have killed seven.” He did not count among these the buffalo he had finished for me, because a buffalo was the property of the hunter who first wounded it.<sup>83</sup>

Hunting like this was fraught with danger. The hunter had to concentrate on his prey and on using his weapons, which occupied both hands. Therefore he could direct his horse only through shifting his body weight or pressure from the thighs. Because the rider had to look at the target while approaching it and while shooting, the horse had to find its own way. While galloping alongside the fleeing bison, horses had to avoid badger holes or prairie dog burrows in order not to break their legs and throw their rider. The horse had to move its rider into the best shooting position on its own accord. After the shot, it had

to pull away from the bison to avoid an attack by the wounded animal. Sometimes bison gored horses during a hunt. George Catlin painted dramatic images of such hunting accidents, showing the rider vault off his horse and jump onto a bison to save himself.<sup>84</sup> As fanciful as these illustrations may seem, Peter Fidler observed such feats among the Pikani. He stated that in case the horse was injured or fell, the rider would jump onto the bison that had attacked the horse to save himself from being trampled. He would then proceed to kill the bison with a knife, or jump off and run away once the animal had slowed down.<sup>85</sup>

Not all Plains Indian hunters used the same methods in mounted bison hunting. While most rode up close to their prey, others preferred to shoot their arrows from a greater distance. For example, Wolf Chief mentioned that the Hidatsa End Rock habitually killed bison at distances of up to 40 meters. His archery equipment differed markedly from that used by most Hidatsa men, but he was known as one of the best archers among the Hidatsa.<sup>86</sup>

E. N. Wilson described a rather unconventional hunting method for bison, claiming that it was the standard method among the Eastern Shoshones he stayed with. One hunter with a lance would ride (or walk?) up behind a bison and cut its hamstrings, then others would come up and finish it with arrows. When the man who was

best at cutting the hamstrings was killed in a battle, hardship resulted for this Shoshone band, because now they were much impeded in bison hunting.<sup>87</sup>

Eventually Plains peoples, from their newly mounted perspective, developed ways to distinguish between desirable and less desirable bison. Differentiating between lean and fat animals could be difficult due to their long shaggy hair. However, Wolf Chief mentioned that the shape of the curve of the animal's lower back when seen from the side provided a clue to whether the animal was fat or lean.<sup>88</sup> He provided other observational clues as well:

As we pursued a buffalo herd, my brother-in-law watched for the fattest buffalo. He knew the signs by which it was possible to recognize one. A fat cow will have a hump caused by a layer of fat. In the spring a fat bull was frequently marked by black hair along the spine and just back of the eyes. It was believed that the shedding of the hair first in this area was caused by the underlying layers of fat. . . . We preferred to kill cows because the meat was more tender and also because cow hides were more valuable.<sup>89</sup>

More than a century earlier Peter Fidler had already observed Plains peoples' preference for bison cows. He observed that Aboriginal hunters sometimes killed buffalo cows only for the unborn

calves, which they considered a delicacy.<sup>90</sup> While predators such as wolves and bears concentrated on calves and injured or weak animals, mounted human hunters mainly went after healthy animals in their prime. Plains Indians preferred two- to five-year-old bison cows for their meat and for their thinner, smaller, and more easily processed hides.<sup>91</sup>

Such selective hunting was very different from the wholesale slaughter of communal bison hunting in pedestrian days, but the preference for young bison cows also put precisely that segment of the bison population that was most crucial for its reproduction under disproportionate strain.<sup>92</sup> This selective hunting, which was only possible with the use of horses, contributed to the decline of the Plains bison herds well before the trade in bison robes surpassed the beaver trade in importance and long before non-Aboriginal hide hunters destroyed the remainder of the herds from the 1860s to the 1880s.

In a slow transition, hunting methods suited to the employment of horses began to dominate communal bison hunting in the Plains. Eventually, mounted bison hunters came to rely on two main hunting methods, the surround technique and running buffalo in a headlong chase, as described by Wolf Chief. Especially the latter method enabled Aboriginal people to precisely select the animals they wanted to kill.

For Aboriginal peoples the positive aspects of early firearms far outweighed the negative ones. However, firearms did not rapidly replace traditional distance weapons in the Great Plains. While the lance gradually fell out of use, the bow and arrow remained the primary big game hunting weapon in the Plains, especially for mounted bison hunting, well into the 1870s.

In the Central Subarctic the development was different. Sojourners among Subarctic Cree and Ojibwa peoples, such as David Thompson, Peter Fidler, and George Nelson, mentioned archery much less than travelers in the Plains. Although archery was still in use in the Subarctic, it was far less important in that region. Even before the adoption of firearms, the Swampy Cree, for instance, had relied on a wide variety of big game hunting weapons, snares, and deadfalls, not mainly bows, as was the case in the Plains. When Swampy Cree people adopted firearms, they did not instantly give up all their other traditional big game hunting weapons. Lances went out of use because firearms could be used at greater and thus safer distances. Firearms gradually superseded bows in importance as distance weapons for big game hunting, because firearms offered greater penetrative power that made it much easier to kill large and potentially dangerous animals. However, small distance weapons like bolas and slings remained in use because they were more portable and were not adversely affected by extremely low temperatures, and they could

withstand the effects of moisture and dampness better than other traditional distance weapons.

One factor that paradoxically may have pushed Subarctic Aboriginal people to adopt firearms as their primary big game hunting weapons was the effect the noise of these weapons had on local game animals. Otis Tufton Mason stated in this regard: “The almost entire absence of noise in the movement of the arrow and the shooting of the bow is the greatest differentiation from the gun, which alarmed the whole earth, man and beast. It may be said that the noise of the gun put the man or the beast to be killed quite as much out of reach of that weapon as the little alarm created by the archer had moved the victim away from his weapon.”<sup>93</sup>

The noise caused by the discharge of firearms, especially muzzle-loaders, put animals under stress and made them much more alert. Once the animals had been disturbed and exposed to this stress, it was very difficult for hunters to approach close enough to hunt them with traditional weapons such as bows and arrows. Even though the noise of firearms was a great disadvantage in hunting, in a seemingly paradoxical way, the increased alertness of the animals caused by the noise made it necessary to continue to use firearms, because these generally had a greater range than bows and arrows. Once the use of firearms spread, traditional Aboriginal hunters had no choice but to adopt firearms, because the noise

made by the weapons of their neighbors made it almost impossible to continue hunting with traditional distance weapons. Louis Bird said:

The thing that is mostly notable about the firearm is the noise. Noise will prevent you to hunt quietly, as with the bow and arrow. When you have bow and arrow and you are hunting in the fall, there is a chance that you could kill an animal here, quietly, and be able to go on and not far away encounter another animal who has not yet heard anything. It gives you a chance to hunt a variety of animals close by.

And when you shoot, it's different. As soon as the firearm is heard, this animal is ready to run, and also the other ones around him. But bow and arrows doesn't do that. So the sound sometimes can carry quite a distance under different conditions of atmosphere. Sometimes it'll roll a long, long ways and you are now disturbing the animals so far distant. You only got one chance to have a good shot in the morning, if you can kill them. That's a bad thing about it.

And also, the animals know that. When they hear the gun, they get used to it. When they hear the gun, they know there is a human here, so the caribous can be ready to just go, get away, when they hear which direction there is a gun. . . .

But the gun gives more success in hunting big game animals. So firearm did bring much

improved life to First Nations in North America. But it did sort of deny the other people who used the bow and arrow, when there is a gun around. It sort of limit their capability with the bow and arrow. Otherwise, the other one is getting more.<sup>94</sup>

In 1814 local Native people stopped Alexander Henry's party while traveling in the Rocky Mountains. Their leader expressed concern about the noise of firearms used by Henry's hunters: "The Old man by signs gave to understand that they did not wish for white people to come up this River, and that our guns had driven away all the deer, and caused them to be so wild and shy that they could not kill them with their bows and arrows as formerly."<sup>95</sup>

The noise of firearms made animals more wary and alert, such that even hunters with quiet traditional weapons may have found it more difficult to approach them within range of their weapons. This is reflected to some extent in modern Canadian and U.S. hunting regulations, which allow an archery season of several weeks before firearms can be used.

Thus, it may not have been so much any inherent superiority of European weapons but their noise that may have contributed to the spread of their use throughout eastern North American and among the Subarctic Aboriginal cultures. In order to catch enough animals to feed their people, Aboriginal hunters may have been forced to adopt

firearms once their neighbors began to use them, because the noise of these weapons scared the game out of range of traditional archers.

Still, until the last quarter of the nineteenth century, the bow and arrow remained the preferred weapon for mounted bison hunting among those Plains peoples who had resided in the Northern Plains before direct trade with Europeans reached them. Eastern Plains groups with Subarctic roots, however, were an exception, to an extent. Even though it was much more difficult to reload muzzle-loading firearms on horseback than to shoot with a bow and arrows, some easterly groups of Plains Cree and Plains Ojibwa seem to have relied more on firearms. For example, in 1833 Prince Maximilian observed Plains Ojibwa and Métis bison hunters on horseback:

The Half-breed and the Indians are so skilful in this kind of hunting on horseback, that they seldom have to fire several times at a buffalo. They do not put the gun to their shoulder, but extend both arms, and fire in this unusual manner as soon as they are within ten or fifteen paces of the animal. They are incredibly quick in loading; for they put no wadding to the charge, but let the ball (of which they generally have several in their mouth) run down to the powder, where it sticks, and is immediately discharged. With this rapid mode of firing

these hunters of the prairie soon make a terrible slaughter in a herd of buffaloes.<sup>96</sup>

Possibly due to their boreal-forest origins, the archery traditions of these groups were not as deeply ingrained in their cultures as those of other Northern Plains peoples. Groups such as the Blackfoot, Crow, Gros Ventre, and Arapaho, in contrast, were introduced to horses before they had consistent access to firearms and ammunition. Rather than giving up their preferred hunting weapon, the bow and arrow, they adapted to its mounted use.

Prince Maximilian observed: “All these [Blood] Indians are very expert in the use of the bow, and this weapon is dangerous in their hands; with the gun, on the contrary, they are said to be indifferent marksmen, their pieces being by no means good.”<sup>97</sup> If firearms had reached them in quantity before horses did, their traditional big game hunting weapons might have been displaced by firearms, as happened among Ab original peoples of the Hudson Bay Lowlands and interior areas of the Central Subarctic. In the Plains, it was the introduction of another import from Europe—the horse—that enabled Aboriginal peoples to hold on to their traditional weapons as the main weapons for bison hunting.

The next chapter turns to a study of combat weaponry, which followed a course of development quite different from that of hunting weapons.



9.

## Archery and Firearms in Combat in the Central Subarctic

As the fur trade shifted westward during the eighteenth and nineteenth centuries, non-Aboriginal traders and travelers produced more journals and ethnographic accounts of Aboriginal peoples living within the reach of the Saskatchewan and Missouri River systems than of those in the Hudson Bay Lowlands. As a consequence, most of the reports or eyewitness accounts of Aboriginal combat in that period refer to the Northern Plains rather than the Central Subarctic. Even these are relatively few, however.

Furthermore, early anthropologists sought to document “primitive and pristine” Aboriginal cultures. Because of the cultural importance of warfare to Plains peoples, and because of the conflict triggered by the arrival of Europeans and their weapons, warfare held a prominent place in early ethnographies of Plains groups.

Besides early anthropologists, several amateur ethnographers conducted fieldwork in Plains communities beginning in the late nineteenth century, attempting to illuminate events of the “Indian Wars” in the United States and similar conflicts on the Canadian Plains.<sup>1</sup> In this context, researchers recorded accounts of Aboriginal combat methods from Plains elders who had

participated in such events during the second half of the nineteenth century. In contrast, Central Subarctic intergroup conflicts had gradually faded during the early nineteenth century, and most anthropological fieldwork on Central Subarctic peo

ples was conducted long after the elders who had participated in them had passed away. As well, researchers working with Central Subarctic peoples, such as Frank G. Speck and John M. Cooper, were primarily interested in issues other than intertribal warfare.<sup>2</sup> Therefore, far less direct information on Aboriginal tactics and weapons use is available for the Central Subarctic than for the Northern Plains. However, some accounts generated by European outsiders, or preserved in Aboriginal oral traditions, provide important information on the tactics and weapons used in hostilities between Central Subarctic Aboriginal peoples and their motivations for conflict. This and the following chapter examine Aboriginal peoples' use of archery and firearms in intergroup conflict in the Central Subarctic and Northern Plains.

### Identification of Groups Hostile to the Swampy Cree

According to Louis Bird, the Omuškego-Cree classified potentially harmful outsiders into three categories:

There are three ways to say the word. One is "Atoyewak" and these were believed to be

Inuit people who seem to attack the Omushkego camp from the bay area. There were other kinds of tribes that did come around and visit the James Bay and Hudson Bay area for their own reason. They attack the Omushkegos and these were known to be “Aatawewak.” It means “they look,” “people who look for something.” Aatawewak are the ones that actually kill people. But the other ones are called “Natawewak.” These are the people who look for some tribes or some human, sometimes not as friend, but sometimes partially in friendship and also to satisfy their spiritual beliefs and practice.<sup>3</sup>

This categorization placed greater importance on the motives of the Aboriginal opponents of the Omushkego than on their ethnic affiliation. Oral traditions and documentary evidence indicate that the Omushkego-Cree were at times engaged in violent conflict with three main Aboriginal groups. During the seventeenth century, Iroquois raiders attacked Lowland Cree communities from the southeast, the region of the Nottaway River. The name of this river still reflects these conflicts because the Lowland Cree used the term “Natawewak” to refer to the Iroquois.<sup>4</sup> At times the Cree were also at odds with Déné peoples such as the Dogrib and the Chipewyan from the northwest.<sup>5</sup> However, their most persistent animosity was against the Inuit on the east coast of Hudson Bay and on the Belcher

Islands in the northern and northwestern part of Hudson Bay.

Already during his visit to Hudson Bay in 1697, La Potherie recorded animosity between the Swampy Cree and the Inuit.<sup>6</sup> Edward Chappell noted the occurrence of hostile encounters between the Inuit and the coastal Cree as late as the early nineteenth century.<sup>7</sup> John Oldmixon, who visited the Hudson Bay Lowlands in 1708, recorded that Inuit raiding parties occasionally attacked the Cree: “The Indians about Rupert’s River, and other Places in the Bay, are more simple than the Canadians, who have had longer Commerce with the Europeans. They are generally peaceable, and not given to quarrel either with themselves or others, except the Nodways, a wild barbarous people on the borders of Hudson’s Straights; who sometimes in slight Parties make Incursions on the other Indians, and, having knock’d 8 or 10 on the Head, return in Triumph.”<sup>8</sup>

The term “Nodways” that John Oldmixon recorded bears a resemblance to “Nottaway,” possibly a corruption of the Cree term “Natawewak.” Louis Bird explained the meaning of this term:

“Natawewak” are the people who look for some human to satisfy their spiritual beliefs and practice, because in those days there was no Christianity. And every tribes across the

land have the similar belief. People who practice *mitewiwin*, some but not all, believe that if a person takes a life of a person, you'll extend the life of yourself, or your friend, or your loved one. And it seemed to indicate that the beliefs were similar across the country, which is the reason, maybe, there were the warrior tribes, there were literally some tribes who travel[ed] so long, far distance to accomplish this. There were tribes someplace, who literally traveled every, or every second summer far distance up north to capture the other tribes and take them back to their country and use them as a sacrificial offer.<sup>9</sup>

The sacrifice element, as well as the implication that the raiders referred to as “Natawewak” came from the south, support the idea that they may have been Iroquoian people. However, despite the resemblance between “Nodway” and “Nottaway,” John Oldmixon identified the aggressors as Inuit, perhaps because they were said to have come from Hudson Strait.

#### Motives for Conflict between the Swampy Cree and Other Indigenous Peoples

Conflicts between Inuit and Lowland Cree originated in precontact times.<sup>10</sup> On the part of the Cree, three main motivations for these conflicts stand out. Cree traditions from the west coast of James Bay indicate that they clashed with the Inuit over access to resources such as seal and

waterfowl hunting at Nehapiskaw on Akimiski Island, adjacent to the James Bay coast. Because the seals favored locations near the southwest coast of James Bay from late May to June, conflict occurred particularly during the summer. The Cree believed that the Inuit who visited Akimiski Island were fairly numerous, probably outnumbering them. An uneasy coexistence of Cree and Inuit seasonal hunting camps on the island occasionally escalated into violent clashes.<sup>11</sup> Renée Fossett argued that throughout the seventeenth century when Inuit used violence against outsiders, they mostly acted to protect their resources or to gain material benefits.<sup>12</sup>

According to Louis Bird, another motivation for the Cree to attack the Inuit was to seek revenge for Cree people killed in past attacks. A third motivation was based on Aboriginal spiritual concepts. Reports from European observers as well as Cree traditions indicate that the Cree believed the Inuit to be “a nation of sorcerers.” When hunting or trapping was bad for the Cree, they often identified Inuit sorcery as the cause and consequently launched a punitive expedition.<sup>13</sup> Similarly,

there were sporadic hostilities between Déné people and the Coppermine River Inuit, at least since the seventeenth century, and Déné people blamed these conflicts on the Inuit’s use of sorcery and witchcraft to harm them. Inuit people, on the other hand, more likely had economic

motives, for instance, access to outcroppings of surface copper and to a stone quarry at Peel River. These resources attracted both peoples to the region, often causing violent conflict and sometimes, uneasy trading relationships.<sup>14</sup>

Cree and Inuit traditions both cast their own groups mainly as the victims of outside aggression. For example, Inuit scholar Rachel Attitug Quitsualik stated that “there are nineteenth century Copper Inuit tales of raids by ‘white men.’ While the Inuit men are away hunting, the camp is raided by ‘whites,’ who butcher everyone except for some hidden children. Returning, the hunters track down the murderers and kill them. Interestingly the tales are strikingly similar to even earlier tales of Indian raids, or raids by other Inuit bands. This tale type seems to be an Inuit folkloric template, where the latest enemy can be inserted to suit the current culture.”<sup>15</sup>

However, the meaning of the term “white people” may have changed among the Inuit. European observers sometimes remarked on the fair complexion of the coastal Cree people. For instance, in the early eighteenth century, Joseph Robson noted that “the natives [near Churchill River] are a white people, without anything peculiar in their shape and size to distinguish them from the rest of mankind. They are less hairy indeed than the Europeans, the men having little or no beard; and those who have conversed with

the women say, that they have no hair but upon their heads.”<sup>16</sup>

The appearance of early European explorers and, later, whaling ships in the northern regions of Hudson Bay brought other groups of outsiders into contact with Inuit people. Some of these encounters led to friendly exchanges and trade, but sometimes they disintegrated into unpredicted and unplanned clashes, in part because Inuit people in the Central Arctic tended to perceive strangers primarily as dangerous and hostile.<sup>17</sup> However, the pattern described by Rachel Attituq Quitsualik

is consistent with Aboriginal warfare in the region. The raiders she described could have been Europeans, or Déné or Cree people.

While the presence of intergroup violence among Arctic Aboriginal groups has long been recognized, it is a widespread perception that Eastern, Central, and Alaskan Inuit were a peaceable people, without any notions of warfare.<sup>18</sup> However, Inuit communities in these regions did have well-established ways to deal with hostile outsiders. They had trained warriors, designated military leaders, and military tactics that combined and concentrated forces from several Inuit communities in case of emergency.<sup>19</sup>

Changes in Subarctic Combat Methods and Weapons Technology

Archery figured prominently in confrontations between Inuit and Martin Frobisher's and Thomas Button's expeditions in the southeast of Baffin Island in 1576–78 and in 1611–12.<sup>20</sup> In these confrontations, Inuit people shot volleys of arrows at their opponents, either in an attempt to quickly break their resistance or to cover the retreat of their own noncombatants. When they ran out of arrows, they even picked up and shot arrows the English had shot at them.<sup>21</sup> If the their arrow volleys did not immediately deter their opponents, Inuit warriors would send out one or more of their own as “easy targets” to taunt the enemy into expending their arrows. Similar tactics were recorded in western and northern Alaska as part of violent conflict between Yup'ik and Inupiat peoples.<sup>22</sup>

However, by the early eighteenth century, the use of firearms had gained in importance. Questioned by a committee inquiring into the HBC's business practices in the 1740s, Joseph La France, a former HBC employee, implied that firearms had become a necessity to the coastal Cree: “This [difficulty of transporting bulk fur in canoes] and the high price set upon the European Goods by the Company in Exchange, discourages the natives so much, that if it were not that they are under a Necessity of having Guns, Powder and Shot, Hatchets, and other Iron Tools for their Hunting, and Tobacco, Brandy and some Paint for

Luxury, they would not go down to the Factory with what they now carry.”<sup>23</sup>

Even though the Omushkego-Cree made bows for use in combat that were more powerful than those used in hunting, they seem to have employed archery in combat much less frequently than Aboriginal people in the Plains.<sup>24</sup> An observation made by fur trader George Nelson among Northern Ojibwa and Cree peoples in the early nineteenth century suggests that among them bows and arrows were not often used in combat at close quarters. Nelson related a story about an impending fight between the mythological character Nayhanimis and a group of beings referred to as the “Hairy Breasts.” Before combat began, Nayhanimis hung his bow and quiver in a tree at his own height, while the Hairy Breasts, trusting to their superior numbers, had hung their bows and quivers in the tops of very high trees, so that none of the participants had their bows and arrows ready for use in the ensuing battle. This might indicate that bows and arrows could on occasion be employed to keep attackers at bay at a distance, but were not usually used in close combat.<sup>25</sup>

When Samuel Hearne accompanied a Chipewyan raiding party against the Copper River Inuit in 1771, he noted that the Chipewyan and Copper River Indians used their bows only to kill “deer” (caribou) driven into pounds. The combat weapons of the Chipewyan attackers consisted of

guns, spears, clubs, and shields to deflect their enemies' arrows: "Those targets [shields] were composed of thin boards, about three quarters of an inch thick, two feet broad and three feet long; and were intended to ward off the arrows of the Esquimeaux."<sup>26</sup> Therefore the Chipewyan expected the Inuit to shoot arrows at them. However, on this raid the Chipewyan mostly ambushed their Inuit opponents in their sleep, and the victims had little opportunity to defend themselves with bows and arrows.

#### Swampy Cree Expeditions against the Inuit

Information on combat with the Inuit was also preserved in Cree traditions. These accounts indicate that increasing conflict between Inuit and Cree eventually made it unsafe for Omushkego people to camp along the west coast of James Bay and the southwest coast of Hudson Bay, particularly in the Cape Henrietta Maria area. The ice on the bay surrounds the cape until July, offering fairly convenient "land" travel to potential Inuit attackers. These attackers were said to have come from large communities in the Belcher Islands in the north of Hudson Bay. According to Louis Bird, the Cree estimated the population of the main Inuit encampment there at over six hundred persons. These raiders were said to suddenly appear on the shores of the Hudson Bay Lowlands. Skillfully using the terrain to remain undetected, they launched surprise attacks on unsuspecting Cree camps.<sup>27</sup>

The Cree occasionally made retaliatory raids against these Inuit. Louis Bird recorded an account detailing such an undertaking.<sup>28</sup> Before the Cree set out, their warriors underwent some form of special training. This may suggest that they were planning to use tactics very different from their usual methods of warfare, possibly because they were going to employ many more warriors than usual. On the other hand, it may imply that by the time this account was recorded, raids and intertribal warfare had been absent from coastal Cree culture for so long that the elders who passed these accounts on considered such activities very unusual.

The goal of this retaliatory strike was to attack deep within Inuit home territory in the Belcher Islands, where they usually felt safe, to dissuade the Inuit from any further raids on the Cree. Apparently the Cree warriors rehearsed every aspect of their undertaking, from the method of travel to the details of their attack. They decided to launch their campaign when the bay ice was still thick enough to travel on. Boats, sleighs, and provisions were all manufactured for this expedition a full season in advance.

Eventually the war party set out from Cape Henrietta Maria, walking across the ice and using their canoes to cross the water between ice floes. They reached their target area undetected and scouted out the Inuit encampment. Louis Bird

mentioned the importance of men with shamanic abilities to both sides in this confrontation:

This strange knowledge about those people, the Inuit has it, the Omushkego have it. It's what they call "mitew." The Omushkego has a power to neutralize the Inuit mitew power to detect them. It is not a radar. It sounds like a radar, but when a mitew is fully capable can and will detect a danger from the distance. And when he does the scanning his own power, the other person, who has similar power, can't, can make it so that the mitew cannot detect them, wherever he is, by the mind power. So therefore two groups had the same, equal power for their protection and for their warfare. And it was that situation which gives the Omushkego advantage.

They had their own particular mitew, who was so useful for this purpose, as they observe the camp to study what strength and how many people there are, and how they're gonna attack it. And they also sent spies into the camp to see where the chief is located and where the great mitew is located. . . . Those who described the camp, said: "One end and through the camp right across, you cannot see the men at the other end, at the end of the camp and also the crossways." There were so many. The dwellings were so many and the people just milled around. Their action was everyday almost the same. So they studied these actions.

The only time that Inuit people would stay quiet is about three o'clock in the morning. Especially that season, because they chose the season to attack these Inuit in the month of June, 15th of June, just when the longest day is, in the middle of June. They chose the season, because they don't want to have a problem because of darkness. They know the Inuit people always hunt early [in the] morning and then late in the evening. So they have to move around while they were sleeping. And that's exactly what they did after they studied the camp and they studied the nature of [the] people. So they planned to attack during the time when the Inuit people are sleeping.<sup>29</sup>

After careful observation and planning, the Cree attackers were eventually in place and ready to strike. The events that unfolded after the attack began suggest a larger battle and not merely a small-scale skirmish:

So they attacked them about three o'clock in the morning. And they attacked the camp exactly where the men are, the hunters, the fighting men. And then they also attacked the camp of the chief, the leader. And it was this time that the story took place, the fearsome fighting that took place and the killing that took place, that this elder told us the story that was so cruel, that your spine would turn chill, how cruel these people can be. But they said the Inuit people have done the same thing to them

many times before that. And this was just a lesson to make these Inuit people feel the same fear and the same helplessness when they attacked unexpected people, elders and children in their camp. It was more like a revenge and a lesson to them.

So the attackers were successful. They were able to disarm, to startle the soldiers, or the warriors, or the hunters who were skilful fighters and in that way they were able to eliminate their own casualties. And also they were planning, the leaders of the Omushkego fighters, the soldiers who were able to direct the kind of attack and the way to attack to overcome their enemy. And then it was said by this elder that each fighting Omushkego was to set themselves close to the tent to every hunter, outside to wait until there is a signal to attack. And they set themselves into position to each camp where there is a hunters, where there is some soldiers are supposed to be.<sup>30</sup>

The Gwichin (Kutchin) of the western Subarctic used similar methods in surprise attacks on enemy encampments. The leader of a war party assigned one or more warriors to each enemy dwelling before the attack. At a given signal the warriors rushed the dwellings simultaneously, knocked them down, and fought the inhabitants in close combat, as they struggled to free themselves from the wreckage of their dwellings. Those who ran were shot with arrows.<sup>31</sup> These tactics were very

similar to those of the Chipewyan raiders against the Inuit, observed by Samuel Hearne.

Louis Bird described how the Cree attack culminated in a showdown involving the two leading Cree and Inuit shamans:

The leader of the Omushkego went directly to the center where the chief is located, the big mitew. One Omushkego mitew against the Inuit mitew. They were to clash each other right in the center. And when they set up themselves, they gave a signal to attack. And it was that time that slaughter took place. They had literally slaughtered the Inuit people.

And then story took swing into the center, where the chief was located. And the Omushkego leader, or general, if you wish, led the attack on the Inuit chief. And it was said at that time, the arrows that are sharp and can penetrate any kind of object, a wood and everything, except a stone, could not penetrate to the camp [tent?] of this powerful shaman, the leader of the Inuit. And he was inside. They can hear him move around and he has his men inside, also, and his family. But the Omushkego could not shoot through the camp and every time when they want to come close, there is a way this Inuit peoples was able to shoot with crossbow that was small, with a powerful bone as a bow and has a very short arrows that he uses and shoot through the holes in the camp and is a covering of his tent. So it

took many people to finally penetrate the place. They literally have to cut holes in it. And people who cut holes sometimes they were killed from within. But this chief was only himself, there were only his family and he was able to fight off the enemy by himself very skilfully. Then finally they were able to cut a section off the covering, which they find out after that it was three layers of the thickest walrus hide that he was using as his camp. He must have expected the attack to come. They said: "So that is the reason the arrows could not penetrate." Finally they were able to subdue him and finally able to kill the leader.<sup>32</sup>

After the death of their leader and shaman, Inuit resistance collapsed. This account placed great importance on the Cree's systematic planning and preparation of their campaign, the thorough training of their warriors before the mission, the protective power of their shamans, and the skillful and well-coordinated attack as the main factors that brought about their victory over their more numerous Inuit adversaries. Shamanic skills were considered especially essential for whatever success was gained on each side before the end of the battle:

But the most powerful things that they have brought is the mitew fighters, because mitew can accomplish anything that is impossible to regular human. It has been said when they

actually cornered the chief, the one who was a shaman also, it has been said that many times people think they shoot him right into his body, but nothing happened, he kept on fighting. Even though he didn't wear anything, he was not able [to be killed], as if nothing can hurt him. And it was only later, when the other mitew came in close contact, that they were able to actually kill the leader inside his camp.<sup>33</sup>

Once Inuit resistance was broken, the Cree spared the survivors and warned them to refrain from attacks on the Cree in the future. It is not clear if this account refers to a single event or represents combined elements from various similar ventures. From 1707 to 1793 the Fort Albany post journals recorded eighteen years in which Cree war parties set out to attack Inuit people on the eastern coast of Hudson Bay, mostly in the summer. This activity was especially intense in the 1730s and from the late 1760s to the early 1780s. In most of these cases, the Cree had suffered calamities from accidents or starvation during the winter prior to such raids.<sup>34</sup>

Several elements of the account recorded by Louis Bird stand out. The Cree goal was to take revenge upon the Inuit for their previous attacks and killings. The careful preparation, the manufacturing of equipment and provisions long before the start of the expedition, and the formal and intensive training of the Cree warriors were

important. These aspects suggest that the elders who related this account believed that such expeditions had not occurred frequently among the Omushkego-Cree and that their warriors had little experience in this kind of warfare. However, by the time Louis Bird first heard and recorded this story, intertribal warfare had become an element of the distant past, unfamiliar to those who provided this account.

Even though limited in scope, warfare in the Subarctic was lethal. Aboriginal groups there had apparently little inclination to take prisoners or to spare those they had overcome. The Inuit rarely took prisoners; the victors often killed most of the people on the losing side. According to Edward Chappell, when Cree warriors came upon an Inuit encampment, they usually tried to launch a surprise attack and would kill everybody they found.<sup>35</sup> Samuel Hearne described how his Chipewyan companions killed an entire Inuit encampment of several tents in such an attack.<sup>36</sup> Similarly, Aboriginal people in the western Subarctic often killed all their enemies in a single encampment, regardless of their age or gender.<sup>37</sup> Furthermore, among Inuit communities in Hudson Strait, as well as among the Yup'ik in Alaska, men kept track of the numbers of enemies they had killed by tattooing lines on their foreheads, which suggests that participation in these raids elevated a warrior's status in his home community.<sup>38</sup>

These examples seem to indicate that even though warfare may have been less frequent in the Subarctic than in the Plains, it was accompanied by relatively greater numbers of casualties per community, among both warriors and noncombatants, in relation to the population of a conquered encampment. Since many of these conflicts were at least to some extent based on revenge, the reasoning behind such relentless and indiscriminate killing may have been to wipe out all the relatives of the attacked in order to avoid revenge from them or their descendants.<sup>39</sup> This may have been possible, because encampments were on average smaller than in the Plains.

However, women were sometimes taken captive and made to carry booty and to cook and sew on the journey home. Some of these were killed after the journey; others were allowed to live among their captors and later escaped.<sup>40</sup> During the eighteenth century, Cree people took Inuit and Déné captives, mostly young women and small boys, and sold them to fur traders to work at posts on Hudson and James Bay, or integrated them into their community.<sup>41</sup> Due to population losses sustained through European epidemic diseases or in the aftermath of military defeats, the Huron and Iroquois, and also Plains people such as the Blackfoot, took enemy women and children captive to bolster their numbers. Often captives were adopted and fully integrated into the community of their captors.<sup>42</sup> Similarly, the desire

to raise their numbers by adopting captives may have contributed to an increase in raiding activities against Inuit and Déné people after epidemics struck Cree communities on Hudson Bay.

Cree traditions suggest that the deterrent effects of such raids as Louis Bird described against the Belcher Islands Inuit did not last long. Eventually violence flared up again and the killing continued in a similar pattern. Louis Bird described another later campaign with a similar goal, conducted in a similar way. However, this time the Cree carried muzzle-loading firearms. The leader of this war party brought together Cree warriors from various communities, beginning in Kashechewan (the Albany River). Later, they were joined by warriors from Attawapiskat, farther north on James Bay, and other areas, until the total strength of this group was about 110 warriors, plus three elders who were to be advisors to this group. The war party traveled in ten large birchbark canoes equipped with sails that had been made especially for this campaign. Because of the large number of warriors involved, Louis Bird estimated that there must have been a considerable number of Inuit as well.

Eventually the Cree located and attacked the Inuit camp. The Cree were victorious, and when the battle turned against them, many Inuit ran for the sea or jumped off the ice floes into the freezing waters. The Frobisher expedition recorded similar

desperate behavior in their Inuit opponents when the battle turned against them. Renée Fossett suggests that generally, because of the practice of not taking prisoners, vanquished Inuit may have preferred to drown themselves instead of being killed after capture by their opponents.<sup>43</sup>

During the eighteenth century the Swampy Cree gradually gained the upper hand over their Inuit foes. Fur traders and other European observers largely attributed this to the firearms that the English, and to a lesser extent the French, supplied to the Lowland Cree. Joseph Robson, who worked for the HBC from 1733 to 1736 and from 1744 to 1747, recorded: “I have seen French guns among the Natives that come to York-fort; and once heard Mr. Brady, the surgeon, converse with one of them in the French language.”<sup>44</sup>

Eventually the Cree managed to expel the Inuit from Akimiski Island and also from areas along the southeast and west coast of Hudson Bay. Inuit were said to have frequented the Churchill River area long before the HBC built posts there. That was the reason the name “Eskimaux-point” was given to the place where Robson and his HBC predecessors had excavated traces of an earlier Inuit presence. These artefacts included “pieces of stone pots [pottery or carved soapstone?], spears, arrows, &c.”<sup>45</sup>

Regarding the east coast of Hudson Bay, Robson recorded: “The Eskimaux used to inhabit the country on the east-main, between the straits and the bottom of the Bay: but they are since driven away to the northward by the other Indians, who are rendered much superior to them, on account of the supply of arms and ammunition which they receive from the English: so that a tract of land more than three hundred miles extent from north to south, lies almost waste, without trade and without inhabitants.”<sup>46</sup>

#### Use of Firearms in Subarctic Combat

Cree traditions confirm this estimate of the usefulness of firearms against the Inuit. Cree elders stated that the firearms and ammunition obtained from European traders had a crucial role in Swampy Cree military successes.<sup>47</sup>

Sir John Richardson described the usefulness of muzzle-loading trade guns in war. During his participation in the search for the missing Franklin expedition in 1848–49, he learned about a Kutchin man from the Western Subarctic who, through the use of his firearm, had survived a confrontation with Inuit armed with bows and arrows. Richardson related that “it is supposed that formerly the Eskimos were in the habit of ascending the river to the Ramparts [of the MacKenzie River?] to collect fragments of flinty slate for lance and arrow points; but they have been only once so far up, since the trading-posts were

established. An old [Kutchin] Indian, who was alive within a few years, told Mr. Bell that on that occasion he was wounded by an arrow; but that he succeeded in escaping to the top of the cliff, from whence he killed two Eskimos with his fowling-piece.”<sup>48</sup>

European traders were not commonly proponents of the use of firearms in Aboriginal warfare. As early as 1718 Henry Kelsey had implored Aboriginal people at York Factory not to use firearms in intergroup warfare, saying that “we did not bring Powder Guns & other necessaries to destroy mankind but to kill food for them and their family.”<sup>49</sup> Despite this distaste, however, fur traders were aware that Aboriginal people sometimes employed the firearms they purchased at the posts in warfare, but responding to strong demand, the traders continued to sell them.

Louis Bird recorded another story indicating the usefulness of firearms to the Omushkego-Cree, this time for defense. According to this account, a Cree camp had been attacked and overcome by raiders from another Aboriginal group, possibly Iroquois, but not Inuit, while the Cree men were away on a long hunt. After the fight, the attackers started on their return journey with many Cree women and children as prisoners. Only two teenage boys, who had hidden outside the camp, remained behind. Because the men would not be back for several days, the two boys decided to seek the help of a shaman who lived alone a

considerable distance from their camp. Traveling without rest, the boys eventually reached his camp and secured his help. He decided to lay an ambush for the returning raiders to free the Cree prisoners. Thus the shaman and the two boys set an ambush at a narrow defile through which the raiders had to pass on their way home. The shaman set up a device similar to a trap gun (a firearm triggered by a trip wire or cord) that would fire along the narrow path as soon as the first of the raiders would trigger the cord. Louis Bird explained that this weapon was not a common firearm with a self-trigger, like those often used to kill game in the Hudson Bay Lowlands, but a different device, similar to a flame thrower. The shaman and the boys lay in wait at the end of the narrow spot and on the flank. After the raiders appeared, the three Cree shot arrows at them as soon as the first raider had set off the device at the head of the path. In this way they overcame the raiders and freed the Cree prisoners.<sup>50</sup>

Textual documents and Aboriginal oral traditions indicate that muzzle-loading guns gave the Lowland Cree a distinct advantage over the Inuit, both physical and psychological. Although both sides suffered casualties prior to contact, once the Cree obtained firearms, Lowland Cree casualties in battles with the Inuit declined, while the number of Inuit killed over this period may have been considerable, relative to overall population size.<sup>51</sup> In the previously mentioned Chipewyan

raid on the Inuit, witnessed by Samuel Hearne, the attackers sustained no casualties while few if any of their Inuit foes survived.

The combination of firearms with ambush tactics and a grim determination to kill their enemies led to Cree ascendancy over their Inuit adversaries. The steady supply of European tools, weaponry, and ammunition enabled the Hudson Bay Cree to continue their raids against the Inuit, who were kept at a military disadvantage due to their lack of firearms. In the long run the Inuit's formidable archery could not stand up against the massive use of firearms by the Chipewyan and Cree.

The balance of power shifted in instances when Inuit people obtained firearms in greater quantity. In 1684 Father Silvy observed on the north coast of Belle Isle: "We saw some Eskimos in canoes with blunderbusses."<sup>52</sup> Even though Inuit people occasionally obtained some firearms, likely from European ships entering or leaving Hudson Bay, their access to these weapons was still inconsistent. Only in the late eighteenth and early nineteenth centuries did Inuit people obtain firearms more consistently through trade. HBC fur trader Andrew Graham recorded that "their southern neighbours, having the use of fire-arms, attack the Esquimaux to a great advantage; for the latter until a few years since were not permitted to trade any guns or ammunition. But when their young people began to winter at Churchill Settlement, they were initiated into the use of

them, and a few of them are now annually bartered.”<sup>53</sup>

More consistent access to firearms and improved skill in their use eventually led to the disappearance of Aboriginal combat archery and shields in the Central Subarctic and may have dissuaded the Cree and Déné from attacks on the Inuit. While this technological shift may not have been the primary reason for the gradual cessation of hostilities, it was likely a deterring factor of considerable importance.

Raids on the Inuit gradually subsided as Cree people took advantage of new HBC employment opportunities that kept them occupied precisely at those times they formerly used to raid. The returns from such summer employment provided goods that could help to lessen hardship in the bush. Even though starvation still occurred during severe winters, the Cree people’s improved living standards may also have lessened or removed the reason for retaliatory raids against the Inuit. The Cree no longer felt the need to punish the Inuit for the use of what they considered harmful sorcery.<sup>54</sup> In all, it was probably a combination of factors that eventually brought Cree raids on the Inuit to a halt by the early to mid-nineteenth century.

The initially unequal distribution of firearms in the Northern Plains at first had an effect on intergroup conflicts similar to what happened in the Subarctic. However, as the next chapter reveals, once most Aboriginal peoples of the

Plains had consistent access to firearms, such access did not deter hostilities and had different consequences for Aboriginal peoples' use of Indigenous weaponry.



10.

## Archery and Firearms in Combat in the Northern Plains

Archaeological evidence and Aboriginal rock art indicate that violent conflict in the Northern Plains dates far back into precontact times.<sup>1</sup> In the 1700s the unequal introduction and distribution of horses, metal weapons, and firearms caused significant changes in North American Aboriginal techniques and strategies of warfare. This chapter focuses especially on Aboriginal peoples' use of archery and muzzle-loading firearms in combat and their effect on combat tactics in the Plains.

David Thompson recorded one of the earliest surviving Aboriginal accounts of intergroup warfare, dating from the early eighteenth century.<sup>2</sup> This account came from Saukamappee, a Cree who rose to a position of leadership among the Pikani-Blackfoot, largely due to his skill as a warrior and war leader. Saukamappee's account began in his youth in the 1730s and reached to his old age, when he hosted the young Thompson, who had come as an emissary of the Hudson's Bay Company in the winter of 1786–87.

Saukamappee described two major battles in which he participated. They were between the Snake Indians (possibly Shoshones and allies) and the Pikani-Blackfoot and allied Cree and Assiniboine bands. The first of these battles took

place when Saukamappee was about sixteen years old, before the presence of guns and the use of horses in combat. His father had assembled a war party of about twenty Cree men to travel west from the parklands of what is now western Canada to the

plains to aid the Pikani against the Shoshone. The weapons of the Pikani, Cree, and Assiniboine already included metal arrowheads and lance points. Saukamappee described the Cree weapons as follows: “A Lance, mostly pointed with iron, some few of stone, A Bow and a Quiver of Arrows; the Bows were of Larch, the length came to the chin; the quiver had about fifty arrows, of which ten had iron points, the others were headed with stone. He [Saukamappee’s father] carried his knife on his breast and his axe in his belt. Such was my father’s weapons, and those with him had much the same weapons. I had a Bow and Arrows and a knife, of which I was very proud.”<sup>3</sup>

However, this account does not mention the use of body armor, such as quilted leather armor and shirts made from several layers of leather, each coated in glue and covered with sand.<sup>4</sup> From his Gros Ventre hosts, Matthew Cocking learned in 1772–73 that the Blackfoot and their allies, as well as the Shoshones, used such equipment.<sup>5</sup> Lewis and Clark reported that the Shoshone still used such armor in 1805.<sup>6</sup> In the early 1800s Thompson recorded the use of “war coats of leather” by the Blackfoot in their conflicts with

the Salish (Flathead).<sup>7</sup> As late as the early twentieth century, Blackfoot people recalled traditions of such armor.<sup>8</sup>

After Saukamappee's Cree and Assiniboine companions had joined a much larger Pikani war party, they set off to find their enemies. Eventually they encountered a Snake war party, and both groups readied themselves for battle. While the Pikani, Cree, and Assiniboine had about 350 warriors, Saukamappee estimated their enemies to have been somewhat more numerous: "After some singing and dancing they [the enemies] sat down on the ground, and placed their large shields before them, which covered them: We did the same, but our shields were not so many, and some of our shields had to shelter two men. Theirs were all placed touching each other."<sup>9</sup>

Warriors from each party had formed a long line facing their opponents and were shooting arrows at each other. Even though arrows wounded several men, no one was killed. Because neither of the two formations broke and no party made a direct charge, nightfall eventually put an end to the confrontation. Saukamappee stated that "in those days such was the result, unless one party was more numerous than the other."<sup>10</sup>

The use of shields for physical protection from enemy projectiles played a major part in the two

battles that Saukamappee described. These shields were very large, having a “breadth of full three feet or more.”<sup>11</sup> There were differences in size and numbers of shields between the allied tribes and the Shoshone, but there was no mention of the materials they were made of. Iron-headed arrows used by the warriors of the Pikani and their allies were unable to penetrate these shields, but instead stuck in them, while the stone-headed Snake arrows broke when they struck a hard target.<sup>12</sup> These characteristics indicate that the shields were likely made of rawhide. Also, as mentioned in chapter 7, the fact that the term “parfleche,” with origins in the French for “to ward off arrows,” came to designate almost any kind of container made of rawhide further supports the possibility that these early shields, like many later ones from the Great Plains, were made of rawhide.<sup>13</sup>

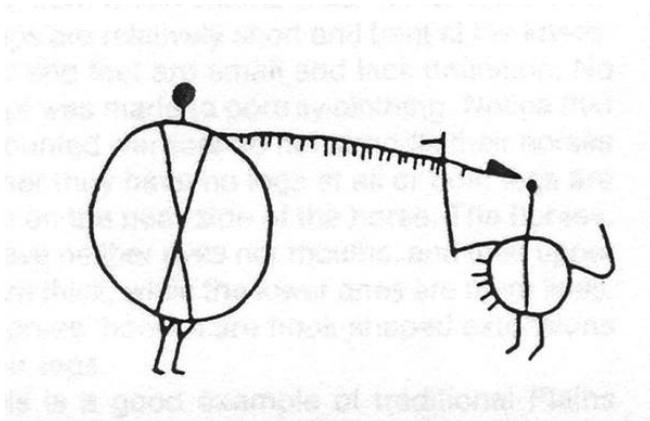
At Writing-on-Stone, an Aboriginal rock art site in southern Alberta dating at least to the protocontact period and possibly to precontact times, images show warriors using large circular shields and carrying spears or clubs.

These images show either pairs or groups of combatants whose large shields cover their bodies from the knees to the chin. Some of the shields display geometric designs or stylized animals. Sites along the Yellowstone River and in northwestern South Dakota show similar images.<sup>14</sup> These images of shield-bearing warriors

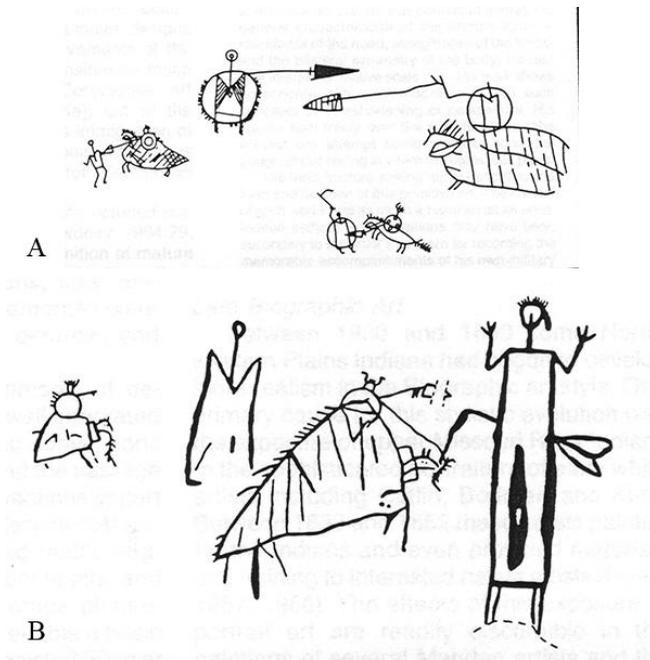
correspond well with Saukamappee's descriptions.

Five years after Thompson's stay with the Pikani, Peter Fidler recorded Pikani methods of combat that were reminiscent of the fighting methods recorded by Thompson:

In the evening all the Young men had a sham fight—with their Shields on & using only bluff [blunt?] headed arrows—they formed into two equal parties & went thro all the evolutions of the Indian art of open attack, with great dexterity, the principal part is to move the shield about, which hang by a thong on the left side, so as to always oppose the flight of the arrow that is aimed directly at them—a quick eye is also another indispensable thing to mark the arrows flight when coming toward them—sometimes they stand upright & *very often on their knees—when the shield covers them entirely* [my emphasis]. They have also much to guard against any oblique assault—when one is attacked from diff[eren]t quarters, he seldom escapes being hit.<sup>15</sup>



**Fig. 51.** Engraved images of shield-bearing warriors using lances and clubs. From the rock art site Writing-on-Stone in southern Alberta. Tracings by James D. Keyser. Used with permission of Alberta Parks.



**Fig. 52.** Images of combat between mounted and pedestrian warriors: *A*: Writing-on-Stone, Alberta. *B*: North Cave Hills, South Dakota. Tracings by James D. Keyser. Used with permission of Alberta Parks.

This description clearly indicates the use of large shields, often from a kneeling position. The young men fought on foot, not from horseback, even though at the time of Fidler’s visit the Pikani already used horses as beasts of burden and in mounted bison hunting. Shields and bows and arrows were the main weapons. Fidler described fluent and quick movement in attacking or

parrying, quite different from the large, static battle formations of opposing lines of warriors so prominent in Saukamappee's account. Both forms of combat probably coexisted for some time and may have been used in different situations. However, later accounts of combat in the Plains rarely mentioned static formations such as those described by Saukamappee.<sup>16</sup>

Before Saukamappee's group of Cree fought their next battle against the Shoshone, they received word of a stunning and alarming new weapon used by the "Snake Indians" and their allies. Pikani messengers related to the Cree that the Shoshone had recently routed the Pikani, riding up close on horses and smashing the Pikani warriors' heads with stone clubs.<sup>17</sup>

Several rock art sites, especially Writing-on-Stone in southern Alberta, show images of early forms of mounted combat. The horses and their riders are stylized, but the images clearly show that the horses were covered in some form of armor. The riders carried smaller round shields and lances or clubs. Writing-on-Stone has at least three images of such warriors defeating pedestrian warriors who are carrying large round shields and lances or clubs.<sup>18</sup> The North Cave Hills site in northwestern South Dakota shows at least two similar images.<sup>19</sup> Most of these sites are in an area that was controlled by the Shoshone in the

early 1700s, which to some extent corroborates Saukamappee's and Thompson's accounts.<sup>20</sup>

Saukamappee's descriptions of combat made no mention of mounted archers. Correspondingly, rock art images of shield-bearing riders on armored horses do not show the use of bows and arrows on horseback. According to James D. Keyser's chronology of Northern Plains rock art, this indicates that the combination of archery and horsemanship developed only after an initial experimental phase of copying the cavalry equipment and tactics of the Spanish, who largely fought with lances or swords on horseback.<sup>21</sup>

The Segesser hide paintings depict early eighteenth-century Spanish expeditions against pedestrian Apache people, conducted by mounted Spanish troops and Aboriginal or Mestizo allies.<sup>22</sup> The illustrations of mounted combatants closely resemble rock art images from Writing-on-Stone and other sites on the northwestern Plains. The Spanish and Aboriginal mounted combatants were equipped with lances, round shields, and sabers. Eight of the riders wore feathers in their hair, or headgear with feathers and horns. Their horses wore full-body leather armor, common in the Spanish cavalry at the time.<sup>23</sup>

Although the Spanish occasionally used crossbows from horseback, mounted archery was rare. After an initial experimental phase of copying from the Spanish, Aboriginal people in

the Plains likely developed on their own the practice of using weapons on horseback, including the bow and arrow. When George Catlin observed Native horse archers in the Northern Plains, he stated: “The length of these bows is about three feet, and sometimes not more than two and a half. They have, no doubt, studied to get the requisite power in the smallest compass possible, as it is more easily and handily used on horseback than one of greater length.”<sup>24</sup>

Since then, anthropologists, historians, and contemporary bow makers have stated that after the adoption of horse riding, the Plains Indians shortened their bows for easier use from horseback, especially for military purposes, and that before the adoption of mounted warfare, the bows were considerably longer.<sup>25</sup> An often-cited example comes

from the Lakota Spotted Bear, born in about 1860, who stated in 1958 that “before the horse came, the bow was longer and shot farther.”<sup>26</sup> However, at the time that Lakota people were said to have used longer bows, they still lived in the western Great Lakes region, and on the headwaters of the Mississippi where they had access to long, straight, and evenly growing hardwood trees that were ideal for the manufacture of longer self bows. Shortly before and during their adoption of horses, Lakota people began to migrate to the western Plains, where they mostly had to rely on shorter, knotty pieces of wood for bow making,

which often required sinew-backing to make a functional bow.<sup>27</sup>



**Fig. 53.** *A:* Hide painting (Segesser 1) depicting combat between Native peoples and Spanish

colonial forces and their Native allies in the early eighteenth century. *B*: Detail of hide painting. Note the similarity in horse armor and weaponry to the depictions from Writing-on-Stone and North Cave Hills. Image courtesy Palace of the Governors Photo Archives (NMHM/DCA), Santa Fe, New Mexico, Negative Number 149797.

Saukamaptee told Thompson in 1787 that short, sinew-backed wooden bows were used in combat in the northwestern Plains before the general introduction of horseback riding in battle.<sup>28</sup> Other examples also challenge this generalization. According to measurements taken in the nineteenth and early twentieth centuries, the Comanche were statistically the Plains people with the shortest average body height (males were about 1.75 meters tall, or 5 feet 8 inches), whereas the Blackfoot counted among the tallest Plains people (on average, males were about 1.85 meters tall, or 6 feet 1 inch). However, at least during the nineteenth century, Comanche people used relatively long self bows of Osage orange wood (about 1.2 to 1.4 meters, or 47.24 to 55.12 inches in length), while the Blackfoot often used very short, mostly sinew-backed bows (0.9 to 1.1 meters, or 35.43 to 43.31 inches in length).<sup>29</sup> Furthermore, during the nineteenth century the Comanche mostly hunted and fought from horseback, while in the Northern Plains it was common to dismount and fight on foot. In these examples, rather short people used relatively long

self bows from horseback, while tall people used relatively short sinew-backed bows on foot.

Saukamaptee's first description of a battle with the Shoshone contains references to short, sinew-backed bows that the Shoshone used while fighting on foot, and before horses were used in combat. The historic Comanche stemmed from Shoshonean ancestors, likely related to those people whom Thompson, and through him Saukamaptee, referred to as "Snakes." Apparently, those Shoshonean people who later came to be known as "Comanche" switched to a longer bow type once they came to inhabit vast areas of the Southern Plains, where they acquired a reputation as master horsemen. While the Comanche were adapting to an equestrian lifestyle, their bows may have been lengthened, not shortened. The eastern portion of the Southern Plains abounded in hardwoods such as hickory or the prized Osage orange of sufficient length and straightness for the manufacture of self bows. Turning these into longer rather than shorter bows rendered the labor-intensive process of sinew backing unnecessary, thereby greatly reducing the time it took to manufacture a bow. In contrast, in the Northern Plains, where bow wood of sufficient length and straightness was much harder to come by, bowyers often had to content themselves with rather short and knotty pieces of wood. Sinew backing enabled them to use shorter pieces of wood that could not otherwise have been made into serviceable, safe bows. Although it is

possible that individual bow makers manufactured bows with adaptations to mounted use in mind, on average the availability of suitable bow wood seems to have been the decisive factor in determining bow length and design. Similarly, in northern California and the Great Basin, where long and straight bow wood was rare and shrubs and small trees were common, Aboriginal people did not develop a horse culture as in the Plains, but nevertheless relied on short sinew-backed bows, likely due to a lack of serviceable woods of sufficient length and straightness.

The somewhat longer self bows used by the Kiowa and Comanche were also easier to string on horseback than shorter sinew-backed and reflexed or even slightly recurved bows from the Northern Plains. According to Mitch Wilkinson, who has gained considerable skill and experience in mounted archery and horsemanship in the traditions of the Comanche, Southern Plains self bows were strung on horseback as follows: a right-handed archer would sit sidesaddle, with both legs on the horse's left side, and place the lower tip of the bow with its back against the left instep. Then he would slip his right knee over the belly of the bow, grasp the upper tip with his right hand, bend the bow and slip the noose of the bowstring in place with his left hand. Thus, the bow was in shooting position immediately after stringing. I tried this stringing method with a short (114-centimeter, ca. 45-inch) sinew-backed and reflexed Northern Plains ash bow and found that

while it is possible to string such a bow in the manner described by Mitch Wilkinson, a somewhat longer self bow would be much more convenient to string in this way. Wilkinson stated that he was able to string Southern Plains self bows on horseback while the horse stood still or moved at a trot or gallop.

Comparing Saukamappee's account to later sources in the Northern Plains, it becomes clear that the Parkland Cree and the Pikani eventually switched from a longer to a shorter type of bow.<sup>30</sup> Nevertheless, Saukamappee gave no indication to Thompson that this move was prompted by the adaptation of archery for mounted combat and hunting. Reinforcing this point is his statement that the Shoshone, when they first emerged as mounted warriors, used war clubs from horseback rather than bows and arrows against their pedestrian Pikani adversaries. Therefore, the generalization that Plains peoples developed short sinew-backed bows mainly as an adaptation of archery to mounted use is difficult to sustain.

#### Lances, Hatchets, Clubs, and Knives

Saukamappee mentioned lances as a major weapon of the Parkland Cree in the early eighteenth century. These lances were mostly headed with metal points, but some had stone points. Since lances were primarily thrusting weapons, lance heads of metal were probably preferred over the more brittle lance heads of

stone. Saukamappee did not give the length of these lances or the source of the metal.

Saukamappee also mentioned an axe as part of his father's arsenal. This was probably a metal weapon or tool obtained in trade. Interestingly, he related that his father wore his knife on his breast, rather than attached to a belt.<sup>31</sup> Knife sheaths that were worn on a long, plain leather thong or on a quillwork embroidered or beaded band around the neck were common among the cultures of the Eastern Woodlands and the Subarctic.<sup>32</sup> For instance, Andrew Graham noted about the Swampy

Cree: "At the breast is a case curiously [i.e., "carefully"] wrought with quill-work; in it is suspended the bayonet to be ready on any occasion."<sup>33</sup>

Saukamappee's description of his father's weapons suggests that those of the Pikani were very similar to the weapons used by the Cree. However, when Prince Maximilian encountered Blackfoot people in 1833, he observed that they carried their knives in a sheath stuck through a leather belt behind their backs.<sup>34</sup> If Pikani and Plains Cree people indeed switched from knife sheaths worn around the neck to those worn in the belt, this may have been an adaptation to horseback riding, because a knife bouncing on the rider's chest during a gallop was more likely to fall from its sheath than a knife in a sheath pressed close to the body by a sturdy belt.

Saukamappee also mentioned the use of stone war clubs by the Shoshone, either on foot or from horseback. He described these weapons as “short stone clubs for close combat” and termed them a “dangerous weapon.”<sup>35</sup> Various types of stone clubs were in use in the Plains throughout the eighteenth and nineteenth centuries. They were based on the concept of combining a heavy stone and a wooden handle by encasing them both in a piece of wet rawhide, which tightened when dry. In some specimens the stone and the handle formed a rigid unit, while in others their connection was more flexible. The lengths of the handles varied widely. While short-handled examples with rounded stone heads could be used as weapons or as mauls to pound meat, berries, or lodge stakes, those with longer handles may have been a later variant, made for use from horseback.<sup>36</sup>

### Accuracy of Firearms and Archery Gear

Early firearms have been much maligned for their lack of long-range accuracy.<sup>37</sup> However, contemporary black-powder enthusiasts, using reproductions of early nineteenth-century smoothbore firearms, are able to hit plate-sized targets accurately at distances of up to 60 meters.<sup>38</sup> Accuracy with distance weapons is much more dependent on the user’s ability and training than the quality or sophistication of the equipment. Rather than trying to improve their archery gear beyond

basic functionality, Aboriginal archers tried to get as much in tune with their bows and arrows as possible and simply practiced more if they found their shooting was not satisfactory.<sup>39</sup> For example, among the Hidatsa and other Plains peoples, youngsters honed their marksmanship by frequently playing archery games of hitting small targets at distances of 30 meters or more.<sup>40</sup> They likely also applied this approach to the teaching of marksmanship to their newly acquired firearms, although shortages of black powder often prevented extensive practice.

The ethnohistorian Patrick Malone argued that Aboriginal men in seventeenth-century New England were far more skilled marksmen than their European contemporaries with any weapon, because they had been trained for the role of hunter and warrior from early childhood and had spent years acquiring the weaponry skills, the hand-eye coordination, and the mindset this demanded, while most European colonists were primarily agriculturalists without a great familiarity with distance weapons in general and firearms in particular, because they came from a culture that severely restricted the rights of ownership and use of weaponry to a privileged few.<sup>41</sup>

In the summer of 1800, fur trader Alexander Henry the Younger and his *Saulteaux* companions hunted bison using firearms. Henry shot one bull at “30 paces.” Later the same day, Henry shot

another bull from horseback at a distance of “not more than 100 paces,” which Henry referred to as a “long shot.”<sup>42</sup>

In 1816, while stationed at Brandon House, Peter Fidler made the following observation on local Aboriginal people’s accuracy with firearms in hunting: “Allow the hunters 4 balls and 4 charges of powder per animal [deer] shot, if they use more it is charged to their account but this very seldom happens and they are in general able to lay up a small stock for themselves.”<sup>43</sup>

More than sixty years earlier, on his journey inland to the Alberta plains, Anthony Henday recorded: “Killed one Buffalo: I supply them [his Cree and Assiniboine guides] with powder very sparingly, one charge at a time; the bullet we oftentimes get again.”<sup>44</sup> Henday’s remark demonstrates his Aboriginal guides’ great accuracy with muzzle-loading firearms, because the only way to retrieve a spent musket ball was to dig it out of the carcass of the animal during butchering. Such a projectile was deformed upon impact, but by melting it down and recasting it in a bullet mold, it could be made usable again.

In 1867 Isaac Cowie, then a new apprentice clerk with the Hudson’s Bay Company, traveled from Fort Ellice, near the confluence of the Assiniboine and Qu’Apelle Rivers, to his new post at Fort Qu’Apelle, guided by Tom Lamack and his ten-year-old son, Tom, both Saulteaux. Cowie

described his Sauteaux guide's superior skill in using a flintlock trade gun in hunting small game:

Tom [junior] and I would set out to shoot, but, even on the ponds where the ducks were quite visible the little lad with the flintlock, longer than himself, always did better than I with my double barrel percussion gun, loaded with four times the quantity of shot. I had won a marksman's badge, and had been officially gazetted as one of the best shots in the rifle corps, and, besides, had shot lots of wildfowl at home, so I wondered if my own gun were not to blame and if Tom's long gun were the better. Anyhow I wanted to see how the flintlock went, and so I tried the family weapon at a mark. The sight was coarse, the stock straight, and the trigger very hard. At last when the flint struck the steel, sparks as from an anvil flew in every direction, followed at what appeared a long interval by a flash in the pan, and then by a kick like a horse, for while the native did spare shot, he did not spare powder, and wadded it hard, too. Of course, the strong pull, and the startling flare-up quite spoilt my aim, and I never did get up to the use of the "Indian gun," nor get over my surprise at the fine shooting the natives did with it.<sup>45</sup>

Long-range accuracy with firearms was important in hunting on foot or in defense, for instance when warding off attackers at a distance, trying to gain time for the noncombatants in one's camp to flee.

However, generally, accuracy at distances beyond 50 or 60 meters was of no great concern in Plains Indian combat, since closeup, hand- to-hand combat was considered more important. Killing an enemy at a great distance brought little prestige, while overcoming one's foe in hand-to-hand combat or touching an enemy while escaping unscathed was considered an act of valor.<sup>46</sup>

Hitting small moving targets with an arrow while running or riding is a difficult feat, yet it was routinely accomplished by Aboriginal archers.<sup>47</sup> Accounts of mounted bison hunting mention that in order to quickly kill one of these animals, an area the size of a hand, just behind the shoulder, had to be hit. As already discussed in chapter 6, for a wound to be instantly disabling in combat, an opponent had to be hit in the chest, spinal column, or head.

In 1988–89 the State Armory in Graz, Austria, conducted comparative shooting tests with thirteen muzzle-loading long guns and pistols dating from the sixteenth to the eighteenth century. To minimize human influence on the results, these weapons were fired from a fixed test device, at distances of 30 meters and 100 meters, at a roughly human-sized target, 167 centimeters tall and 30 centimeters wide.

The results showed that manufacturing quality had a significant influence on accuracy, especially at the 100-meter range. At this distance, an average

of 50 to 60 percent of the shots hit the target. Weapons of very low manufacturing quality hit the target with 32 percent of all shots fired, while weapons of excellent manufacture achieved 83 percent accuracy at 100 meters. However, at the shorter range of 30 meters, accuracy was considerably higher for all weapons. The accuracy of some of the muzzle-loading pistols of better manufacturing quality was almost comparable to that of modern handguns. However, the authors of these tests concluded that in the two hundred years from the early 1500s to the early 1700s, the accuracy of muzzle-loading firearms did not seem to have markedly improved and that these weapons were most effective at rather short distances.<sup>48</sup> Furthermore, experienced marksmen would have been able to compensate to some extent for some of the flaws of their weapons.

#### Mode of Employment and Effectiveness of Archery Gear in Combat

For hunting and combat, the effective range of bows and arrows was at most approximately 40 meters (43 yards); for smoothbore, muzzle-loading firearms it was probably at most 60 meters (65 yards). Both weapons could propel their projectiles much greater distances, but the best results were obtained at shorter ranges.

Wolf Chief explained that the Mandan and Hidatsa made bows intended for combat more robust and thicker than hunting bows because as a last resort combat bows sometimes had to be used

as clubs. The asymmetrical design, and the bowstrings of the bows, helped to absorb the force of the impact when these bows were used as clubs. According to Wolf Chief, a well-made ash bow could withstand tremendous impact forces.<sup>49</sup> This indicates that even as distance weapons, Mandan and Hidatsa bows and arrows were meant for use at short distances.

Aboriginal pictographs from the Northern Plains confirm this view. They show archers facing each other at short distances in a crouched position, ready to loose their arrows at their opponents.<sup>50</sup> Otis Tufton Mason made the following observations on Aboriginal archers' use of bows and arrows in combat and in hunting: "The design of the hunter or the warrior was to get close up. In all the sham battles, which the writer has witnessed from his boyhood, the warriors almost touched each other. The dexterity with which they parried and fenced with the arm shield and the bow was marvellous. The absence of noise, the invention of game drives, the universality of decoys, the hundreds of disguises, the efficient skulking, the imitations of the cries of animals, all point to the intention of getting within a distance of 20 yards or less."<sup>51</sup>

This, as well as the following examples from nineteenth-century biographical accounts, show that Northern Plains Aboriginal peoples mainly employed bows and arrows at rather short range.<sup>52</sup>

The Crow Two Leggings related aspects of the grim reality of intertribal warfare when he described how he obtained his first coup as a teenager. He was with a Crow war party traveling towards Piegan country north of the Musselshell River in Montana:

One day when the sun was in the middle of the sky we noticed a man on a nearby hill making smoke signals for us to come over. We could not see whether he was Piegan or Crow from another clan. Eight men started towards him but we called them back, laid down our packs and heavy robes, and began walking in a body. Immediately men dashed out from behind rocks and bushes around the signaller, carrying muzzle-loading rifles and firing as soon as they were within range. We found cover but kept advancing. As they fell back to reload, I ran out screaming a war cry.

One hung behind and I shot him in the shoulder. Reaching back he jerked out the arrow, broke it, and threw it on the ground. He pulled out his knife and ran at me. Jumping aside I shot him in the breast. He also pulled out that arrow, broke it and threw it down. I tried to keep out of his reach, yelling to get him excited. Then I shot a third arrow into his stomach. He made a growling sound, but after he broke that arrow he made signs for me to go back. I made signs that I was going to kill him. Then he made signs for me to come closer so

he could fight with his knife, and I made signs that I would not. . . .

He was almost dead and there was no reason to be afraid, so I suppose I played with him. He was my enemy and had probably killed some of my relatives. He tried to dodge my next arrow but it went into his chest and came out of his lower back. Blood ran from his mouth and nose as he walked slowly towards his friends. I shot once more. He stumbled and fell and died a moment later. Then I scalped him and tied the hair to my bow. After yelling out to our men far ahead, I sang my first victory song.

Eight men came back, and when they saw the Piegan they divided the rest of the scalp and joined me in singing, shooting arrows into the body. Then we ran to meet the others returning over the hill. . . . After they all had shot arrows into the body they wrapped it in a robe and laid it on a rock.<sup>53</sup>

This account reveals several characteristics of Plains peoples' use of firearms and archery gear in combat. Two Leggings' Piegan opponents attempted to use their firearms from an ambush position.<sup>54</sup> Two Leggings used his bow at very short range. The fact that he expended several arrows to kill one opponent does not indicate the inefficiency of Two Leggings' archery, because he stated that he was only "playing" with his

opponent and did not intend to kill the man immediately.

In another engagement a large group of Blackfoot pursued Two Leggings on horseback. One horseman was so far ahead of the others that Two Leggings decided to ambush him. He dismounted and hid his horse, then hiding himself high up on the edge of a ravine, strung his bow and waited for the Blackfoot rider. When the Blackfoot had come close enough, Two Leggings shot his first arrow. Because he had aimed too low, the arrow pierced the man's pelvis, pinning him to his horse. Man and horse went down under the impact, and Two Leggings killed his opponent at close quarters before making his escape.<sup>55</sup>

With the advantage of surprise, a determined archer on foot could sometimes hold his own against mounted opponents equipped with firearms, as the following example from late nineteenth-century conflict between the Pawnee and the Lakota and Cheyenne illustrates. Riding ahead of a large war party of Lakota and Cheyenne on their way to attack one of the Pawnee villages in present-day Nebraska, a scouting party of six encountered a single Pawnee warrior on foot. The scouts believed that this lone enemy was easy prey. However, as soon as the Pawnee noticed the scouts, he dropped his pack, whipped his bow out of its case, strung it and attacked at a run, shooting arrows at the scouts. Long before he had closed the distance to the

scouts, one of their horses was dead, another horse was wounded, and one man was injured. In panic the scouts turned to flee, barely rescuing their horseless comrade. This episode is especially interesting because this scouting party consisted of such notables as Spotted Tail, who later became leader of the Sicangu (Brûlé) Lakota, as well as the Cheyenne leaders White Antelope and Tall Bull, later the leader of the Cheyenne dog soldier society.<sup>56</sup> However, Lakota pictographs and accounts from Pawnee people indicate that if war parties on foot, armed mostly with bows and arrows, were caught on the open plains by an equal or greater number of mounted opponents, their fate was usually sealed.<sup>57</sup>

Even on horseback, combat distances with distance weapons such as bows and arrows were often very short, especially in combat involving only two opponents. The painter and traveler George Catlin described such action from an account he had obtained from the Mandan leader Mato Tope (Four Bears) in 1832. In this account Mato Tope described his fight against a Cheyenne leader. Both combatants had started out on horseback, circling each other, first using firearms, then bows and arrows, and finally dismounting and switching to hand weapons.<sup>58</sup>

Catlin depicted and described a mock battle among mounted Comanche warriors who employed similar methods. They used rawhide

shields to ward off arrows and shielded their body by dropping down to a hanging position on the right side of their horse while shooting arrows at their opponents across their own horse's back.<sup>59</sup> Two Leggings described mounted warriors using similar methods against individual mounted opponents, as well as against opponents on foot behind fortifications.<sup>60</sup> He described a fight he had against a Salish man while both he and his opponent were mounted. This encounter was very similar to Mato Tope's account because it involved the use of archery at very short range while both combatants hung from the sides of their horses, shielding themselves and circling each other while shooting arrows from across their horses' necks.<sup>61</sup>

### Aboriginal Use of Firearms

In the Great Plains, until the introduction of breech-loading and repeating firearms, the paramount use of muzzle-loading firearms was in combat. Once firearms became readily available to the Parkland Cree, Blackfoot, and their respective allies, they took them along on their military expeditions.<sup>62</sup> Numerous references attest to warfare as the principal field of use for firearms among Aboriginal peoples of the Plains.

For example, one of the earliest references to Shoshone people using firearms in combat comes from the journal of William Pink, an HBC fur

trader who traveled with Parkland Cree people in 1770. Pink noted that during the previous winter hostilities had occurred between a Cree group led by Wappe nassue and the “Kee,ne,pick,e,thin,a,wock” (Snake/Shoshone): “These Indaines [the “Kee,ne,pick,e,thin,a,wock”] Came Down upon ours with thare horses, and Likewise Sevrill Gones [guns] that the had But they Cannot Shote well yet this is the First time that the See Gones with them Natives we now Not whare the Get them, for the Catch No Fores [furs], our Indaines Say that the Cary Dear Sinnaries to the South ward and Trad With Some people thare But the Dos not Now how the has Killed one of our Indaines and Wounded Three, But our Indaines Killed 80 of them.”<sup>63</sup>

Matthew Cocking’s Cree guides told him in 1774 that the “Yeachithinne” (Blackfoot, Gros Ventre, and Sarcee) stockpiled ammunition for use against their enemies, “the Snake Indians,” while they still killed game animals with the bow and arrow.<sup>64</sup> When a group of Blood Indians came to trade at Manchester House in March 1787, they purchased eighteen guns and four pistols, almost all the firearms in stock, because they were planning to go to war against the Snake Indians.<sup>65</sup> Several years later Peter Fidler recorded that the Piegan used their firearms primarily for warfare.<sup>66</sup> Writing in 1818, Fidler recorded that “our Inds [Cree] say some of the Mandans have from 6 to 10 Guns and every Man one at least, keeping them

carefully for Defence.”<sup>67</sup> Their primarily military use of firearms prevailed until the late nineteenth century. Wolf Chief stated that among the Mandan and Hidatsa, firearms were reserved for military activities, while bows and arrows remained the principal big game hunting weapon even after the advent of repeating weapons and cartridge ammunition, because the latter items were always scarce.<sup>68</sup>

Aboriginal people in the Plains and Subarctic consistently tried to prevent fur traders from trading firearms to their enemies. The Pikani, for instance, were very keen to prevent direct trade between their western neighbors and Europeans, possibly because they feared that they would lose their military advantage if Aboriginal peoples of the Rocky Mountains and Plateau region were equipped with firearms, too. Then groups like the Flathead and Kutenai would be able to confront the Blackfoot to reclaim their bison hunting grounds on the eastern fringes of the mountains.<sup>69</sup> Fidler recorded a similar aversion among the Assiniboine to the North West Company’s sales of firearms to the Mandan, Hidatsa, and Arikara.<sup>70</sup>

The strong opposition of Aboriginal people toward firearms sales to their enemies indicates the high military value they ascribed to these weapons, especially in confrontations with those peoples who had fewer or no firearms. According to Saukamappee’s account, the terror caused

among the Shoshone by the guns used by the allied tribes prevented any further major battles with the Shoshone, who fled south- and westward, leaving the country on the Red Deer River and the Bow River in present-day Alberta to the Pikani.

Some elements of Blood Indian traditions recorded in the early twentieth century correspond to Saukamappee's account. Interviewed by the ethnographer David Duval in the early twentieth century, Three Bears related an incident from nineteenth-century Cree-Blackfoot/Kainai hostilities. A Cree war party attacked a Blood camp and took most of the women and children prisoner while the men were away running buffalo. Four women escaped from the camp and hid in some bushes, but one of the Cree warriors found their tracks in the snow, followed them, and took them captive. On the return journey this Cree and the four Blood women straggled far behind the rest of the Cree war party because the Cree man was getting weak from traveling on foot. When they came to a creek, the four women jumped the Cree man and drowned him, and one of them took his scalp. When the four women returned to their camp, they met the returning Blood buffalo hunters. These decided against going after the Cree, except for one man and the woman who had scalped the Cree. They wanted to pursue the Cree and rescue their families and relatives at all costs. The Blood woman and man finally caught up with the Cree. At first they were mistaken for the missing Cree man

and one of his female captives. However, when their true identity was discovered, the leaders of the Cree war party asked them about the missing Cree man and made them swear upon a medicine pipe to tell the truth. The Cree promised not to kill them, but to grant them each a wish. When the Blood woman said that she had killed the Cree man and that she and her companion had come to rescue their relatives, the relatives were released. The Cree further offered to make peace the next summer and to release their other Blood captives then.

Three Bears' account continued:

And the next summer the Crees and the Bloods meet and make peace. And the Bloods got their women and children back. And four of the Blood chiefs were given rifles by the Crees and the Bloods did not know how to shoot with the guns, and the Crees set up a mark and showed the Bloods how to shoot with the guns and when the Bloods would shoot with the guns they were afraid of them and would drop the guns when they would go off, and finally they got use[d] to shooting, now the Bloods gave the Crees horses for presents and as the Crees couldn't ride much they would fall off the horses when the horses would go on a trot or lope so the Bloods gave the Crees the laugh because they could not ride horseback, and later on the Piegans got firearms, and while a few Piegans were on the war party, a great

many Snake Indians attacked the few Piegans, and the Piegans opened fire on them with their guns and as the Snakes never heard or seen guns, they all took to their heels and run away and were afraid of the guns of the Piegans and also the Crows run from the Piegans when the Piegans first took some shots at them from their rifles, as the Crows did not know anything about guns at the time.<sup>71</sup>

Similarly, fur traders commented on the dramatic effects the use of firearms in warfare had on intertribal relations. For example, Peter Fidler recorded in 1792: “Formerly the Snake Indians used to inhabit about this Hill [in the Bow River area in southern Alberta], but since the Europeans have penetrated into these parts & supplied the surrounding Nations with fire arms, those Indians have gradually receded back to the SW wards, & at this Time there is not a Tent of that nation to be found within 500 miles.”<sup>72</sup>

Another passage from Fidler’s journal provides more information on Aboriginal and European evaluations and estimates of the lethality of muzzle-loading firearms:

Feb. 14, 1793, arrived at our tent 17 Blood Indian Young men, who have been on a friendly visit to the Snake Indians—at present friends—the Snake Indians & their neighbours the Crow Mountain Indians being at present at an inveterate war with each other—the former

induced the 17 Blood Indian men to accompany them to war against the Crow Mountain Indians—on account of their body all having Guns—they found 35 men of that tribe & melancholy to relate only 3 escaped to relate the horrid catastrophe to their country men—the Spoils they took from the slain was 2 Guns (Spanish)—20 swards [*sic*] several Shields—Bows arrows—Clothing & etc.—every man they scalped according to their wonted customs—4 of which trophies of war was given amongst the 17 Blood Indian Young men as a sufficient recompense for their assisting in the above horrid affair—tho it is natural to think that these men by having all firearms was the principal cause of their killing such a number & so very few escaping—had these men not assisted, the opposite sides would have been armed exactly alike & the event would probably not been so melancholy—before either one side or the other ran for it—No quarter is given by any Indians at war—these men arrived with their faces all black with coal—their usual custom, when they return from war at any people Tents they found on their return—They also continue in this manner with black faces a few days after they arrive at their own Tents—Singing, Dancing the greater part of the time at short intervals—This was now the case here & our Indians joined the Chorus & carried the scalps upon a stick in the manner of a staff &

kept dancing and singing all the while—this they kept up the greater part of the night.<sup>73</sup>

Just as decades earlier the Pikani had welcomed assistance from the Cree and Assiniboine with their firearms, the Snake now used the same tactics of employing gun-bearing allies in their raid against the Mountain Crow, who at that time had only few firearms. However, when trade guns began to reach the Rocky Mountain peoples, the Crow could turn the tables on their eastern neighbors and defend themselves successfully against Aboriginal attackers with firearms. When two parties of Gros Ventre came to trade at the HBC's Hudson House in 1785, William Tomison wrote: "they was at war last summer against the snake [possibly Shoshone] Indians but gained little by it; as they have now got guns as well as they."<sup>74</sup>

How could the relatively few, potentially problematic, firearms sold to Aboriginal people have significantly influenced the military situation in the Great Plains? In order to gauge the impact of these weapons, we must closely examine the actual use of firearms by Aboriginal people. Saukamappee's account provides critical information on the methods of firearms use in combat. He described his participation in a battle that took place around 1740 between two groups of several hundred warriors on the Alberta Plains. Saukamappee was with a small group of Cree and Assiniboine who had joined a large Pikani war

party. Together they confronted a group of “Snake Indians” and their allies from the Rocky Mountains. The Pikani welcomed the assistance from the Cree and Assiniboine with enthusiasm, because these allies had brought ten guns to the battle.

The combatants faced each other in two straight and parallel lines, about 60 meters apart, kneeling or sitting behind large shields, while shooting arrows at each other. The Snake did not use any firearms and were apparently not yet familiar with them. Therefore the Cree and Assiniboine, including Saukamappee, lay behind their shields with their guns, waiting for an enemy to expose his body as he tried to shoot with his bow and arrows. When the Cree and Assiniboine suddenly fired their guns at their opponents, it caused total confusion and disarray among their enemies because, besides the psychological impact of the noise, muzzle flashes, smoke, and smell, the musket fire was accurate enough to instantly disable or kill their opponents.

Apparently, the Cree and Assiniboine did not attempt to shoot through the enemy shields. It remains unclear whether this was because the musket balls were not able to penetrate the shields, or because the warriors were not yet aware of the extreme penetrative power of their new weapons.<sup>75</sup> Arrows, on the other hand, regardless of whether their arrowheads were made

of stone or metal, could not pierce the thick but somewhat elastic rawhide shields.

In this particular battle the Snake formation was critically weakened, not just because of the direct effect of the firearms but also because increasing numbers of Snake warriors left their positions in the battle line to escape. A final massed charge by the Pikani, Cree, and Assiniboine culminated in hand- to-hand combat, causing high casualties and the eventual flight of the surviving Snake warriors. The presumably low loading speed of muzzle-loading firearms seems to have been of little consequence in this battle, because the ten Cree and Assiniboine men could fire their guns individually at intervals, keeping their opponents under constant fire, while they were covered and protected by the arrow shots of their Pikani allies. According to David Thompson's rendering of Saukamappee's account, the Pikani leaders considered the battle a resounding victory. They believed that the firearms used by the Cree and Assiniboine warriors had been a decisive factor, and they explicitly honored these men for their participation in the battle. Aboriginal people with access to firearms soon realized that new approaches were needed to integrate this new weapon into their military tactics, while those who could not obtain these weapons sought ways to defend themselves against this threat.

Thompson also related information from those on the receiving end of these early gun battles: "a

very old [Kalispel] Indian told me, when a young man he made a heavy war club, with which he felt himself con-

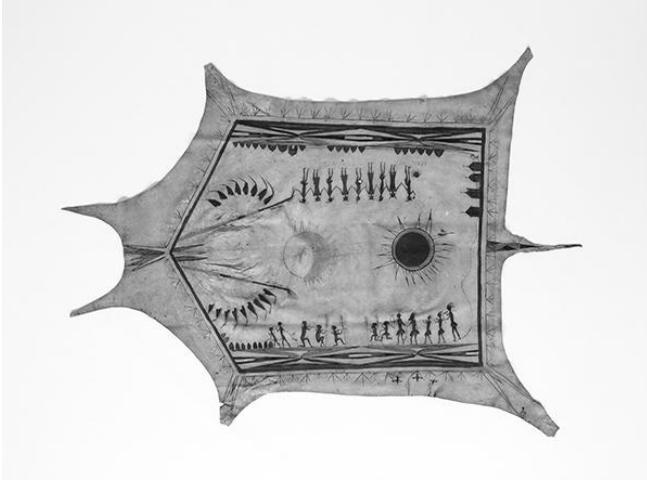
fidant of victory, they formed a very large party against the Peegans, and hoped for success, when for the first time their enemies had two Guns and every shot killed a Man, we could not stand this, and thought they brought bad spirits with [them], we all fled and hid ourselves in the Mountains.”<sup>76</sup>

A drawing of battle scenes on the soft-tanned cover of a Pawnee shield collected by Duke Paul von Württemberg before 1850 depicts two opposing lines of warriors using bows and guns.<sup>77</sup>

A ledger drawing depicting a battle between mounted Kiowa and Pawnee on foot that probably took place in the second half of the nineteenth century shows a line of Pawnee warriors with muzzle-loading weapons. Similar to Saukamappee’s description, the line was firing and reloading their guns while covered by a second line of warriors with bows and arrows.<sup>78</sup>

A ledger drawing created by an unknown Arikara approximately in 1875 at Fort Buford in Dakota Territory depicts two similar formations, one of archers and the other warriors using flintlock guns and pistols, facing each other in combat.<sup>79</sup> These images suggest that archers could have provided covering “fire” for the warriors using firearms while these were reloading their weapons. In this way the use of Indigenous distance weapons and

European firearms may have been combined in an ingenious way.



**Fig. 54.** Southern Plains painted robe, attributed to the Quapaw (Arkansas), ca. 1750. Note the two lines of warriors armed with bows and arrows and firearms facing each other. The robe is named “Of Three Villages.” Possibly bison skin, painted. 192 by 265 by 3 cm. 1912 g. Inv.: 71.1934.33.7. Musée du Quai Branly, Paris.

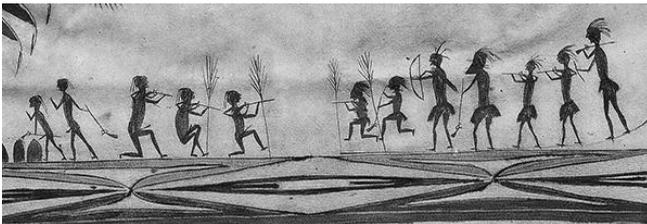


Fig. 55. Detail of Quapaw robe shown in Figure 54.

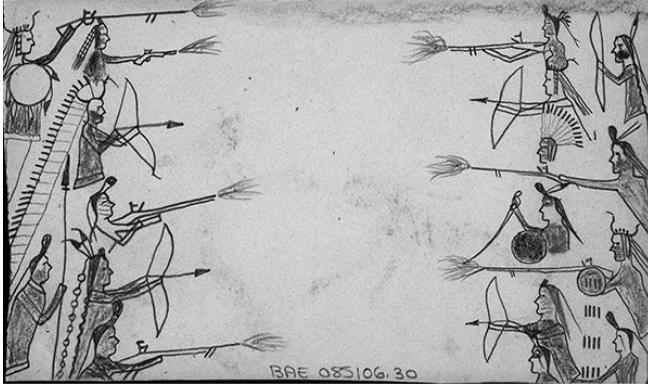


Fig. 56. Nineteenth-century Arikara drawing of two formations of warriors facing each other in combat using firearms and bows and arrows. Image courtesy of Smithsonian Institution.

When Thompson stayed with a group of Pikani in 1787, he was introduced to Kootana Appe, who was then their war leader. From Kootana Appe and Saukamappee, Thompson learned about Pikani tactics for combining the use of archery and firearms in battle. For example, Thompson described Kootana Appe's method of covering a retreat of the whole camp:

His plan was to keep together round him a band of bold and resolute men with which he guarded the rear; and on perceiving the enemy becoming confident and not sufficiently

cautious to lay an ambuscade, let some of the foremost pass, attack them in the rear; it was an onset of a very few minutes and in the confusion and dismay march off and join his people who stood ready to protect them. This checked the advance of the enemy and gave safety to the retreating party, and has thus gained the confidence of the people. *On meeting the enemy he places his people according to the number of guns they have separating them along his post so that between each gun they should have the same number of archers* [my emphasis]. The great plains on which these encounters take place are too open for an ambuscade except by lying down in undulating grounds.<sup>80</sup>

Thompson went on to give an account of a confrontation between a Pikani war party under Kootana Appe and Hispanic peoples leading a mule train in the Southwest:

At length the scouts came in with word that they had seen a long file of Horses and Mules led by Black men (Spaniards) and not far off. *They were soon ready and formed into one line about three feet from each other, for room to handle their Bows and Shields, having but a few guns* [my emphasis]; the ground was rough undulating plain, and by favour of the ground approached to near the front of the file before they were discovered, when giving the war whoop, and making a rush on

the front of the file, the Spaniards all rode off leaving the loaded Horses and Mules to the war party, each of whom endeavoured to make a prize of a Horse or Mules.<sup>81</sup>

Eyewitness accounts detailing Aboriginal modes of combat are rare for the eighteenth and early nineteenth centuries, not the least because the fur traders who recorded them rarely participated in these conflicts, but rather they recorded descriptions of the action given by Aboriginal participants when they came to the trading posts. Several accounts reported high casualties inflicted by Aboriginal groups recently equipped with firearms against their previously better-armed foes. For example, when in the summer of 1810 Finan McDonald of the North West Company was traveling with a group of Salish (Flathead) who had recently received a number of firearms, they repulsed a Piegan attack, killing several Piegan warriors.<sup>82</sup> Peter Fidler of the Hudson's Bay Company recorded details about this battle, which may illustrate Aboriginal peoples' use of firearms in combat:

A Canadian Clerk [Finan McDonald] in Company with about 30 Flat head Indians fell in with a war party of Muddy river Indians [Piegan] last Summer in the Rocky Mountains—The Flat heads retreated when they first saw the Enemy to a creek with steep banks where they lay till the others came up—*when suddenly all rising up fired & killed*

*15 Muddy river Inds* [my emphasis]—only one fell of the Flat heads—Then they who survived made a very precipitate retreat & [them] [learning] that a Canadian were in Company with the Flat heads—was the cause of this Tribe of Indians driving back the Canadians last fall—they [the Piegan] are particularly objectionable against the Canadians or even us from going to Trade with their distant Tribes in & beyond the Rocky Mountains—as they receive from us Guns Arms & Ammunition, which makes them bolder & more dangerous to attack than formerly when they had only Bows & Arrows. They are also much against us from even Trading with them in any Necessary Articles—as they formerly used to Trade with them at vast profits & then bring those skins & trade with us—receiving about 12 times the value for the same article from us than what they sold it for to the Distant Tribes & by our going into those parts, we cut off the great profits they always made.<sup>83</sup>

This description indicates the massed use of firearms by the Flatheads and fur traders in a surprise volley, with sudden and devastating effect on their Piegan opponents, emphasizing the usefulness of muzzle-loading trade guns as initial “shock-artillery.” However, Thompson, who by 1810 was working for the North West Company, preserved a very different description of this battle.

The Saleesh Indians during the winter [of 1809–10] had traded upwards of twenty guns from me, with several hundreds of iron arrowheads, with which they thought themselves a fair match for the Peegan Indians in battle on the Plains. In the month of July when the Bison Bulls are getting fat, they formed a camp of about one hundred and fifty men to hunt and make dried Provisions as I had requested them; accompanied by Mr. Finan McDonald, Michel Bourdeaux and Bapteste Buché with ammunition, tobacco &c to encourage them: they crossed the Mountains by a wide defile of easy passage, eastward of the Saleesh Lake, here they are watched by the Peegans to prevent them hunting the Bison, and driven back, and could only hunt as it were by stealth: the case was now different, and they were determined to hunt boldly and try a battle with them: they were entering on the grounds, when the scouts, as usual, early each morning sent to view the country came riding at full speed, calling out, “the Enemy is on us:” instantly down went the Tents, and tent poles, which, with the Baggage formed a rude rampart: this was barely done, when a steady charge of cavalry came on them, but the Horses did not break through the rampart, part of pointed poles, each party discharged their arrows, which only wounded a few, none fell: a second, and third charge, was made; but in a weak manner; the battle was now

to be of infantry. The Saleesh, about one hundred and fifty Men, took possession of a slightly rising ground about half a mile in front of their Tents, the Peegans, about one hundred and Seventy men drew up and formed a rude line about four hundred yards from them; the Saleesh and the white men lay quiet on the defensive; the Peegans, from time to time throughout the day, sent parties of about forty men forward, to dare them to battle; these would often approach to within sixty to eighty yards, insulting them as old women, and dancing in a frantic manner, now springing from the ground as high as they could, then close to the ground, now to the right, and to the left; in all postures; their war coats of leather hanging loose before them; their guns, or bows and arrows, or a lance in their hands; the two former they sometimes discharged at their enemies with little effect: Buché, who was a good shot, said they were harder to hit than a goose on the wing. When these were tired they returned, and a fresh party came forward in like manner, and thus throughout the day, the three men had several shots discharged at them, but their violent gestures prevented a steady aim in return; the three men were all good shots, and as I have noticed the Indians allow no neutrals, they had to fight in their own defence. Mr. Finan McDonald fired forty five shots, killed two men and wounded one man; such were their wild activity, they were an uncertain mark to fire at; the evening ended the battle; on the

part of the Peegans, seven killed and thirteen wounded; on the part of the Saleesh, five killed and nine wounded; each party took care of their dead; no scalps were taken, which the Peegans counted a disgrace to them; the Saleesh set no pride on taking scalps; This was the first time the Peegans were in a manner defeated, and they determined to wreck their vengeance on the white men who crossed the mountains to the west side; and furnished arms and ammunition to their Enemies.<sup>84</sup>

Thompson's account suggests a much more drawn out conflict, which, after the loss of the element of surprise, eventually turned into a confrontation between entrenched Salish defenders and Piegan attackers on foot. Both parties discharged arrows and musket balls at each other at long range with relatively little effect on the overall course of the battle. However, as neither Fidler nor Thompson had participated in this engagement, it is unclear whose version, if any, is closer to the actual sequence of events. At best, these differences in the descriptions of the same confrontation may serve to illustrate the care that needs to be taken in interpreting such accounts and especially the dangers in too literal a reading of them. Nonetheless, Piegan winter counts preserved a memory of this battle, which was apparently important enough in its unusual and novel outcome for Piegan peoples to record and recall it.<sup>85</sup>

Alexander Henry the Younger recorded another description of this battle.

Formerly, all those tribes (Flathead, Nez Perce, Couer d'Alene, Spokane, Pend d'Oreille) became an easy prey to their enemies, having no other weapons of defense than the Bow and Arrow. But within those few years they have acquired the use of firearms, and got supplies of arms and ammunition from us, and are now become a formidable enemy whom the Slave Indians no longer dare annoy with impunity. Therefore they have recourse to more clandestine proceedings, and steal their Horses in great numbers. The first severe check the Peagans ever received from the nations on the west side of the Mountains inhabiting the waters of the Columbia was in the Summer of 1810, when they met the Flat heads &c while on their march to the Plains in search of Buffalo. Their meeting was so sudden and unexpected that the Peagans could not avoid giving battle. They fought with great courage for nearly one whole day until the Peagans had expended all their ammunition and were reduced to defending themselves with Stones. A small rising ground, which divided the two contending parties, enabled them to come to close quarters. At last the Peagans were obliged to retreat, leaving sixteen of their principal Warriors dead upon the field of battle. The defeat sustained by the Peagans has tended much to exasperate that

nation against us as being the cause of strengthening their enemies in the manner we have done, by supplying them with arms and ammunition. They fain would wreck [*sic*] their vengeance upon us, but dread the consequences of such an act, as it would deprive them of a supply in future of arms and ammunition.<sup>86</sup>

A fourth description of this event by James Bird survived in the Hudson's Bay Company's Edmonton House Post Journal:

Received Letters from Mr. Howes, dated Coutana River 20th Aug. 1810, in which he says that having been informed by some Coutanahas that a Battle had been fought between a party of Flatt Head Indians, with whom a Mr. McDonald clerk to the N.W.Cy was in company and a party of Muddy River Indians, in which the latter were defeated with the loss of 14 Men killed; and that the Muddy River Indians in consequence were laying in ambush to intercept him, or any white Man, who might attempt to convey goods to the Flatt Heads, he had determined in remaining some time at the place where this letter was dated to gain further intelligence, after which, he should determine on his future proceedings. The news Mr. Howes has received has been seriously confirmed by the Muddy River Indians themselves who stopped 11 French canoes, which were bound for the Columbia, a little above old Acton House, and this band of

Indians that stopped the [11?] Canadians declare that another is laying on the banks of the River.<sup>87</sup>

While the details differ, all these accounts emphasize the importance of firearms in contributing to a victorious outcome for the Salish/Flathead. All four texts stress Blackfoot attempts to prevent fur traders from delivering any more firearms to their western neighbors, such as the Salish, as the reason for this battle. They all point to the availability of firearms to the Salish as a major cause for a subsequent change to more balanced military relations between the Salish and the Blackfoot.

The Blackfoot Crooked Meat Strings described surprise tactics used by Plains Cree in their winter attacks on Blackfoot encampments during the mid- to late nineteenth century: “Cree always announced their attack by calling out: ‘Napi . . . niko’to!’ ‘Friend, I am here!’ Then they fire and run in! They have guns cocked and start to shoot at that moment. On one side of the camp the Cree are backed up. Blackfoot escape out the other side, especially the women. The Cree attempt to encircle the camp then. Cree always attack at daybreak. Some Cree don’t join the fight but ‘prefer’ to run off horses before the shooting starts. If Cree win, they carry off anything nice like guns, arrows and bow, etc.”<sup>88</sup>

In 1893–94 the South Piegan leader Three Suns, or Big Nose, presented a painted robe detailing his

military achievements to Captain L. W. Cooke, who was then the Indian agent on the Blackfeet Reservation in Montana. One of the twenty-two scenes on the robe shows a similar surprise attack on a Piegan encampment by a group of Cree. According to Three Suns' descriptions of these actions, which were recorded when he gave the robe to Cooke, this battle occurred in 1847 in the Sweetgrass Hills, where fifty-three Cree attacked a camp of three hundred Piegan lodges at night, suddenly firing upon the sleeping Piegan.<sup>89</sup>

Beverly Hungry Wolf, relating nineteenth-century traditions of her Blackfoot elders and ancestors, narrated an early morning attack by a large war party led by the woman warrior Running Eagle on a Flathead (Salish) encampment. "After the initial shooting, the battle turned into a free-for-all in which clubs and knives were the main weapons."<sup>90</sup> This passage again emphasizes the use of distance weapons as initial "shock artillery," using the element of surprise, followed by close-quarters combat.

These passages, as well as the description of Two Leggings' first coup, indicate that Aboriginal people tried to use ambush tactics when employing their firearms in an attack. They attempted to break or seriously disorganize resistance, and reduce the number of enemy combatants by an initial surprise volley. After that they could continue their attack with traditional distance weapons or engage in close combat.

Archaeological evidence from the Larson site in South Dakota shows the combined use of bows and arrows and firearms. This site represented a large Arikara community that was occupied between 1750 and 1785, when it suffered a devastating attack, likely by Lakota people. Excavations at the site revealed the remains of over seventy individuals, most of them found in defensive positions inside the remnants of earth lodges, and ten scattered outside these buildings. Musket balls and metal arrowheads were discovered among and within the mutilated skeletons. That the bodies were not buried but remained in situ is suggested by the inconsistency of their location with documented common Arikara burial customs in cemeteries outside their villages and the position of the bodies inside the village, along with the projectiles that killed them.<sup>91</sup>

The German naturalist and traveler Prince Maximilian of Wied and the Swiss painter Karl Bodmer witnessed a battle between a relatively small group of Piegan and Blood and a large Cree and Assiniboine war party about six hundred strong at Fort McKenzie, a post of the American Fur Company on the Upper Missouri in present-day Montana, on August 28, 1833. During the early morning hours the Cree and Assiniboine launched a surprise attack on the small Blackfoot camp, which was situated close to the fort. While fighting in the confined space among the tents, attackers and defenders used firearms and bows at

close quarters. However, when the initial momentum of the attack had been halted, the Blackfoot warriors with firearms formed a loose firing line and kept up constant individual firing, joined by some of the crew of Fort McKenzie. This eventually drove the attackers to retreat.<sup>92</sup> Prince Maximilian observed: “The Indians had fired quite at random, otherwise the loss must have been much greater on both sides. We learnt, in the sequel, that the Assiniboines had three killed, and twenty severely wounded.”<sup>93</sup> In regard to the accuracy of muzzle-loading guns in this engagement, Prince Maximilian noted that “[The engagé] Loretto had shot, at the distance of eighty-six paces from the pickets, the nephew of the Assiniboine chief, Minohanne (the left-handed), and this was the only one of the killed whom the enemy were unable to carry away, for we saw them lay many others on their horses, and take them off. In the fort itself only one man was wounded, having had his foot pierced by an arrow.”<sup>94</sup>

In a battle against Blackfoot warriors in the 1860s, Two Leggings’ arrow pierced the neck of one of his opponents, the impact spinning the man around. In spite of being hit twice more, the warrior managed to run back to his party. The Crows managed to drive off the Blackfoot, even though the Blackfoot warriors all carried firearms and the Crows had only three guns in their entire group while the rest carried bows and arrows as

their only distance weapon. Two Leggings estimated that had the Blackfoot all been mounted, none of the Crow party would have survived, placing a higher combat value on horses than on firearms in this particular case.<sup>95</sup> However, Two Leggings did not specify whether the firearms used in this battle were single-shot muzzle-loaders, breech-loaders, or even repeating firearms.

These examples indicate that Aboriginal peoples in the Northern Plains, similar to the Hudson Bay Cree and Chipewyan, favored employing their firearms in sudden ambush attacks in order to quickly break or significantly reduce enemy resistance, if possible at close range.

As soon as firearms became available in larger numbers, Aboriginal people in the Plains began to use them along with their traditional distance weapons. Numerous accounts and illustrations made by non-Aboriginal eyewitnesses during the early and mid-nineteenth century show Aboriginal men carrying firearms and archery gear at the same time.<sup>96</sup> Peter Fidler observed in 1792 that Piegan men, when they went to war or on trading missions, carried both firearms and archery gear.<sup>97</sup>

When Prince Maximilian traveled parts of the Northern Plains in 1833–34, the equipment commonly used by Aboriginal warriors had changed, contrasting with the weaponry used by

the Cree and Assiniboine during Saukamappee's youth, almost a century earlier. Prince Maximilian described the weapons of the Assiniboine and other Plains Indians they encountered:

They were the first Assiniboines we had met with. . . . Most of them had guns, and all, without distinction, bows and arrows, the latter in a quiver or bag made of skin, to which also the case for the bow was attached.

In general, every Blackfoot carries a whip, as well as his weapons, in his hand; a gun and his bow and arrows on his shoulder, the latter in a quiver or bag made of skin or leather, to which a bow case of the same is fastened. On his shoulder he likewise has his pouch, containing his powder horn, and a large knife, in a sheath, is stuck behind in his leathern girdle.<sup>98</sup>

Probably referring to the second half of the nineteenth century, Crooked Meat Strings related that the equipment of Blackfoot warriors for war parties on foot had to be light, but included "Bow and arrows; gun; bullets & powder; knives, moccasins & awl & sinew. One also takes a sign of a holy thing—e.g., around wrist or neck, or something to be in the hair."<sup>99</sup> Two Leggings frequently carried bow and arrows and a firearm on raids and war expeditions. He also encountered Salish and Lakota warriors who each were equipped with bows and firearms.<sup>100</sup> The grave goods of the Cheyenne leader High-Backed Wolf,

who was killed on the North Platte River in 1868, included his bow and a supply of arrows, a stone-headed war club, an army camp knife, and a Henry repeating rifle.<sup>101</sup>

Although largely referring to the late nineteenth century, surviving firsthand accounts reveal some of the combat methods Aboriginal people used to employ firearms and archery together. Two Leggings explained why he often carried archery gear and a firearm on war expeditions. When several enemies pursued him, for example, he decided to ambush the advance guard of his opponents to gain time to escape. In order to do this, he dismounted and planned to use his gun with a heavy charge as his initial “artillery” against the massed enemies; then he wanted to shoot arrows at individual opponents.<sup>102</sup> In such situations Aboriginal people often loaded their weapons with a double charge of powder and more than one musket ball, which could have a devastating effect at close range.<sup>103</sup>

According to Two Leggings’ description, a firearm could be used effectively at close range even if the user was exhausted and out of breath, while the effective use of bows and arrows required a greater amount of physical strength, stamina, and calmness.<sup>104</sup>

Firearms and archery offered different advantages, and these could be used to complement each other. For example, bows and arrows were better

suiting for night fighting, because they emitted neither loud noises nor muzzle flashes that could betray a warrior's position to his opponents.<sup>105</sup> But firearms could be used in winter when very low temperatures made the use of self bows risky. A gun could be fired wearing mittens, while a Plains archer had to take off his mittens to use bow and arrows. Loaded with shot, smoothbore trade guns could be used as short-range "artillery" against tight groups of opponents, while an arrow usually affected only one opponent at a time. Pistols could be concealed under clothing and fired from concealment much more easily than bows and arrows, especially since they could be discharged using only one hand. Bows and arrows, on the other hand, were quiet, could often be made from locally available materials, and their projectiles could be reused. Compared to bows and arrows, muzzle-loading, single-shot firearms had a much slower rate of fire, but they could be fired from concealment, from behind a shield for instance, whereas an archer had to expose part of his body in order to shoot, thereby becoming a target himself.

By the late nineteenth century, firearms had become an important combat weapon in the Plains, while bows and arrows were still much used. For example, on July 11, 1869, Pawnee scouts and U.S. cavalry under General Carr captured weapons from Tall Bull's band of Cheyenne and Oglala dog soldiers after the battle of Summit Springs, near Sterling, Colorado.

These weapons included 56 rifles, 22 revolvers, 40 sets of bows and arrows, 20 tomahawks, 47 axes, 150 knives, 50 pounds of powder, 20 pounds of bullets, 14 bullet molds, 8 bars of lead, 26 boxes of percussion caps, 17 sabers, and 9 lances. During the battle fifty-two Native people were killed, and seventeen women and children were captured. The U.S. troops and their Pawnee scouts suffered no casualties, but one man suffered a light arrow wound.<sup>106</sup>

Several accounts of Plains warfare indicate that by the 1860s and 1870s firearms had gained principal importance as combat weapons among Blackfoot people. For example, the Siksika Raw Eater, who was

a respected war leader, created a pictorial record on hide of several battles with Cree people during the late 1800s. The capture of guns from the Cree, and the use of rifle pits in defense by the Blackfoot, stand out among the images on this robe, but none of the combat scenes depict archery gear. Firearms figure prominently in all five battles depicted.<sup>107</sup> The Blackfoot Wolf Collar (Maguigoxkinas) recorded his experiences in combat against Cree people in drawings. These images and the accompanying descriptions emphasize the use of firearms, rifle pits, and improvised fortifications in combat. Wolf Collar also killed a bear with his gun but used his bow and arrows in mounted bison hunting.<sup>108</sup>

For Blackfoot people and other Plains Indians, the capture of enemy guns and other spoils in combat was a way to gain wealth, prestige, and influence through redistributing them among relatives and others. The Blackfoot White Eagle, for example, when he went to war in the 1860s, gained both social status and wealth. He was successful and captured many horses and guns from the enemy. He captured his first gun when he was fourteen years old.<sup>109</sup> Eagle Ribs Jr. went on a war party when he was only twelve years old and captured a gun and much ammunition.<sup>110</sup> Joe Little Chief related that another Blackfoot leader, Good Eagle, captured two horses, one gun and an archery set in a battle with Cree people in the spring of 1859. In all his fourteen war parties combined, Good Eagle captured eight guns, five scalps, two knives, one archery set, one medicine pipe, and twenty-two horses, among them six pintos.<sup>111</sup>

On such occasions, Blackfoot warriors recorded the capture of a greater number of guns than traditional weapons like bows and arrows. This may indicate that they were accorded a higher status, or that they were more numerous than bows and arrows among the mostly Cree enemies and thus easier to capture. Perhaps guns gained such importance in building status, not only because they were powerful weapons but also because they were expensive. Because Blackfoot people could not make them, they may have considered them more valuable, but this would

have applied to many other goods from outside their homeland, too.

### Patterns of Warfare

The two battles described in Saukamappee's account show a similar structure. The opponents sat, or knelt, sheltered by their large shields, forming two opposing parallel lines of combatants. Both sides shot arrows at each other. Unless one group was vastly superior in numbers, so as to make a charge and overrun or outflank their opponents, a stalemate was the usual outcome. Heavy casualties occurred only after one line of warriors had broken, when the pursuers struck down fleeing combatants.

With the advent of firearms, combat became more individualistic because large and static formations of shield-bearing warriors could no longer be maintained. Aboriginal forms of body armor fell into disuse because they were largely ineffectual against firearms. If a musket ball pierced a warrior's armor, it was likely to drag minute pieces of it into the wound, which could cause a deadly infection. Ambush tactics and surprise attacks gained in importance. According to Saukamappee, heavy casualties more commonly occurred when small camps, separated from the main body for winter hunting, were surprised and annihilated by enemies.<sup>112</sup>

The introduction of horses also encouraged more individualist approaches to mounted combat.

Plains Indians did not adopt large-scale cavalry formations for combat. Firearms and horses contributed to an increase in the tempo of warfare. With the use of horses, provisions of dried meat could be acquired faster, which left more time for martial endeavors. Furthermore, the initially highly unequal distribution of firearms encouraged those Aboriginal people who had them to increase their raids on those who did not, as they felt more secure and assured of victory due to their increased firepower.

Interpreted in terms of European concepts, methods, and motives for warfare, Saukamappee's account has sometimes led to sweeping generalizations about Plains Indian alliances, suggesting that Cree, Assiniboine and Blackfoot "armies" moved in a concerted effort against the "Snake."<sup>113</sup> Saukamappee's account mentions the Pikani's call for military assistance from the specific Cree band Saukamappee's family was part of. However, the Pikani war parties Saukamappee described were several hundred strong, while the few Cree and Assiniboine warriors who joined them, at first without firearms, likely did not make a crucial difference in a confrontation with an enemy who was equally numerous. Only when ten Cree and Assiniboine with firearms joined the endeavor did the Pikani war leaders consider the participation of these allies more crucial to their victory. Instead of viewing them as alliances between "nations," similar to those between European

kingdoms or states, we should consider these activities as based on agreements—possibly temporary—between different local bands or extended family groups who may have been connected through kinship. Considering the low numbers of Cree and Assiniboine warriors who participated in these war parties, the call from the Pikani may have been an invitation rather than an urgent call for military assistance.

According to Saukamappee, after the introduction of firearms, and later of horses, war was mainly carried out in small groups and by surprise. The Pikani had the upper hand in this type of warfare, supposedly due to the “Guns, arrow shods [*sic*] of iron, long knives, flat bayonets and axes from the Traders.”<sup>114</sup> As an example of this new type of warfare, Saukamappee told of a small war party setting off to the south to steal horses. The venture ended with the return of the victorious warriors, among them his eldest son, who brought back thirty-five enemy horses to the Pikani camp.

Overall, not only the methods and techniques of warfare changed, but also its objectives. The earlier warfare described by Saukamappee may have been driven by spiritual motivations or by a desire to take revenge for past wrongs. According to Thompson, Saukamappee had participated in his second war party against the “Snake” because his in-laws had insisted that he obtain an enemy scalp to honor his father-in-law’s medicine bundle.<sup>115</sup> Among the Cree as well as the

Blackfoot, scalps could become part of medicine bundles. In the 1930s the Blood Eagle Ribs explained to ethnographers: “Why is a scalp valuable? Wife dances with the enemy scalp, all see her. Scalps are made into necklaces and bracelets. The scalp may be given by brother to chief and is paid for it. . . . A scalp must be given to medicine pipe owner or anyone who can conduct a Sun Dance [i.e., a spiritually powerful person]. To be fixed up, made into a necklace, and placed with either beaver or natoas [Sun Dance] bundle [the two most important Blackfoot medicine bundles]; or it is made into a hair fringe suit.”<sup>116</sup>

The presence of European trading posts provided new incentives for warfare. Plains peoples conducted raids to take captives and sell them as workers to the posts. The La Verendrye expeditions reported such activities in the Plains in the early 1740s.<sup>117</sup> Anthony Henday claimed to have been offered war captives by Plains peoples in 1755: “The Captives, Boys & Girls, were given away as presents to one another. They presented to me a Boy & Girl, which I declined accepting of in as modest a manner possible.” A few days later another journal entry reads: “A Captive Girl aged about 17 years was knocked on the head with a Tomahawk by a Man’s wife in a fit of jealousy: No notice was taken as such game is common amongst them: the unfortunate Girl had been presented to the Murtherer’s husband

yesterday.”<sup>118</sup> Various Aboriginal groups in the Northern Plains engaged in this trade and sold captives at trading posts.<sup>119</sup>

After the smallpox epidemics of the eighteenth and nineteenth centuries, Plains people such as the Pikani may have attempted to bolster their numbers by integrating captive women and young children into their community.<sup>120</sup> In the late nineteenth century the Blackfoot Red Arrow told Robert Wilson: “The only prisoners taken as a rule were women and children. Boys who would grow up as our own, and women who would be married in our tribe. The latter in many cases made good wives, with the exception of Cree women who on account of the short distance to their country, used to run away taking some of our horses with them.”<sup>121</sup>

Crooked Meat Strings related about captives:

Once in a while a Gros Ventre is taken. Pitoxpikis had a Gros Ventre slave. Piegan and Blood once took Cree women, in an attack, but killed most. Killing better, so as to say “I killed so many people.”

A man who captures a woman gives her as a wife to his tak.a [partner or “brother friend”], because he and tak.a go round together and know what each does with women—often a tak.a gives his tak.a his sweetheart. Captives not given to brother or relative because she has been used. It’s alright to have played with a

tak.a's sweetheart before, so she can be given to a tak.a.

Once Ak ikakatosi captured a girl-child, because [he was] very fond of her. Then in a peace, the Cree bought her back. Captives are not taken very often therefore because men want to be able to announce a large number of killings. Women and children count as much as men.<sup>122</sup>

The view that captives were generally to be killed or treated badly was not uniform among the Blackfoot. For example, Eagle Ribs (Pitoxpikis) led a war party against the Crow in the second half of the nineteenth century. They attacked a small Crow camp of six men, one woman and a boy. Eagle Ribs and his men took the woman and the boy captive and killed five of the Crow warriors while the sixth escaped. "On the way back they camped on a butte on the south side of the Bow River. Striped Bull, Kixtsipistamik, had the woman. Pitoxpikis said to all the men: 'Be good to this woman and to this boy. Remember what has been done to his people. He'll be poor now. Respect this woman who is to be a wife of Kixtsipistamik and don't do anything to her.'"<sup>123</sup>

The results of epidemic diseases and the use of firearms and horses contributed significantly to the displacement of several Aboriginal groups. When David Thompson and Peter Fidler stayed among the Pikani, they observed that the Shoshone and their allies had been pushed out of

the plains east of the Rocky Mountains and the Bow River region. Access to the dwindling bison herds became a major reason for conflict between Blackfoot peoples and the Plains Cree and Assiniboine in the second half of the nineteenth century. However, conflict over resource use and territorial displacement of Aboriginal groups seems to have been an after-effect of the epidemics and the introduction of firearms in the Northern Plains, rather than a predetermined objective of Aboriginal peoples.<sup>124</sup>

While revenge remained an important motivation to go to war, other objectives gained ground after the widespread adoption of horses for mounted combat and the introduction of firearms. Quests for personal prestige and status through military accomplishments became major goals of this increasingly important type of small-scale warfare.<sup>125</sup> Later, with the accelerating demise of the bison herds during the nineteenth century, a struggle for access to this important resource characterized much of the conflict between Aboriginal peoples in the Canadian Plains.

### Casualties

The statement from Saukamappee's account that casualties were usually low in Aboriginal combat before the use of firearms has often been misinterpreted to mean that Aboriginal weaponry was considered inefficient.<sup>126</sup> However, birthrates

in Indigenous societies were rather low, and each individual counted when it came to securing a livelihood for the entire group. This was especially the case in Subarctic societies, where Aboriginal communities often split into smaller family groups over the winter in order to spread the population according to the availability of food sources and raw materials and thus secure scarce resources. Therefore, casualties in warfare have to be seen in relation to the populations of the communities involved. Even though casualties may seem low by European military standards, to Aboriginal groups the loss of even a few experienced hunters could severely affect a group's chances of survival. As Peter Fidler recorded:

Relating a shocking Massacre of 31 Bungees out of 34 within 15 Miles of Turtle River by a large party of the Sioux Indians. . . . The Bungees being killed early in the morning of the 20th December last . . . it was only 2 Years ago that the Sioux killed several Bungees a little above this place . . . now will be the cause of a great diminution of Trade there, not only as there are fewer hunters, but their Countrymen will lament their Deaths and in consequence do little or nothing for the remainder of the Hunting Season.<sup>127</sup>

Even though the numbers of casualties may have increased after the adoption of firearms and horses for military purposes, Aboriginal warfare in

pedestrian times was by no means purely ritualistic or “harmless.” As the examples above have shown, warfare in the Plains ranged from an almost playful matching of individual warriors’ skills to brutal conflicts of annihilation.<sup>128</sup> Whatever the original intentions of the participants, combat situations were dangerous and potentially lethal. An older Cheyenne warrior, giving advice to a novice, stated: “Now, when the party is about to make a charge on the enemy do not be afraid. Do as the others do. When you fight, try to kill. When you meet the enemy, if you are brave and kill and count a coup, it will make a man of you, and the people will look on you as a man. Do not fear anything. It is not a disgrace to be killed in a fight.”<sup>129</sup>

The introduction of horses and firearms affected methods of Aboriginal military leadership. Among most Plains peoples, the authority of a war leader was limited. He could not order a massive European military-style charge against an entrenched enemy, which might accomplish a short-term objective but would certainly result in a number of casualties. Such trade-offs were alien to Aboriginal methods of combat. To the leader of a war party, preserving the lives of his men was far more important than attaining a short-term military goal, such as storming a fortification. Loss of lives seriously damaged a war leader’s prestige and lowered the perception of his competence in the view of his peers and followers. Such expeditions were rarely counted

as successes, even if their military objective had been accomplished. Aboriginal warriors were also accustomed to making their own decisions. Therefore, it was difficult at the best of times to enforce a rigid discipline during battle. If, for some reason, warriors were not in agreement with their leader's decisions, they simply turned around or did what they thought best. Under such circumstances, the introduction of firearms further weakened a war leader's authority because even a small

number of firearms in the hands of determined combatants could deter their opponents from continuing to fight. Even small war parties, by using guns as an initial, devastating, and demoralizing "artillery" shock, could beat more numerous ones into retreat.

While bows and arrows remained in use in the Northern Plains alongside muzzle-loading firearms until late in the nineteenth century, archery gear gradually lost its advantages after breech-loading and repeating firearms became available. As the Crow leader Plenty Coups stated:

But it was a long time before we saw a breech-loading gun. . . . When they finally came I did not rest until I owned one, giving ten finely dressed robes for it. Such a gun could be loaded on a running horse, and I laid my bow away forever. But some of the older men stuck tight to their familiar weapon. I could

understand why they did so before the cartridge gun came, but after that the bow seemed only a plaything. Sometimes a man would lose his gun or trade it away, and then for a time he would be obliged to go back to his bow and arrows; but we younger men got guns and kept them.<sup>130</sup>



11.

## Survival and Adaptation of Aboriginal Archery and European Firearms

A wide range of factors influenced Aboriginal peoples' perceptions and decisions about the uses of their own technology in comparison with the new tools and weapons introduced from Europe. With growing experience, they recognized the capabilities and advantages that edged metal weapons and firearms offered, especially as these weapons improved. In a gradual process, they integrated these weapons into their material culture and belief systems and adapted them to their specific needs and purposes.

Metal axes, knives, arrowheads, and firearms were not superior in every respect to Aboriginal weapons, but they offered advantages that Aboriginal people considered worthwhile. During the late eighteenth century, Plains people increasingly traded processed bison meat to the fur traders, and in the 1830s the trade in bison robes began to dominate the fur trade in the Plains. Unlike the trade in beaver pelts, this trade complemented Plains peoples' subsistence activities and enabled Aboriginal people, by killing bison in excess of what they needed for survival, to obtain metal arrowheads in exchange for bison products. The inventory of Fort Benton in Montana for the 1850s listed the price for metal arrowheads at one and a half cents each. For a

single dressed bison robe, Plains Indians could obtain dozens of such arrowheads.<sup>1</sup> Such low prices provided a strong incentive to give up the time-consuming manufacture of stone points and adopt metal ones. Even though they were not as sharp as stone points, metal arrowheads were more durable and could often be used more than once, which was usually not possible with stone arrowheads.

Similarly, firearms were not superior or inferior to Indigenous distance weapons in absolute terms. Rather, they enabled Aboriginal people to accomplish objectives and fulfill purposes in specific situations that could not, or could only with difficulty, be accomplished with Indigenous weapons. However, guns were cumbersome in other situations where Indigenous weaponry prevailed with few alterations. The adoption of European tools and weapons had as much to do with environmental limitations on Indigenous technology as with Aboriginal hunting and combat methods, forms of leadership, and military organization.

In the Central Subarctic, the limited availability of suitable woods for bow making, and the increasing emphasis on trapping and hunting of individual animals, favored the use of firearms. When guns became available more consistently to Central Subarctic Aboriginal people, they quickly replaced the lance and caused a gradual shift away from archery for big game hunting and combat.

However, archery remained in use to hunt small game and birds. Bows used for such purposes did not have to be as powerful as bows intended for big game hunting and combat. These had to accommodate strain close to, or sometimes exceeding, the capabilities of the woods they were made of, while self bows intended for small game could be built with lower draw weights that accommodated the shortcomings of locally available woods and made these bows safer to use. The decline of bows as a big game hunting weapon may have led to design changes in Subarctic self bows, away from the wide, flat bows to narrower, more easily constructed bows; because this latter type of bow was sufficient to hunt small game and birds, it continued in use in the Central Subarctic well into the twentieth century. In a seemingly paradoxical way the adoption of firearms contributed to the survival of archery in the Subarctic, although in a different form.

In the Northern Plains, the development was different. Even though the availability of suitable raw materials for bow and arrow making was limited, the Plains provided more usable hardwood species than the Subarctic. Ingenious construction methods such as sinew backing allowed Plains peoples to manufacture powerful and dependable bows from locally available materials. Furthermore, most Aboriginal people of the region adopted horses and mounted bison hunting before they gained

consistent access to firearms on a large scale. By the time firearms became available in greater numbers, the bow and arrow was already well established as the main weapon for mounted bison hunting, and it remained in that position well into the last quarter of the nineteenth century. When the bison herds were destroyed, and reserves were established, Plains Indians gave up most of their traditional economy and subsistence patterns and had to venture into agriculture and ranching. Hunting declined in importance as a subsistence activity, and Plains peoples preferred firearms over bows and arrows to hunt deer and small game. Possibly because archery was so deeply connected to the Plains peoples' old autonomous life, it may also have been shunned as a reminder of loss and defeat after the establishment of reserves.

Although in the Central Subarctic firearms replaced bows and arrows as the main distance weapon for combat during the eighteenth century, in the Plains bows and various types of firearms were used together, from the adoption of muzzle-loading firearms until the late nineteenth century. Accounts by Aboriginal people and by fur traders and other travelers, such as Peter Fidler, George Catlin, and Prince Maximilian, frequently mentioned the combined use of bows and arrows and firearms in warfare.<sup>2</sup> Plains Cree and Blackfoot people used bows and arrows alongside firearms in combat as late as the late 1850s.<sup>3</sup> However, in the Plains, firearms were

mainly a combat weapon, while the bow and arrow remained the preferred weapon for mounted bison hunting. The bow and arrow was more convenient to use, and it saved ammunition for firearms that could be used in combat.<sup>4</sup> When interviewed in 1941, the Siksika Crooked Meat Strings ranked the most important objects that could be captured in battle. He ranked guns first but added that before guns were available, the capture of an enemy's bow and arrows was ranked highest. In his youth, during the late nineteenth century, capture of bow and arrows already ranked second.<sup>5</sup>

In the Plains, warfare held great importance as a means to obtain prestige and social standing. Plains Indians developed elaborate and precise systems to record and compare military achievements such as touching an enemy under fire ("counting coup"), capturing horses or enemy weapons, or killing enemies and taking scalps. This well-established system was largely absent in the Subarctic, leading some scholars to believe that warfare in the Plains was a highly ritualized sport or contest with few casualties and little impact on the societies involved. However, warfare in the Plains was not uniform and ranged from exciting contests or "war games" to bloody battles and the destruction of entire communities.<sup>6</sup> Horses greatly facilitated Plains warfare and led to a higher frequency of raids. Horses provided easier and faster transportation, and the capture of

enemy horses became a strong incentive to go to war.

The devastating effects of European epidemic diseases, combined with the uneven introduction and distribution of horses and firearms, led to the displacement of Aboriginal groups like the Eastern Shoshone, Kutenai, and Salish (Flathead) from the western Plains by the Blackfoot, Sarcee, Gros Ventre, Plains Cree, and Assiniboine.<sup>7</sup> This happened mainly during a period when the number of firearms per band was lower than in later times. From HBC account books, Arthur Ray and Heinz Pyszczyk compared the number of firearms the HBC traded inland to Plains Indians, using population estimates by European traders and travelers. According to these figures, from 1720 to 1774 the HBC traded a total of 6,551 firearms to an estimated 1,380 lodges of Plains Indians in the Saskatchewan district, amounting to a ratio of 0.09 firearms per lodge per year.<sup>8</sup> This suggests that only relatively small numbers of firearms reached Aboriginal communities in the Plains. However, this small number of sometimes problematic weapons had a significant effect on intertribal military relations. The bow and arrow offered clear advantages in regard to shooting speed, availability of ammunition, absence of noise and smell, and ease of handling on horseback. Nonetheless, considering penetrative force, even the most basic firearms were far superior to even the most advanced historic archery equipment.

This alone is not enough to explain the popularity of firearms as combat weapons and their effect on intertribal military relations. The issue is not so much one of the inherent “superiority” of these weapons but rather how Aboriginal people adapted them in combat in combination with traditional weapons such as bows and arrows. Ambush tactics and surprise attacks with firearms as initial “artillery” at close distances were highly effective. Archers could also provide cover for warriors with firearms shooting at Aboriginal opponents lacking firearms, as suggested by Saukamappee’s and Kootana Appe’s accounts and by Arikara and Pawnee ledger drawings depicting line formations of warriors in combat.

Aboriginal concepts of leadership in warfare also contributed to the effect of firearms. According to Saukamappee’s account, even before the introduction of firearms, the primary objective of the leader of a war party was to bring back alive every member of his party.<sup>9</sup> Among most Plains peoples, war leaders had only limited authority. They were not in a position to give and enforce orders that would result in a number of casualties in the course of accomplishing a short-term military objective. For example, when fur trader Finan McDonald accompanied a party of Salish from the Rocky Mountains onto the plains to hunt bison in the summer of 1810, they fell in with a large Blackfoot war party. The Salish eventually drove the Blackfoot to take shelter in a thick cluster of trees from where they kept up constant

gunfire, killing and wounding a few Salish. McDonald and the leader of his party tried in vain to induce the Salish warriors to storm the trees and drive the Blackfoot from their cover.<sup>10</sup> This example indicates that the limited authority of Aboriginal war leaders made them unlikely to launch concerted attacks against an entrenched foe that had even just a small number of muzzle-loading firearms. Such attacks could not be accomplished without at least a few casualties, which would damage a leader's reputation. Even if a leader had initiated such an attack, most of the warriors likely would not have followed.

This deterring effect was enhanced with the appearance of firearms with greater long-range accuracy, such as muzzle-loading rifles or the Sharps guns used by non-Aboriginal commercial bison hunters in the second half of the nineteenth century. These new weapons often had a devastating effect on Aboriginal war parties, even though Aboriginal combatants far outnumbered their opponents. In such encounters even a small number of firearms could demoralize warriors to a point where they simply gave up and abandoned the fight, leading to the dissolution or collapse of the entire war party. For example, in 1853 on the Southern Plains a large war party estimated at fifteen hundred Comanche, Kiowa, Kiowa-Apache, Osage, Arapaho, and Cheyenne set out to attack Sauk and Fox people whom the U.S. government had deported to the eastern fringe of the Southern Plains. However, the Plains

Indians suffered a devastating defeat by the Sauk and Fox, who were mostly armed with rifles.<sup>11</sup> Similarly, on June 27, 1874, fewer than thirty hide hunters entrenched in an old post at Adobe Walls on the Canadian River in Texas, and armed with long-range bison hunting guns, repelled a war party of several hundred Southern Plains Indians, losing three of their own and killing nine warriors.<sup>12</sup> In both cases, the vastly more numerous Plains Indians refused to attack their enemies in a massed charge against precise rifle fire.

The introduction of firearms to the Northern Plains and their adoption by Aboriginal peoples coincided with several outbreaks of European epidemic diseases in the Great Plains and beyond. The smallpox epidemics of the early 1780s and late 1830s were especially devastating. Hardest hit in the Northern Plains were probably the agricultural Arikara, Hidatsa, and Mandan in their densely populated earth-lodge villages along the Upper Missouri River, while more mobile bison-hunting peoples of the Plains were also devastated by the disease. After each epidemic, many Aboriginal communities were in shambles, and most groups were barely able to hunt to feed their families. Aside from the cultural loss, and the interruption of numerous traditions through the loss of elders and specialized crafts people, the population losses inflicted by the epidemics left Aboriginal communities more vulnerable to attack.

During the first years after epidemics, Aboriginal warfare seems to have become less frequent. However, when it gained momentum again, the lives of individuals counted even more than before, since the substantial population losses could not easily be compensated for. This may have led war leaders to take a more cautious approach in combat, accepting even fewer risks of losing people under their leadership. If such a mindset prevailed, firearms may have become even more important in Aboriginal warfare as powerful offensive weapons or as the means of deterring attacks and bolstering communities' defenses.

Because of their great penetrative force, firearms rendered ineffective the large formations of shield-bearing warriors described by Saukamappee, thus contributing to Plains peoples' increasingly individualistic approaches to warfare and combat. Firearms' advantages bolstered their importance even when there were few and they were technically problematic. Had Aboriginal people used firearms according to European military concepts, involving massed formations and hierarchical command structures, these weapons might have had less of an impact. For example, Joan Townsend pointed out that on European battlefields in the eighteenth and nineteenth centuries, where armies massed large formations of soldiers, muzzle-loading smoothbore firearms were often not very effective at longer ranges.<sup>13</sup> However, because Aboriginal

people employed these weapons differently and often at close range, they could use these weapons to their fullest potential, which meant that even small numbers of firearms could confer a decisive advantage in battle.

In contrast to the Plains, Subarctic peoples placed less emphasis on individual “war honors” as a means of determining social standing. Warfare in the Subarctic seems to have been motivated primarily by desire for revenge and access to resources and trade. While warfare was less frequent, available data suggest that it was also more aggressive than in the Plains. In combat, Subarctic Aboriginal people employed firearms in ways similar to those of the Plains peoples, using ambush tactics and sudden fire at close range. However, because they primarily hunted different kinds of animals, such as caribou, moose, and water birds, Subarctic people embraced firearms technology more thoroughly for hunting than did the peoples of the Northern Plains.

Despite outside pressures for cultural and economic assimilation, hunting continued to be an important means of procuring food for many Aboriginal communities in the Subarctic until the present, largely because other economic options were few, and because much of their environment was still intact and had not yet undergone massive transformations comparable to those of the Plains area. In contrast, hunting as an economic mainstay lost its importance to the Aboriginal people of the Northern Plains. The extermination of the bison

herds and the environmental, cultural, and economic changes forced on the Plains people made it impossible for hunting to continue to be a major contributing factor to their livelihood.

As long as hunting was still feasible for the Aboriginal people of the Northern Plains, bows and arrows were used well into the last quarter of the nineteenth century as the major big game hunting weapon. The retention of archery was based on several factors. Archery had been deeply ingrained, not only in the hunting and military complex but also in socioreligious aspects of Plains Indian cultures well before horses and firearms became available to Plains peoples. When they finally utilized horses as riding animals in large numbers, most Northern Plains peoples learned to combine the use of horses with archery before they gained continuous access to firearms on a large scale. Furthermore, the specific conditions of mounted bison hunting favored the retention of archery over muzzle-loading firearms because bows and arrows were more efficient and convenient to use on horseback. Only after breech-loading and repeating rifles and revolvers became available in sufficient quantities did they gradually replace the bow and arrow in the Plains. If firearms had not become so widely used in the Plains, Aboriginal rawhide armor for people and horses, and the accompanying methods of combat, might have remained in place. Without firearms, Plains peoples might have developed different combat

methods for mounted warfare, and consistent access to horses might have been the most decisive factor in military relations from the early eighteenth century to the beginning of large-scale non-Aboriginal settlement in the Northern Plains in the late nineteenth century.

The early trade between non-Aboriginal newcomers and Aboriginal peoples in the Northern Plains was sporadic. Often it was characterized by intense rivalries and competition between traders of different companies and nationalities. While Aboriginal people did use these tensions to their advantage, they also competed for middleman positions in trade and for military dominance over other groups. These continuous upheavals made trading risky, and their giving up of traditional weapons for firearms would have made them entirely reliant on the traders for items essential for defense. Thus, traditional weapons were retained, at least until every Aboriginal group in the Northern Plains had access to permanent trading posts where they could purchase firearms and bring them for repair.

In contrast to the situation in the Northern Plains, trading in the Central Subarctic was much more stable, at least since the early eighteenth century when the Hudson's Bay Company began to operate permanent trading posts on the west coast of Hudson Bay and James Bay. There, local Aboriginal people increasingly began to be employed as hunters, guides, messengers, and

manufacturers of necessary items such as winter clothing and snowshoes.<sup>14</sup> Furthermore, Indigenous warfare, sometimes involving violence against the traders, may not have been as frequent in the Subarctic as in the Northern Plains.<sup>15</sup> Thus firearms were more readily available to Aboriginal people in the Central Subarctic on a more continuous basis, at a much earlier time, than they were to Aboriginal people in the Plains. The shift from traditional weapons to firearms, however, was not sudden but gradual. Sales of firearms to the Swampy Cree by the Hudson's Bay Company were infrequent at first, but by the early 1700s they had become a standard trade item, although sales remained low in the beginning. Only an average of twenty-six muskets per year were sold to the Swampy Cree from 1700 to 1704.<sup>16</sup> It took more than another century before firearms became the main hunting weapon of these Aboriginal people.

Hunting methods also influenced the retention or loss of Aboriginal technology and the adoption of European weapons. While Plains hunters did pursue individual animals in small groups, communal hunting

of bison herds was the most important hunting activity for securing the major annual portion of food. In the Subarctic, in contrast, although waterfowl and caribou were taken in large numbers at certain times of the year, hunting became more focused on fur trapping and the

pursuit of individual animals, especially after the devastating smallpox epidemic of 1782–83.<sup>17</sup> The fur trade in the Subarctic enhanced this tendency, since traders were mainly interested in obtaining high-quality beaver pelts and the furs of other small mammals, which were mostly trapped or hunted individually. In contrast, the fur trade in the Plains was until the mid-nineteenth century mainly a provisioning business. Through it, traders sought to procure bison products as portable and preservable food sources for their more northerly fur-trading operations in areas where food procurement on a large scale was impossible or at least uncertain for most of the year.

While Aboriginal people in the Plains lived in relatively large groups most of the time, Subarctic people lived in rather small groups throughout most of the year. These differences help explain why Subarctic people adopted firearms as the major weapon for big game hunting, while Plains people favored the retention of archery. Archery held a central position in the cultures of most Plains groups. Bows, arrows, and quivers of high quality, and mastery of their use, were considered symbols of masculinity among peoples of the Great Plains. In contrast, Aboriginal peoples in the Subarctic faced a wide variety of hunting situations and game animals, which made it necessary to utilize a wide variety of hunting tools. These ranged from traps, snares, deadfalls, and nets to bolas, slings, lances, spears, bows and

arrows, and finally, firearms. Firearms, more so than any of the other weapons, were credited with the kind of special social status or symbolic connotations that were attached to archery gear by Aboriginal people of the Plains. Aboriginal people in the Subarctic used whatever means were necessary in order to make a living. To them bows and arrows were simply one hunting tool among many that could be used under certain favorable circumstances. A wide variety of hunting situations required a diversity of hunting tools and weapons. For example, Samuel Hearne, traveling with a group of Chipewyan under the leadership of Matonabee, observed their confrontation with another Déné group, referred to as “Copper Indians”:

They [the Chipewyan] not only took many of their young women, furs, and ready-dressed skins for clothing, but also several of their bows and arrows, which were the only implements they had to procure food and raiment, for the future support of themselves, their wives, and families. It may probably be thought, that as these weapons are of so simple a form, and so easily constructed, they might soon be replaced, without any other trouble or expense than a little labour; but this supposition can only hold good in places where proper materials are easily procured, which was not the case here: if it had, they would not have been an object of plunder. In the midst of a forest of trees, the wood that would make a

Northern Indian bow and a few arrows, or indeed a bow and arrows ready made, are not of much value; no more than the man's trouble that makes them; but carry that bow and arrows several hundred miles from any woods and place where those are the only weapons in use, their intrinsic value will be found to increase, in the same proportion as the materials which are made less attainable.<sup>18</sup>

If Central Subarctic peoples such as the Swampy Cree considered bows and arrows expendable and easily replaceable (as long as proper raw materials were available), they may already have had a predisposition to adopt firearms for big game hunting. Firearms were one more useful addition to their arsenal, augmenting existing Aboriginal hunting methods and weapons. They were most useful in hunting situations where distance weapons had not been used much before, as in hunting bears or in the pursuit of caribou by individual hunters, as opposed to the large-scale communal caribou drives mentioned in chapter 2.

In the Plains, hunting situations and techniques may have been similarly diverse before the adoption of the horse. With the emergence of mounted bison hunting as the most prominent form of hunting in the Plains, however, other hunting methods declined, as did the importance of other game animals, leading to less variety in hunting tools and weapons.

While traveling across the Northern Plains in 1754, Anthony Henday noted about his Cree and Assiniboiné guides: “We saw a few Moose & Waskesew [red deer or elk]; but as the natives seldom kill them with the Bow & Arrows they will not expend ammunition, while Buffalo are so numerous.”<sup>19</sup> This indicates that Henday’s hosts preferred firearms to hunt deer, moose, or similar animals, while the bow and arrow remained their preferred weapon for bison hunting. Perhaps the preservation of ammunition for defense was an important rationale for this practice.

If bows and arrows had been of major importance in big game hunting in the Subarctic, they were replaced as a big game hunting weapon by firearms sooner and more completely in the Subarctic than in the Plains. In the Subarctic, according to Louis Bird, bows and arrows were considered expendable and would sometimes be left behind when camp was moved. Bows and arrows were thought to be awkward to carry through the bush, and people were already carrying heavy burdens of other equipment considered more essential for survival. After arriving at the new location the hunters would make themselves new bows.<sup>20</sup> Adrian Tanner, who conducted fieldwork among Mistassini Cree people in the 1960s, noted:

Some of these activities [maintenance and repairs of locally produced equipment such as snowshoes and toboggans] are performed

during the summer, but the critical importance of many of the items that the Cree manufacture themselves is not that it saves them money, or that no commercial equivalent is available, but that it can be manufactured quickly, on the spot, when it is needed. This attitude is necessary, not only because hunting groups remain out of touch with commercial outlets for most of the year, but in case of the heavier items [or bulkier items such as a long bow difficult to move through underbrush?] it means that they need not be transported everywhere the group moves. It is more efficient to manufacture them on the spot out of materials acquired as part of the hunting and trapping activities. Such items may then be cached at a campsite when it is abandoned, and recovered later, possibly years later, when the group is again in the area.<sup>21</sup>

As this information was obtained from contemporary Cree hunters, it is difficult to assess to what extent these views were prevalent during the fur trade period. However, the relatively coarse and direct manufacturing techniques of many Subarctic Cree objects such as stone arrowheads and other lithic and wooden tools, from precontact times through the fur trade era, indicate that a certain expediency was practiced in Subarctic Cree material culture even then. For example, Subarctic stone arrowheads and other lithic tools were often made just well enough to

perform their tasks but were far less refined than lithic tools from other regions of North America.

Perhaps self bows, expediently manufactured on the spot when required, were sufficient to hunt with in the Subarctic boreal forest. For example, northern Athapaskan peoples often seem to have preferred simple self bows over more complex sinew-backed bows.<sup>22</sup> Hunting with the bow and arrow in northern regions can be tedious and only marginally productive, considering the labor invested in manufacturing a bow and arrows and hunting with them.<sup>23</sup> In the highly diversified subsistence activities of Subarctic hunter-gatherers, too high an investment in such specialized labor could have become counterproductive. For example, Joseph Wilson stated in regard to Subarctic Athapaskan peoples: “The general lack of complex bows in the Northern Athapaskan heartland was not reflective of some original primitiveness on the part of Athapaskan speakers, but was simply a natural outcome of their cultural ecological circumstances.”<sup>24</sup>

Foley Benson elaborated this point further, in regard to the Kutchin, another Athapaskan speaking people in the western Subarctic:

The bow was utilized by the Kutchin as only one of an array of hunting techniques applicable to any game resource. It is possible

that given the other hunting techniques, the bow might have been dispensed with altogether. When the bow was used, it was often a supplemental tool. When it was incorporated as the primary hunting weapon, no demands were made on it for accuracy and trajectory beyond about 30 yards. It appears that there was little need for a high trajectory weapon in the Kutchin economy. In fact, such a tool may have been maladaptive in the long term.<sup>25</sup>

Such concepts would probably have been astonishing to Plains Indian hunters and warriors who considered their archery outfits their most prized possessions; bows and arrows were among the first toys for Plains boys, and finely crafted archery outfits were presented as gifts to visiting foreign dignitaries.<sup>26</sup> Since bows were considered symbols of adult male warrior status, simply leaving them behind probably would have occurred to Plains Indian men only in the most desperate situations. This symbolism might also explain that among Plains people, women were usually discouraged from handling and especially from using archery gear.

Louis Bird mentioned in this regard that similar restrictions existed among the Omushkego-Cree, although with some exceptions. Some men let their wives or daughters touch their bows and arrows to bring them good luck in hunting and preferred their wives to attach the fletchings to

arrows.<sup>27</sup> Public sanctions against women touching and handling archery gear may have been directed to bows and arrows used for combat rather than those used for hunting. With the decline of combat archery in the Subarctic, these prohibitions may eventually have disappeared altogether because at least by the early twentieth century some Subarctic women used bows and arrows to hunt small game.<sup>28</sup> The strong symbolism and prestige attached to archery in the Plains was largely absent in the Subarctic.

Fur traders, travelers, and later, ethnographers frequently commented on the imminent disappearance of the bow and arrow from Central Subarctic cultures and its replacement by firearms. Such comments can be found ranging in time from the mid-eighteenth century through the nineteenth and early twentieth centuries.<sup>29</sup> It is possible that what these observers noted was not so much the gradual disappearance of archery but its survival in a new role in tandem with firearms. Subarctic archery technology and use may have changed considerably under the influence of the adoption of firearms. In a new form and role, the bow and arrow were maintained as a small game weapon well into the twentieth century. Perhaps this transition and survival were possible because the bow and arrow had been only one among many hunting and survival tools that could be of use in Subarctic conditions.

For firearms repairs, spare parts, and ammunition, Aboriginal people ultimately depended on Europeans' supplies, while they could manufacture and repair most archery gear with locally available materials. This was one reason why even some non-Aboriginal people, such as mountain men and non-Aboriginal bison hunters, adopted the short Plains bow and arrows as their preferred weapon for mounted bison hunting, alongside their firearms. For example, when in the winter of 1754 and in the spring of 1755 Anthony Henday's party ran short on ammunition for their firearms, Henday claimed to have killed two moose and a swan with his bow and arrows, possibly the archery set he had received as a gift from his Blackfoot or Gros Ventre host.<sup>30</sup> Furthermore, bows and arrows were more convenient to use on horseback than muzzle-loading firearms.<sup>31</sup> The presence of bows and arrows in the arsenal of Plains warriors, even as recently as the late 1860s indicates that archery was still of importance, for instance for mounted bison hunting, silent shooting, and night fighting, even in the age of repeating firearms.

The arrival of breech-loading firearms, especially repeaters and revolvers, overcame most advantages of the bow and arrow in the Plains. The new weapons offered greater penetrative force, high rates of fire, and convenience on horseback. Among the Blackfoot, firearms gained overwhelming importance as the main military weapon after the 1860s. Accounts of personal war

exploits and winter counts for that time frequently mentioned the use of firearms and fortifications such as rifle pits in armed conflicts, while at the same time making little or no mention of archery in military contexts.

Furthermore, the system of military honors extended to individual Blackfoot warriors seems to have accommodated firearms. Capturing an enemy's gun was one of the highest military honors, a fact reflected in Blackfoot personal names such as "One Gun," "Many Guns," or "Night Gun." Such names seem to have become more frequent among the Blackfoot during the second half of the nineteenth century than personal names containing terms for archery gear.

However, Aboriginal archery lingered on a smaller scale in the Plains and Subarctic, even after the decline of the fur trade, extermination of the bison herds, and establishment of reserves. Residential schools on the Blood and Blackfoot reserves listed archery as a recreational activity for the students.<sup>32</sup> In some locations, for instance at Moose Factory on James Bay, students were allowed to hunt small game near the school using bows and arrows made by their male relatives or by themselves at the school: "The [Swampy Cree] boys delight especially to shoot birds with the bows and arrows provided by their fathers, or manufactured by themselves. Every boy has a bow and arrow, and their aim is true, so many a poor little bird is carried home in triumph 'after

the hunt.””<sup>33</sup> Among Plains Cree children at Cowessess Boarding School in southern Saskatchewan, recreation during summer included “shooting with bows and arrows of their own making.”<sup>34</sup> Reports from several other residential schools in Canada indicated that some of their male students practiced archery, or even bow and arrow making and the hunting of small game, as recreational activities.<sup>35</sup> Some of the archery equipment now in museum collections may have been made and used at residential schools.

Apparently the administrators of these institutions did not view archery as detrimental to their “civilizing” efforts. This notion may have been influenced by the growing popularity of the Boy Scout and Girl Guide movements that promoted self-reliance through programs involving woodcraft and wilderness survival skills, loosely patterned on non-Aboriginal perceptions of Aboriginal cultural elements.<sup>36</sup>



**Fig. 57.** Aboriginal youths of the mixed Ojibwa-Cree community at Caribou Lake in northern Ontario during treaty negotiations in 1930. Note the typical twentieth-century Central Subarctic archery equipment: fairly long and narrow bows and arrows with large blunt arrowheads. Department of Indian Affairs and Northern Development, C-068930. Image courtesy of Library and Archives Canada, MIKAN No. 3366814 (Caribou Lake, Ontario).

During the late nineteenth and early twentieth centuries, nostalgic and romanticizing views of the “frontier” and Aboriginal people grew among the non-Aboriginal public and policy makers in Canada and the United States. Early anthropologists and tourists flocked to reserves in the western Plains or Canadian Shield in what had become “cottage country.” This opened up new opportunities for Aboriginal people as hunting guides and laborers, as performers of “Indian

pageants,” and as manufacturers of tourist souvenirs. For example, Indian agent J. B. McDougall at the Walpole Island Agency reported in September 1904 of local Potawatomi and Chippewa people that “the men make bows, arrows, canes and small canoes, which brings them in a large revenue.”<sup>37</sup> Similarly, a photograph of Plains Indian prisoners at Fort Marion in Florida, taken after 1874, shows them manufacturing arrows. The picture’s caption reads: “Making curiosities,” suggesting that these items were intended for sale as “Indian curios.”<sup>38</sup>

With the fading importance of archery, the level of craftsmanship in bows and arrows declined. Plains Indian arrows collected during the mid- to late nineteenth century still exhibit excellent craftsmanship. They are well balanced, the shafts are often barreled, and the fletchings are long and low cut. In contrast, arrows made more recently, from the 1890s to the mid-twentieth century, often show much cruder workmanship and construction characteristics as are more commonly found on non-Aboriginal sporting arrows, such as short fletchings with a rounded (parabolic) outline. For example, two Blackfoot arrows at the Manitoba Museum, which were made in the 1930s and were once part of an entire archery set obtained from the Siksika Reserve as a “buffalo hunting outfit,” hardly resemble older Plains arrows at all.<sup>39</sup> Apparently the maker was not familiar with bows and arrows that had

actually been used in mounted bison hunting but may have tried to manufacture something that looked “traditional.”

Bows, arrows, and quivers that had once been used in hunting and combat lost their importance for these purposes after the establishment of reserves in the late nineteenth century. Many items, once highly valued as tools of survival, symbols of masculinity, or even items of spiritual significance eventually became “Indian curios” as well. The Blackfoot cowhide quiver and bow case combination mentioned in chapter 7, donated by Hugh Berry to the Glenbow Museum, was patterned after similar but older artefacts made from otter skins, which held great spiritual meaning to Blackfoot people. In comparison, the cowhide of this artefact may have been less spiritually significant, but the quiver nonetheless followed older designs in its shape, beadwork decoration, and mode of construction. Whatever its original purpose may have been, it was apparently used in a pageant where Aboriginal people reenacted aspects of their past for the entertainment of visiting European dignitaries. Afterward it may have been presented as a gift to the visitors, and eventually became the toy of a non-Aboriginal child before reaching the Glenbow Museum.

Bows and arrows came to be seen by Europeans as primitive, a symbol of Aboriginal peoples’ defeat by Europeans and their technology,

especially in the Great Plains. Even before the height of the “Indian Wars” of the 1860s and 1870s, non-Aboriginal people unacquainted with Indigenous technology held negative views of Aboriginal archery. For example, the missionary, writer, and lecturer George Copway (1818–1869) from Trenton, Ontario, who was of Mississauga Ojibwa descent, observed during his travels among non-Aboriginal people in the 1840s and 1850s:

During my travels in the east, I have met with individuals whom I found it difficult to convince that the Indian’s arrow could execute so much, and doubted me when I told them that with it they killed deer, bears and such like.

Several years ago, in the state of New York, an elderly gentleman, a farmer, and myself were entertained by a kind family to tea. The gentleman monopolized all the time for conversation with questions about the Indian mode of life. I answered them as well as I could. . . . He seemed satisfied with all my answers except those in relation to killing deer with bow and arrow. He doubted. He could not bring his mind to believe such a thing possible. . . . I held my tongue, half mad; and made the proposition that the next day I would make a bow and a couple of arrows, and as I understood he was a farmer, I should get him to furnish a yearling calf, and if in shooting I did not hit it, I would pay him the price of the calf

if he desired it; but if, on the contrary, I should hit it, and kill it, then it should be mine! While our friends at the table could not wait till the morrow to know the result, my friend, the doubting gentleman, coolly declined, saying he [believed] we could kill deer at sixty paces if we hit it at all. I and my friends endeavoured to provoke him to accept my proposition, but failed to accomplish our purpose, his avarice overcoming his unbounded curiosity!<sup>40</sup>

Negative views of Indigenous technology were then instilled into Aboriginal people, and non-Aboriginal scholars fostered them with their emphasis on an alleged superiority of European technology, which was said to have been crucial in determining the course of Aboriginal peoples' history after contact. For example, in 1913 a ground

breaking ceremony was held in New York Harbor for a planned but never completed memorial to the American Indian. A bronze statue of a Native man was to top the memorial. To symbolize the military subjugation of Native peoples by whites, the subjugated figure was to hold a bow in his lowered left hand.<sup>41</sup>

To some extent, such views have persisted in popular perception into the present. As late as 1993, the late Jay Massey, a bow maker and outfitter operating in Alaska, observed:

Not long ago I visited a photo lab in Anchorage, Alaska to pick up some colour

prints of my archery hunting clients. One of the photos showed a great bull moose one of my hunters had killed with a recurved bow. The moose had an antler spread of 67-inches and had weighed approximately 1600 pounds on the hoof. One wood arrow tipped with a sharp broadhead had killed the moose within seconds; the bull had run but 35 yards after being hit.

A young man who worked at the photo lab said that he was an archer. He expressed amazement when he saw the photo. "I didn't know you could kill a moose with a recurve bow!" he exclaimed with genuine surprise.<sup>42</sup>

However, as this study has demonstrated, these traditional weapons and tools were well adapted to meet Aboriginal peoples' needs in providing sustenance as hunting tools and protection as combat weapons. At least in the Plains, they had also acquired spiritual importance and social connotations. Considering the restrictions that the limited availability of raw materials and the often severe climate conditions placed on options for the manufacture of weapons and tools, Aboriginal people were still able to get the best performance possible from their weapons through various ingenious construction methods and weapons designs.

When European tools and weapons became available, Aboriginal people integrated them into their material culture and adapted them to fit their

needs. These processes were not uniform throughout North America. Different environments, subsistence activities, social organization, and economic pressures demanded different adaptive strategies and shaped Aboriginal peoples' responses to European technologies. However, in both the Northern Plains and Central Subarctic, Aboriginal people saw the advantages as well as the disadvantages that the new technologies from Europe offered. They tried to achieve a functional balance by employing edged metal weapons and firearms together with Indigenous technology, so that these could complement one another. By using firearms differently from Europeans—in ways suited to their own diverse needs—they achieved the best results possible with the equipment available.



## Appendix

### Extended Image Credits

Fig. 1: Photograph courtesy of the National Archives, Records of the Office of the Secretary of the Interior (RG 48), Central Classified File 5–6, General, Competent Indians (Entry 749), contained in the Records of the Office of the Secretary of the Interior (Record Group 48), Box 1432, Archives 2, Stack 150, Row 10, Compartment 15, Shelf 6. This image has been previously published in Francis Paul Prucha, *The Great Father: The United States Government and the American Indians*, vol. 2 (Lincoln: University of Nebraska Press, 1984), plate 57, facing page 687.

Fig. 3: From Raymond J. DeMallie, introduction to *Handbook of North American Indians*, vol. 13, pt. 1: *Plains*, ed. Raymond J. DeMallie (Washington DC: Smithsonian Institution, 2001), 7.

Fig. 8: Clarence H. Colby of Spokane, Washington, had ties to Rapid City, South Dakota, and the Black Hills through his housekeeper, Mrs. Martin (Agnes P.) Detwiler, who had relatives there. Mrs. Detwiler died in a flood in South Dakota while in her fifties, while Colby, a retired druggist, was in his late seventies. Detwiler was said to have pushed Colby out of the van in which they were trapped by the flood, but then

succumbed to the waters after leaving the van. Colby's father had started collecting Sioux items in South Dakota in 1887.

Fig. 11: Another image of this archery set has been previously published in Colin F. Taylor, *Buckskin and Buffalo: The Artistry of the Plains Indians* (London: Salamander Books, 1998), 124. See also Klann, *Die Sammlung indianischer Ethnographica aus Nordamerika des Herzog Friedrich Paul Wilhelm von Württemberg* (Wyk auf Föhr: Verlag für Amerikanistik, 1999), no. 121, 53.

Fig. 12: This illustration has been previously published in Clark Wissler, *Material Culture of the Blackfoot Indians* (New York: AMS Press, 1975), reprint of "Material Culture of the Blackfoot Indians," *Anthropological Papers of the American Museum of Natural History* 5 (1910): 155–58. The Blackfoot sinew-backed wooden bow in the Wissler image has considerable reflex and a pronounced setback in the grip area. It has only little deflex bend in the limbs, which taper evenly toward the tips. The handle is the widest point; there is no pronounced asymmetry.

Similar bows with the same construction features: (1) Siksika Museum, Old Sun Boarding School, Gleichen, Alberta, cat. no. 232, Lakota bow from the Buechel Collection at St. Francis Mission, South Dakota (Kay Koppedrayar, "Cultural Signatures," Image 8); Father Buechel's records

indicate that he obtained the bow in April 1915 while he was working at the Holy Rosary Mission on the Pine Ridge Reservation. It came from Old Man Hušte, who in turn obtained it from his father-in-law, Red Hawk, who was born around 1829. (2) Pitt Rivers Museum, Oxford, 1886.21.5, Charles A. Pope Collection, before 1865, “Dakota.” (3, 4, 5) Three bows at the Museum of Ethnology in Berlin, Germany: cat. no. 12621 IVB, Konrad Preuss Collection, before 1910–1920, “Sioux”; cat. no. 8475 IVB, Emil Wilhelm Lenders, before 1911, “Kiowa”; cat. no. 352d, archery set, Colorado Ute, H. Lueders, before 1873. (6) The Denver Public Library holds a late nineteenth-century studio photograph (coll. no. X-30717) of a Ute man, shown drawing such a bow backwards unstrung. The bow in this photograph, which may have been taken between 1888 and 1890, is very similar to the bow in Wissler’s drawing. See <http://digital.denverlibrary.org> (accessed November 14, 2012).

Fig. 13: For more images of this bow, see Carolyn Gilman and Mary Jane Schneider, *The Way to Independence: Memories of a Hidatsa Indian Family, 1840–1920* (St. Paul: Minnesota Historical Society Press, 1987), 76.

Fig. 15: From Otis Tufton Mason, *North American Bows, Arrows, and Quivers* [Mattituck NY: Amereon House, 1995]; reprint, *Smithsonian Institution Report*, 1893, plate 62, fig. 2.

Fig. 16: From Saxton T. Pope, *Bows and Arrows* (1923; reprint, Berkeley: University of California Press, 1974), plate 3, fig. 12.

Fig. 18: For a similar but longer (166 cm) bow, collected from Eastern Cree at La Sarre, Quebec, now at the Canadian Museum of Civilization (cat. no. III-D-55a), see <http://collections.civilization.ca>. The image can be found by entering the catalog number into the search field.

Fig. 20: See Steve Allely and Jim Hamm, *Encyclopedia of Native American Bows, Arrows, and Quivers*, vol. 1: *Northeast, Southeast and Midwest* (New York: Lyons Press, 1999), 34.

Fig. 22: See James Isham, *James Isham's Observations on Hudsons Bay, 1743 and Notes and Observations on a Book Entitled a Voyage to Hudsons Bay in the Dobbs Galley, 1749*, ed. E. E. Rich (London: Hudson's Bay Record Society, 1949), 118. David Thompson also mentioned in regard to Subarctic Cree: "Of the birch their Bows, Axe helves and Spear handles are made." Richard Glover, ed., *David Thompson's Narrative, 1784-1812* (Toronto: Champlain Society, 1962), 96.

Fig. 23: See also Samuel Hearne, *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, & 1772* (London: Printed for A. Strahan and T. Cadell, 1795), 310, 311; <http://www.canadiana.org/en/home>. A larger reproduction of this drawing can be found in Samuel Hearne, *A Journey from Prince of Wales's Fort in Hudson's Bay to the Northern Ocean* (New York: Da Capo Press, 1968), plate 5.

Fig. 24: From Otis Tufton Mason, *North American Bows, Arrows, and Quivers* (Mattituck NY: Amerion House, 1995), plate 71 (originally published 1893 as a Smithsonian Report).

Fig. 25: From Steve Allely and Jim Hamm, *Encyclopedia of Native American Bows, Arrows and Quivers*, vol. 1: *Northeast, Southeast and Midwest* (New York: Lyons Press, 1999), 36–39.

Fig. 26: From Otis Tufton Mason, *North American Bows, Arrows, and Quivers* (Mattituck NY: Amereon House, 1995), plate 47, figs. 2, 3, 5 (originally published 1893 as a Smithsonian Report).

Fig. 30: For more images of these projectile points, see Susan Berry and Jack Brink, *Aboriginal Cultures in Alberta: Five Hundred Generations* (Edmonton: Provincial Museum of Alberta, 2004), 27.

Fig. 31: Measurements of small iron projectile point from Elk Point: 28.5 mm maximum length, 18.0 mm maximum width at shoulder, 7.0 mm stem length, 7.0 mm stem width, 2.0 mm thickness of body, 3.3 mm thickness of stem. This

image has been previously published in Stuart J. Baldwin, *The Elk Point Burial "At the Place of the Willows," Alberta* (Occasional Paper No. 11, Archaeological Survey of Alberta, January 1979), 34, 35 (illustration), 68, 69. This projectile point is almost identical to the triangular stemmed points from Fort George. See Robert S. Kidd, *Fort George and the Early Fur Trade in Alberta* (Provincial Museum and Archives Publication No. 2, Edmonton, 1970), 77.

Fig. 32: See also Terry P. Tottle, *The History and Archaeology of Pine Fort* (Manitoba Archaeological Society, Preliminary Report No. 7, 1981), 31, 94.

Fig. 34: This image has been previously published in W. J. Byrne, *Archaeology in Alberta, 1977* (Occasional Paper No. 5, Archaeological Survey of Alberta, 1978), 115–17, 121 (fig. 64).

Fig. 35: This image has been previously published in Robert S. Kidd, *Fort George and the Early Fur Trade in Alberta* (Provincial Museum and Archives Publication No. 2, Edmonton, 1970), 84, fig. 61.

Fig. 39: See also Steve Allely and Jim Hamm, *Encyclopedia of Native American Bows, Arrows, and Quivers*, vol. 1: *Northeast, Southeast, and Midwest* (New York: Lyons Press, 1999), 44.

Fig. 43: This photograph has been previously published in William J. Mayer-Oakes, *Archaeological Investigations in the Grand*

*Rapids, Manitoba, Reservoir, 1961–1962* (Winnipeg: University of Manitoba Press, 1970), 257, 275.

Fig. 50: This image has been previously published in J. C. H. King, *First Peoples, First Contacts: Native People of North America* (Cambridge MA: Harvard University Press, 1999), 217. See also James W. Van Stone, *Material Culture of the Davis Inlet and Barren Ground Naskapi: The William Duncan Strong Collection* (Chicago: Field Museum of Natural History, 1985), vii, 5–14, 41, 49, 65, 66 (photo of Joe Rich, NCG no. 62084, Field Museum, Chicago), 67–69.

Fig. 51: This drawing has been previously published in James D. Keyser, “Rockart of the Ashland Ranger District, Custer National Forest,” *Archaeology in Montana* 46, no. 2 (2005): 1–52, 40.

Fig. 52: These images have been previously published in James D. Keyser, “A Lexicon for Historic Plains Indian Rock Art,” *Plains Anthropologist* 32 (1987): 43–72, 46, 47.

Fig. 53: This image has been previously published in James F. Brooks, *Captives and Cousins: Slavery, Kinship and Community in the Southwest Borderlands* (Chapel Hill: University of North Carolina Press, 2002), 121, 122. For high-resolution digital versions of the Segesser paintings, see New Mexico History Museum,

Santa Fe, <http://www.nmhistorymuseum.org/hides/>.

Fig. 54: Donor of Quapaw cape: Bibliothèque Municipale de Versailles. Previous collection: Mr de Sérent. Current collection: Musée de l'Homme (Amérique) © 2012. Musée du Quai Branly photograph by Patrick Gries/Scala, Florence. For more images of this robe, see Christian Feest, "First Nations—Royal Collections," *American Indian Art Magazine* 32, no. 2 (Spring 2007): 44–55, 45.

Fig. 56: "Anonymous Arikara drawing of battle between two lines of warriors, ca. 1875," National Anthropological Archives (NAA INV 08510630; NAA MS 154064B), National Anthropological Archives, Smithsonian Institution.



## Glossary of Archery Terms

*arm guard* or *wrist guard*. A device usually worn on the inside of the lower arm that holds the bow, or on the wrist on the inside of the bow arm, which protects the arm from the blow of the rebounding bowstring. Especially low-strung bows, like those of Aboriginal people of the Great Plains, tend to have a strong rebounding impact, close to the wrist or even the hand.

*arrow hand*. The hand that leads the arrow during the discharge. For right-handed people this is usually the right hand.

*arrowhead*. That part of the arrow that is intended to cause a wound or damage, or to have some other effect on the target. The arrowhead is mounted at the front end of an arrow.

*arrow nock*. The rear part of an arrow that is supported by the archer's hand during discharge and that contains the notch for the bowstring.

*arrow notch*. A cavity in the arrow nock to accept the bowstring.

*back*. The side of the bow that faces the target during the discharge of the arrow. The side that is facing the archer is called the *belly*.

*barreled arrow shaft*. A barreled arrow shaft has its greatest diameter at about the center and tapers to smaller diameters at the front and rear ends. Placing the largest diameter at the center makes

the arrow stiffer and less elastic. If the arrow's stiffness is properly matched to the bow it is used with, barreling gives the arrow a more stable flight and makes it stabilize earlier after its release from the bow.

*belly.* The side of the bow that faces the archer during discharge of the arrow. A bow flexes toward the belly when an arrow is discharged. The side of the bow that faces the target during the shot is called the *back*. In medieval English archery the bow was likened to a human body, which can normally flex much farther toward the belly than toward the back.

Overbending toward the back might break the human spinal column just as it might break the back of a bow.

*bow arm* or *bow hand.* The arm and hand that hold the bow during discharge of an arrow. For right-handed people, usually the left arm and left hand; for left-handed archers it is reversed.

*bow case.* An oblong container made from leather, hide, fur, or textile to protect and transport the bow. Mostly used in combination with shorter bows.

*bow limbs.* The areas above and below the handle or grip section of a bow. The limbs of the bow store kinetic energy while being bent during the draw. It is this energy that is released in the discharge of an arrow and that propels the projectile.

*bow nocks.* Devices at the ends, or *tips*, of a bow to secure the bowstring. For example, nocks may consist of notches cut into the bow, or of ridges built up around the tips of a bow, to prevent the bowstring from slipping off.

*bow stave.* A roughed-out piece of material, ready to be made into a bow. For a wooden bow this could be a piece of wood with the bark taken off and with the rough dimensions of the bow already shaped.

*bow tips.* The outermost ends of the limbs of a bow, where the bowstring is attached.

*bowstring.* A cord to string the bow with, in order to bring the bow under tension, so that an arrow can be placed on the bowstring, the string pulled back, and the arrow discharged. Bowstrings were made from various plant or animal fibers.

*bowyer.* A person who manufactures bows.

*brace height.* The distance from the back of the bow to the bowstring when the bow is strung but not drawn.

*cast.* The maximum distance that a bow can propel an arrow.

*cock feather.* See *fletching*.

*composite bow.* A bow made from more than one material, for instance, horn, wood, sinew, and glue. This term is mostly used in reference to

Asiatic bows with a sinew backing, a wooden core, and a horn belly.

*compressive stress.* The physical force the inside, or belly, of a bow undergoes when the strung bow is drawn. During this process, the material that constitutes the belly is compressed.

*deflex:* A bend of the bow toward the belly when the bow is unstrung. The opposite of *reflex*.

*draw.* The process of charging the limbs of a bow with energy by pulling back the bowstring while the bow is strung. This energy is necessary to propel the arrow. Non-Aboriginal archers and eastern North American Aboriginal people usually drew back the bowstring with the arrow hand, while they held the bow arm outstretched. Plains Indians pulled back the bowstring with the arrow hand while at the same time pushing out the bow with the bow hand. When the maximum draw length was reached, the arrow was released. Notes to pages 17–20

*draw length.* Length measured from the back of the bow to the lowest point of the bowstring notch in the nock of the arrow at the moment the bow reaches its full draw weight, immediately before the arrow is released.

*draw weight.* The force that needs to be overcome in drawing a bow to its full draw length. In order to be able to compare different bows with one another, it is important to know to which draw length the draw weight of a given bow refers.

*fletching*. Devices mounted on the rear portion of an arrow to ensure a straight and even flight. Bird feathers are most commonly used to make fletchings, but leaves, wood, or leather are also used. Tangential and radial fletchings are the two most common types. Tangential fletchings consist of two or more unsplit feathers lashed to the shaft of an arrow with their quills parallel to the shaft. Tangential fletchings with two whole feathers were common in the Arctic and Northwest Coast. Radial fletchings consist of two or more split feathers lashed and/or glued parallel to the arrow shaft, equidistant from each other. Radial fletchings were common throughout North America. A common variant of the radial fletching is the *cock feather* arrangement. In this variation, one of the three split feathers is aligned at right angles to the notch for the bowstring (seen from the rear); the other two are placed equidistant from the first one. This arrangement of the feathers is believed to provide less resistance when the arrow passes the handle of the bow in discharge, but only if the arrow is placed on the string with the cock feather pointing away from the bow. If the cock feather faces the bow, it will scrape along the handle of the bow in discharge, which can make the arrow's flight slower and less stable.

*handle* or *grip section*. The area of the bow where the weapon is held by the bow hand during the discharge of the arrow.

*quiver.* Container for the transport and protection of arrows. Some Aboriginal people carried their bows in their quivers, along with their arrows.

*radial fletching.* See *fletching*.

*reflex.* A bend of the bow toward the back when the bow is unstrung. The opposite of *deflex*.

*release.* The release of the drawn bowstring and the arrow. There are several arrow releases, differentiated by variations in the positioning of the hand and fingers. The most common are the Mediterranean, the pinch-grip, and the Mongolian release. With the Mediterranean release the first two or three fingers pull back the bowstring, which runs past these fingers' first joints. One or two of the fingers guide the nock of the arrow just lightly, but they do not exert pressure or pull on the arrow. In the pinch grip, the thumb and the first finger hold the nock of the arrow, while some or all of the remaining fingers may be placed on the bowstring to assist in pulling it back. With the Mongolian release the thumb exerts the major pull on the bowstring, while the nock of the arrow rests lightly between the thumb and the first finger. The first joint of the first finger is lapped over the first joint of the thumb to lock it in place while the string is pulled back. In order to protect the thumb from the friction of the string, a thumb ring or other protective device can be used. With the Mongolian release the arrow is usually placed on the right side of the bow, while in almost all other releases the arrow is usually placed on the

left side of the bow. Aboriginal archers in the Northwest Coast and California practiced variations of the Mongolian arrow release. Archers in the Great Plains usually used a pinch grip while Algonquian Subarctic archers used variations of the Mediterranean release.

*self bow.* A bow made from a single piece of wood without any other material.

*sinew backing.* Fibers from animal tendons applied to the back of a bow to protect the bow from breakage and to enhance its power. Sinew backings can be made from dried and shredded sinew, glued to the back of the bow with hide or fish glue, or from braided sinew fibers applied as cordage, as in many Inuit bows. Sinew backing was an important feature of Plains and Inuit bows.

*spine.* Elasticity of the arrow shaft. A longer arrow shaft is usually more flexible than a shorter one of the same diameter, while an arrow shaft with a small diameter is typically more flexible than an arrow shaft with a large diameter of the same length. In most Aboriginal bows the arrow has to flex around the handle of the bow when it is discharged. Thus, too much flexibility of the arrow shaft may make the arrow fly far to the right, or even break it, while an arrow with too little elasticity is likely to fly left of the target. Therefore the elasticity of arrow shafts needs to be matched as closely as possible to the draw weight of the bow from which they are shot. Notes to pages 25–31

*string follow.* The tendency of a bow to retain a bend toward the belly when unstrung. String follow is detrimental to the cast and power of a bow. In order to achieve ideal cast, a bow should be straight, or even bend toward the back when unstrung, to be able to store more energy. However, since string follow also reduces the stress placed on a bow during the draw, it can be desirable in moderate amounts under certain circumstances, for instance, when using wood with less than ideal tension and compression strength.

*stringing and bracing.* Preparing a bow to shoot by bringing the bowstring into position for use. The first application of a bowstring is often called *bracing*. The opposite of *stringing* is *unstringing*, the loosening of the bowstring from one end of the bow. When the bowstring is loosened, the bow is no longer under tension and cannot be shot. Most types of bows need to be unstrung when not in use in order to preserve their elasticity.

*tangential fletching.* See *fletching*.

*tensile stress.* The physical force the outside, or back, of a bow undergoes when the strung bow is drawn. During this process, the material that constitutes the back of the bow is stretched.

*tillering.* The process of achieving the correct bend of a bow by removing material mostly on the belly side, thus reducing its thickness or width. Tillering is a slow process of repeated material

removal and testing of the bend and the draw weight of the bow. It is probably the most important step in bow manufacture. Notes to pages 31–35



## Notes

### 1. Bows, Guns, and Diverging Views

1. Bordewich, *Killing the White Man's Indian*, 122–23. See also Prucha, *The Great Father*, 2:881, 882.

2. Morgan, *Ancient Society or Researches in the Lines of Human Progress*, 10–11. For a discussion on the influence of Morgan's ideas in shaping perceptions of Native people by non-Aboriginals, see Pettipas, "Other Peoples' Heritage," 17; and Keesing, *Cultural Anthropology*, 141.

3. A postcard of a photograph taken by Frederick Steele on June 17, 1889, at Moosomin, Saskatchewan, titled "Indian Powwow," shows two Aboriginal men in front of two tipis. One of the men is brandishing a revolver, the other is drawing a Plains bow and arrow. In light of the conflicts between Canadian troops and Plains Cree in Saskatchewan in 1885, in what came to be known as the "Northwest Rebellion," the image and its title associate Aboriginal people with a propensity for violence, symbolized by the weapons the two men were holding. J. Baldwin, *Bows, Arrows and Quivers of the American Frontier*, 28. In contrast, the U.S. military on occasion accorded a more positive symbolic value to Plains bows and arrows. For example, several Indian scout units of the U.S. Cavalry in the 1890s used bows and arrows as insignia in their flags

and guidons as expressions of “Indianness” reflecting a warrior imagery. Martin, “United States Army Indian Scouts and Cavalry Troopers Guidons,” 1–7, [http://www.americanvexillum.com/indian\\_scouts\\_guidons/indian\\_scouts\\_guidons.htm](http://www.americanvexillum.com/indian_scouts_guidons/indian_scouts_guidons.htm) (accessed July 2005).

4. Burpee, *Journal of Anthony Henday*, October 15, 1754, 32. Inuit from Hall Island in Frobisher Bay in the Central Arctic gave archery outfits in exchange for pins, needles, and other small European manufactures to two emissaries from Martin Frobisher’s crew on July 19, 1577, during Frobisher’s second voyage to the Arctic. Fossett, *In Order to Live Untroubled*, 35, 36. The German traveler Paul Wilhelm von Württemberg received several archery sets as gifts from Native peoples in the Lower Missouri region in 1822–24; Württemberg, *Travels in North America*, 282 (from the Kansa leader Wa-kan-ze-re), 342 (from the Omaha leader Ua-bac-tié).

5. Glover, ed., *David Thompson’s Narrative*, 231.

6. Meijer Drees, ““Indians’ Bygone Past,”” 12.

7. Kutenai people of northwestern Montana, for example, considered their ancestors’ skills as archers to have been of major importance in their resistance against the Blackfoot, who by the late eighteenth and during the nineteenth century were able to bring European firearms to bear against them. Turney-High, *Ethnography of the Kutenai*,

81. However, Blackfoot people equipped with firearms did eventually drive the Kutenai and other western groups off the Plains and into the Rocky Mountains. The sentiment may express a necessity for superior archery skills in the absence of firearms and may pertain more to ideas about ideals in regard to overcoming adversity in the face of seemingly insurmountable odds. If it was anything more than nostalgia on the part of Turney-High's Kutenai coworkers, perhaps the statement was meant to indicate the importance of archery in preventing the complete annihilation of the Kutenai by their opponents, even though these were equipped with firearms.

Reginald Laubin referred to late nineteenth-century mounted bison-hunting exploits related to him by the Lakota White Bull, who had used a bow and arrows from horseback on these occasions. Laubin and Laubin, *American Indian Archery*, 142, 143. See also Ewers, *The Blackfeet*, 122; Ewers, *The Horse in Blackfoot Indian Culture*, 156, 157.

Joseph M. Marshall, a traditional bow maker from the Rosebud Sioux community in South Dakota, stated: "For many generations, the bow and arrow were the primary weapon of the Sioux hunter/warrior. Even after the arrival of firearms on the High Plains, the bow did not lose its popularity." Marshall, "Primitive Sioux Archery," 24.

The historian Stanley Vestal provided information from an interview with the Lakota White Bull, a nephew of Sitting Bull, referring to trade with Métis traders in the 1870s: “White Bull, the chief’s [Sitting Bull’s] nephew, traded for two guns. These were single-shot breech-loaders, using percussion caps. He wanted them for stalking deer and antelope. For running meat [bison] on horseback at short range, he thought a bow quite good enough.” Vestal, *New Sources of Indian History*, 235.

A robe painted with the military and hunting exploits of the Blackfoot Running Rabbit depicts bows and arrows used in mounted bison hunting, while firearms are shown in combat, indicating the continued importance of the bow and arrow in bison hunting. L. J. Dempsey, *Blackfoot War Art*, 110.

8. Rich, *History of the Hudson’s Bay Company*; Careless, *Canada: A Story of Challenge*.

9. For a discussion of these views, see Morantz, “Old Texts, Old Questions,” 166–68.

10. John Clapham, Vice Provost of King’s College, Cambridge, quoted from introduction to Rich, *Minutes of the Hudson’s Bay Company*, 31. For similar views, see also D. Baldwin, *Fur Trade in the Moose-Missinaibi River Valley*, 69.

11. Townsend, “Firearms Against Native Arms”; J. G. E. Smith, “Western Woods Cree,” 442, 443.

12. Given, “Study of European Weapons Technology,” 105.

13. For examples of such views, see Careless, *Canada*; Lowie, *Indians of the Plains*; Rich, *History of the Hudson’s Bay Company*; Secoy, *Changing Military Patterns on the Great Plains*; D. Baldwin, *Fur Trade in the Moose-Missinaibi River Valley*, 69.

14. In regard to assessments of the role of firearms in Cree-Inuit conflicts, see Bishop and Lytwyn, “Cree-Inuit Warfare in the Hudson Bay Region,” 41–43. Bishop and Lytwyn cited fur traders Joseph Robson and Andrew Graham: Graham, *Andrew Graham’s Observations*, 174, 236; Robson, *Account of Six Years Residence in Hudson’s Bay*, 63. In regard to Aboriginal conflicts on the Northern Plains and Columbia Plateau, see Glover, *David Thompson’s Narrative*, 45, 171, 254, 278, 296, 297, 305, 306, 331, 332, 351, 391; Henry, *Journal of Alexander Henry the Younger*, Monday, July 21, 1806, 1:236; July 22, 1806, 1:268; Wednesday, September 7, 1808, 2:358, 378; Monday, April 30, 1810, 2:440, 441.

15. Secoy, *Changing Military Patterns on the Great Plains*; Ewers, *The Horse in Blackfoot Indian Culture*.

16. Secoy, *Changing Military Patterns on the Great Plains*, 19; D. Baldwin, *Fur Trade in the Moose-Missinaibi River Valley*, 69.

17. HBC fur trader and explorer Anthony Henday claimed to have used Aboriginal archery gear to kill moose and swans. Burpee, *Journal of Anthony Henday*, 37, December 15, 1754; 43, April 17, 1755; 43, April 24, 1755. Duke Paul von Württemberg may have used Native American bows, arrows, and quivers during his travels in western North America. One of his Métis interpreters used bows and arrows to kill bison during their journey. The acquisition records of the Ethnologisches Museum Berlin contain a list of artefacts collected by von Württemberg. It was printed by August Kranabaecker in Zweibrücken, but it is not clear whether it was compiled by the duke himself or posthumously by someone else. The title of this document is “Ethnographische Sammlung Gesammelt von Sr. Koenigl. Hoheit Herzog Paul von Württemberg.” After the duke’s death in 1860, the collection was broken up or destroyed. Thus, several objects on the list cannot currently be located. Of interest here are entries no. 64 and no. 93 from the list:

No. 64: “Köcher, Pfeile, Bogen, von mir selbst gebraucht.” (“Quiver, arrows, bow, used by myself.”)

No. 93: “Köcher mit Pfeilen, deren sich einer meiner Dolmetscher; ein Metis mit namen La Matice [La Malice = Wolf im Schafspelz], während meiner Reise von den Councyl [*sic*] Bluffs nach dem oberen Missouri bediente, mit welchen Pfeilen er

mehrere Bison in meiner Gegenwart erlegte.” (“Quiver with arrows, used by one of my interpreters, La Matice [La Malice = Wolf in sheep’s clothing], during my journey from Council Bluffs to the Upper Missouri, with these arrows he killed several bison in my presence.”)

Klann, *Die Sammlung indianischer Ethnographica aus Nordamerika*, 26, 74, 76. The Crow Plenty Coups stated that non-Aboriginal trappers and traders often preferred short Plains bows over muzzle-loading firearms for mounted bison hunting. Linderman, *Plenty Coups*, 17, 18; Laubin and Laubin, *The Indian Tipi*, 15, 16.

18. Brink, *Imagining Head-Smashed-In*, 54–57.

19. For a similar approach of archaeologists to the nature of their sources, see S. J. Baldwin, *Elk Point Burial*, 61–63.

20. Fleming and Luskey, *North American Indians in Early Photographs*, 8, 9, 14.

21. Brown and Peers, *Pictures Bring Us Messages*, 60, 64, 108.

22. Fleming and Luskey, *North American Indians in Early Photographs*, 133.

23. Whenever possible, for each bow, I measured the overall length, width, and thickness in the grip area, at the approximate center of each bow limb, where most of the bending would occur, and at the tips, near the points of attachment of the

bowstring. For arrows, I measured the total length, including the arrowhead, the usable length of the shaft (draw length), the diameter of the arrow shaft in several places along the shaft, the dimensions (width, thickness, and length) of the arrowhead, the length and height of the fletching, and the balancing point of the arrow. I recorded the materials used in the construction of each bow and arrow as much as possible, as well as details of construction techniques.

24. I began manufacturing and using reproductions of Aboriginal/Native American archery equipment in 1992 and since then have made archery sets for several educational institutions, including the Department of Anthropology at the University of Western Ontario in London, Ontario, the Manitoba Children's Museum in Winnipeg, Manitoba, and the Young-Jib Archery Museum in Paju, South Korea.

25. Gleach, "Controlled Speculation and Constructed Myths," 39–74, 42.

26. Smyth, "The Niitsitapi Trade," 52; Ginzburg, "Clues: Roots of an Evidential Paradigm," 117.

## 2. Indigenous Subsistence Patterns

1. Ray, *Indians in the Fur Trade*, 174; D. Russell, *Eighteenth-Century Western Cree and their Neighbours*, 218. The emphasis here is on seasonal subsistence mobility of Western Cree groups within rather narrowly defined home

territories, which they occupied from before contact with Europeans. I do not refer to relocations and long-distance migrations from coastal areas on Hudson and James Bays into the western

boreal forest and into the Parklands-Plains region as a result of the fur trade, as has been claimed by earlier writers such as D. Mandelbaum and disproved by D. Russell and others.

2. D. Russell, *Eighteenth-Century Western Cree*, 1, 216–18; D. Russell, “The Puzzle of Henry Kelsey and His Journey to the West,” 78, 79; J. G. E. Smith, “Western Woods Cree.” For a summary of the discussion of a precontact Cree presence west of Lake Winnipeg, see Smyth, “Niisitapi Trade,” 124–27.

3. D. Meyer, “People Before Kelsey,” 67–69.

4. Letter from Father Marest, 1694, in Tyrrell, *Documents Relating to the Early History of Hudson Bay*, 126, 127.

5. Tyrrell, “Letters of La Potherie,” 219, 220, 261, 262.

6. Noble and Pollock, “Archaeology of the Hawley Lake Area,” 79.

7. Gardener, “General Environment,” in *Handbook of North American Indians*, 6:9–10.

8. Gardener, “General Environment,” 6:12.

9. Brownlee and Syms, *Kayasochi Kikawenow*, 3, 4.
10. Honigmann, “West Main Cree,” in *Handbook of North American Indians*, 6:217.
11. Gardener, “General Environment,” 6:13.
12. Lytwyn, *Muskegowuck Athinuwick*, 4, 5, 106.
13. Lytwyn, *Muskegowuck Athinuwick*, 110; Louis Bird, personal communication, October 2001; Houston et al., *Eighteenth-Century Naturalists*, 97, 177–87; Fort Dauphin Post Journal, Report of District, Spring 1820, Archives of Manitoba, HBCA, B.51/e/1. Peter Fidler was the first European to record this cycle of abundance and decline of hare and lynx.
14. Gillespie, “Major Fauna in the Traditional Economy,” in *Handbook of North American Indians*, 6:15–18.
15. Gillespie, “Major Fauna,” 6:18; Lytwyn, *Muskegowuck Athinuwick*, 4, 5, 91–95.
16. Lytwyn, *Muskegowuck Athinuwick*, 110.
17. Gillespie, “Major Fauna,” 6:15; Louis Bird, *Our Voices*, 0014—“Guns and Bows”; Louis Bird, personal communication, September–October 1999.
18. Louis Bird, *Our Voices*, 0051—“Fish Trapping and Caribou Hunting,” 1.
19. Lytwyn, *Muskegowuck Athinuwick*, 38, 39.

20. Lister, “Provisioned at Fishing Stations.”
21. Graham, *Andrew Graham’s Observations*, 330.
22. Lytwyn, *Muskegowuck Athinuwick*, 24, 25.
23. Honigmann, “West Main Cree,” 217.
24. Skinner, *Notes on the Eastern Cree and Northern Saulteaux*, 56, 57; Goulet, “Cumberland Cree Nehinuw Concept of Land,” 9, 17–20.
25. Louis Bird, *Our Voices*, 0051—“Fish Trapping and Caribou Hunting,” 2.
26. Skinner, *Notes on the Eastern Cree and Northern Saulteaux*, 24–26.
27. Spiess, *Reindeer and Caribou Hunters*, 120.
28. Lytwyn, *Muskegowuck Athinuwick*, 82, Graham, *Andrew Graham’s Observations*, 166, 171, 184.
29. Louis Bird, *Our Voices*, 0051—“Fish Trapping and Caribou Hunting,” 1.
30. Lytwyn, *Muskegowuck Athinuwick*, 83, 84.
31. Louis Bird, *Our Voices*, 0014—“Guns and Bows”; Skinner, *Notes on the Eastern Cree and Northern Saulteaux*, 25, 26. Skinner described a similar method for hunting caribou, practiced by the Eastern Cree.
32. Spiess, *Reindeer and Caribou Hunters*, 120, 121; Lytwyn, *Muskegowuck Athinuwick*, 430;

Läng, *Kulturgeschichte der Indianer Nordamerikas*, 87.

33. Lytwyn, *Muskegowuck Athinuwick*, 86, 147. Caribou cows shed their antlers shortly before giving birth, usually in May or June. Bulls shed theirs in October or November, generally after the rut, while immature bulls do not shed their antlers until spring. Therefore, by the time of year that caribou hedges were in use, there were some caribou with and some without antlers. Although it would seem easier to catch caribou without antlers, the width of the caribou antlers apparently did not impede the functionality of the snares.

34. Isham, *Isham's Observations on Hudsons Bay, 1743*, 152–54; Lytwyn, *Muskegowuck Athinuwick*, 86.

35. Lytwyn, *Muskegowuck Athinuwick*, 86; see also Isham, *Isham's Observations on Hudsons Bay, 1743*, for a drawing of such a “deer snare” (HBCA, PAM, E.2/2, fo. 43).

36. Lytwyn, *Muskegowuck Athinuwick*, 84, 85.

37. Lytwyn, *Muskegowuck Athinuwick*, 87.

38. Louis Bird, *Our Voices*, 0116—“Guns and Bows II,” 20–22.

39. Lytwyn, *Muskegowuck Athinuwick*, 84.

40. Louis Bird, *Our Voices*, 0051—“Fish Trapping and Caribou Hunting,” 2.

41. Lytwyn, *Muskegowuck Athinuwick*, 87, 93.

42. Louis Bird, *Our Voices*, 0051—"Fish Trapping and Caribou Hunting," 3.
43. Lytwyn, *Muskegowuck Athinuwick*, 96–98, 100, 101.
44. Lytwyn, *Muskegowuck Athinuwick*, 101, 102, Graham, *Andrew Graham's Observations*, 133.
45. Lytwyn, *Muskegowuck Athinuwick*, 95, 105; Louis Bird, *Our Voices*, 0051—"Fish Trapping and Caribou Hunting," 1, 2; Louis Bird, personal communication, October 2001.
46. Louis Bird, *Our Voices*, 0051—"Fish Trapping and Caribou Hunting," 2; Graham, *Andrew Graham's Observations*, 118, 119; Lytwyn, *Muskegowuck Athinuwick*, 96.
47. Lytwyn, *Muskegowuck Athinuwick*, 103.
48. Lytwyn, *Muskegowuck Athinuwick*, 104, 110.
49. Lytwyn, *Muskegowuck Athinuwick*, 105, 106.
50. Lytwyn, *Muskegowuck Athinuwick*, 106, 107; Graham, *Andrew Graham's Observations*, 11.
51. Lytwyn, *Muskegowuck Athinuwick*, 107; Graham, *Andrew Graham's Observations*, 11.
52. Lytwyn, *Muskegowuck Athinuwick*, 110, 111.
53. Houston et al., *Eighteenth-Century Naturalists*, 188–99.

54. Lytwyn, *Muskegowuck Athinuwick*, 92, 93, 110, 111; Radisson, *Voyages of Peter Esprit Radisson*, 225.

55. For approximate locations of Native groups in the Northern Plains in the mid-eighteenth century, see Smyth, “Niitsitapi Trade,” fig. 2, 106. I do not use the term “Atsina” as another designation for the Gros Ventre des Prairies because the people so designated consider it derogatory. Theodore Binnema, personal communication, July 2005.

56. L. J. Dempsey, *Blackfoot War Art*, 5; Smyth, “Niitsitapi Trade,” 5, 6.

57. Smyth. “Niitsitapi Trade,” 9.

58. H. A. Dempsey, “Blackfoot,” in *Handbook*, 13:604.

59. Hartmann, *Die Plains-und Praerieindianer Nordamerikas*, 24.

60. Binnema, *Common and Contested Ground*, 20, 21.

61. Wedel and Frison, “Environment and Subsistence,” in *Handbook of North American Indians*, 13:46.

62. Binnema, *Common and Contested Ground*, 18, 29.

63. Binnema, *Common and Contested Ground*, 28–33. Peter Fidler reported ash and poplar trees along the Bad River (Bow River?) in what is now southern Alberta. HBCA, 4M 103, E 3/2, Fidler,

“Journal of a Journey over Land from Buckingham House to the Rocky Mountains,” 24, January 18, 1793.

64. Wedel and Frison, “Environment and Subsistence,” 13:52, 53.

65. Wedel and Frison, “Environment and Subsistence,” 13:53.

66. For a discussion of the varying importance of hunting versus gathering in different cultures and its consequences for the roles of women in these societies, see Dahlberg, introduction to *Woman the Gatherer*, 2; Sharp, “The Null Case: The Chipewyan,” 221–44; Bryan, *Buffalo People*.

67. Wedel and Frison, “Environment and Subsistence,” 50, 51.

68. Wedel and Frison, “Environment and Subsistence,” 50.

69. Wedel and Frison, “Environment and Subsistence,” 51.

70. Wedel and Frison, “Environment and Subsistence,” 51.

71. Binnema, *Common and Contested Ground*, 79; D. Meyer, “People Before Kelsey,” 54–73, 67–69; D. Meyer, “Comment on McCullough’s View.”

72. H. A. Dempsey, “Blackfoot,” 13:604.

73. However, archaeological and historical evidence seems to link archaeological sites in the Saskatchewan River valley that contain material from the Selkirk complex to the ancestors of western Woods Cree groups, indicating their residence in the area in precontact times. Meyer and Thistle, “Saskatchewan River Rendezvous Centers and Trading Posts,” 403–44.

74. Binnema, *Common and Contested Ground*, 77.

75. Binnema, *Common and Contested Ground*, 80–85. For a detailed discussion of various proposed models of bison behavior in the eighteenth and nineteenth centuries, see Peck, *Bison Ethology and Native Settlement Patterns*. Based on historical records, Peck proposes a relatively consistent but limited migratory pattern of bison movement between the sheltered margins of the plains in winter and the open plains in summer.

76. Peck, *Bison Ethology*, 111, 112.

77. Binnema, *Common and Contested Ground*, 41–46. Notes to page 64

78. Binnema, *Common and Contested Ground*, 40–42.

79. Binnema, *Common and Contested Ground*, 43.

80. Ewers, *The Blackfeet*, 86.

81. Brink, *Imagining Head-Smashed-In*, 61–63.
82. Brink, *Imagining Head-Smashed-In*, 61–63, 66, 67; Flores, “Bison Ecology and Bison Diplomacy,” 479.
83. Reeves, *Head-Smashed-In*, 173.
84. Ewers, *The Horse in Blackfoot Indian Culture*, 165.
85. R. N. Wilson Papers, 1:21, 22, Glenbow Archives. Robert Nathaniel Wilson (1863–1944) served with the Northwest Mounted Police at Fort MacLeod in Alberta and Fort Pitt and Battleford in Saskatchewan from 1881 to 1884. Then he ran a trading post on the Belly River, near Stand Off, Alberta. Subsequently, he served as Indian agent at the Peigan Agency (1898–1903) and on the Blood Reserve (1904–1911). He recorded ethnographic information about the Blood, Siksika, and Peigan from 1893 to 1903, and collected Aboriginal artefacts for the Field Museum in Chicago as well as other U.S. museums. He wrote several articles for the Royal Society of Canada and returned to his trading post near Stand Off in 1911. This story he recorded suggests the great importance Blackfoot people accorded to archery.
86. Fidler, “Journal of a Journey over Land from Buckingham House to the Rocky Mountains,” 1–36, HBCA.

87. Fidler, "Journal of a Journey over Land," 13, HBCA.

88. Fidler, "Journal of a Journey over Land," 13, HBCA.

89. Grinnell, *Cheyenne Indians*, 1:290.

90. Fidler, "Journal of a Journey over Land," 34, March 2, 1793, HBCA.

91. Fidler, "Journal of a Journey over Land," 23, January 13, 1793, HBCA.

92. Henry, *Journal of Alexander Henry the Younger*, 2:372; Verbicky-Todd, *Communal Buffalo Hunting among the Plains Indians*, 5; Frison, "The Role of Buffalo Procurement in Post-Altithermal Populations"; Burpee, *Journal of Anthony Henday*, 34; Fidler, "Journal of a Journey over Land," 14, December 25, 1792, HBCA.

93. Binnema, *Common and Contested Ground*, 41.

94. "The inhabitants of the plains, generally, and of New Caledonia [interior British Columbia], live in large bands; and are much more addicted to amusements, than the inhabitants of woody countries [northern forests] who are more scattered." Harmon, *Journal of Voyages and Travels in the Interior of North America*, 311, <http://quod.lib.umich.edu/lib/collist> (accessed May 2010).

### 3. Bows of the Northern Plains and Subarctic

1. Reeves, "Culture Change in the Northern Plains," 94, 98.

2. Blitz, "Adoption of the Bow in Prehistoric North America," 126–29.

3. Duke, *Points in Time*, 85, 86.

4. McCracken et al., *Mummy Cave Project*, 56, 57, 96.

5. In a "reflex bow" the limbs of the bow curve toward the target, that is, away from the bowstring, when the bow is unstrung. This means that in order to string the bow, it has to be bent against its curve. The draw weight is the force that is needed to draw a bow to full draw length. In contemporary North American archery, this is mostly measured in pounds. One pound equals about 453.59 grams. In order to be able to compare different bows with one another, it is important to know to which draw length the draw weight of a given bow refers. The draw length is measured from the back of the bow to the lowest point of the bowstring notch in the nock of the arrow at the moment of reaching the full draw weight of the bow, immediately before the arrow is released, often measured in inches.

6. For example, terms such as "double curved," "reflexed," "recurved," "gull-wing-shaped," "Cupid's bow," or "string follow" refer to the profile of a bow when viewed from the side. In contrast, a term such as "paddle bow" refers to the profile of a bow when viewed from the back, or

the belly, emphasizing the extreme width of the limbs at their center. These terms can be applied regardless of the materials used in a bow's construction, because they only classify shape. "Man-sized" bow indicates that the length of the bow is close to the height of the user.

7. The Northwest Company fur trader Alexander Henry the Younger, who traveled through the western Plains and Rocky Mountain region in the early 1800s, distinguished these three types of bows used by Native people of the Plateau and western Plains. Henry, *Journal of Alexander Henry the Younger*, 2:524, Wednesday, February 13, 1811. Plains,

Parklands, and Plateau peoples considered here are the Arapaho, Arikara, Assiniboine, Blackfoot, Cheyenne, Crow, Flathead, Gros Ventre, Hidatsa, Kutenai, Mandan, Nez Perce, Pawnee, Plains Cree, Plains Ojibwa, Sarcee, Shoshone, Sioux.

8. Henry, *Journal*, 2:524, Wednesday, February 13, 1811.

9. Louis Bird, *Our Voices*, 0014—"Guns and Bows"; Clifford Crane Bear, personal communication, August 22, 2002, Glenbow Museum, Calgary.

10. Hamm, *Bows and Arrows of the Native Americans*, 28; Walking Elk, *Art of Making Indian Bows and Arrows*, 37, in reference to self bows made from Osage orange; Massey,

*Bowyer's Craft*, 52–54; Waldorf, *Art of Making Primitive Bows and Arrows*, 7.

11. Sapwood is the youngest part of the stem of a tree. It consists of a relatively thin layer of recent growth. This layer conducts water and other dissolved materials. It is softer and of a lighter color than the heartwood that comprises the core of the tree. Usually, heartwood is denser and of a darker color than sapwood and no longer conducts water and dissolved minerals. As the tree grows, the layers of sapwood closest to the heartwood gradually become heartwood. The diameter of the heartwood gradually increases with the growth of the tree while the thickness of the sapwood remains the same.

12. Examples of Aboriginal bows with their backs damaged, collected during the twentieth century: (1, 2) Provincial Museum of Alberta, H68.204.29–30, self bow made from small branch, growth rings cut through on the back, collected from Blood people, ca. 1920, and H67.8.1, self bow, made from a small tree or branch, growth rings cut through on the back, collected from Bloods, 1967. (3, 4) Glenbow Museum, Calgary AF 311, self bow collected at Siksika Reserve during the first half of the twentieth century, and AP 273, self bow, possibly made from a chokecherry sapling. Instead of keeping the arched profile of the natural growth of the tree intact, the growth rings were chopped through to flatten the back of the bow. Collected from Cree

people in Alberta during the twentieth century. (5) Northwest Museum of Art and Culture, Spokane, WA, Colby-69.33, possibly a Sioux bow based on construction details and collection history. (6) McCord Museum, Montreal, ACC6032A. According to collection information, this self bow may have come from Red Eagle, a Lakota living in Alberta, who was said to have obtained it from Sitting Bull as a parting gift. Supposedly these items were used and/or collected in or after the Battle of the Little Big Horn in 1876. If correct, this bow would be an exception to the statement made above.

Examples of self bows with intact growth rings on their backs: (1) Glenbow Museum, Calgary AD-22a, self bow, Northern Plains, possibly collected in 1835. (2, 3) Lindenmuseum Stuttgart, Germany, cat. nos. 12570 and 12571, self bows collected from Kansa and Omaha people by Paul von Württemberg, made ca. 1820. (4, 5) Ethnologisches Museum Berlin IV-B-2189, self bow, Omaha, collected by Alice Fletcher and Francis La Flesche, 1896–1898, and IV-B-6136, self bow, Oglala Sioux, collected by Clark Wissler in 1904. For Plains self bows with intact backs, collected by Father Eugene Buechel SJ, see Koppedray, “Cultural Signatures: Lakota Bows,” St. Francis Mission, <http://www.sfmission.org/museum/exhibits/bowsandarrows/signatures.html>.

13. Clifford Crane Bear, personal communication, August 22, 2002, Glenbow Museum, Calgary; Clark, *Indian Sign Language*, 76.

14. Baker, “Bows from Boards,” 2:27–33; Comstock, “Ancient European Bows,” 2:91, 92.

15. Northwest Museum of Arts and Culture, Spokane WA, cat. no. 2145.4. No provenance information was available for this bow. Museum records described it as “Plains,” made from “ash.” However, to me, the shape of the nocks, the presence of a rolled rawhide string, and its overall shape and mode of construction appear closer to Subarctic bows. The wood could be coniferous.

16. Hosie, *Native Trees of Canada*, 56, 57; Louis Bird, personal conversation, Winnipeg, October 1999. Mr. Bird pointed out that the Omushkego (Swampy) Cree on the western shores of Hudson Bay chose larch/tamarack (*Larix laricina*) for its qualities of springiness and compression strength, and also due to the limited availability of other woods suitable for bow making in the region.

17. Glover, *David Thompson’s Narrative*, 242. Note also the distinction the account made in regard to the quality of wood used by the Parkland Cree in comparison to the bow wood available to the “Snake.”

18. Henry, *Journal*, 2:524, Wednesday, February 13, 1811.

19. Maximilian, *Travels in the Interior of North America*, 23:354–57.
20. Bohr, “Plains Indian Archery Gear of the Historic Period,” 4.
21. Fidler, “Journal of Exploration and Survey, 1789–1806,” E.3/1, HBCA, 4M 103, No. 3, July 25, 1792, to July 4, 1793, September 29, 1792, F93.
22. S. L. Rogers, “The Aboriginal Bow and Arrow of North America and Eastern Asia,” 259. For a discussion of similar developments in North Asian Indigenous archery and the use of sinew backing to overcome problems inherent in locally available bow wood, see Balfour, “Structure and Affinities of the Composite Bow,” 220, 221.
23. Grinnell, *Blackfoot Lodge Tales*, 199.
24. Ewers, *The Blackfeet*, 122.
25. Mike Bruised Head, personal communication, “Beyond Borders and Boundaries: David Thompson and the North American Fur Trade,” conference at the Montana Historical Society, Helena MT, June 2007.
26. Nabokov, *Two Leggings*, 35. The ultimate source for these hickory bow staves is unclear, but they likely came from outside the Northern Plains, as the native range of hickory lies in the eastern and southeastern regions of the United States and the southern Great Lakes area of Canada. H. C. Smith, “*Caraya cordiformis*,” USDA Forest Service, <http://www.na.fs.fed.us/pubs/>

[silvics\\_manual/volume\\_2/carya/cordiformis.htm](http://silvics_manual/volume_2/carya/cordiformis.htm),  
(accessed February 22, 2011).

27. Maximilian, *Travels in the Interior of North America*, 23:119: “The weapons of the Blackfeet do not much differ from those of the other Indians on the Missouri; but they are not so handsome and well made as those of the Crows, Manitaris and Mandans. They do not themselves make bows of the horn of the elk, or of the mountain sheep, which are consequently not common among them. Their country does not produce any wood suitable for bows; and they endeavour to obtain, by barter, the bow wood, or yellow wood (*Maclura aurantiaca*) from the River Arkansas. For their quivers, they prefer the skin of the cougar (*Felis concolor*, Linn.), for which they give a horse. The tail hangs down from the quiver, is trimmed with red cloth on the inner side, embroidered with white beads, and ornamented at the end or elsewhere, with strips of skin, like tassels.”

28. Catlin, *North American Indians*, 27: “The greater number of these bows are made of ash, or of ‘bois d’arc’ (as the French call it), and lined on the back with buffalo or deer’s sinews, which are inseparably attached to them, and give them great elasticity. There are very many also (amongst the Blackfeet and the Crows) which are made of bone, and others of the horns of the mountain sheep.”

29. Hamm, “Plains Indian Bows,” 3:120. However, Hamm provided no provenance

information or collection history of these bows, nor did he mention where he encountered these bows.

30. Allely and Hamm, *Encyclopedia of Native American Bows, Arrows, and Quivers*, 2:141: Osage orange self bow at the University of Pennsylvania Museum, Philadelphia, described as “Blackfoot.” In its mode of construction and decorations (horsehair), this bow is quite similar to Comanche and Kiowa self bows.

31. The Blackfoot Spumiapi told Jane Richardson Hanks that the Blackfoot leader Running Rabbit took a bow and arrows as a trophy in war. Spumiapi via Mary White Elk on Running Rabbit (Atsistaumaxkan), September 3, 1938, 122, file 4, Hanks Fonds, M8458, Glenbow Archives. According to L. James Dempsey, “Crooked Meat Strings, a Siksika, ranked the top eight objects that might be captured in battle. He said that ‘gun taking in battle is strongest,’ adding that ‘a man tried to get the gun to be a chief.’ Although he rated the bow and arrow second, he said, ‘Before we had guns, that was most important. Now it’s second.’” L. J. Dempsey, *Blackfoot War Art*, 14, 86.

32. Maximilian, *Travels in the Interior of North America*, 23:144.

33. L. J. Dempsey, *Blackfoot War Art*, 71–73.

34. Laubin and Laubin, *American Indian Archery*, 74. Horn and antler bows were rare and highly

prized as prestige weapons among the Aboriginal people of the Northern Plains. Besides being a status symbol, especially the sheep horn bows were also formidable weapons.

35. Henry, *Journal*, 2:524, Wednesday, February 13, 1811.

36. Holm, "On Making Horn Bows," 118–20. Artist and museum curator Bill Holm manufactured a mountain sheep horn bow with a draw weight of 55 pounds at a draw length of 22 inches. More than three decades after its construction, it still consistently shot distances exceeding 200 meters, and his longest shot with this bow was 235 yards. Bill Holm, personal communication, October 2005. Laubin and Laubin, *American Indian Archery*, 84, 85. Reginald Laubin suggested that Aboriginal people developed horn bows only after the adoption of horseback riding and after they had access to metal tools. However, elk antler bows appear in old Blackfoot legends, such as the legend of Big Arrow. R. N. Wilson Papers, 1:36–38, Glenbow Archives.

37. Henry, *Journal*, 2:524, Wednesday, February 13, 1811.

38. Balfour, "Structure and Affinities of the Composite Bow," 225, 226.

39. Jaap Koppedraye, personal communication, World Traditional Archery Festival, Cheonan, South Korea, May 2007. Koppedraye is of Dutch

background and primarily manufactures Asiatic composite bows.

40. G. L. Wilson, “Hidatsa-Mandan Report, 1911,” 10:36, 37, Minnesota Historical Society (hereafter MHS).

41. M. Thompson, *The Witchery of Archery*; Massey, “Traditional Roots,” 3:13, 14; Hamm, “Lessons from Target Archery,” 4:258, 259.

42. Hamm, “Lessons from Target Archery,” 258, 259.

43. Penzer, *The World Encompassed and Analogous Contemporary Documents Concerning Sir Francis Drake’s Circumnavigation of the World*, 61, 62. In contrast, other English travelers and explorers expressed respect and even appreciation of Native North American archery. For example, accounts of Martin Frobisher’s expeditions to the eastern Arctic expressed a healthy respect for the power of Inuit bows and the accuracy of their users in combat. Stefánsson and McCaskill, *Three Voyages of Martin Frobisher*, 2:21, from Dionyse Settle’s account of the second voyage, London, 1577.

44. Chaplin, *Subject Matter*, 98.

45. Mary Rose Trust, “The Discovery and Excavation of the Mary Rose—Page 1 of 4,” <http://www.maryrose.org/project/index.html>, and “Armament—Page 6 of 9—Longbows,”

<http://www.maryrose.org/ship/bows1.htm>

(accessed February 22, 2011).

46. Heizer and Kroeber, *Ishi the Last Yahi*, 120–21, 229; Allely, “Ishi’s Archery Tackle,” 4:269.

47. Pope, *Bows and Arrows*.

48. Pope, *Bows and Arrows*, 73. Pope used a flight arrow made by Ishi in all his tests.

49. Pope, *Bows and Arrows*, 1.

50. Pope, *Bows and Arrows*, 9, 10.

51. Lowrey, “An Ethnoarchaeological Inquiry,” 55; Blitz, “Adoption of the Bow in Prehistoric North America,” 133–34; Heath, *Grey Goose Wing*, 274: “Among the Yurok, bows and arrows were made by old men skilled in the art. One specimen examined by Saxton Pope proved to be extremely well made but had an indifferent performance. ‘In action,’ said Pope, ‘this bow is soft, springy, bends in the hand, is flabby in cast and kicks.’ Toxophilites will agree that this is probably the worst set of faults a bow could have, and a modern bowyer, producing a weapon to such specifications of performance, would very soon be out of business.” English bow makers manufacturing sporting bows from the Victorian era onward took care to have the handle area of their bows remain stiff and unbending during the draw and release. This made for greater shooting comfort at the cost of energy storage because the

stiff and unbending handle would not absorb any energy that could be transferred to the arrow. In contrast, medieval English war bows, as well as almost all types of Native American bows, were designed to bend in the handle to allow for greater energy absorption. See Bourke and Whetham, "Report of the Findings of the Defence Academy Warbow Trials," 3.

52. Nagler, "Bow and Arrow for Big Game," 18, 19.

53. Heizer, foreword to Pope, *Bows and Arrows*, 3. See also Heizer, "How Accurate Were California Indians with the Bow and Arrow?"

54. G. L. Wilson, "Hidatsa-Mandan Report, 1911," 10:4, 5, MHS.

55. G. L. Wilson, "Hidatsa-Mandan Report, 1911," 10:8. Wilson noted that the extremely long traditional bows of Japan were very similar in this regard, displaying a distinct asymmetry between the lower and upper limb. See also Densmore, *Teton Sioux Music*, 437. White Hawk, a Sioux from the Cheyenne River Reservation, described to anthropologist Frances Densmore the manufacture and characteristics of Lakota bison-hunting bows, interpreted by Mr. Edward Swan:

The buffalo bows of two men were seldom exactly alike, either in pattern or in strength, but one characteristic which all had in common was that the place for fitting the arrow was nearer the

upper than the lower end of the bow, the lower section being longer and thicker than the upper. Some men used the wood of the cherry or plum tree for their bows, while other preferred the crab apple or some other hardwood. The back of the bow was covered with sinew which had been made flexible by rubbing and then dried. When this was ready the back of the bow was cut in numerous places and covered with glue made from the hide of the buffalo, the part used for this purpose being a strip between the horns, back of the eyes; the sinew was then applied and became part of the bow. The string of the bow was of the sinew of the buffalo bull, twisted and dried.

This account indicates the upper arm of Lakota bows to have been shorter and thinner than the lower arm, the opposite of what Wolf Chief described. However, this difference could be due to translation issues. Both accounts agree that the lower arm of a bow was made thicker and less flexible than the upper arm. White Hawk's statement may have been in reference to an allowance for hand placement. However, both accounts agree that a noticeable asymmetry was an important design feature in Northern Plains bows.

Densmore's ethnographic information on Native American archery must be used with great caution and cannot always be taken at face value. For example, the steps in the preparation of sinew for backing a bow are reversed in the above account.

Sinew was commonly dried first and then made flexible by rubbing to loosen and soften the hardened fibers. The cutting of the back of the bows refers to roughing up the surface of the bow's back to improve the adherence of the glue-sinew matrix.

56. G. L. Wilson, "Hidatsa-Mandan Report, 1911," 10:72, MHS.

57. G. L. Wilson, "Hidatsa-Mandan Report, 1911," 10:71, MHS. The Omaha, an agricultural, earth lodge-dwelling people living along the Missouri, like the Hidatsa also used this stringing method; see Fletcher and LaFlesche, *Omaha Tribe*, 449, 452; Vonderhey, *Secrets of the Omaha Bow*, title page (photograph "Omaha Man with Bow," National Anthropological Archives, Smithsonian Institution, Washington DC).

58. Weitzner, *Notes on the Hidatsa Indians Based on Data Recorded by the Late Gilbert L. Wilson*.

59. Both bows, one of them a horn bow, were collected by Dr. Washington Matthews, who worked among the Hidatsa as a U.S. Army surgeon and ethnologist from 1865 to 1872.

60. Pope, *Bows and Arrows*, 68, plate 3, fig. 12.

61. Pope, *Bows and Arrows*, 16.

62. Pope, *Bows and Arrows*, 62. This bow had a draw weight of 45 pounds at a draw length of 25 inches, while the bow was only 47.5 inches long. Stringing such a self bow to a brace height of 4

inches and then still drawing it 25 inches overstresses the weapon a great deal.

63. Allely and Hamm, *Encyclopedia of Native American Bows, Arrows, and Quivers*, 2:148, 149, 155. Sinew-backed horn bow, collected from the Mandan or Crow by Duke Paul von Württemberg before 1850, and hickory self bow, belonging to Chief Crow Eagle of the Two Kettle division of the Lakota.

64. Gilman and Schneider, *Way to Independence*, 76, 103; Taillon, "Hidatsa Archery," 55.

65. Hughes, "Getting to the Point: Evolutionary Change in Prehistoric Weaponry," 348: "Owing to the low velocity of primitive weaponry [traveling at speeds below 366 meters per second], gravitational force causes projectiles to travel in an arched trajectory. To achieve an accurate shot, a hunter must be able to judge the distance and know his equipment well enough to choose the right point-of-aim in an arched trajectory." See also Van Buren, *Arrowheads and Projectile Points*, 9.

66. Mason, *North American Bows, Arrows, and Quivers*, plate 62, fig. 2; S. L. Rogers, "Aboriginal Bow and Arrow of North America and Eastern Asia," 268. Citing Otis T. Mason and others, Rogers concluded, "[W]e may postulate that the preponderant use of the more primitive methods of shooting in the New World indicates a less highly developed archery type."

67. For such an account see Densmore, *Chippewa Customs*, 146–48. Two other examples of simplistic accounts of Plains Aboriginal bow making: Mandelbaum, *Plains Cree*, 94: “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.” Mason, *Origins of Invention*, 272: “Among the Plains Indians bows were made from the wood of the Osage Orange (Bois d’arc), and long journeys were often taken to obtain it. Only the best stocks were selected, straight and as free from knots as possible. The seasoning process was slow and thorough, *a little scraping and cutting and shaping* [my emphasis], then a rubbing with fat, and it was laid aside for weeks. Each warrior had several in different stages of completion.” These oversimplified accounts do not mention steps of gradual wood removal and repeated control of its effect on the bend of the bow limbs (i.e., tillering), which is necessary to make a functioning and durable bow. Mandelbaum’s account is already a description of bows made from branches or saplings, with their growth rings cut through on the back, not consistent with manufacturing techniques evident in self bows from the Plains dating to the first three quarters of the nineteenth century.

68. Hearne, *Journey from Prince of Wales’s Fort*, 308, 309, 310; Ray, *Indians in the Fur Trade*, 73;

Honigmann, *Handbook of North American Indians*, 6:218; Mandelbaum, *Plains Cree*, 20–22.

69. Louis Bird, *Our Voices*, 0014—“Guns and Bows”; Isham, *James Isham’s Observations on Hudsons Bay*, 118. The Hudson’s Bay Company factor James Isham provided an illustration of a simple “D” bow, made of “berch” by the Natives near York Factory. E. S. Rogers, *Material Culture of the Mistassini*, 67.

70. Record, *Mechanical Properties of Wood*, <http://library.beau.org/gutenberg/1/2/2/9/12299/12299.txt>, tables 2 and 6.

71. Louis Bird, *Our Voices*, 0014—“Guns and Bows”; William Dumas, elder, Fox Lake Cree Nation Manitoba, personal communication, March 2010; Horace Massan, Cree elder, Split Lake First Nation Manitoba, personal communication, March 2010.

72. Skinner, *Notes on the Eastern Cree and Northern Saulteaux*, 24, 25.

73. For a discussion of sinew-cable-backed bows in use by Native peoples in the southwestern United States, see Driver and Massey, “Comparative Studies of North American Indians,” 355.

74. Mason, *North American Bows, Arrows, and Quivers*, plate 71.

75. Verne Dusenberry wrote about bows among the Assiniboine in Montana: “Sometimes the

sinew-backed bow was made with the bow stave tapered at both ends with a groove cut along the back of the bow . . . [and] one long bowstring drawn through this groove.” Dusenberry, “Notes on the Material Culture of the Assiniboine Indians,” 53. The Haffenreffer Museum of Anthropology in Bristol, Rhode Island, has a bow labeled “Dakota Tribes” that has a twisted sinew cord running along the length of its back from one tip to the other. Hail, *Hau Kola! The Plains Indian Collection of the Haffenreffer Museum of Anthropology*, 170, 171, Haffenreffer Museum cat. no. 75–60. The Forrest Fenn collection contains a bow from the Southwest (Athapaskan?) with a single sinew cable on the back. J. A. Hanson, *Spirits in the Art*, 180, 181.

76. Louis Bird, *Our Voices*, 0014—“Guns and Bows”; Louis Bird, personal communication, September–October 1999. From shooting experiments conducted with my Plains-style asymmetrical sinew-backed ash bow, I know that in temperatures around minus 30 degrees Celsius, the bow becomes noticeably stronger, because the sinew backing contracts in the cold. However, nineteenth-century Plains Indians seem to have been concerned about exposing their bows to intense cold for too long, since they devised a special winter carrying method for short bows. They carried their bows on their backs underneath their clothing, next to the bare skin. Multiple layers of winter clothing, such as shirts, coats, and bison robes would keep the bow pressed against

the archer's back. This method was mostly used when riding on horseback. Weitzner, *Notes on the Hidatsa Indians*, 65.

77. E. S. Rogers, *Material Culture of the Mistassini*, 67.

78. Hamilton, *Native American Bows*, 30–32.

79. Ethnologisches Museum Berlin IV A 5601 and IV A 5602.

80. S. L. Rogers, “Aboriginal Bow and Arrow of North America and Eastern Asia,” 259: “If there is a ‘basic’ type of North American bow, it is the plain wooden bow consisting of a single stick. The first tendency toward any refinement of the plain wooden self-bow appears to be the shaping of the staff to a flattened cross-section, leaving an area reduced in width for the grip. With this often comes a decided improvement in the contour for springiness.”

81. Skinner, *Notes on the Eastern Cree and Northern Saulteaux*, 24.

82. Cooper, *Notes on the Ethnology of the Otchipwe of Lake of the Woods and Rainy Lake*, 16–18.

83. Mason, *North American Bows, Arrows, and Quivers*, plates 65–75.

84. Theriault, *Moose to Moccasins*.

85. Theriault, *Moose to Moccasins*, 89–93; Louis Bird, *Our Voices*, 0014—“Guns and Bows.”

Theriault, as well as Louis Bird, stated that one of the main tools for making bows and arrows used in the Subarctic in postcontact times was the so-called crooked knife.

86. Cooper, *Snares, Deadfalls, and Other Traps of the Northern Algonquians and Athapaskans*.

87. Allely and Hamm, *Encyclopedia of Native American Bows, Arrows, and Quivers*, 1:36–39.

88. Rudderbows Archery, <http://www.rudderbows.com/Bowmakindianstaves.html>, 2, 3; Krackow Company, [http://www.krackow.com/html/default\\_bows.html](http://www.krackow.com/html/default_bows.html), “Penobscot,” 11; Woodland Archery, <http://www.woodlandarchery.com/prod12.htm>, 1–3.

89. Carver, dir., *The Silent Enemy: An Epic of the American Indian*; D. B. Smith, *Long Lance*, 233, 234. Molly Nelson, or Molly Spotted Elk, was a Penobscot from Old Town, Maine.

90. The online anthropological collections for North America at the American Museum of Natural History show two of these Penobscot-style “double bows” (accession nos. 1911–61, 50.1/6047 and 1916–9, 50.1/9830). Both bows are labeled “Abenaki-Penobscot.” The museum records indicate that both bows were acquired from Gabriel A. Paul of Maine, along with other wooden items, including at least two regular self bows. The University of Pennsylvania Museum of Archaeology and Anthropology in

Philadelphia holds another example of this “double bow.” It has the accession no. 33–32–11 and is labeled “war bow.” This bow, also made by Gabriel Paul, allegedly after a traditional type, was a gift to the museum by Dr. Samuel Fernberger in 1933. According to the anthropologist Frank G. Speck, this tradition was revived or invented some years previously by Frank Loring, alias Chief Big Thunder. William Wierzbowski, Assistant Keeper, American Section, University of Pennsylvania Museum, e-mail to author, August 16, 2001.

Frank Loring (1827–1906), of Penobscot descent, acquired a reputation as an “Indian showman” in late nineteenth-century New England. He later styled himself “Big Thunder” and opened a small “museum” on Olamon Island, near Old Town, Maine. Among the exhibits was his “war bow, which he represented as handed down to him by tradition of his foreparents.” Prins, “Chief Big Thunder (1827–1906): The Life History of a Penobscot Trickster,” 149.

Gordon Day concluded that the “war bow” originated as a circus bow. Day, “Penobscot War Bow,” 8. Frank Speck stated that “apparently at least a dozen reproductions of it had been made.” Speck, *Penobscot Man*, 113–14.

91. Allely and Hamm, *Encyclopedia*, 1:36–39.

92. Krackow Company,  
[http://www.krackow.com/html/  
default\\_bows.html](http://www.krackow.com/html/default_bows.html), “Penobscot,” 11.

#### 4. Arrows and Arrow Makers

1. G. L. Wilson, “Hidatsa-Mandan Report, 1911,” 10:44, MHS.

2. Hughes, “Getting to the Point,” 362; Cosner, “The ‘Stone Scraper’ and Arrow ‘Wrench.’”

3. Brues, “The Spearman and the Archer—An Essay On Selection in Body Build,” 465; Ewers, “Bodily Proportions as Guides to Lineal Measurements among the Blackfoot Indians.”

4. Maximilian, *Travels in the Interior of North America*, 23:354–57, 354n322.

5. Hamm, *Bows and Arrows of the Native Americans*, 92; Laubin and Laubin, *American Indian Archery*, 112.

6. G. L. Wilson, “Hidatsa-Mandan Report, 1911,” 10:41, MHS.

7. Pope, *Bows and Arrows*, 44, 45. However, Pope did not take into account the generally lower draw weights of Native North American bows, when compared to medieval English war bows, or Asiatic composite bows. Due to their lower draw weight, especially for the short Plains Indian bows and arrows, the archer’s paradox and thus the stiffness of the arrow shaft was of less concern.

8. G. L. Wilson, "Hidatsa-Mandan Report, 1911," 10:41, MHS.
9. Hamm, *Bows and Arrows of the Native Americans*, 93, 94; Laubin and Laubin, *American Indian Archery*, 112.
10. Pyszczyk, "Historic Period Metal Projectile Points and Arrows," 165.
11. Elmer, *Target Archery*, 352, 353.
12. Laubin and Laubin, *American Indian Archery*, 48, 49, 131, 137.
13. Stockel, *Lightning Stick*, xv–xix, 48, 50, 104, 109.
14. Stockel, *Lightning Stick*, 62, 63.
15. Morse, "Ancient and Modern Methods of Arrow Release." Although based on a similar classification of arrow releases, Driver and Massey provide a more balanced account by considering various Aboriginal bow types and the purposes they were developed for in regard to the efficiency of North American Aboriginal archery. Driver and Massey, "Comparative Studies of North American Indians," 353–55.
16. Pope, *Bows and Arrows*, 6, 7.
17. Flenniken and Raymond, "Morphological Projectile Point Typology."

18. Glover, *David Thompson's Narrative*, 45, 95, 151, 152, 248, 278, 296, 297, 303, 305, 331–34, 341, 342, 351, 391.
19. Duke, *Points in Time*, 166. Archaeologist Daniel Holmberg argued that differences in functionality and effectiveness alone do not account for differences in lithic projectile point shapes. Holmberg, “Arrow Heads and Spear Points,” 9, 79.
20. Fidler, “Journal of a Journey over Land,” 14, December 25, 1792, HBCA.
21. Henry, *Journal of Alexander Henry the Younger*, 2:524, Wednesday, February 13, 1811.
22. Henry, *Journal*, 1:221, Sunday, July 20, 1806.
23. G. L. Wilson, “Hidatsa-Mandan Report, 1911,” 10:362, MHS. See also Weitzner, *Notes on the Hidatsa Indians*, 241.
24. McGonagle, “Metal Projectile Points from the Deapolis Site, North Dakota.”
25. Foster, “Metal Projectile Points”; C. E. Hanson, “Upper Missouri Arrow Points”; Pyszczyk, “Historic Period Metal Projectile Points and Arrows,” 163, 164.
26. Silsby, “Stone Points,” 3:281, 282; Mason et al., “Arrows and Arrow-Makers,” 71, 72.
27. Glover, *David Thompson's Narrative*, 242.
28. Glover, *David Thompson's Narrative*, 242.

29. E. N. Wilson, *Among the Shoshones*, 159; O. Russell, *Journal of a Trap per*, 133; Fidler, Notebook, 1794–1813: “Contents of a Gun Chest of Curiosities,” HBCA. Among other artefacts, Fidler’s list indicates “9 Quivers full of arrows, 9 Bows two of which is Horn, 6 arrows shod with stone. Snake Ind.”

30. Grinnell, *Cheyenne Indians*, 1:171.

31. Thaler, *Die Welt der Indianer*, 84; Pope, *Bows and Arrows*, 56: “The most striking phenomenon is the great superiority of the obsidian point in cutting animal tissue. . . . The steel heads, even when sharpened to a keen cutting edge, do not approach the penetration of the obsidian by 25 per cent. Doubtless the better cutting qualities of glass, combined with the concoidal edge of the obsidian point, give this superiority. The same principle is used in modern bread knives; here a rough wavy edge cuts better than does a straight sharp edge.”

32. Glover, *David Thompson’s Narrative*, 242.

33. Wolf Chief was born in 1849; therefore he probably referred to the 1820s. G. L. Wilson, “Hidatsa-Mandan Report, 1911,” 10:42, 49, 50, MHS.

34. McCracken et al., *Mummy Cave Project*, 56, 57, 96.

35. However, G. E. Van Buren argued that late precontact/protocontact lithic arrowheads were

roughly of the same weight as later metal arrowheads, although he did not specify the type of metal point he referred to. Van Buren, *Arrowheads and Projectile Points*, 14, 15.

36. Pyszczyk, “Historic Period Metal Projectile Points and Arrows.”

37. Rich, introduction to *Minutes of the Hudson’s Bay Company*, 5:xxi; also cited in Mancke, *Company of Businessmen*, 43.

38. York Factory Account Books, 1688–89, 9, 10, HBCA.

39. York Factory Account Books 1689–90, 2, 3, 6, 8, 10, 28, 34, B.239/d2; 1693–94, 38, B.239/d5, both HBCA.

40. Albany Account Book, 1695, 1–6, 18, B3/d/5, HBCA.

41. Krech, *Subarctic Fur Trade*, 39; Albany Account Book, 1695, 1–18, B3/d/5, HBCA.

42. York Factory Account Book, 1759–60, 4, 7, B.239/d50, HBCA.

43. York Factory Account Books, 1793–94, 3, B.239/d/100, 2, 7, B.239/d/101, both HBCA.

44. York Factory Account Books, 1798–99, 3, B.239/d/118; 1799–1800, 4, B.239/d/120; 1800–1801, 5, B.239/d/123, all HBCA.

45. Buckingham House Account Books, B.239/d/87–121, HBCA; Pyszczyk, “Use of Fur Trade Goods by the Plains Indians,” 58.
46. Manchester House Post Journal, 57, 1M 73, B121/a/3, HBCA.
47. Manchester House Post Journal, 19, 1M 74, B121/a/6, HBCA.
48. Williams, *Hudson’s Bay Miscellany, 1670–1870*, Albany Fort Journal, 67, [http://www.canadiana.ca/hbc/\\_popups/PAMalbany1\\_e.htm](http://www.canadiana.ca/hbc/_popups/PAMalbany1_e.htm).
49. Henry, *Journal*, 2:637, Friday, January 7, 1814.
50. Milloy, *Plains Cree*, 17, 18; J. A. Hanson, *Spirits in the Art*, 47.
51. Catlin, *North American Indians*, 28.
52. Linderman, *Plenty Coups*, 18. This trader may have been Charles Larpenteur, who traded along the Yellowstone River into the late 1860s.
53. Native American art collector Preston Miller owns a metal arrowhead collected from Plains peoples, bearing a manufacturer’s mark that reads “Truitt & Co.” According to Miller’s research, this was a hardware and cutlery shop located at 528 Market Street in Philadelphia during the 1860s. Preston Miller Collection, St. Ignatius, Montana, cat. no. D0054810710. Other manufacturers of metal arrowheads collected from

Plains peoples included the company of Isaac Milner, in Sheffield, England. This arrowhead also has a large hole drilled through the tang. Allely and Hamm, *Encyclopedia of Native American Bows, Arrows, and Quivers*, 2:163.

54. Allely and Hamm, *Encyclopedia*, 2:162, 163.

55. J. Baldwin, *Bows, Arrows, and Quivers of the American Frontier*, 30.

56. Aboriginal archers often rounded the tips of their metal points to make them glance off an animal's bone, rather than penetrating it and becoming stuck. Hamm, *Bows and Arrows of the Native Americans*, 134; Weitzner, *Notes on the Hidatsa Indians*, 241.

57. Provincial Museum of Alberta, Edmonton, catalogue nos. H68.204.33, Blood, collected ca. 1920; H62.12.4 and H62.12.6, Northern Plains, no provenance information, no collection date, acquired by museum in 1946. Glenbow Museum, Calgary, cat. no. AF 2638, two arrows, probably collected in the early twentieth century. Siksika elder Clifford Crane Bear expressed his opinion that these arrows were not meant for actual hunting or warfare, because the shafts were too crooked and the arrowheads far too wide at the base to penetrate well. He stated that they may have been made for sale to non-Aboriginal people. Both arrows have bright orange and dark violet fluff feathers attached to the front ends of their relatively short fletchings.

The fluffs look almost new and may have been commercially dyed. Except for the points, these arrows have a rather “modern” appearance. Minnesota Historical Society, St. Paul, cat. no. MHS 7059.75b, arrow, probably made by Henry Wolf Chief, collected by Gilbert Wilson before 1918. An image of this arrow is published in Gilman and Schneider, *Way to Independence*, 199.

58. Catlin, *Letters and Notes on the Manners, Customs and Conditions of the North American Indians*, 1:33; Catlin, *North American Indians*, 28; G. L. Wilson, “Hidatsa-Mandan Report, 1911,” 10:58, 59, MHS; Grinnell, *Cheyenne Indians*, 1:183, 184; Mason, *North American Bows, Arrows, and Quivers*, plate 47; Wissler, *Material Culture of the Blackfoot Indians*, 158: “The only difference reported for war arrows [among the Blackfoot] was a disposition to bind the heads loosely, so that they would remain in the wound, after the shaft was withdrawn.” Gilman and Schneider, *Way to Independence*, 74. The Mandan elder Black Chest, a personal friend of Wolf Chief, corroborated Wolf Chief’s statements in regard to the two different shapes of metal arrowheads and their uses for the Mandan. Grinnell made similar statements in regard to the shapes of metal arrowheads used by the Cheyenne.

59. T. Wilson, “Arrow Wounds,” 530, 531; Mandelbaum, *Plains Cree*, 94, 95.

60. Dodge, *Our Wild Indians*, 418–19; Mason, *North American Bows, Arrows, and Quivers*, 31.

61. Wallentine, *Making Arrows the Old Way*, 22. Through several shooting experiments Wallentine disproved the validity of the notion of different alignments of the arrowhead for hunting and combat. His results concerning the unpredictability of the striking angle of the arrowhead are consistent with my own experience in shooting arrows with bladed arrowheads.

62. Wissler, *Material Culture of the Blackfoot Indians*, 158. Wissler conducted fieldwork among Blackfoot-speaking peoples between 1902 and 1905.

63. Hamm, “Plains Indian Bows,” 3:121–33, 136.

64. Hail, *Hau Kola!*, 172; Gilman and Schneider, *Way to Independence*, 74.

65. G. L. Wilson, “Hidatsa-Mandan Report, 1911,” 10:52, MHS.

66. Stodiek and Paulsen, *Mit dem Pfeil, dem Bogen . . . : Technik der steinzeitlichen Jagd*, 34, 35, 43, 52.

67. Allely and Hamm, *Encyclopedia*, 138 (Blackfoot-Blood arrows, now at the Field Museum, Chicago). For these arrows, see also Van Stone, *Material Culture of the Blackfoot (Blood) Indians of Southern Alberta*, 5, 31, fig. 4., 144, 166 (Blackfoot and Cheyenne arrows, now at the American Museum of Natural History, New

York), 168 (Cheyenne arrow collected from the Darlington Agency, Oklahoma, now at the University of Pennsylvania Museum in Philadelphia), 173 (Arapaho arrow, now at the Jacksonville Museum in Jacksonville, Wyoming).

Manitoba Museum, Winnipeg: Set of eleven arrows, T. J. Fleetham Collection, Blood, HBC-156 B-L. Set of thirteen arrows, possibly Blackfoot, H.4.4.81 B-N. Set of seven arrows, Plains, H4.4.23 C-H, Q. Plains arrow, possibly Blackfoot, H4.4.36b.

Royal Alberta Museum, Edmonton: Set of fifteen arrows, Blood, collected 1900–1902, H.69.187.36–50. Some of these fifteen arrows were fletched using glue, others were fletched without glue.

Glenbow Museum, Calgary: Set of 15 arrows, Blackfoot AF 2971 A–O.

68. G. L. Wilson, “Hidatsa-Mandan Report, 1911,” 10:54, 55, MHS.

69. Weitzner, *Notes on the Hidatsa Indians*, 238; G. L. Wilson, “Hidatsa-Mandan Report, 1911,” 10:14, 15, MHS; Kluckhohn et al., *Navaho Material Culture*, 34, 35. Navajo people used a similar type of thorn-bound arrow to hunt warblers and bluebirds. Mason, *North American Bows, Arrows, and Quivers*, plate 60, fig. 2, cat. no. 90138, USNM. Inuit arrow from Whale River in the northeastern part of Hudson Bay. Instead of thorns or quills, this arrow had a metal nail lashed

perpendicular to the shaft about two inches from the point. The arrow was collected by Lucien Turner.

70. G. L. Wilson, "Hidatsa-Mandan Report, 1911," 10:52, 53, MHS.

71. Manitoba Museum, Winnipeg, Ethnology Collection, coll. nos. H4.12-302c-f, belonging to bow H4.12-302, all collected from the Granite Lake Cree, acquired by the museum in 1969 from Noah Custer. See also Mandelbaum, *Plains Cree*, 60, 94, mentioning bone points as traditional among the Plains Cree.

72. Louis Bird mentioned oral traditions that indicated the use of large triangular bone arrowheads by Cree archers in the Hudson Bay Lowlands, but he did not provide a time frame for this. *Our Voices*, 0014—"Guns and Bows." These large bone arrowheads are somewhat puzzling to me. When sharpened, bone does not hold its edge for very long. It would take a very powerful bow to make such a large point penetrate the tough hide of a moose, for instance. A smaller metal arrowhead, like that used in the Plains for bison hunting, would seem much more suited to the task, but large bone arrowheads like these are consistently found on Central Subarctic arrows, collected during the late nineteenth and early twentieth centuries.

73. Manitoba Museum, Ethnology Collection, H4.12-302c.

74. Mason, *North American Bows, Arrows, and Quivers*, plate 60; Allely and Hamm, *Encyclopedia of Native American Bows, Arrows, and Quivers*, 1:43, 45. Allely and Hamm show arrows that were part of an archery outfit collected by the anthropologist Frank G. Speck from the Barren Ground Band of Naskapi before 1930 and now kept in the University of Pennsylvania Museum, Philadelphia.

75. Louis Bird, *Our Voices*, 0014—"Guns and Bows"; Allely and Hamm, *Encyclopedia*, 1:44. The previously mentioned Naskapi archery set includes also a shooting glove.

76. Manitoba Museum of Man and Nature, Ethnology Collection, H4-12-13 to 16, collected with bows nos. H4.12-11 (shorter bow) and H4.12-12 (longer bow) from the Nelson House Cree. These bows and arrows were acquired by the Manitoba Museum from Charles Clay in 1941 and may have been made in the late nineteenth century.

77. Isham, *Isham's Observations on Hudsons Bay, 1743*, 118.

78. Manitoba Museum, Winnipeg, Archaeological Collections, Churchill River HiLp-1 10361, Nelson River GgLi-5 1, Nelson River GjLp-8, Nelson River GjLp-14 3, Nelson River GkLr-24 5, Nelson River GILr-29 24.

79. Isham, *James Isham's Observations on Hudsons Bay*, 12, 118, HBRSA vol. 12, HBCA

Library FC 15 K7v. Indian Bow by James Isham, 1743. Pen & ink drawing. In James Isham's "Observations on Hudson's Bay, 1743". HBCA E.2/1 fo. 73d.)

80. Louis Bird, *Our Voices*, "Guns and Bows II," 9, 10.

81. For a more detailed discussion of craft specialization in Indigenous and/or precontact societies, see Bamforth and Finlay, "Introduction: Archaeological Approaches to Lithic Production Skill and Craft Learning," 4–6, 9.

82. Mason, *North American Bows, Arrows, and Quivers*, 8, 12; Mason et al., "Arrows and Arrow-Makers," 55.

83. Mason, *North American Bows, Arrows, and Quivers*, 16.

84. Kidd, *Blackfoot Ethnography*, 38, 56.

85. Nabokov, *Two Leggings*, 35. The businessman William Wildschut was born in the Netherlands in 1883 and spent much of his working life in the United States. Wildschut conducted fieldwork in Montana during the 1920s on behalf of Gustav Heye and the Museum of the American Indian. There he became especially interested in the Crow. He collected artefacts and conducted interviews with Two Leggings, using an interpreter. However, his field notes remained unpublished before his death in 1955. In 1967 Peter Nabokov published a heavily edited version of Wildschut's

field notes of the Two Leggings interviews, perhaps further obscuring Two Leggings' 'voice' in the published text.

86. Nabokov, *Two Leggings*, 8.

87. Clark, *Indian Sign Language*, 76. Wagon bows were bent struts on covered wagons such as the Conestoga wagon, the so-called prairie schooner, that supported the canvas cover and gave it its characteristic arched shape.

88. In my own use of Plains Indian archery gear, I also found that plant fiber bowstrings do not last very long.

89. Grinnell, *Cheyenne Indians*, 1:176.

90. Louis Bird, personal communication, October 2001.

91. Louis Bird, *Our Voices*, 0014—"Guns and Bows."

92. Louis Bird, *Our Voices*, 0014—"Guns and Bows."

93. "History of the Blackfeet," 8, Joe Little Chief Fonds, Glenbow Archives, M 4394, f. 5. Joe Little Chief did not state if women used bows and arrows in hunting or in combat. There are several references to Plains Indian women warriors, for example, the Blackfoot Running Eagle in Schultz, *Blackfeet and Buffalo*, 229, 348–50. In regard to Cree attacks on Blackfoot camps, the Blackfoot Crooked Meat Strings relat

ed in 1938: “Sometimes a whole lot of Crees came to attack, women and men. Blackfoot women never went on attacks back against the Crees. Attacks by Cree and their wives always occurred in winter, never in summer. In summer Cree men came alone to attack. . . . Cree winter attacks came about once a winter; 80–100 (not more) people of which not more than 10 were women and no children. Those were young women awfully brave. ‘Blackfoot women were not brave—always scared, and don’t like to die, and always ran away to hide. None were ever brave.’ Two Piegan women, however, did go out to war with their husbands. But never a Blackfoot woman.” Crooked Meat Strings via Mary White Elk, September 12, 1938, 164, 165, Hanks Fonds, file 6, M8458, Glenbow Archives. The reference to the two Piegan women may have been in conjunction with the concept of “manly hearted women” among Blackfoot-speaking peoples. Such women were said to have more assertiveness and aggressiveness, character traits usually accorded to men rather than women in Blackfoot culture. O. Lewis, “Manly-Hearted Women.”

94. “Notebook of Dr. A. Jukes, Chief Surgeon for N.W.M.P., containing notes from interviews with Hugh Monro, 1886,” 11, Jukes Family Fonds, M607/6, Glenbow Archives. This woman may have been “Pine Leaf”:

‘Whenever a war party started, Pine Leaf was the first to volunteer to accompany them. Her

presence among them caused much amusement to the old veterans; but if she lacked physical strength, she always rode the fleetest horses and none of the warriors could outstrip her . . . and when I engaged in the fiercest struggles, no one was more promptly at my side than the young heroine. She seemed incapable of fear; and when she arrived at womanhood, could fire a gun without flinching and use the Indian weapons with as great dexterity as the most accomplished warrior.’

Beckwourth wooed Pine Leaf relentlessly, but she always rebuffed him, saying she would marry him ‘when the pine-leaves turn yellow’ or ‘when you find a red-headed Indian.’ But his perseverance finally paid off, and when Beckwourth returned to the Crow after a misadventure in which they thought him killed, Pine Leaf renounced the War Path and agreed to marry him.

But for Beckwourth, the pursuit always held more attraction than the goal, and five weeks later he left the Crow. He never saw Pine Leaf again. . . .

Some historians have dismissed Pine Leaf as a figment of Beckwourth’s imagination, but in 1856 Edwin T. Denig, in *Five Indian Tribes of the Upper Missouri* (Norman: University of Oklahoma Press, 1961), 195–200, describes the exploits of Woman Chief, a Gros Ventre maid captured by the Crow at the age of ten. Denig describes Woman Chief’s remarkable victories in war and horse stealing and states that her

accomplishments were such that the tribe could no longer rule her out of the council. Denig asserted that he knew the woman personally, that she was killed by the Gros Ventre in 1854, and that for twenty years she set a valued example in hunting and war. Denig's tale of Woman Chief and Beckwourth's narrative about Pine Leaf jive perfectly, as does the time frame.

Bradley, "Beckwourth's Life with the Crow," <http://www.beckwourth.org/Biography/crow.html> (accessed June 26, 2013).

95. G. L. Wilson, "Hidatsa-Mandan Report, 1911," 10:91, 92, MHS.

96. G. L. Wilson, "Hidatsa-Mandan Report, 1911," 10:91, 92, MHS; information volunteered by Buffalo Bird Woman and her son Goodbird. Gilman and Schneider, *Way to Independence*, 69.

97. Fidler, "Journal of a Journey over Land," 32, February 21, 1793, HBCA.

98. Bowers, *Mandan Social and Ceremonial Organization*, 92. Bowers conducted fieldwork with Mandan and Hidatsa from the Fort Berthold Reservation in North Dakota in the 1930s and 1940s, primarily in regard to the social and ceremonial organization of Mandan and Hidatsa communities in the past. His research combined fieldwork with an analysis of older text documents, such as the journals of explorers, fur traders, and military personnel. His research was published in two monographs, *Mandan Social and*

*Ceremonial Organization in 1950 and Hidatsa Social and Ceremonial Organization in 1965.*

99. Schoolcraft, *Information Respecting the History, Condition, and Prospects of the Indian Tribes*, 3:81: “There was, according to Chippewa tradition, a particular class of men among our northern tribes, before the introduction of fire-arms, who were called MAKERS OF ARROWHEADS.”

Frances Densmore indicated the existence of specialized arrow makers among the nineteenth-century Lakota, as well. *Teton Sioux Music*, 439.

100. Grinnell, *Cheyenne Indians*, 1:120.

101. G. L. Wilson, *The Horse and the Dog in Hidatsa Culture*, 162.

102. Small Ankle teaching his fifteen-year-old son Wolf Chief the manufacture of archery gear that went far beyond the average, such as the manufacture of an elk antler bow and a mountain sheep horn bow, might indicate a formal master–apprentice relationship. G. L. Wilson, “Hidatsa-Mandan Report, 1911,” 10:22, 26–37, MHS.

103. Gilman and Schneider, *Way to Independence*, 116.

104. Bowers, *Mandan Social and Ceremonial Organization*, 282–86.

105. At the Head-Smashed-In Buffalo Jump in southwestern Alberta and elsewhere, Native people often “recycled” lithic materials. For example, worn-out knife blades could be reduced to scrapers or arrowheads. Once these were broken, they could be crushed into powder for use in abrasive tools such as the “sandpaper” described above. Brink and Dawe, “Preliminary Report of the 1988 and 1989 Field Seasons at Head-Smashed-In Buffalo Jump,” 149: “The users of Head-Smashed-In were very frugal with their lithic materials. Virtually every large piece of lithic material shows indications of use, often for several different functions. Hundreds of cores and shatter fragments derived from bipolar reduction attest to the need to recover useable pieces of fine-grained lithic material which would be unavailable otherwise.”

106. Bowers, *Mandan Social and Ceremonial Organization*, 286, 294–95.

107. Bowers, *Mandan Social and Ceremonial Organization*, 260, 283.

108. Jerry Potts, Peigan elder, personal communication, Provincial Museum of Alberta, Edmonton, August 2002.

109. “History of the Blackfeet,” 19A, Joe Little Chief Fonds, M4394, f. 5, Glenbow Archives.

110. “Late White Eagle (PE TA KE KIS KIS NA MA),” 3, Joe Little Chief Fonds, M4394, f. 2, Glenbow Archives.

111. Gilman and Schneider, *Way to Independence*, 327, 331, 332.
112. Gilman and Schneider, *Way to Independence*, 223, 338, 339.
113. Weltfish, *Lost Universe*, 389–92.
114. Weltfish, *Lost Universe*, 138, 139.
115. Vonderhey, *Secrets of the Omaha Bow*, 55–63.
116. G. L. Wilson, “Hidatsa-Mandan Report, 1911,” 10:97, MHS. This also attests to the high regard for women’s work among the Hidatsa, because the hard and time-consuming work of tanning just one of these massive hides was considered equal in value to the laborious and equally time-consuming manufacture of a sinew-backed bow.
117. Hassrick, *The Sioux*, 47.
118. G. L. Wilson, “Hidatsa-Mandan Report, 1911,” 10:104, MHS.
119. G. L. Wilson, “Hidatsa-Mandan Report, 1911,” 10:21, MHS.
120. Fowler, *The Arapaho*, 30.
121. Grinnell, *Cheyenne Indians*, 1:138, 142, 178.
122. Grinnell, *Cheyenne Indians*, 1:178.
123. Densmore, *Teton Sioux Music*, 439; Hassrick, *The Sioux*, 198; Weltfish, *The Lost*

*Universe*, 137, 138. According to Weltfish, however, among the Skidi Pawnee such marks did not indicate the owner of an arrow, but its maker. Therefore, they may have been similar to modern brand names or product logos.

124. Manitoba Museum, H 4.0–541 A and H4.0–541 B–J. This is a wide and thick self bow of birch with burnt and incised designs on back, 139 centimeters long. The bow and the arrows came to the museum from Jack Watt of Winnipeg. A search in the HBC employee files revealed only that a John Watt was employed by the HBC in 1959, but not where he was stationed.

125. Glover, *David Thompson's Narrative*, 237.

126. “Journal at Brandon House 1817.18 with some account of the Transactions at Fort Douglas &c &c &c &c by Peter Fidler, 1817, Sept 21st, 1817,” Brandon House Post Journal, 1817–18, F16d, B.22/a/20, HBCA.

127. Nye, *Plains Indian Raiders*, 258, 259.

128. Nabokov, *Two Leggings*, 35, 36.

129. Nye, *Plains Indian Raiders*, 258, 259.

130. Wallace and Hoebel, *The Comanches*, 101, quoting Herman Lehmann, a German settler who as a boy in the late nineteenth century had lived among Comanche and Apache. Lehmann, *Nine Years among the Indians*, 46.

131. G. L. Wilson, "Hidatsa-Mandan Report, 1911," 10:49, MHS.

132. Laubin and Laubin, *American Indian Archery*, 123.

133. Laubin and Laubin, *American Indian Archery*, 123; Koppedraye, "Cultural Signatures: Lakota Bows," <http://www.sfmission.org/museum/exhibits/bowsandarrows/signatures.html>, images 20, 21, 22, 28; Allely and Hamm, *Encyclopedia*, 2:153, 155, 157, 158, 161.

134. Burpee, *Journal of Anthony Henday*, 26, September 7, 1754. This may have been only a matter of differentiating between the long Subarctic arrows used by the Swampy Cree and short Plains arrows used by the Blackfoot and their allies.

135. Smyth, "Missed Opportunity," 341.

136. Joe Little Chief Fonds, M4394, f. 8, 1–6, Glenbow Archives.

137. Linderman, *Pretty Shield*, 121; Clark, *Indian Sign Language*, 98. In the Plains Indian sign language the Cheyenne were referred to by a gesture that indicated either the slashing of wrist and arm, or the "striping of arrows," possibly a reference to their use of wild turkey wing feathers with their alternating light and dark stripes for arrow fletchings.

5. Aboriginal Peoples and Firearms

1. Bamforth, *Ecology and Human Organization on the Great Plains*, 95; Binnema, "Allegiances and Interests," 331; Otterbein, "Why the Iroquois Won," 2, 3; Schilz and Worcester, "Spread of Firearms among the Indians"; Württemberg, *Travels in North America*, 338: "It is evident that the Omahas and Poncas are at a disadvantage when compared with the Sioux, in that they have fewer firearms than the latter."
2. Mandelbaum, *Plains Cree*, 262, see also 23, 30, 31, 37; Given, "Study of European Weapons Technology," 105.
3. Calloway, "Snake Frontiers," 87.
4. Diamond, *Guns, Germs, and Steel*, 74.
5. Ray, *Indians in the Fur Trade*, 146, 147; Townsend, "Firearms Against Native Arms"; B. J. Smith, "How Great an Influence Was the Gun in Historic Northern Plains Ethnic Movements?"; J. G. E. Smith, "Western Woods Cree," 442, 443.
6. In the 1740s, Joseph LaFrance, a former HBC employee, stated that "the Nations who go up that River with Presents, to confirm the Peace with them, are Three Months in going up; and say, they live beyond a Range of Mountains beyond the *Assinibouels*; and that beyond them are Nations who have not the Use of Fire Arms; by which means, many of them are made Slaves by them, and are sold to the *Assinibouels*, *Panis Blanc*, and *Christinaux*." Papers of Committee of House of Commons,

1749: Appendix to *Report from the Committee Appointed to Inquire into the State and Condition of the Countries adjoining to Hudson's Bay and of the Trade Carried on There, 1749*, 247, HBCA.

7. Glover, *David Thompson's Narrative*, 45.

8. Glover, *David Thompson's Narrative*, 95, 151.

9. Townsend, "Firearms Against Native Arms," 1.

10. Secoy, *Changing Military Patterns on the Great Plains*, 92. Mandelbaum, *Plains Cree*, 96, on the use of guns and bows among the Plains Cree: "Guns played a more important part in warfare than in the food quest. Bows were exclusively used in the buffalo pound, and for the concerted attack on a herd, the bow was almost as efficient as the gun. Only in stalking and tracking game did the gun give a decided advantage."

11. C. E. Hanson, *Northwest Gun*, 6.

12. Rosebush, *American Firearms and the Changing Frontier*, 48–59; C. P. Russell, *Guns on the Early Frontiers*, 248.

13. Townsend, "Firearms Against Native Arms," 3.

14. Louis Bird, *Our Voices*, 0014—"Guns and Bows," 5, 6.

15. Townsend, "Firearms Against Native Arms," 3.

16. Priming the weapon before loading the main charge was safer. When using paper cartridges, the weapon had to be primed first. Barry McPherson, Manitoba Living History Society, personal communication, May 2010.

17. Townsend, “Firearms Against Native Arms,” 5, 6.

18. Townsend, “Firearms Against Native Arms,” 6.

19. Townsend, “Firearms Against Native Arms,” 6; Junkelmann, *Die Reiter Roms, Teil 3*, 172.

20. Hassrick, *The Sioux*, 306.

21. Graham, *Andrew Graham’s Observations*, 236.

22. “How Bloods First Got Guns,” March 3, 1911, David C. Duval Papers, 1904–11, 3:621–26, M4376, Glenbow Archives.

23. “The Late Crooked Back Bone (O MO K KE KE NE),” 1, 2, Joe Little Chief Fonds, M4394, f. 14, Glenbow Archives. Joe Little Chief stated that Crooked Back Bone, a Blackfoot war leader, was born in 1832. When he was thirteen years old, European traders were said to have arrived by boat among the Blackfoot for the first time. They were said to have sold four rifles to the Blackfoot. These were likely muzzle-loaders and were said to have been the first firearms the Blackfoot encountered. However, the perception that Blackfoot people

were introduced to firearms only in 1845 does not correspond to fur trade records, which indicate that they had used such weapons at least since the mid-eighteenth century. For another account of this encounter, see “From 1830 to the Year Crow Foot Was Born,” 3, Joe Little Chief Fonds, M4394, f. 22, Glenbow Archives.

24. According to a passage from the York Factory Post Journal by James Knight, at least some HBC employees were trained in marksmanship at their posts: “I gave to Men some Powder & Ball, etc. to practice shots at a mark to make them perfect to bring themselves fit for hunting.” Knight, York Factory Post Journal, October 14, 1717, 1M 154, B.239/a/1, fo. 22, HBCA.

25. Glover, *David Thompson’s Narrative*, 242.

26. Linderman, *Plenty Coups*, 17, 18.

27. Maurice Doll, curator of military and political history at the Provincial Museum of Alberta in Edmonton (now Royal Alberta Museum), personal communication and demonstration, August 2002.

28. The linguist Richard Lancaster recorded a description of a very similar loading method from the Blackfeet elder James White Calf. However, Lancaster did not provide information on the spiritual and cultural context of this account. Lancaster, *Piegan*, 201, 207–10. See also Grinnell, *Cheyenne Indians*, 1:100: “[The late nineteenth century Cheyenne leader] Buffalo

Chief had a peculiar way of handling his gun. After loading it he used to hit the stock on the ground. He never missed his aim.”

29. Grinnell, *Cheyenne Indians*, 201, 207–10. Robert Brightman recorded a story from the Rock Cree of northern Manitoba about magical ways to operate firearms. Johnny Bighetty’s grandfather Okimaw Acahpy (Bow Chief/Master of the Bow) was said to have killed a caribou by loading his muzzle-loader with snow during a harsh winter when bullets and powder were hard to come by. Brightman, *Acaohkiwina and Acimowina*, “Okimaw Acahpy kills a caribou with snow,” 150.

30. Catlin, *Letters and Notes on the Manners, Customs, and Conditions of the North American Indians*, 1:141. As an archer with no special expertise in rapid shooting, I am able to shoot three arrows in this type of game. When shooting at targets at chest height, I am able to shoot about a dozen arrows per minute at short range.

31. Catlin. *Letters and Notes*, 1:141, 142.

32. Grinnell, *Cheyenne Indians*, 1:177.

33. T. Wilson, “Arrow Wounds,” 523.

34. Hamilton, *Native American Bows*, 30.

35. C. E. Hanson, *Northwest Gun*, 12.

36. C. E. Hanson, *Northwest Gun*, 6–7.

37. Papers of Committee of House of Commons, Appendix to *Report from the Committee Appointed to Inquire into the State and Condition of the Countries adjoining to Hudson's Bay and of the Trade Carried on There, 1749*, 257, HBCA. The original that may have served as the basis for this version of the document could not be located at the Hudson's Bay Company Archives. This document was cited in Woodward, "Trade Goods of 1748," 5; and C. E. Hanson, *Northwest Gun*, 12–13.

38. The term "Northwest Gun" referred to the northwest of North America, the region where the weapons were mainly to be sold, and antedates the founding of the North West Company of Montreal. The first known reference to Northwest guns appears in the journal of John Long, who traded for an independent Montreal merchant north of Lake Superior from 1777 to 1780. Thwaites, *John Long's Journal*, 2:93.

The Montana Blackfeet referred to these weapons as "North Guns" because they were mostly traded from posts north of the border between Canada and the United States. C. E. Hanson, *Northwest Gun*, 2, 15.

39. C. E. Hanson, *Northwest Gun*, 15.

40. York Fort Account Book, July 1689–July 1690, B.239/d/1, fos. 53–53d, HBCA. These documents were also cited in Mancke, *Company of Businessmen*, 77, 78.

41. Oldmixon, “History of Hudson’s-Bay” (1708), 380, 381.

42. Hamilton, *Colonial Frontier Guns*, 20.

43. Mancke, *Company of Businessmen*, 52. Mancke cited London Office to James Knight, May 31, 1717, A.6/4, fo. 11d, and Invoice Book, A.24/2, fos. 32d-33, 37d-38, 60–60d, 67–67d, 81, both HBCA.

44. Mancke, *Company of Businessmen*, 56, 57.

45. Lucas, *Appendiculae Historicae*, 37, also cited in C. E. Hanson, *Northwest Gun*, 7, 20, 21.

46. Piers, “Firearms of the Hudson’s Bay Company,” 62; C. E. Hanson, *Northwest Gun*, 7.

47. Maximilian, *Travels in the Interior of North America*, 22:389: “Like all Indians, they [the Assiniboine] carry, besides, a separate ramrod in their hand, a large powder-horn, which they obtain from the fur company, and a leather pouch for the balls, which is made by themselves, and often neatly ornamented, or hung with rattling pieces of lead, and trimmed with coloured cloth. All have bows and arrows; many have these only, and no gun. The case for the bow and the quiver are of the skin of some animal, often of the otter, fastened to each other; and to the latter the tail of the animal, at full length, is appended. The bow is partly covered with elk horn, has a very strong string of twisted sinews of animals, and is wound round in different places with the same to

strengthen it. The bow is often adorned with coloured cloth, porcupine quills and white strips of ermine, but, on the whole, this weapon does not differ from that of the Sioux.”

48. Maximilian, *Travels in the Interior of North America*, 22:389n365.

49. C. E. Hanson, *Northwest Gun*, 2, 3.

50. C. E. Hanson, *Northwest Gun*, 2, 3.

51. C. E. Hanson, *Northwest Gun*, 1.

52. Ray, *Indians in the Fur Trade*, 73.

53. C. E. Hanson, *Northwest Gun*, 1, 6.

54. Edmonton House Post Journal, October 12 and 31, 1808, B.60/a/8, reel 1M49, HBCA.

55. C. E. Hanson, *Northwest Gun*, 54.

56. Louis Bird, *Our Voices*, 0014—“Guns and Bows,” 7.

57. Smyth, “Niitsitapi Trade,” 483–84; Maximilian, *Travels in the Interior of North America*, 23:134–35, August 12, 1833. A Kainai man shot an employee of the American Fur Company inside Fort McKenzie with a pistol. The Kainai claimed it was an accident, but later John Rowand at Edmonton House noted: “The Bulls Back Fat a Blood Indian chief the vagabond who first visited the Americans at the Yellow Stone and is now their support at Bears [Marias] River paid Mr. Harriott a visit accompanied by his son a

villain who boasts of having shot an American lately in the very Fort where a Gentleman of the name of Mitchell has charge.” Smyth, “Niitsitapi Trade,” 484; Edmonton House Post Journal, November 2, 1833, B.60/a/28, reel 1M50, HBCA.

58. C. E. Hanson, *Northwest Gun*, 64.

59. C. E. Hanson, *Northwest Gun*, 33, 64 (plate 8A), illustration of a Sioux hide scraper made from a fusil barrel. Baillargeon, *North American Aboriginal Hide Tanning*, 7.

60. Manchester House Post Journal, 58, January 6, 1789, 1M 73, B121/a/3, HBCA.

61. Fehrenbach, *The Comanches*, 260–63.

62. Anderson, “The Last Indian Battle,” 39.

63. Anderson, “The Last Indian Battle,” 39.

64. Schultz, *Friends of My Life as an Indian*, 233–34; C. E. Hanson, *Northwest Gun*, 51.

65. Letter from James Willard Schultz to Charles E. Hanson, February 6, 1939; C. E. Hanson, *Northwest Gun*, 1.

66. Nabokov, *Two Leggings*, 20, 67.

67. Maximilian, *Travels in the Interior of North America*, 22:389.

68. Anderson, “The Last Indian Battle,” 38, 39.

69. C. E. Hanson, *Northwest Gun*, 34.

70. Marquis, *Wooden Leg*, 213; C. E. Hanson, *Northwest Gun*, 50.

71. Roberts, *Muzzle-Loading Cap Lock Rifle*, 1940), 141; C. E. Hanson, *Northwest Gun*, 3, 18, 19.

72. Minutes of the Hudson's Bay Company, 1670 and 1671, 1-A 1/1, fos. 6, 14, HBCA. For published excerpts from these documents, see Nute, "Minutes of the Hudson's Bay Company," 46.

73. London office to chief trader Henry Sergeant, May 16, 1684, in Rich, *Letters Outward, 1679–1694*, 11:122–24. These guns were referred to as "short guns of three and a half foote" and "four and a half foote." See also Mancke, *Company of Businessmen*, 47, 48.

74. Sales may have been low at that time because of the French takeover of the bayside posts.

75. Hamilton, *Colonial Frontier Guns*, 20–22.

76. Hamilton, *Colonial Frontier Guns*, 21.

77. Manchester House Post Journal, 20–22, February 13, 1791, 1M 74, B121/a/6, HBCA.

78. "Journal of Transactions in 1792 & 93 by William Tomison," F14d, November 22, 1792, Buckingham House Post Journal, 1792–93, B.24/a/1, 4M 18, HBCA.

79. "Journal . . . by William Tomison," F43d, March 1, 1793.

80. Jackson, *Jemmy Jock Bird*, 59.
81. Ray, *Indians in the Fur Trade*, 151. Notes to page 176
82. For a more detailed discussion of population figures for Northern Plains groups, see Brumley and Dau, *Historical Resource Investigations within the Forty Mile Coulee Reservoir*, 264, 265; and Bamforth, *Ecology and Human Organization on the Great Plains*, 106–8.
83. Buckingham House Post Journal from 1792 to 1793 by William Tomison, 26, December 5 and 7, 1793, B.24/a/2, 1M 18, HBCA.
84. File 2, Late White Eagle, Joe Little Chief Fonds, M4394, Glenbow Archives. White Eagle, Joe Little Chief's grandfather, was born in 1842.
85. "Journal at Brandon House 1817–18 with some account of the Transactions at Fort Douglas &c &c &c &c by Peter Fidler," March 7, 1818, F37d, Brandon House Post Journal, 1817–18, B.22/a/20, HBCA.
86. Wood and Irwin, "Mandan," 352.
87. R. W. Meyer, *Village Indians of the Upper Missouri*, 97; Catlin, *Letters and Notes on the Manners, Customs, and Conditions*, 1:80, letter 11; Maximilian, *Travels in the Interior of North America*, 23:255.

88. Pitoxpikis (Eagle Rib) Sleigh via Mary Royal, 1938, interview, Box 1, Series 1, Hanks Fonds, M8458, Glenbow Archives.
89. Catlin, *Letters and Notes on the Manners, Customs, and Conditions*, 1:42–45, letter 7; Maximilian, *Travels in the Interior of North America*, 23:90, 95, 96; Ewers, *The Blackfeet*, 37.
90. Ewers, *The Blackfeet*, 60, 212.
91. C. E. Hanson, *Northwest Gun*, 16.
92. C. E. Hanson, *Northwest Gun*, 2; These weapons parts are now part of the collections of the Nebraska State Historical Society.
93. Manchester House Post Journal, 28, November 9–10, 1789, 1M 74, B121/a/4, HBCA.
94. C. E. Hanson, *Northwest Gun*, 2–3.
95. Townsend, “Firearms Against Native Arms,” 3.
96. “A Journal of Transactions and Occurrences at Fort Albany by Mr Edward Jarvis Chief Factor for the Honble Hudson Bay Company Commencing the 14th of September 1784 Ending the 16th of September 1785,” October 19, 1784. Albany Journal, 1784–85, 1M8, B.3/a/84, HBCA.
97. “Journal of Transactions in 1792 & 93 by William Tomison,” F17, January 5, 1793; F18, January 18, 1793; F21, February 18, 1793, Buckingham House Post Journal, B.24/a/1, 4M 18, HBCA.

98. Manchester House Post Journal, 24, 1M 73, B 121/a/2, HBCA.
99. Manchester House Post Journal, February 2, 1788.
100. Manchester House Post Journal, November 21, 1786.
101. Letter from James Bird at Carlton House to George Sutherland at Edmonton House, November 28, 1796, 13, Edmonton House Post Journal, 1M 48, B.60/a/2, HBCA.
102. Manchester House Post Journal, 45–47, March 11–13, 1790, 1M 74, B.121/a/4, HBCA.
103. Manchester House Post Journal, 28, March 13, 1788, 1M 73, B.121/a/2.
104. C. E. Hanson, *Northwest Gun*, 36, 37, plates XA XB, XIA, XIB.
105. Hamilton, *Colonial Frontier Guns*, 94, 95.
106. “A Journal of the Most Remarkable Transactions and Occurrences at Gloucester House from 1st August 1782 to 20th June 1783 by Mr. John Kipling,” F7, October 10, 1782, Gloucester House Journal, 1782–83, B.78/a/8, HBCA.
107. Manchester House Post Journal, 28, January 13, 1787, 1M 73, B121/a/1. David Thompson made similar observations in regard to firearm malfunctions due to extreme cold. Glover, *David Thompson’s Narrative*, 31.

108. Manchester House Post Journal, 25, January 13, 1787, 1M 73, B121/a/2.

109. “Journal of Transactions in 1792 & 93 by William Tomison,” F17d, January 2, 1793, Buckingham House Post Journal, B.24/a/1, 4M 18, HBCA.

110. “Journal . . . by William Tomison,” F17, Monday, January 7th, 1793.

111. Louis Bird, personal communication, Winnipeg, October 2001.

112. Houston et al., *Eighteenth-Century Naturalists*, 117.

113. Houston et al., *Eighteenth-Century Naturalists*, 116.

114. Edmonton House Post Journal, 31, October 24, 1795; letter from William Tomison to James Spence, 3–4, November 12, 1795, Edmonton House Post Journal, both 1M 48, B.60/a/1, HBCA.

115. Fidler, “Journals of Exploration and Survey, 1790–1809, June 25, 1807,” E.3/3, 4M 103, F14, HBCA.

116. Mandelbaum, *Plains Cree*, 56.

## 6. Injuries Caused by Arrows and Firearms

1. Laubin and Laubin, *American Indian Archery*, 142.

2. “How a Chief Builds a Following,” 16, Hanks Fonds, Box 1, Series 1, M8458, Glenbow

Archives; Fidler, “Journal of a Journey over Land,” 14, December 25, 1792, HBCA.

3. Gilman and Schneider, *Way to Independence*, 76, 103; Louis Bird, *Our Voices*, 0014—“Guns and Bows.”

4. T. Wilson, “Arrow Wounds,” 521, 529.

5. Junkelmann, *Die Reiter Roms, Teil 3*, 171, 172; Kalas, “Schuessversuche mit historischen Feurwaffen,” 60.

6. Aboriginal people depended on trade with Europeans for their supply of gunpowder. In order to save powder, Aboriginal people would often load their weapons with slightly less than the required amount of powder. This resulted in lower projectile velocity and lower penetrative force. However, at short range the difference was minimal.

7. Junkelmann, *Die Reiter Roms, Teil 3*, 171, 172.

8. Odom, “Black Powder Ballistics,” 4, <http://www.televar.com/~willgo/pastgate/notebook/balistics/ball.htm> (accessed June 28, 2004). Projectile velocities of reproduction trade guns reached from 1090 fps (332 m/s) to 1240 fps (378 m/s) (charge: 80 grains FFg to 90 grains FFg, ball size .570). Northwest guns were mostly 24 gauge, ca. .58 caliber. C. E. Hanson, *Northwest Gun*, 2, 3.

9. Fidler, “Journal at Red River Settlement” (F50–18478), Sunday, June 11, 1815, Selkirk

Papers MG 2, A1, Vol. 69, p. 18, 429–18, 534, HBCA.

10. Manchester House Post Journal, 13, September 12, 1787, 1M 73, B121/a/2, HBCA.

11. Manchester House Post Journal, 33, April 17, 1788, 1M 73, B.121/a/2, HBCA.

12. Manchester House Post Journal, 55, May 19, 1790, 1M 74, B.121/a/4, HBCA.

13. Catlin, *Letters and Notes on the Manners, Customs, and Conditions*, 1:39.

14. Junkelmann, *Die Reiter Roms, Teil 3*, 165–73.

15. The arrows were shot through a chronograph at Heights Archery, an indoor archery range in Winnipeg.

16. Although the second arrow was lighter, probably the rather large fluff feathers at the front end of the fletching caused its lower velocity.

17. Bergman et al., “Experimental Archery.”

18. Junkelmann, *Die Reiter Roms, Teil 3*, 171, 172.

19. Junkelmann, *Die Reiter Roms, Teil 3*, 167; T. Wilson, “Arrow Wounds,” 528. The U.S. Army Medical Museum has a bison shoulder blade with a metal arrowhead lodged in its inside. The arrow, shot during a bison hunt, was apparently powerful enough to penetrate most of the animal’s body and was only prevented from entirely piercing the

animal by the shoulder blade. Laubin and Laubin, *American Indian Archery*, 142. According to Reginald Laubin, the Lakota White Bull, a nephew of Sitting Bull, completely pierced the body of a female bison with an arrow.

20. T. Wilson, "Arrow Wounds," 521, 529.

21. Linderman, *Plenty Coups*, 210–12.

22. T. Wilson, "Arrow Wounds," 519; Wallace and Hoebel, *The Comanches*, 105; Bill, "Notes on Arrow Wounds," 368.

23. T. Wilson, "Arrow Wounds," 519.

24. G. L. Wilson, "Hidatsa-Mandan Report, 1911," 10:10, 41, MHS. Gilbert Wilson did not give any botanical name for "snakewood." Wolf Chief mentioned that snakewood grew on the side of clay hills in the vicinity of the Little Missouri River in western North Dakota. It had sharp thorns, somewhat like rose bushes. He stated that it grew in finger-sized sticks and turned yellow when the bark was removed. Wolf Chief mentioned that the wood was usually used exclusively for war arrows, because it was considered poisonous. However, Wolf Chief had used snakewood arrows to hunt rabbits.

25. G. L. Wilson, "Hidatsa-Mandan Report, 1911," 10:41, 42, MHS.

26. Grinnell, *Cheyenne Indians*, 1:183. However, Black Elk expressed a different opinion, which

may have been based on his unfamiliarity with the actual combat capabilities of stone arrowheads, suggesting that only after the adoption of metal arrowheads did arrows become effective combat weapons: “I am going back to tell you how they used bows and arrows. . . . At that time the bow and arrow was not developed so that it did much harm. When the white man came they used iron for the point, and it came to be very effective.” DeMallie, *The Sixth Grandfather*, 316.

27. Mason, *North American Bows, Arrows, and Quivers*, 36.

28. Stodiek and Paulsen, *Mit dem Pfeil, dem Bogen . . . : Technik der steinzeitlichen Jagd*, 35, 52; Silsby, “Stone Points,” 3:310–13.

29. E. N. Wilson, *Among the Shoshones*, 6, 44. E. N. Wilson was born on April 8, 1843, and came to Utah with his Mormon parents in 1850, where they farmed. A man working on his father’s farm taught him the Gosiute language, which is related to Shoshone. When he was about twelve years old, Wilson ran off with a group of Shoshones. After living with Chief Washakie’s family among the Eastern Shoshones for approximately two years, he was sent back to his family. Wilson eventually had his own farm and later became a pony express rider, stagecoach driver, and hotel owner. He spent his later years in the town of Wilson, Wyoming, named after him, where he died on December 27, 1915.

Concerning the death of Washakie's father, Virginia Cole Trenholm stated that that he was killed by Blackfoot raiders in an attack upon his village, giving the impression that he died outright, not after suffering from his injuries for a year. Trenholm, *The Shoshonis*, 98.

E. N. Wilson noted that Washakie's mother stated her mother was Bannock and her father Shoshone. She was said to be sixty-two years old when Wilson came to her. She had three sons and a daughter, but by the time Wilson arrived, Washakie was her only living child. E. N. Wilson, *Among the Shoshones*, 45.

30. E. N. Wilson, *Among the Shoshones*, 108, 109.

31. Bill, "Notes on Arrow Wounds" and "Sabre and Bayonet Wounds; Arrow Wounds."

32. E. N. Wilson, *Among the Shoshones*, 159.

33. E. N. Wilson, *Among the Shoshones*, 160.

34. Mason, *North American Bows, Arrows, and Quivers*, 18.

35. Schulze-Thulin, *Indianer der Prärien und Plains*, 72, 73; Württemberg, *Travels in North America*, 283.

36. Mandelbaum, *Plains Cree*, 94, 95. "War arrows were loosely bound so that the head remained in a wound when the shaft was withdrawn."

37. “Journal at Brandon House 1817–18 with some account of the Transactions at Fort Douglas &c &c &c &c by Peter Fidler,” Wednesday, July 13, 1817, folder 7, Brandon House Post Journal, B.22/a/20, HBCA. Note that Fidler wrote that two of the three Bungees were killed “on the spot” by firearms, suggesting an instant and powerful stopping effect of these weapons.
38. Württemberg, *Travels in North America*, 283.
39. Schulze-Thulin, *Indianer der Prärien und Plains*, 72, 73; Württemberg, *Travels in North America*, 269.
40. T. Wilson, “Arrow Wounds,” plates 17, 18, 19.
41. Bill, “Notes on Arrow Wounds” and “Sabre and Bayonet Wounds; Arrow Wounds.”
42. Junkelmann, *Die Reiter Roms, Teil 3*, 171, 172; Linderman, *Plenty Coups*, 106.
43. C. E. Hanson, *Northwest Gun*, 3.
44. T. Wilson, “Arrow Wounds,” 519, 520.
45. Linderman, *Plenty Coups*, 304.
46. Linderman, *Plenty Coups*, 304; Grinnell, *Cheyenne Indians*, 2:142.
47. Linderman, *Plenty Coups*, 304–7.
48. G. L. Wilson, “Hidatsa-Mandan Report, 1911,” 10:59, MHS.

49. T. Wilson, "Arrow Wounds," 531.
50. Grinnell, *Cheyenne Indians*, 2:147.
51. Bill, "Sabre and Bayonet Wounds; Arrow Wounds."
52. Hassrick, *The Sioux*, 85, 307.
53. Laudicina, "Of Natives and Justice in the District of Assiniboia"; *Public Interest vs. Capenessesweet*, August 1849, I, 23, 33, Manitoba Archives.
54. "Journal of Transactions in 1792 & 93 by William Tomison," F29d, Tuesday, April 23, 1793, Buckingham House Post Journal, B.24/a/1, 4M 18, HBCA.
55. Townsend, "Firearms Against Native Arms," 3.
56. R. E. Wilson, *Frank J. North*, 160, 161.
57. Secoy, *Changing Military Patterns on the Great Plains*, 16–19.
58. "A Journal of the Most Remarkable Transactions and Occurrences at Gloucester House from 1st August 1782 to 20th June 1783 by Mr. John Kipling," September 28, 1782, Gloucester House Post Journal, HBCA. The person referred to as "Lieut." was probably an Aboriginal leader, whom the HBC gave this "rank" in recognition of his leadership services and his inducement of his people to trade with the HBC.

This person might have been a member of the so-called homeguard Indians.

59. George Sutherland, August 23, 1777, Albany Post Journal, 27 June 1777 to 27th June 1778, F11, B.3/a/73, HBCA.

60. George Sutherland, August 25, 1777, Albany Post Journal, 27 June 1777 to 27th June 1778.

61. C. E. Hanson, *Northwest Gun*, 1.

62. Nabokov, *Two Leggings*, 2.

63. Townsend, "Firearms Against Native Arms," 5.

64. Jefferson, *Fifty Years on the Saskatchewan*, 66.

65. John Kipling, F17, May 26, 1785, Gloucester House Post Journal, 1784–85, B.78/a/12, HBCA. One cannot help but wonder about the dire consequences of this accident for an orphaned girl, possibly left without family members to support her, even if she survived the injury. Louis Bird stated that kindness to orphans was emphasized as a particularly important virtue in Omushkego-Cree culture.

## 7. Archery and Firearms in Aboriginal Beliefs

1. Henry, *Journal of Alexander Henry the Younger*, 2:538, Wednesday, February 13, 1811.

2. Glover, *David Thompson's Narrative*, 254.

3. Warburton and Duke, "Projectile Points as Cultural Symbols," 214; Grinnell, "Childbirth among the Blackfeet."
4. Warburton and Duke, "Projectile Points as Cultural Symbols," 214.
5. G. L. Wilson, "Hidatsa-Mandan Report, 1911," 10:10, 91, MHS; Grinnell, *Cheyenne Indians*, 1:127; Linderman, *Pretty Shield*, 55.
6. G. L. Wilson, "Hidatsa-Mandan Report, 1911," 10:85, MHS.
7. G. L. Wilson, "Hidatsa-Mandan Report, 1911," 10:79–86, MHS.
8. Crooked Meat Strings via Mary White Elk, August 8–10, 1938, 252, file 9, Hanks Fonds, M8458, Box 1, Series 1, M8458, Glenbow Archives; Dixon, *The Vanishing Race*, 62.
9. Dixon, *Vanishing Race*, 62. A similar statement is attributed to the Lakota leader Sitting Bull: "I have followed the war path ever since I was able to draw a bow." Calloway, *Our Hearts Fell to the Ground*, 191. Calloway cites Vestal, *New Sources of Indian History*, 309–10.
10. The Plains Aboriginal leader whose people (Gros Ventre or Blackfoot) Anthony Henday tried to induce to come to Hudson Bay to trade with the HBC in 1754–55 responded to Henday's proposal "that it was far off, & they could not live without Buffalo flesh; and that they could not leave their horses &c.: and many other obstacles, though all

might be got over if they were acquainted with a Canoe, and could eat Fish, which they never do.” Burpee, *Journal of Anthony Henday*, October 15, 1754, 32. Similarly, European traders often expressed negative views on fishing peoples, while praising mounted bison hunters as daring, active, and manly. For a discussion of these distorted European perceptions of Aboriginal food production systems and the cultural values and gender aspects Aboriginal people of the Plains and Plateau attached to different foods, see Vibert, *Trader’s Tales*, chapter 4, “Traders and Fishers: Tales of the State of Nature,” 119–62.

11. G. L. Wilson, “Hidatsa-Mandan Report, 1911,” 10:93–104, MHS, related by Buffalo Bird Woman and Goodbird, song related by Buffalo Bird Woman, 94. Perhaps this song was meant as a metaphor for the boys’ lack of adult sexuality, using archery as a vehicle to convey an explicitly sexual sense of humor. As women usually made moccasins for their husbands, the reference to being barefoot could have been an allusion to the boys’ not yet being married or fully adult.

12. Linderman, *Pretty Shield*, 55–64.

13. Ball, *Indeh, an Apache Odyssey*, 211; Grinnell, *Cheyenne Indians*, 1:176. Even contemporary archers, subconsciously or not, often view a bow with a high draw weight as a mark of masculinity. At traditional archery tournaments one can often encounter male archers (author not necessarily

excluded) bragging of their bows with draw weights of 60, 70, or even 80 pounds. However, at the end of the tournament, more often than not, female competitors, using much lighter bows of draw weights from 28 to 40 pounds, keep hitting the bull's-eye while their male companions shake and shiver from the strain of merely bringing their bows to full draw length, not to mention aiming accurately.

14. Laubin and Laubin, *American Indian Archery*, 127, 128, 130. It is not clear when and where quiver-bow case combinations evolved. Painters such as George Catlin and Karl Bodmer, who traveled the North American West in the early 1830s, depicted just as many single quivers as quiver-bow case combinations in their paintings of Aboriginal people. It may be that during this time the single quiver gradually gave way to the quiver-bow case combination.

15. Catlin, *North American Indians*, 93, letter 13.

16. G. L. Wilson, "Hidatsa-Mandan Report, 1911," 10:60–62, MHS. In contrast, Prince Maximilian observed a Hidatsa man returning from the hunt wearing a richly decorated quiver of "panther fur." Maximilian, *Travels in the Interior of North America*, 24:66.

17. This may have been a reason for the coexistence of single quivers and quiver-bow case combinations, or possibly a reflection of older practices dating back to times when only single

quivers had been in use. In the summer of 1833 Prince Maximilian observed Plains Cree men at Fort McKenzie in Montana who “wore the leather cases of their bows wound round their heads, like a turban.” Maximilian, *Travels in the Interior of North America*, 23:13.

18. This method of carrying arrows when courting reflected older practices. Wolf Chief related that when his father was young (in the early nineteenth century) the Hidatsa still used flint arrowheads. These arrows were placed in the quiver with the feather toward the bottom and the arrowheads exposed above the rim of the quiver. This was originally done to prevent the arrowheads from breaking when they rattled against each other as the archer moved. For added protection, a little wool from the head of a buffalo was twisted around each arrowhead.

When the arrow was withdrawn from the quiver, the wool was ripped off before shooting. G. L. Wilson, “Hidatsa-Mandan Report, 1911,” 10:9–11, 50, 51, MHS.

19. Among the Mandan, Hidatsa, and other Northern Plains peoples, specific decorations and embroidery, such as striped leggings, striped quillwork designs on bows, and striped beadwork on leggings, quivers, and pipe bags, visually expressed the military achievements of the wearer. Wolf Chief related: “Red stripes were sometimes painted on bows, meaning ‘I used this

bow to strike an enemy!” G. L. Wilson, “Hidatsa-Mandan Report, 1911,” 10:11, MHS.

20. G. L. Wilson, “Hidatsa-Mandan Report, 1911,” 10:60, MHS.

21. Bodmer, *Karl Bodmer’s America*, 160, 161; images of Omaha men, 315; portrait of the Mandan Sih-Sä (Red Feather), 321, 356. Wolf Chief related that elkhorn bows carried on such occasions were not intended for big game hunting and combat but rather were for decorative purposes, only capable of killing rabbits but not large animals. On the other hand, bows of Rocky Mountain sheep horn were very efficient and powerful weapons, well suited for use in combat and in big game hunting. G. L. Wilson, “Hidatsa-Mandan Report, 1911,” 10:10, 21, 22, 60, MHS.

22. G. L. Wilson, “Hidatsa-Mandan Report, 1911,” 10:93, MHS.

23. “Deer’s Hair, Son of Keokuk,” and “Grandson of Buffalo Bull’s Back Fat.” Truettner, *Natural Man Observed*. Karl Bodmer’s and George Catlin’s paintings were certainly influenced by their own bias toward what they perceived as “traditional” Aboriginal culture, as well as by the expectations of their target audience, middle- and upper-class whites in Europe and in the eastern United States. Unlike their contemporaries Gustav Sohon and Paul Kane, they hardly ever painted Métis people, and they rarely painted Plains

Indians wearing European clothing, even though shirts, blankets, and textile leggings were in widespread use in the Plains by the time of Bodmer's and Catlin's visits. However, it would go too far to ascribe all Aboriginal attire depicted by Catlin and Bodmer to mere artistic license. Especially in the Southern Plains, many photographs from the later nineteenth century confirm earlier traditions of wearing elaborate archery gear for dress occasions.

24. Walking Elk, *Art of Making Indian Bows and Arrows*, 3, 6; Nye, *Plains Indian Raiders*, 216 (Kicking Bird, Kiowa), 238 (Horseback, Nokoni Comanche), 240 (Horseback's son), 296 (Esa-Havey, Penateka Comanche), 320 (Gui-Tain, Kiowa), 322 (Koi-Khan-hole, Kiowa), 324 ("Kiowa-brave"), 328 (Tape-Day-Ah, Kiowa), 346 (Powder Face and family, Arapaho).

25. Crowshoe and Manneschmidt, *Akak'stiman*, 24–27. Blackfoot scholar Theresa Schenck related that among her ancestors, archery sets could become Medicine Bundles in their own right. Schenck, personal communication, February 2005, Winnipeg.

26. Hanna, *Life and Times of James Willard Schultz (Apikuni)*. Schultz grew up in Boonville in upstate New York and had come to Montana in the late nineteenth century. He went to Montana motivated by a "romantic" interest in the Indigenous people of the Great Plains and by a dislike for the restrictions imposed on him by

small- town society in rural New York state. Schultz soon became acquainted with Joseph Kipp, son of the fur trader James Kipp and a Mandan woman. Kipp offered Schultz employment in his trading venture, selling alcohol and other trade goods to the Piegan-Blackfoot in return for bison robes and other furs. Schultz married a Piegan woman and spent considerable amounts of time with the Piegan people. Schultz did not specify whether this was a quiver-bow case combination or only a bow case.

27. *Boy's Life*, July, August, and September 1935. Later, Schultz published a condensed version in *Blackfeet and Buffalo*, 179–93.

28. Jackson, *Jemmy Jock Bird*, 103, 186n22.

29. Jackson, *Jemmy Jock Bird*, 186n21.

30. Swampy Cree people considered ermine skins as “Manitou,” having spiritual importance. Tyrrell, “Letters of La Potherie,” 228.

31. Schultz, *Blackfeet and Buffalo*, 210–25.

32. Quiver and bow case, cowhide, Peigan (bow AF 4293b and arrows AF 4293d, etc.) AF 4293a, Glenbow Museum, Calgary.

33. Quiver–bow case made of otter fur, decorated with seed beads, Piegan-Blackfeet, donated by George Bird Grinnell, American Museum of Natural History, catalog no. 50.2/2854, accession no. 1927–19. A

line drawing of this object was published in Allely and Hamm, *Encyclopedia of Native American Bows, Arrows, and Quivers*, 2:142.

34. From “Indians meet Royalty,” in *Report of the Northwest Mounted Police 1906*, 11:54 (Government of Canada, Ottawa, *Sessional Papers*, no. 28), Box I, file 2, Gooderham Fonds, Glenbow Archives. The bow and arrows currently contained in this quiver–bow case were not fit for big game hunting. The little bow was ingeniously crafted to resemble a sheep horn bow. It is a self bow made from a tree branch. The bark that was left on it gives the appearance of a sinew backing. The bow has the same elegant curves and narrowing recurved tips as a sheep horn bow. The arrows have elaborate oblong wooden points, similar to gaming arrows. While this bow might have been able to launch light arrows to some distance, the equipment would hardly have been capable of taking large game such as a bison or a steer. The bark, or “imitation sinew backing,” has broken under tension stress on one limb of the bow, probably because the bow was overdrawn at some point.

35. No such image could be located at the Glenbow Archives.

36. G. L. Wilson, “Hidatsa-Mandan Report, 1911,” 10:63, MHS.

37. Louis Bird, *Our Voices*, 0014—“Guns and Bows.”

38. E. S. Rogers, *Material Culture of the Mistassini*, 70.

39. Mails, *Plains Indians*, 78, 190, 215.

40. Crowshoe and Manneschmidt, *Akak'stiman*, 16; Wissler, *Societies and Dance Associations of the Blackfoot Indians*, 365–70.

41. Wissler, *Societies and Dance Associations of the Blackfoot Indians*, 375.

42. Mails, *Plains Indians*, 91, 92.

43. Mails, *Plains Indians*, 91, 92. According to Clark Wissler, Bear Skin, a Piegan man who was then seventy-five years old, told Wissler in 1910 that he had been a founding member of the Pigeon Society when he was eighteen years old. This would place the founding of the Pigeon Society in 1853. According to Bear Skin, an old blind man named Ghost Boy had founded the society due to a vision. Wissler, *Societies and Dance Associations of the Blackfoot Indians*, 375. It is not clear to what extent the founding and activities of the Pigeon Society constituted a response to the increasing social stratification that occurred in Blackfoot-speaking communities during the nineteenth century.

44. Mails, *Plains Indians*, 91, 92.

45. Mails, *Plains Indians*, 91, 92; McClintock, *Old North Trail*, 449, 450.

46. Mails, *Plains Indians*, 92; McClintock, *Old North Trail*, 449, 450. During the Massaum ceremony, or “animal dance,” of the Cheyenne, four dancers, or “clowns,” also harassed the audience playfully with red-painted bows and arrows. Grinnell, *Cheyenne Indians*, 2:205ff, 286, 287, 329ff, 334.

47. Provincial Museum of Alberta, Edmonton: H89.220.415a–f, self bow with thick handle and five crudely made arrows with very crooked shafts, three have the tips of the shafts whittled to a point, two have crude stone points, all have crude fletchings, much shorter and the vanes much higher than on older plains arrows. H89.220.414i–k, Blood self bow and two arrows: self bow is reminiscent of the old Plains type, arrow shafts are relatively straight, but with rather simple fletchings. These items are part of the Scriver collection, a private collection that the Provincial Museum of Alberta purchased in 1989. Bob Scriver and his father, Thaddeus, had a store in Browning, Montana, and collected primarily Blackfoot material for close to 100 years but unfortunately did not keep detailed records identifying exactly when and from whom they had acquired particular objects. The H65 and H66 materials were purchased in 1965 and 1966 by museum staff. H65.264.5a was made recently, according to the catalogue notes, which probably means in the early 1960s. According to curator Dr. Susan Berry, the H65.212 and H66.200 materials are older than that, but there is no

specific information about their age. (Susan Berry, Provincial Museum of Alberta, Edmonton, e-mail to author, August 26, 2004.) H65.212.1A + B, thick-handled self bow and arrow from the Blood at Cardston, Alberta (date unknown). H65.264.5A, recent replica of Pigeon Society self bow (thick handle) from the Blood at Cardston, Alberta. H66.200.1A + B, self bow and arrow from the Siksika at Gleichen, Alberta: self bow is of older design, without riser handle, similar to nineteenth-century Plains self bows. The arrow shaft appears to be relatively straight, the bow and arrow are covered in red ochre, and the bow has a sinew string. H89.220.414i-k, Blood self bow and two arrows: self bow is reminiscent of the old Plains type, arrow shafts are relatively straight but with

rather simple fletchings, different from the long and low-cut fletchings commonly found on Plains big game hunting or combat arrows.

48. Bob et al., "Standing Alone," *First Nations: The Circle Unbroken*, vol. 1, videorecording.

49. Grinnell, *Cheyenne Indians*, 2:57.

50. Linderman, *Plenty Coups*, 40.

51. Linderman, *Pretty Shield*, 53.

52. Fowler, *The Arapaho*, 14.

53. R. N. Wilson Papers, 1:21, 22, Glenbow Archives.

54. Ahenakew, *Voices of the Plains Cree*, 67.

55. Grinnell, *Cheyenne Indians*, 2:90.
56. Grinnell, *Cheyenne Indians*, 2:95.
57. Grinnell, *Cheyenne Indians*, 1:211.
58. Grinnell, *Cheyenne Indians*, 2:95.
59. Grinnell, *Cheyenne Indians*, 2:30, 36.
60. Bowers, *Hidatsa Social and Ceremonial Organization*, 303–8.
61. G. L. Wilson, “Hidatsa-Mandan Report, 1911,” 10:97, MHS.
62. G. L. Wilson, “Hidatsa-Mandan Report, 1911,” 10:53, MHS.
63. G. L. Wilson, “Hidatsa-Mandan Report, 1911,” 10:23–25, MHS.
64. Grinnell, *Cheyenne Indians*, 2:237, 238ff, 244ff.
65. Grinnell, *Cheyenne Indians*, 1:210.
66. Linderman, *Pretty Shield*, 55–64.
67. Hassrick, *The Sioux*, 91; Nabokov, *Two Leggings*, 81–85.
68. Hassrick, *The Sioux*, 91.
69. Nabokov, *Two Leggings*, 81–85.
70. Catlin, *North American Indians*, 153–55, letters 21, 22.
71. Catlin, *North American Indians*, 83, letter 12.

72. Grinnell, *Cheyenne Indians*, 1:187, 188. Eventually the term “parfleche” was applied to a wide variety of nonmilitary items made from rawhide, such as food containers, headgear, and boxes, but mostly to flat folding bags used to store pemmican.
73. Glover, *David Thompson’s Narrative*, 241, 242; O. Lewis, *Effects of White Contact upon Blackfoot Culture*, 47; Keyser, “Plains Indian War Complex and the Rock Art of Writing-On-Stone,” 43, and “Lexicon for Historic Plains Indian Rock Art,” 46, 47, 49.
74. Nabokov, *Two Leggings*, 32–35.
75. Grinnell, *Cheyenne Indians*, 2:117, 118, 122.
76. Grinnell, *Cheyenne Indians*, 2:108, 109.
77. Grinnell, *Cheyenne Indians*, 2:110.
78. Grinnell, *Cheyenne Indians*, 2:123.
79. J. Brown, “Fields of Dreams,” 27, 28.
80. Tyrrell, “Letters of La Potherie,” 231.
81. Robson, *Account of Six Years Residence in Hudson’s Bay*, 49, 50.
82. Chappell, *Narrative of a Voyage to Hudson’s Bay*, 113, 114..
83. E. Jones, *Gentlemen and Jesuits*, 185.
84. Catlin, *North American Indians*, 83, letter 12.
85. Hassrick, *The Sioux*, 325.

86. E. N. Wilson, *Among the Shoshones*, 91.
87. C. E. Hanson, *Northwest Gun*, 51. See also *Annals of Wyoming*, “High-Backed Wolf” and “Cheyenne Indians,” [http://wyshts.org/index\\_h.htm](http://wyshts.org/index_h.htm) (accessed January 2013).
88. Grinnell, *Cheyenne Indians*, 2:160.
89. Brown and Brightman, *Orders of the Dreamed*, 73, 74.
90. Brown and Brightman, *Orders of the Dreamed*, 73, 74.
91. Brown and Brightman, *Orders of the Dreamed*, 41.
92. Brown and Brightman, *Orders of the Dreamed*, 33.
93. Brown and Brightman, *Orders of the Dreamed*, 44.
94. Brown and Brightman, *Orders of the Dreamed*, 44. Anna L. Leighton suggests this is probably *Amelanchier alnifolia* or Saskatoon berry. See Leighton, *Wild Plant Use by the Woods Cree*, 28.
95. George Sutherland, Albany Post Journal, 1783–84, F38, B.3/a/82, 1M7, HBCA.
96. Graham, *Andrew Graham's Observations*, 180.
97. “Isle a la Cross Journal, with Astronomical Observations Made at the Same Place, by Peter

Fidler,” Saturday, May 4, and Sunday, May 5, 1811, Ile-a-la-Croix Post Journal, 1810–11, F30d, 1M63, B.89/a/2, HBCA.

98. Brown and Brightman, *Orders of the Dreamed*, 38, 112; Matthews, “Thunderbirds,” *Ideas*, radio broadcast transcript, May 15 and 16, 1995, Maureen Matthews, 1, Charlie George Owen, Ojibwa elder, 4, Jacob Owen, Ojibwa elder, 6, Roger Roulette, Ojibwa linguist, 17, 19, Bertha Sinclair, Ojibwa elder, 19.

99. Louis Bird, personal conversation, March 2001; Louis Bird, *Our Voices*, 0014—“Guns and Bows,” and 0116—“Guns and Bows II,” 2, 3.

100. Louis Bird, *Our Voices*, 0014—“Guns and Bows,” and 0116—“Guns and Bows II,” 27, 28. The “magical” control over firearms, using them with deadly force but without gunpowder and bullets, is reminiscent of the information related by the Piegan leader James White Calf to linguist Richard Lancaster, discussed in chapter 5.

101. Benndorf and Speyer, *Indianer Nordamerikas 1760–1860*, Abb. 71, bag, Menomoni, collected prior to 1780 (cat. no. 180); Abb. 54, 55, 56, Ojibwa bags (cat. nos. 147, 148, 149). The first two are pre-1800, the last one is ca. 1780. Benndorf and Speyer state that Ojibwa people believed the thunderbird wielded power over the day; Schulamt der Stadt Zürich, *Indianer Nordamerikas: Katalog zur Sammlung Hotz*, 43, 154, Iroquois or Ojibwa bag with thunderbird

design, pre-1800, Hotz Collection, Indianermuseum der Stadt Zürich, cat. no. 17–1, 3.

102. Laubin and Laubin, *American Indian Archery*, 4, 5, 133, 144; According to the Laubins, Plains Indian archers using short bows and arrows insisted that the bow must be pushed away as the arrow is drawn toward oneself in order to reach the maximum draw length possible with these weapons. Holding the bow and arrow overhead immediately before the shot helped to accomplish this.

103. Grinnell, *Cheyenne Indians*, 2:95.

104. G. L. Wilson, “Hidatsa-Mandan Report, 1911,” 10:52, 53, MHS.

105. Gilman and Schneider, *Way to Independence*, 199.

106. Maximilian, *Travels in the Interior of North America*, 23:354n322.

107. Mason, *North American Bows, Arrows, and Quivers*, 30; Hamm, *Bows and Arrows of the Native Americans*, 101, 102. Both Mason and Hamm based their assessment on the examination of surviving arrows from different regions of North America, finding a prevalence of grooved arrows shafts among arrows from Plains cultures. This is consistent with my observations in examining original arrows.

108. Bowers, *Mandan Social and Ceremonial Organization*, 260–69, 283.

109. Bowers, *Mandan Social and Ceremonial Organization*, 267.

110. Bowers, *Mandan Social and Ceremonial Organization*, 260.

111. Blish, “Ceremony of the Sacred Bow” *American Anthropologist*, 183.

112. Glover, *David Thompson’s Narrative*, 375.

113. Laubin and Laubin, *American Indian Archery*, 88.

114. Nabokov, *Two Leggings*, 35.

115. Raczka, “Ohkiniksi,” 1:134, 135. The Plains Cree leader Fine Day owned a rattlesnake-effigy belt, made of brain-tanned leather, beaded with dark blue and white pony beads. The tail section of this belt shows alternating blue and white stripes, similar to the alternating dark and light bands of quillwork found on some Plains and Plateau bows. This belt, now at the Royal Alberta Museum in Edmonton, was said to have been made by Fine Day’s grandmother upon his request, after a vision of a rattlesnake revealed to him an escape route out of an encirclement of his war party by Blackfoot opponents.

116. Rattlesnake skin-covered bows: Lindenmuseum Stuttgart: cat. no. 94636, sinew-backed wooden bow, collected by Duke

Paul of Württemberg, 1824–1850, possibly Assiniboine. Pitt Rivers Museum, Oxford: cat. no. 1893.67.24, sinew-backed wooden bow, Northern Plains, collected by Edward Martin Hopkins, private secretary to Governor George Simpson in 1842, and cat. no. 1900.80.3, sinew-backed wooden bow, collected by Henry Balfour, ca. 1900, possibly Northern Plains. Manitoba Museum, Winnipeg: cat. no. H4–4-80, sinew-backed wooden bow, shaped like a horn bow, gift in 1964 from H. G. H. Smith, Medicine Hat, Alberta. U.S. National Museum: cat. no. 9043, sinew-backed wooden bow, collected by Dr. James T. Ghiselein of the U.S. Army at Fort Colville, Washington Territory, in 1868 from the Flathead (see Hamilton, *Native American Bows*, 104, 105). The Kutenai often covered their sinew-backed bows with snakeskin; see “Kootenay Economic Activities,” 181, information obtained from Simon Francis, a Kutenai from Bonner’s Ferry in Idaho in the 1950s, Schaeffer Papers, M1100/8, Glenbow Archives.

117. Garter snakeskin-covered bows: Field Museum of Chicago: cat. no. 51662, sinew-backed wooden bow, collected by George Dorsey on the Blood Reserve in Alberta in 1897 (see also Van Stone, *Material Culture of the Blackfoot*, fig. 4). Manitoba Museum: Hudson’s Bay Company Collection, no. 156 A, self bow, collected on the Blood Reserve by Indian agent T. J. Fleetham in the early twentieth century.

Ethnologisches Museum Berlin: cat. no. IV B 143, sinew-backed wooden bow, obtained from Friedrich Koehler, ca. 1846, possibly Blackfoot.

118. Honigmann, "West Main Cree," 6:223. Louis Bird also mentioned Omushkego-Cree stories about underwater monsters in lakes near Hudson Bay.

119. Brown and Brightman, *Orders of the Dreamed*, 109, 110, Matthews, "Thunderbirds," *Ideas*, radio broadcast transcript, Rob Brightman, anthropologist, 9; Oetelaar, "Moving Beyond the Technical Imperatives," 4, [http://nevada-archaeology.org/files/Oetelaar\\_Session\\_2.pdf](http://nevada-archaeology.org/files/Oetelaar_Session_2.pdf): "Thus, the universe of the Blackfoot is divided into an upper, a middle, and a lower world. The middle world is home to the earth beings including humans, four-legged animals, plants, rocks, and the earth itself. The above world is home to the sun, moon, morning star and other sky beings as well as thunder and most of the birds. The below world is inhabited by the water beings as well as certain waterfowl, beaver, otter and muskrat. Even though the animate and inanimate components of the Blackfoot world do not correspond to those of western science, the maintenance of a balance in both worlds is dependent on the implied relationships among these elements."

120. Reid, "Dragon Sideplate"; Fox, "Dragon Sideplates from York Factory,"

[http://www.adamsheritage.com/articles/fox/dragon\\_sideplates.htm](http://www.adamsheritage.com/articles/fox/dragon_sideplates.htm), (accessed August 2004).

121. Fox, “Dragon Sideplates from York Factory,” 3.

122. Fox, “Dragon Sideplates from York Factory,” 3; Brown and Brightman, *Orders of the Dreamed*, 46. Margaret Simmons, an Ojibwa from Berens River, Manitoba, stated in regard to thunderbirds: “they have sort of horns on them; it’s like a copper [covered] head: their head shines.” Matthews, “Thunderbirds,” *Ideas*, 8.

123. Aboriginal people also attributed metallic and shiny aspects to the appearance of thunderbirds. Plains Cree elder Stan Cuthand from Saskatchewan related in regard to the appearance of thunderbirds: “They always close their eyes, and their feathers kind of shine like the rainbow.” Matthews, “Thunderbirds,” *Ideas*, 1. George Nelson: “The Thunder also appears to them [the Cree and Ojibwa] in the shape of a most beautiful bird (The Pea-Cock).” Brown and Brightman, *Orders of the Dreamed*, 38.

124. Fox, “Dragon Sideplates from York Factory.”

125. Benndorf and Speyer, *Indianer Nordamerikas 1760–1860*, Tafel 8, cat. no. 114, 76–78, bag, Ottawa, pre-1800; Abb. 67 (cat. no. 182), 101, 102, gunstock club with a metal blade collected from the Menomini before 1840. The image of this horned underwater panther is

connected to that of a running human; Phillips, *Patterns of Power*, 49, 78. Pouch, eastern Great Lakes, ca. 1800, NMM III-M-6, Speyer and Sir Walter Scott Collections.

126. Matthews, "Thunderbirds," *Ideas*, 9, 20.

127. Matthews, "Thunderbirds," *Ideas*, Rob Brightman, anthropologist, 9, 10.

128. H. A. Dempsey, "Blackfoot," 13:611. This Blackfoot man wears a breastplate made from dragon side plates of trade guns and what appears to be strips of otter or beaver fur. Both animals were central to Blackfoot spiritual beliefs and were strongly associated with water, rivers and lakes. He holds a Winchester center-fire repeating rifle, model 1873, heavily decorated with brass tacks. His saddle-leather belt, knife sheath, and riding quirt were also heavily studded with brass tacks. William Norman took this photograph on the Blackfoot Reserve near Gleichen, Alberta, in 1889. Blood apparently believed in powerful underwater beings as well. The Blood Indian Scalp Roller, born approximately in 1808, told R. N. Wilson in 1893: "Rocks, Cut Banks, Big Tree, Sand Bank, Rivers, we gave to them our offerings to the underwater person." R. N. Wilson Papers, 1:343, Appendix 2, Glenbow Archives.

129. Maximilian, *Travels in the Interior of North America*, 22:389.

130. Cowie, *Company of Adventurers*, 198.

131. Bishop and Lytwyn, “Cree-Inuit Warfare in the Hudson Bay Region”; J. G. E. Smith, “Chipewyan, Cree, and Inuit Relations,” 134, 150.

132. *Maximilian, Travels in the Interior of North America*, 22:391, 392.

133. R. L. Hall, *Archaeology of the Soul*, 158; Hoffman, “Menomini Indians,” 167; G. L. Wilson, “Hidatsa Eagle Trapping,” 229; Weltfish, *Lost Universe*, 75.

134. Glover, *David Thompson’s Narrative*, 243–44. The concept of killing humans to gain spiritual power for war apparently still existed to some extent among Blackfoot people in the mid-nineteenth century. “The Story of Medicine Hat,” file 2, Joe Little Chief Fonds, M4394, Glenbow Archives.

135. Glover, *David Thompson’s Narrative*, 243.

## 8. Archery and Firearms in Hunting

1. Bowe and Deck, *Legacy of Stone*, 9, 73.

2. Rich, *Minutes of the Hudson’s Bay Company*, 27.

3. Carlos and Lewis, “Trade, Consumption, and the Native Economy,” 1044–50. Albany Account Book, 1695, 1–18, B3/d/5; York Factory Account Books, 1688–89, B.239/d/1, 9, 10; 1689–90, B239/d2, 2, 3, 6, 8, 10, 28, 34; 1693–94, B239/d5, 38; 1759–60, B239/d50, 4, 7; 1793–94, B.239/d/

100, 3; B.239/d/101, 2, 7; 1798–99, B.239/d/118, 3; 1799–1800, B.239/d/120, 4; B.239/d/123, 5, all HBCA.

4. Louis Bird, *Our Voices*, 0014—“Guns and Bows”; William Dumas, elder, Fox Lake Cree Nation Manitoba, personal communication, March 2010; Horace Massan, Cree elder, Split Lake First Nation Manitoba, personal communication, March 2010. Fur trader David Thompson noted the brittleness of birch rind (and possibly birch wood?), necessitating that it be warmed over a fire before use. Glover, *David Thompson’s Narrative*, 97.

5. Hearne, *Journey from Prince of Wales’s Fort*, 308, 309, 310; Denys, *Description and Natural History of the Coasts*, 409. The French fisherman and trader Nicholas Denys lived with Mi’kmaq people for forty years. He mentioned the use of the lance and not the bow and arrow for hunting moose in winter.

6. Weitzner, *Notes on the Hidatsa Indians*, 244. Similarly, Blackfoot people sometimes carried bows and arrows under their coats. Eagle Rib’s War Deeds, 1938, 48, Pitoxpikis (Sleigh) Eagle Ribs via Mary Royal (interpreter), Box 1, file 1, Hanks Fonds, M8458, Glenbow Archives.

7. Louis Bird, personal conversation, November 1999, March 2003; Louis Bird, *Our Voices*, 0014—“Guns and Bows,” and 0116—“Guns and Bows II.”

8. For example, see Manchester House Post Journal, 28, January 13, 1787, 1M 73, B121/a/1, HBCA.

9. G. L. Wilson, "Hidatsa-Mandan Report, 1911," 10:10, 68, MHS.

10. Usually, the ratio of bow length to draw length is less for a shorter bow. This means that all else being equal, a shorter bow at full draw is under considerably more strain than a longer bow. From my own experience in using reproductions of Aboriginal bows, for example, a 44-inch bow drawn to 22 inches, not uncommon for Northern Plains bows, is drawn half its length and would likely fracture if held in this position for too long, due to the enormous strain. In contrast, a 60-inch bow drawn to 28 inches, as was common for bows from the Great Lakes area, would be under much less stress at full draw, due to a greater ratio of bow length to draw length. Such a bow would be much less likely to break when held at full draw for a longer period, such as the space of a breath or two. Because such a bow can be held at full draw longer, the archer can anchor the arrow hand to the cheek, which facilitates aiming and accuracy. In contrast, the shorter Plains bows were shot in a single, fluid motion, without holding the arrow at full draw.

11. Laubin and Laubin, *American Indian Archery*, 142–43.

12. Odom, “Black Powder in the Rain,” 1–3, <http://www.televar.com/~willgo/pastgate/notebook/rain/rain.htm>.

13. Odom, “Black Powder in the Rain,” 1.

14. Weitzner, *Notes on the Hidatsa Indians*, 232–33; Hamm, *Bows and Arrows of the Native Americans*, 73; Alleley and Hamm, *Encyclopedia*, 2:166; Glover, *David Thompson’s Narrative*, 375.

15. Spiess, *Reindeer and Caribou Hunters*, 120, 121; Lytwyn, “Hudson Bay Lowland Cree in the Fur Trade to 1821,” 430.

16. Hearne, *Journey from Prince of Wales’s Fort*, 308, 309, 310.

17. Louis Bird, *Our Voices*, 0014—“Guns and Bows”; Skinner, *Notes on the Eastern Cree and Northern Saulteaux*; Skinner described a similar method for hunting caribou, practiced by Eastern Cree. The safety consideration mentioned above applied to Plains peoples’ antelope or bison drives as well.

18. Lytwyn, *Muskegowuck Athinuwick*, 86. While caribou hedges are well documented through early ethnographic records of the fur trade, Louis Bird did not mention them. He referred to enclosures with funnels and barricades and to hunting blinds with archers waiting behind them to dispatch the caribou that were driven into these enclosures. He did not mention the use of snares for caribou hunting.

19. Lytwyn, *Muskegowuck Athinuwick*, 86 (see also Isham's description of a snare hedge). For a drawing of a "deer snare," see Isham, *Isham's Observations on Hudsons Bay, 1743* (HBCA, PAM, E.2/2, fo. 43).
20. Lytwyn, *Muskegowuck Athinuwick*, 84, 85.
21. Graham, *Andrew Graham's Observations*, 15.
22. Chappell, *Narrative of a Voyage to Hudson's Bay*, 216–18.
23. Lytwyn, *Muskegowuck Athinuwick*, 103.
24. Lytwyn, *Muskegowuck Athinuwick*, 85.
25. Fort Dauphin Post Journal, April 8, 1819, F35d, 1M41, B.51/a/2, HBCA.
26. Lytwyn, *Muskegowuck Athinuwick*, 95.
27. See Graham, *Andrew Graham's Observations*, 118, 119; Lytwyn, *Muskegowuck Athinuwick*, 96.
28. Louis Bird, *Our Voices*, 0051—"Fish Trapping and Caribou Hunting," 2.
29. Honigmann, "West Main Cree," 6:218, 223.
30. Honigmann, "West Main Cree," 6:218, 223.
31. Pilon, *Washahoe Inninou Dahtsuounoao*, 35.
32. Louis Bird, personal communication to Anne Lindsay, July 10, 2003.

33. Lytwyn, *Muskegowuck Athinuwick*, 92–93. It has not been demonstrated that Radisson actually reached James Bay.
34. Louis Bird, personal communication to Roland Bohr, October 2001.
35. Louis Bird, *Our Voices*, 0014—“Guns and Bows”; Isham, *Isham’s Observations on Hudsons Bay, 1743*, 118. Louis Bird described a method for multiple killings of geese that was very similar to one recorded by Hudson’s Bay Company factor James Isham more than 250 years earlier.
36. Louis Bird, *Our Voices*, 0014—“Guns and Bows.”
37. Louis Bird, personal communication to Anne Lindsay, July 7, 2003; Louis Bird and Roland Bohr, “Arrows and Thundersticks: Technologies Old and New,” 190.
38. Lytwyn, *Muskegowuck Athinuwick*, 111; HBCA B.198/a/11, fo. 23d.
39. Tyrrell, “Letters of La Potherie,” 236. Besides projectile weapons, Subarctic people used a wide variety of snares and deadfalls to catch animals varying in size from rabbits to bears. For a detailed discussion of these traps, see Cooper, *Snares, Deadfalls, and Other Traps*.
40. Lytwyn, *Muskegowuck Athinuwick*, 107, 237n146. In 1792–93 Peter Fidler observed that the few Pikani who would kill beaver to trade their pelts, used firearms for the purpose. “Journal

of a Journey over Land,” 7, November 27, 1792, HBCA.

41. Radisson, *Voyages of Peter Esprit Radisson*, 143, 144, <http://www.canadiana.org/ECO/ItemRecord/09232?id=8f7f7587fadcefc9>.

42. Bow maker Paul Comstock killed a 300-pound black bear with a wooden bow. The bow hunter Rob Young also killed a black bear using a 56-inch, 57-pound reproduction of a Californian Modoc bow. “About the Authors,” in Hamm, *Traditional Bowyer’s Bible*, vol. 1; Baker, “Bows from Boards,” 2:31.

43. Louis Bird, *Our Voices*, 0014—“Guns and Bows.”

44. Glover, *David Thompson’s Narrative*, 12.

45. Bodmer, *Karl Bodmer’s America*, 300, 318.

46. George Catlin, *Die Indianer Nordamerikas* (1851; reprint, Vienna, Austria: Verlag Lothar Borowsky, n.d.), 161. See also [http://www.wpelipart.com/animals/B/bears/grizzly/grizzly\\_indian\\_attack\\_George\\_Catlin.jpg.html](http://www.wpelipart.com/animals/B/bears/grizzly/grizzly_indian_attack_George_Catlin.jpg.html) (accessed June 2011).

47. Glover, *David Thompson’s Narrative*, 248, 249. Five years after David Thompson, Peter Fidler stayed with a group of Pikanis and recorded the following information that possibly referred to Saukamappee (“Journal of a Journey over Land,” 16, December 29, 1792, HBCA):

Arrived this day 2 Tents of Muddy River Indians, along with the Old Southern Indian man from a Pound SE of this about 7 miles—this man has been living with these Indians above 25 Years & has a large family of Children—who all speak the Muddy River Indian or Peekanow Language—as their mothers was of this Tribe, he speaks this Language as well as his own mothers tongue—he is the 2d man in rank of this nation & great attention is paid to what he says respecting war—he has been a noted warrior, by which he acquired his great authority—at present he is hauled about upon a sledge—not being able to walk—by an accident that happened to him last spring—he found a Beaver house in a small Lake—had broke it

open & found the vault where the beaver had fled to on breaking open the house—he was staking up the mouth of this vault when a Beaver ran out into the Lake & bit him by the calf of his leg—Where the man stood was knee deep in water—this bite not being properly attended, the warm weather coming on & being an old man—this mortified and carried him off in June 1793—he was universally beloved by all the Pecanow Tribe & made himself respected amongst the adjacent friendly nations.

48. E. N. Wilson, *Among the Shoshones*, 71.

49. Louis Bird, personal communication, December 2004.

50. Henry, *Journal of Alexander Henry the Younger*, 1:30, 31, Sunday, August 24, 1800.
51. Glover, *David Thompson's Narrative*, 241.
52. Glover, *David Thompson's Narrative*, 106, 126.
53. Württemberg, *Reise nach dem nördlichen Amerika in den Jahren 1822 bis 1824* (München, 1979), 186; quoted in Schulze-Thulin, *Indianer der Prärien und Plains*, 72, 73. Württemberg, *Travels in North America*, 197: "Since firearms are preferred to bow and arrows in the forest hunt, almost all the Osages and Kansa are armed with guns. On the other hand, those tribes living on the prairies manipulate the bow with great skill and strength. I found scarcely any guns among them and they use them but little, if any, in hunting bison."
54. Burpee, *Journal of Anthony Henday*, October 15, 1754, 32.
55. Albany Post Journal, 1783–84, April 24, 1784, 1M7 f28, B.3/a/82; Wednesday, July 21, 1784 (margin note), 1M7, F44d, B.3/a/82; Edward Jarvis, August 14, 1785, 1M8, B.3/a/84, all HBCA.
56. Fidler, "Journal of a Journey over Land," 20, December 31, 1792, HBCA
57. Fidler, "Journal over Land," 20, 21, January 1793.

58. Fidler, "Journal over Land," 7, November 21, 1792.
59. Fidler, "Journal over Land," 29, 30, February 7, 1793.
60. Fidler, "Journal over Land," 31, February 17, 1793.
61. Crooked Meat Strings, 1938, 273, Hanks Fonds, Box 1, Series 1, M8458, file 9, Glenbow Archives.
62. Crooked Meat Strings, 1938, "How a Chief Builds a Following," 16, Glenbow Archives.
63. Reeves, *Head-Smashed-In*, 164–67. The Mummy Cave complex yielded the earliest evidence for the use of the Head-Smashed-In bison jump site in southern Alberta, dating back to 3600–3100 BC.
64. Pikani killed thirty mountain sheep in a pound, especially constructed for sheep hunting. Fidler, "Journal of a Journey over Land," 34, March 2, 1793, HBCA; Grinnell, *Cheyenne Indians*, 1:277–91.
65. Fidler, "Journal of a Journey over Land," 33, February 24, 1793.
66. Catlin, *Letters and Notes on the North American Indians*, 2; Barsh and Marlor, "Driving Bison and Blackfoot Science."
67. Henry, *Journal*, 1:33, Tuesday, August 26, 1800.

68. Fidler, “Journal of a Journey over Land,” 5, November 18, 1792. HBCA.

69. Fidler, “Journal of a Journey over Land,” 14, December 28, 1792, HBCA. Louis Bird also mentioned that during caribou drives among the Omushkego-Cree, the young men who drove the animals to the enclosure received a greater share in the meat than anybody else, because their task required constant running, often on snowshoes, to drive the animals in the desired direction. Only the strongest and most agile young hunters were able to do this. Louis Bird, personal communication, Winnipeg, November 1999.

70. Fidler, “Journal of a Journey over Land,” 13, December 17, 1792, HBCA. Fidler’s quotation implies that he considered his Pikani hosts to behave wastefully in regard to the ratio of bison killed to the amount of meat they actually used. However, according to Blood Indian traditions, their culture hero Napi had taught them that “all pieces of meat scraped from hides must be eaten [only by humans or by other creatures, too?] so as not to waste anything.” R. N. Wilson Papers, 1:23, 24, Glenbow Archives.

71. Fidler, “Journal of a Journey over Land,” 13, December 18, 1792, HBCA.

72. Fidler, “Journal of a Journey over Land,” 14, December 20, 1792.

73. William E. Moreau (ed.), *The Writings of David Thompson: The Travels 1850 Version*

(Montreal: McGill Queen's University Press, 2009), Vol. 1, 68.

74. Fidler, "Journal of a Journey over Land," 14, December 28, 1792, HBCA.

75. For discussions of Aboriginal conservation practices in the Subarctic and on the Great Plains, see Brightman. *Grateful Prey*; Krech, *Ecological Indian*; Barsh and Marlor, "Driving Bison and Blackfoot Science."

76. Fidler, "Journal of a Journey over Land," 23, January 14, 1793, HBCA.

77. Fidler, "Journal of a Journey over Land," 34, March 6, 1793; 36, March 14, 1793, HBCA.

78. Fidler, "Journal of a Journey over Land," 33, February 23, 1793, HBCA.

79. Bamforth, "Historical Documents and Bison Ecology," 8.

80. Fidler, "Journal of a Journey over Land," 14, December 25, 1792, HBCA.

81. Burpee, *Journal of Anthony Henday*, 34, October 16, 1754.

82. Fidler, "Journal of a Journey over Land," 13, December 17, 1792; 26, January 27, 1793, HBCA.

83. Weitzner, *Notes on the Hidatsa Indians*, 245, 246.

84. Catlin, *Letters and Notes on the North American Indians*, 96, illustration "Buffalo chase,

near Fort Union”; Catlin, *Letters and Notes on the Manners, Customs and Conditions of the North American Indians*, 1:254, illustration 111, “Buffalo chase; bulls battling with men and horses.”

85. Fidler, “Journal of a Journey over Land,” 30, February 10, 1793, HBCA.

86. G. L. Wilson, “Hidatsa-Mandan Report, 1911,” 10:73, 74, MHS. Wolf Chief stated that End Rock used a very sturdy bow, but it was braced somewhat more “loosely” with a thicker bowstring. His arrows were said to have been of exceptional quality. See also Ewers, *Horse in Blackfoot Indian Culture*, 158: “The arrow was shot without sighting, generally with the bow held a little off vertical, the top tilted to the right. However, each hunter used the position easiest for him. Informants insisted that all Blackfoot hunters did not learn to shoot in the same way, nor did they all employ the same method of arrow release.”

87. E. N. Wilson, *Among the Shoshones*, 98–103.

88. G. L. Wilson, “Hidatsa-Mandan Report, 1911,” 10:80, MHS.

89. Weitzner, *Notes on the Hidatsa Indians*, 245.

90. Fidler, “Journal of a Journey over Land,” 28, January 31, 1793; 30, February 10, 1793, HBCA. Fidler noted that the Pikani hunters sometimes killed only buffalo bulls. He observed an absence

of cows whenever this happened. It is likely that those hunts were conducted during the time the herds broke up into smaller groups and young mature bulls would segregate themselves from the cows and calves.

91. Flores, “Bison Ecology and Bison Diplomacy,” 479, 480.

92. Flores, “Bison Ecology and Bison Diplomacy,” 479, 480.

93. Mason, *North American Bows, Arrows, and Quivers*, 19, 20.

94. Louis Bird, *Our Voices*, 0014—“Guns and Bows” and 0116—“Guns and Bows II.”

95. Henry, *Journal of Alexander Henry the Younger*, 2:663, Tuesday, January 25, 1814.

96. Maximilian, *Travels in the Interior of North America*, 23:195.

97. Maximilian, *Travels in the Interior of North America*, 23:109.

9. Archery and Firearms in Central Subarctic Combat

1. Linderman, *Plenty Coups and Pretty Shield*; Marquis, *Wooden Leg*; Grinnell, *Fighting Cheyennes*.

2. Cooper, *Notes on the Ethnology of the Otchipwe*; Cooper, *Snares, Deadfalls, and Other Traps*; Speck, *Naskapi*; Speck, *Penobscot Man*.

3. Louis Bird, *Our Voices*, 0077—"Inuit Expedition, Skirmishes."

4. Bishop and Lytwyn, "Cree-Inuit Warfare in the Hudson Bay Region," 6. Louis Bird preferred the term "Natowaywuk." An old term, *na'towe'wa*, was widely used in Algonquian languages to refer to various Iroquoian groups. Some have translated it as "snake," but Ives Goddard believes that this is a later extension and that it "should instead be compared to the verbal element *a'towe*, 'speak a foreign language', to which it can be related by regular grammatical processes." Both variants, with and without the initial *n*, have validity. Goddard, "Synonymy [for Iroquois]," 320.

5. Tyrrell, "Letters of La Potherie," 264–66.

6. "This [the Nelson River] is a very beautiful river about a league across at its mouth, in the land of the Mashkegonhyrinis or Savannahs [Swampy Cree], who are at war with the Hakouhirmious [Inuit]." Tyrrell, "Letters of La Potherie," 258.

7. Chappell, *Narrative of a Voyage to Hudson's Bay*, 93, 166.

8. Oldmixon, "History of Hudson's-Bay," 381, 382.

9. Louis Bird, *Our Voices*, 0077—"Inuit Expedition, Skirmishes"; Lytwyn, *Muskegowuck Athinuwick*, 222n5. Victor Lytwyn quoted William Coates, who was an HBC employee from

1727 to 1751 and who recorded that Lowland Cree people sometimes gave Inuit captives to Ottawa (Odawa) raiders who handed them over to the Five Nations

Iroquois people, who were said to sacrifice them. The Cree and Ottawa supposedly delivered these captives to avoid becoming Iroquois sacrificial victims themselves. Coates, *Geography of Hudson's Bay*, 56, 57.

10. J. G. E. Smith, "Chipewyan, Cree and Inuit Relations," 133.

11. Louis Bird, *Our Voices*, 0077—"Inuit Expedition, Skirmishes."

12. Fossett, *In Order to Live Untroubled*, 54.

13. Chappell, *Narrative of a Voyage to Hudson's Bay*, 110; Louis Bird, *Our Voices*, 0077—"Inuit Expedition, Skirmishes."

14. Fossett, *In Order to Live Untroubled*, 54.

15. Attitug Quitsualik, "War: Part Six," February 11, 2000, 6, *Nunatsiaq News*, <http://www.nunatsiaq.com/archives/nunavut000230/nunani.html>.

16. Robson, *Account of Six Years Residence in Hudson's Bay*, 48.

17. "Nothing is more ingrained in the real Eskimo and nothing pervades more thoroughly his traditions and folklore than the idea that strangers

are necessarily hostile and treacherous.” Stefánsson, *Friendly Arctic*, 426.

18. Mason, *Origins of Invention*, 270: “the Eskimo, who are the most ingenious bowyers, never go to war.” Hoebel, *Law of Primitive Man*; Mead, “Warfare Is Only an Invention”; Mead, “Alternatives to War.” For a discussion of this stereotype, see Fienup-Riordan, “Yup’ik Warfare and the Myth of the Peaceful Eskimo,” xv.

19. Fossett, *In Order to Live Untroubled*, 48, 49.

20. Fossett, *In Order to Live Untroubled*, 44–49.

21. Fossett, *In Order to Live Untroubled*, 37. In the late sixteenth century, bows and arrows were still in use on English warships.

22. Fossett, *In Order to Live Untroubled*, 46; Fienup-Riordan, *Eskimo Essays*, 156, 157.

23. Papers of Committee of House of Commons, 1749: Appendix to *Report from the Committee Appointed to Inquire into the State and Condition of the Countries adjoining to Hudson’s Bay and of the Trade Carried on There, 1749*, 246, HBCA.

24. Louis Bird, 0016—“Guns and Bows II,” 1, 16.

25. Brown and Brightman, *Orders of the Dreamed*, 78.

26. Hearne, *Journey from Prince of Wales’s Fort*, 97, 114, 115, 321, 322.

27. Louis Bird, *Our Voices*, 0077—"Inuit Expedition, Skirmishes."
28. Louis Bird, *Our Voices*, 0077—"Inuit Expedition, Skirmishes." Louis Bird recorded this account from a person he referred to as "Elder K," who had obtained it from his grandfather.
29. Louis Bird, *Our Voices*, 0077—"Inuit Expedition, Skirmishes."
30. Louis Bird, *Our Voices*, 0077—"Inuit Expedition, Skirmishes."
31. Slobodin, "Eastern Kutchin Warfare," 84; D. E. Jones, *Native North American Armor, Shields, and Fortifications*, 89.
32. Louis Bird, *Our Voices*, 0077—"Inuit Expedition, Skirmishes." The Hudson's Bay Company Archives have a historic photograph of a Subarctic Aboriginal man with a native-made crossbow of wood ("Man with bow," 1987/363-I-83/30, HBCA). The Laubins also reported the use of crossbows by Canadian Aboriginal people. *American Indian Archery*, 158.
33. Louis Bird, *Our Voices*, 0077—"Inuit Expedition, Skirmishes."
34. Bishop and Lytwyn, "Cree-Inuit Warfare in the Hudson Bay Region," 33.
35. Chappell, *Narrative of a Voyage to Hudson's Bay*, 110, 111.

36. Hearne, *Journey from Prince of Wales's Fort*, 154.
37. Slobodin, "Eastern Kutchin Warfare," 84; D. E. Jones, *Native North American Armor, Shields, and Fortifications*, 89.
38. Fossett, *In Order to Live Untroubled*, 47.
39. Fossett, *In Order to Live Untroubled*, 89.
40. Fossett, *In Order to Live Untroubled*, 47; letter from James Lockhart at Fort Resolution on Great Slave Lake to Robert Kennicott, December 5, 1864, Box 1 (personal files of Jennifer S. H. Brown, University of Winnipeg), Hudson's Bay Company Collection, Smithsonian Institution Archives, describing the captivity and subsequent escape of a Yellowknife woman among Inuit people. Warfare and captivity experiences had been part of Déné people's lives for so long that the motif of the "Stolen Woman" had become deeply embedded in their oral traditions and legends. For an example, see Petitot, *Traditions Indiennes du Canada Nord-Ouest* (Paris, 1886), 413–23. A captive Déné woman known as "Thanadelthur" is credited with a crucial role in James Knight's attempts to bring about peace between Cree and Chipewyan peoples in 1715–16, and has been popularized by numerous writers. For an overview, see McCormack, "The Many Faces of Thanadelthur."

41. Lytwyn, *Muskegowuck Athinuwick*, 65–68, 70, 73; Graham, *Andrew Graham's Observations*, 174.
42. Glover, *David Thompson's Narrative*, 247.
43. Fossett, *In Order to Live Untroubled*, 45, 46, 47.
44. Robson, *Account of Six Years Residence*, 62.
45. Robson, *Account of Six Years Residence*, 63, 64.
46. Robson, *Account of Six Years Residence*, 63, 64.
47. Louis Bird, *Our Voices*, 0077—"Inuit Expedition, Skirmishes."
48. Richardson, *Arctic Searching Expedition*, 1:213, <http://peel.library.ualberta.ca/bibliography/266.html>
49. York Factory Post Journal, August 1, 1718, reel 1M154, B.239/a/4, HBCA; Smyth, "Niitsitapi Trade," 308.
50. Louis Bird, personal communication, Winnipeg, April 2003.
51. Bishop and Lytwyn, "Cree-Inuit Warfare in the Hudson Bay Region," 38, 39.
52. Fossett, *In Order to Live Untroubled*, 59; Antoine Silvy, "Journal of Father Silvy from Belle Isle to Port Nelson," in Tyrrell, *Documents Relating to the Early History of Hudson Bay*, 79.

A blunderbuss was a short musket of wide bore and flaring muzzle, used to scatter shot at close range. They were used from the seventeenth century to the 1840s and were variously equipped with flintlocks, wheel locks, or percussion locks. They could fire almost any hard object from birdseed to pebbles or grapeshot. This gave the weapon great versatility in the field, where some sort of hard object would probably be at hand even if proper musket balls were in short supply. Such weapons could be especially devastating in fighting at close quarters in confined spaces aboard ship.

53. Graham, *Andrew Graham's Observations*, 236.

54. Bishop and Lytwyn, "Cree-Inuit Warfare in the Hudson Bay Region," 41.

## 10. Archery and Firearms in Northern Plains Combat

1. Willey, *Prehistoric Warfare on the Great Plains*.

2. Moreau, ed., *Writings of David Thompson*, 1:xii, xvii. David Thompson composed his narrative between 1845 and 1850, when he was in his late seventies, living in Montreal, more than sixty years after his first stay with the Pikanis. William Moreau commented on this time gap: "Thompson's story had been shaping itself for decades, evolving in its author's mind. This

quality lends the work a mature and wide perspective, but also reminds us that the *Travels* does not necessarily present what was; rather, it presents what was remembered.” However, at least in his descriptions of material culture, when compared to surviving artefacts and similar descriptions from Aboriginal oral traditions, Thompson’s accounts were often very accurate.

3. Glover, *David Thompson’s Narrative*.

4. For a description of such armor, albeit from the Southern Plains, see Fletcher and LaFlesche, *Omaha Tribe*, 79: “To protect their horses from arrows they [the Padoucas] made a covering for the horses’ breasts and sides, to prevent an arrow taking effect at ordinary range. This covering (armor) was made of thick rawhide cut in round pieces and made to overlap like the scales of a fish. Over the surface was sand held on by glue. This covering made the Ponca arrows glance off and do no damage. The Padoucas protected their own bodies by long shields of rawhide. Some of them had breastplates made like those on their horses.” See also Gelo and Jones, “Photographic Evidence for Southern Plains Armor.”

5. Cocking, *Adventurer from Hudson Bay*, 110, 111.

6. Secoy, *Changing Military Patterns on the Great Plains*, 16; Lewis and Clark, *Original Journals of the Lewis and Clark Expedition, 1804–1806*, 3:21.

7. Glover, *David Thompson's Narrative*, 306.
8. Wissler, *Material Culture of the Blackfoot Indians* (1910), 163.
9. Glover, *David Thompson's Narrative*, 241.
10. Glover, *David Thompson's Narrative*, 241.
11. Glover, *David Thompson's Narrative*, 242.
12. Glover, *David Thompson's Narrative*, 241.
13. John C. Ewers suggested that the shields were made from rawhide, because later shields in the Plains were made from this material. Ewers, *The Blackfeet*, 16; Vermander, "Use of the Bow by Our Indians," <http://www.mhs.mb.ca/docs/transactions/3/indianbow.shtml>. Joseph Vermander, who was a Franco-Manitoban of Flemish origin, was inspector for the Winnipeg Postal Service. Active as a local historian and archery enthusiast, he passed away in 1974.
14. Keyser, "Plains Indian War Complex and the Rock Art of Writing-on-Stone," 43, and "Lexicon for Historic Plains Indian Rock Art," 46, 47; North Cave Hills, South Dakota; Pictograph Cave and Joliet in Montana.
15. Fidler, "Journal of a Journey over Land," 33, February 28, 1793, HBCA.
16. Accounts by outside observers from the 1830s, such as George Catlin and Prince Maximilian, and Aboriginal accounts from the second half of the nineteenth century emphasized

individual warrior's actions, small group raids, stealth, and speed as prominent in offensive warfare, while rifle pits and earthworks were important in defense.

17. Glover, *David Thompson's Narrative*, 241, 242; The Blood Indian Scalp Roller, born approximately in 1808, told R. N. Wilson in 1893 about the origin of horses: "When I was young there were many horses among our people but not the great number that there were later. My father never saw the time when there were no horses but my father's mother, who was a very old woman, told me that she remembered when there were no horses. She said that the first horses were procured from the Pegans (Piegans) who got them from the Mountain Indians." R. N. Wilson Papers, Appendix 2, 334, Glenbow Archives.

18. Keyser, "Plains Indian War Complex," 43.

19. Keyser, "Lexicon for Historic Plains Indian Rock Art," 46, 47; North Cave Hills, South Dakota. There, however, the defeated persons are depicted as larger, not smaller, than their mounted conquerors, and they do not bear any arms. At least one of them may depict a woman, not a man.

20. Calloway, "Snake Frontiers," 84, 85.

21. Secoy, *Changing Military Patterns on the Great Plains*, 14; Cowdrey et al., *American Indian Horse Masks*, 1-4.

22. Chavez, "Segesser Hide Paintings," 96 <http://digitalcommons.unl.edu/greatplainsquarterly/413>. While stationed in the Mexican province of Sonora, the Jesuit priest Father Philipp von Segesser von Brunegg sent three hide paintings to his brother in Switzerland in 1758. The origin and the identity of the artist are unclear.
23. Brooks, *Captives and Cousins*, 121, 122. See also Hotz, *Indian Skin Paintings*, plates 5 and 6.
24. Catlin, *North American Indians*, 27.
25. Balfour, "Structure and Affinities of the Composite Bow," 225, 226; Fletcher and Flesche, *Omaha Tribe*, 452; Hamm, "Plains Indian Bows," 3:118, 119.
26. Hamilton, *Native American Bows*, 102.
27. Hyde, *Red Cloud's Folk*, 3–19; R. White, "Winning of the West," 321.
28. Glover, *David Thompson's Narrative*, 241. In Thompson's rendering of the account, Saukamapee described a battle fought between the "Snake Indians" (Eastern Shoshone) on one side and combined Cree, Assiniboine, and Pikani-Blackfoot forces on the other. This battle probably occurred around 1730, before any of these Aboriginal groups had taken to commonly using horses in warfare. While Saukamapee described the bows of the Cree (and probably of the other allies as well) as man-sized and being

made of “larch” (tamarack), the bows of the Snake were said to have been short and of a better-quality wood while their backs were covered with bison sinew.

29. Wallace and Hoebel, *The Comanches*, 17, 18; Ewers, *The Blackfeet*, 37, 211, and *Indians of Texas in 1830*, 32; Hamm, “Plains Indian Bows,” 132, 133. Prince Maximilian noted about the height of Blackfoot men he observed in 1833: “One of the Blood Indians measured six feet eleven inches English measure. Several Piekanns were nearly six feet, French measure. The Big Soldier was five feet ten inches two lines, French measure.” Maximilian, *Travels in the Interior of North America*, 22:97. Steckel and Prince presented somewhat different data for average Comanche and Blackfoot body height for males (Comanche males 167 to 168 centimeters; Blackfoot males 171 to 172 centimeters). Even though these figures are lower than those presented by Wallace and Hoebel and by Ewers, they still show a considerably lower average body height among Comanche men, compared to Blackfoot/Blackfeet men. Steckel and Prince, “Tallest in the World,” table 1.

30. Wissler, *Material Culture of the Blackfoot Indians* (1910), 155, 156.

31. Glover, *David Thompson’s Narrative*, 241.

32. J. A. Hanson, *Spirits in the Art*, 23, 258; Taylor, *Native American Weapons*, 40; Phillips, *Patterns of Power*, 44, 82.

33. Graham, *Andrew Graham's Observations*, 147.

34. Schulze-Thulin, *Indianer der Prärien und Plains*, 72, 73; Maximilian, *Travels in the Interior of North America*, 22:103.

35. Glover, *David Thompson's Narrative*, 242.

36. Taylor, *Native American Weapons*, 8, 9, 17; Hail, *Hau Kola!*, 157–66.

37. Townsend, “Firearms Against Native Arms.” “Some [Cheyenne] men declare that the best bowmen could send an arrow five hundred yards, and old men say that in days of the old smoothbore flintlock trade guns the [mountain sheep horn] bow at long-distance shooting was a more effective weapon than the gun.” Grinnell, *Cheyenne Indians*, 1:176, 177.

38. Maurice Doll, curator of firearms at the Provincial Museum of Alberta in Edmonton, personal communication and demonstration, August 2002.

39. Taillon, “Understanding Old Bows.” Reginald Laubin related the example of the Lakota One Bull. During a visit to One Bull’s family in Little Eagle, South Dakota, on the Standing Rock Reservation, Laubin gave his sporting bows and arrows to One Bull to try out. One Bull shot six

arrows at a cardboard box about a foot square at a distance of approximately 30 yards. On the first try he missed the box but placed all six arrows in a tight cluster. When he tried again he placed all six arrows in the box. According to Laubin, One Bull was over ninety years old at the time and hadn't used a bow and arrow in approximately sixty years. Furthermore, Laubin's bow and arrows were much longer than traditional Lakota bows and arrows. Nonetheless, One Bull managed to hit the target, even though Laubin's archery gear was unfamiliar to him and therefore more difficult to use. Furthermore, his placement of all six arrows in tight clusters indicates a consistent shooting technique. Laubin and Laubin, *American Indian Archery*, 4, 5.

40. G. L. Wilson, *The Horse and the Dog in Hidatsa Culture*, 168, 169.

41. Malone, *Skulking Way of War*, 62–66.

42. Henry, *Journal of Alexander Henry the Younger*, 1:30–33, Sunday, August 24, and Tuesday, August 26, 1800.

43. Fidler, February 22, 1816, Brandon House Post Journal, F19d, 1M17, B.22/a/19, HBCA.

44. Burpee, *Journal of Anthony Henday*, 38, December 30, 1754.

45. Cowie, *Company of Adventurers*, 197.

46. Pyszczyk, "Use of Fur Trade Goods by the Plains Indians," 58; Milloy, *Plains Cree*, 75, 110.

47. Laubin and Laubin, *American Indian Archery*, 138.

48. Kalas, “Schuessversuche mit historischen Feurwaffen,” 44, 68, 69.

49. G. L. Wilson, “Hidatsa-Mandan Report, 1911,” 10:5, MHS. The intended use of asymmetrical bows as clubs may have been a reason for the much maligned double-curved deflex bow design of many Mandan and Hidatsa bows. Wood that already bends toward the bowstring can more easily be bent during the tillering process. This means that draw weight and draw length being equal, bows could be made more massive and heavier, which facilitated their use as clubs. At the same time, because of their more robust construction, they were less likely to break.

50. Taylor, *Buckskin and Buffalo*, 48, 49; Mallery, *Picture Writing of the American Indians*, 1:380, 2:562. Peabody Museum, Harvard University, cat. no. 99-12-10/53121, Mandan bison robe collected by the Lewis and Clark expedition, 1804-5, showing Mandan and Hidatsa people in combat with Arikara and Lakota warriors.

51. Mason, *North American Bows, Arrows, and Quivers*, 17.

52. Linderman, *Plenty Coups*, 102, 103, 210, 211; Nabokov, *Two Leggings*, 35.

53. Nabokov, *Two Leggings*, 35, 36; Allely and Hamm, *Encyclopedia of Native American Bows, Arrows, and Quivers*, 2:141, 143. Allely and Hamm show two Blackfoot bows from the University of Pennsylvania Museum (Philadelphia) and from the American Museum of Natural History (New York City) with strands or braids of human hair attached to the upper tips of each bow.

54. The North West Company fur trader and explorer Alexander Henry the Younger participated in a Native bison hunt, with hunters using their firearms from ambush positions to direct a massed volley of musket fire at a small bison herd.

Before I left this place upwards of twenty men had joined us by land on foot, having sent their families on by water. We now armed ourselves, by laying wait for the Buffaloes when they came down to drink. We lay close under the bank until the poor brutes would come to within about 10 yards of us when on a sudden we would fire a whole discharge of 25 Guns at them, killing and wounding many, the tongues of which we only took. At one time a single Bull only made his appearance. The Indians [Ojibwa] observed that we should all fire at him at the same time, to have the satisfaction, as they said, of killing him stone dead. The poor beast advanced until he was not more than 6 or 8 paces from us when the yell was given and all hands let fire. But instead of falling

he sett [*sic*] off upon a round gallop, when all hands pursued him and it was not until several discharges was [*sic*] fired, that he was brought to the ground. The Indians appeared to enjoy this kind of sport highly.

Similar tactics may have been used in warfare, too. Henry, *Journal of Alexander Henry the Younger*, 1:35, Wednesday, August 27, 1800.

55. Nabokov, *Two Leggings*, 139.

56. Grinnell, *Cheyenne Indians*, 2:54, 55.

57. Szabo, “Artistic License and Plains Representational Imagery,” 85, 89.

58. Catlin, *Letters and Notes on the Manners, Customs and Conditions*, 1:150–54.

59. Catlin, *North American Indians*, 328–30, letter 42, illustration 37.

60. Nabokov, *Two Leggings*, 125.

61. Nabokov, *Two Leggings*, 91.

62. Glover, *David Thompson’s Narrative*, 241, 242.

63. “William Pink Inland Journal,” April 1, 1770, HBCA; Smyth, “Niitsitapi Trade,” 145.

64. Smyth, “Niitsitapi Trade,” 150, “Matthew Cocking’s Inland Journal,” September 1772, HBCA.

65. Manchester House Post Journal, 35, March 19, 1787, 1M 73, B121/a/1, HBCA.

66. “The Principal part of what ammunition these Indians [Pikani] trade use for war & as a principal article to barter with other nations they are at peace with for Horses, etc.” Fidler, “Journal of a Journey over Land,” 14, December 25, 1792, HBCA.

67. Brandon House Post Journal, March 7, 1818, F37d, B.22/a/20, HBCA.

68. Gilman and Schneider, *Way to Independence*, 76.

69. Nisbet, *Sources of the River*, 105; Glover, *David Thompson’s Narrative*, 277–78.

70. “They [the North West Company envoys to the Mandan] came past the East end of the Turtle Mountain on purpose to avoid meeting with any Stone Indians that might intentionally be in the way to plunder our people, *as they don’t like us to carry ammunition &c to their Enemies*” [my emphasis]; Brandon House Post Journal, December 15, 1817, F2, B.22/a/20, F24–25d-25, HBCA.

71. “How Bloods First Got Guns,” March 3, 1911, David C. Duval Papers, 1904–1911, 3:621–26, M4376, Glenbow Archives. Duval wrote: “I got this information from Three Bears. P.S. Blood Heavy Runner, gave the same story about when the Bloods first got guns,” 625, 626. Even though

the term “rifles” appears here, it may probably have been in reference to smoothbore muzzle-loading flintlock trade guns. The section on Cree people giving guns to the Blood and teaching them their use is in contrast to later historic developments.

72. Fidler, “Journals of Exploration and Survey, 1789–1806, Number Three—July 25th 1792 to July 4th 1793: A Journal from York Fort Hudson’s Bay, to Cumberland Hudson, Manchester & Buckingham Houses,” F93, 4M 103, E.3/1, HBCA.

73. Fidler, “Journal of a Journey over Land,” 31, February 14, 1793, HBCA. With few exceptions, it was a fundamental policy of Spanish trade to prohibit the sale of firearms to Native peoples. Schilz and Worcester, “Spread of Firearms among the Indian Tribes,” 2, 4, 5.

74. Hudson House Post Journal, December 26, 1785, reel 1M63, B.87/a/8, HBCA.

75. Burpee, *Journal and Letters of La Verendrye*, 422. In early 1743 La Verendrye’s sons Francois and Chevalier (Louis-Joseph?) accompanied a large war party of the Gens de l’Arc or Bowmen (possibly Pawnee-Arikara) going to war against the Gens du Serpent (Kiowa? Comanche?). According to this account, on the return journey, after an unsuccessful attempt to make contact with the enemy and after a subsequent disorderly retreat, La Verendrye’s sons fired their guns at a

group of enemy warriors who had readied themselves to attack the French and their hosts. The attackers retreated hastily after a few shots.

One of La Verendrye's sons commented: "Seeing that they were preparing to attack us, I judged it well to let fly a few shots at them which caused them to retreat in a hurry, fire-arms enjoying a high respect among these tribes, who do not make use of them, and *whose shields cannot protect them against bullets* [my emphasis]."

76. Glover, *David Thompson's Narrative*, 332.

77. King, *First Peoples, First Contacts*, 264.

78. Bancroft-Hunt, *Warriors*, 219. Bancroft-Hunt credited the Morning Star Gallery in Santa Fe, New Mexico, as the source for this image. However, the original provenance of this piece of ledger art could not be determined. One of the Pawnee warriors is depicted placing the muzzle of his gun on a forked stick while aiming, probably to achieve greater accuracy. Two Leggings related that he usually carried such a stick with his flintlock gun and on at least one occasion was able to kill a bison cow with one shot, even though the animal was barely within range. Nabokov, *Two Leggings*, 67.

79. Book of Arikara drawings by anonymous artist, ca. 1875, Smithsonian Institution, Manuscript 154064B: "Anonymous Arikara drawing of battle between two lines of warriors,

ca. 1875,” NAA INV 08510630,  
<http://siris-archives.si.edu>.

80. Glover, *David Thompson's Narrative*, 50, 51.

81. Glover, *David Thompson's Narrative*, 269.

82. Smyth, “Niitsitapi Trade,” 257. Smyth correlates the documentary evidence from fur traders to a Pikani winter count. Raczka, *Winter Count*, 37. This was apparently part of a Pikani initiative to stop the arms trade between European fur trade companies and the Pikani's western neighbors and enemies, such as the Salish (Flathead) and Kutenai.

83. “Isle a la Cross Journal,” February 9, 1811, Ile-a-la Crosse Post Journal, 1811, F24–25d, 1M63, B.89/a/2, HBCA. Aboriginal people in the western Great Lakes used their firearms in combat in similar ways. See Kinietz, *Indians of the Western Great Lakes*, 254–55.

84. Glover, *David Thompson's Narrative*, 305, 306; “Edmonton-Saskatchewan Journal 1810/1811—by James Bird,” October 31, 1810, Edmonton House Post Journal, 1M49, B.60/a/9, HBCA.

85. Raczka, *Winter Count*, 37.

86. Henry, *Journal of Alexander Henry the Younger* 2:524–27, Wednesday, February 13, 1811.

87. “Edmonton-Saskatchewan Journal 1810/1811—by James Bird.”
88. Crooked Meat Strings via Mary White Elk, September 12, 1938, 165, file 6, Hanks Fonds, M8458, Glenbow Archives.
89. L. J. Dempsey, *Blackfoot War Art*, 84, 85.
90. Hungry Wolf, *Ways of My Grandmothers*, 68. For a discussion of women engaging in pursuits considered masculine among the Blackfoot, see O. Lewis, “Manly-Hearted Women.”
91. Bamforth, “Indigenous People, Indigenous Violence,” 100, 101.
92. Maximilian, *Travels in the Interior of North America*, 23:146–55.
93. Maximilian, *Travels in the Interior of North America*, 23:152. Maximilian’s account is unclear on the number of casualties among the Piegan, but they likely suffered higher casualties than their attackers, who were able to exploit the element of surprise in their initial attack.
94. Maximilian, *Travels in the Interior of North America*, 23:147. Even though Maximilian stated Assiniboine/Cree casualties of three killed and twenty severely wounded, this passage seems to suggest a much higher, but unspecified, number of casualties.
95. Nabokov, *Two Leggings*, 18.

96. Maximilian Prinz zu Wied, *Reise in das Innere Nordamerika*, Vignettenband, Vignettes 19, 20; Catlin, *Letters and Notes on the Manners, Customs, and Conditions of the North American Indians*, 1:150–54.
97. Fidler, “Journal of a Journey,” 16, December 30, 1792, HBCA.
98. Maximilian, *Travels in the Interior of North America*, 22:103 and 22:370, 371, June 23, 1833.
99. Crooked Meat Strings via Mary White Elk, September 12, 1938, 172, file 6, Hanks Fonds, M8458, Glenbow Archives.
100. Nabokov, *Two Leggings*, 32, 40, 52, 138; 91, 125.
101. C. E. Hanson, *Northwest Gun*, 51; see also *Annals of Wyoming*, “High-Backed Wolf” and “Cheyenne Indians,” [http://wyshs.org/index\\_h.htm](http://wyshs.org/index_h.htm).
102. Nabokov, *Two Leggings*, 40–44.
103. J. A. Hanson, *Spirits in the Art*, 29.
104. Nabokov, *Two Leggings*, 40–44.
105. Ball, *Indeh, an Apache Odyssey*, 115.
106. R. E. Wilson, *Frank J. North*, 160–61.
107. “Raw Eater’s Story Robe,” Glenbow Museum, [www.glenbow.org](http://www.glenbow.org).

108. “The War Experiences of My Grandfather,” pictographic war record, Wolf Collar Fonds, Glenbow Archives. Paul Wolf Collar, 1901–1985, provided this information to Hugh A. Dempsey in 1961 with Adolphus Weasel Child interpreting. Paul Wolf Collar’s grandfather (Maguigoxkinas) was born in 1839 and died in 1928.

109. Joe Little Chief Fonds, f. 2, 1, 2, M4394, Glenbow Archives. White eagle was born in 1842. Crooked Meat Strings via Mary White Elk, September 12, 1938, 189, 190, file 6, Hanks Fonds, M8458, Glenbow Archives; “Eagle Rib’s War Deeds,” 1938, 50, Pitoxpikis (Sleigh) Eagle Ribs via Mary Royal (interpreter), Hanks Fonds, Box 1, file 1, M8458, Glenbow Archives. Eagle Ribs was sixty-eight years old at the time of the interview in 1938. He spoke about the war deeds of an older relative (his father?) who died in 1910 when he was in his eighties (M8458, file 2, 72).

110. Joe Little Chief Fonds, f. 2, 5, 6, 14, M4394, Glenbow Archives. Capture of guns from Sioux, “Snake,” and Kutenai frequently mentioned.

111. Joe Little Chief Fonds, f. 2, 8, 9, M4394, Glenbow Archives.

112. Glover, *David Thompson’s Narrative*, 241.

113. Calloway, *Our Hearts Fell to the Ground*, 42; Calloway, “Snake Frontiers,” 88–92; Secoy, *Changing Military Patterns on the Great Plains*, 33–38, 42; Milloy, *Plains Cree*, 83–99.

114. Glover, *David Thompson's Narrative*, 245.
115. Glover, *David Thompson's Narrative*, 242.
116. Eagle Rib's War Deeds, 1938, 51, Pitoxpikis (Sleigh) Eagle Ribs via Mary Royal (interpreter), Box 1, file 1, Hanks Fonds, M8458, Glenbow Archives.
117. Burpee, *Journal and Letters of La Verendrye*, Report of La Verendrye, October 31, 1744, 451, 452; 135n2.
118. Burpee, *Journal of Anthony Henday*, 41, February 28, 1755, March 1, 1755.
119. Binnema, *Common and Contested Ground*, 171, 181, 192, 228n134.
120. Glover, *David Thompson's Narrative*, 247.
121. R. N. Wilson Papers, 1:123, Glenbow Archives.
122. Crooked Meat Strings via Mary White Elk, September 12, 1938, 181, 182, Hanks Fonds, file 6, M8458, Glenbow Archives.
123. "Eagle Rib's War Deeds," 1938, 44, 45, Pitoxpikis (Sleigh) Eagle Ribs via Mary Royal (interpreter), Hanks Fonds, Box 1, file 1, M8458, Glenbow Archives.
124. For access to bison as a motivation for hostilities between Blackfoot and Cree, see Milloy, *Plains Cree*, 104–10.

125. For revenge as a motivation for small-scale war parties, but also for large-scale revenge raids involving hundreds of warriors, see Crooked Meat Strings via Mary White Elk, September 12, 1938, 164–71, Hanks Fonds, file 6, M8458, Glenbow Archives.

126. Glover, *David Thompson's Narrative*, 241.

127. Brandon House Post Journal, January 26, 1816, F15–16d, 1M17, B.22/a/19, HBCA.

128. For one of the more playful accounts of conflict between the Plains Cree and the Blackfoot in the 1880s, see Ahenakew, *Voices of the Plains Cree*, 45–47.

129. Grinnell, *Cheyenne Indians*, 1:119.

130. Linderman, *Plenty Coups*, 106, 107.

## 11. Survival and Adaptation

1. Ewers, *The Blackfeet*, 70.

2. Maximilian, *Travels in the Interior of North America*, 22:389; Maximilian Prinz zu Wied, *Reise in das innere Nordamerika*, Vignettenband, Vignette 19, “Blackfoot-Indianer zu Pferd,” Vignette 20, “Mex-ke-mau-as-tan, ein Chef der Grosventres des Prairies”; Catlin, *North American Indians*, 319, letter 41, illustration 36: “Camanchees meeting Colonel Dodge and the Dragoons.”

3. Milloy, *Plains Cree*, 75, 110; Gladstone, *William Gladstone's Diary*, July 28, 1859.

4. Gilman and Schneider, *Way to Independence*, 132.
5. L. J. Dempsey, *Blackfoot War Art*, 14.
6. L. J. Dempsey, *Blackfoot War Art*, 10, 11.
7. Binnema, *Common and Contested Ground*, 86–161.
8. Ray, *Indians in the Fur Trade*, 87; Pyszczyk, “Use of Fur Trade Goods by the Plains Indians,” 52.
9. Glover, *David Thompson’s Narrative*, 277.
10. C. M. White, *David Thompson’s Journals*, 210, 211, citing Cox, *Adventures on the Columbia River*, 167, 168.
11. Wallace and Hoebel, *The Comanches*, 299; Grinnell, *Fighting Cheyennes*, 80–92.
12. Wallace and Hoebel, *The Comanches*, 325, 326.
13. Townsend, “Firearms Against Native Arms,” 7, 8, 9.
14. Lytwyn, “Hudson Bay Lowland Cree in the Fur Trade,” 57, 58.
15. Morantz, “Old Texts, Old Questions,” 179, 180.
16. Morantz, “Old Texts, Old Questions,” 178.
17. Lytwyn, “Hudson Bay Lowland Cree,” ii.

18. Hearne, *Journey from Prince of Wales's Fort*, 156, 157.
19. Burpee, *Journal of Anthony Henday*, September 15, 1754, 27.
20. Louis Bird, *Our Voices*, 0014—"Guns and Bows."
21. Tanner, *Bringing Home Animals*, 60.
22. Dzeniskevich, "Ecology and Chronology of Athapascan Settlement," 1:124–25.
23. Stefánsson, *My Life with the Eskimo*, 503.
24. J. A. P. Wilson, "Material Culture Correlates of the Athapaskan Expansion," 239, 240.
25. Benson, "Northern Athapaskan Bow," 40.
26. Catlin, *North American Indians*, 83, letter 12; Linderman, *Plenty Coups*, 80–82.
27. Louis Bird, *Our Voices*, 0014—"Guns and Bows."
28. The Manitoba Museum holds a photograph showing three Northern Ojibwa or Cree women using bows and bird blunt arrows. The picture was probably taken in the area of The Pas around 1925 in northern Manitoba by the schoolteacher Sam Waller (photo negative number 6515). Caution needs to be taken with a too literal reading of this image, as Sam Waller may have exerted considerable influence on the arrangement of persons and accoutrements in it. However, the

Ojibwa linguist Roger Roulette mentioned to me that northern Ojibwa women had owned, used, and even made their own archery gear, at least as far back as the late 1800s. Roger Roulette, personal communication, Fall 2000.

29. Burgesse, “Montagnais Cross-Bows.” In a travel report published in 1847, John Birkbeck Nevins stated that by 1842 Aboriginal peoples on Hudson Bay had almost lost the use of the bow and arrow. Nevins, *Narrative of Two Voyages to Hudson Bay*, 52, 91.

30. Burpee, *Journal of Anthony Henday*, 37, December 15, 1754; 43, April 17, 1755; 43, April 24, 1755.

31. Linderman, *Plenty Coups*, 17, 18.

32. Government of Canada, *Sessional Papers, Dominion of Canada, Department of the Interior, Indian Affairs Report 1905 for 1904*, J. L. Le Vern, principal, NWT, Blood Boarding School, Blood Reserve, Stand-Off, Alberta, July 8, 1904, 332; *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, Report of the Rev. J. M. Salaun, Principal of the Roman Catholic boarding school, Blood Reserve, Alberta, for the year ended March 31, 1910, 477; *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, Report of the Rev. J. L. Levern, OMI, Principal of the boarding school (Crowfoot), Blackfoot Reserve, Alberta, for the year ended March 31, 1910, 478.

33. 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, Report of the Rev. Ernest O. Duke, Principal of the boarding school, Moose Factory, James Bay, Ontario, for the year ended March 31, 1910, 429.

34. 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, Report of the Rev. S. Perreault, OMI, Principal of the boarding school, Cowessess Reserve, Crooked Lakes Agency, Saskatchewan, for the year ended March 31, 1910, 454.

35. Government of Canada, *Sessional Papers of the Government of Canada, Department of Indian Affairs Reports*, J. L. Le Vern, Principal, NWT, Blood Boarding School, Blood Reserve, Stand-Off, Alberta, July 8, 1904, 332; Report of Rev. S. R. McVitty, Principal of the Mount Elgin Institute, Muncey,

Ontario, for 1910, 421; Report of Rev. Ernest O. Duke, Principal of the Boarding School at Moose Fort, James Bay, Ontario, for 1910, 429. Here Cree fathers supplied archery gear to their sons at school or the boys made their own. Report of Boarding School Principal Rev. P. R. Soanes at Chapleau, Ontario, for 1910, 430; Report of Rev. G. Leonard, OMI, Principal of the Boarding School at Sandy Bay, Manitoba, for 1910, 442; Report of Rev. S. Perreault, OMI, Principal of the Boarding School on Cowessess Reserve, Crooked Lakes Agency, Saskatchewan, for 1910, 454. Here Aboriginal boys made their own archery gear. Report of Rev. J. M. Salaun, Blood Reserve, Alberta, for 1910, 477; Report of Rev. J. L. Lavern, Crowfoot Boarding School, Blackfoot Reserve, Alberta, for 1910, 478; Sister M. McDougall, Fort Chipewyan Boarding School, Alberta, for 1910, 485; Report of Rev. P. Jousard, OMI, Lesser Slave Lake, Alberta, for 1910, 486; Report of the Rev. J. Calais, OMI, Sturgeon Lake, Alberta, for 1910, 487; Report of Rev. Sister McQuillan, Fort Resolution, Great Slave Lake, for 1910, 490.

36. For a discussion of Euro-American appropriations of Aboriginal cultural elements, see Deloria, *Playing Indian*.

37. Government of Canada, *Sessional Paper No. 27, Department of Indian Affairs Report 1905 for 1904*, Indian Agent J. B. McDougall, Walpole

Island Agency, Pottawattamies and Chippewas, Walpole Island, September 8, 1904, 41.

38. Szabo, *Howling Wolf and the History of Ledger Art*, 76; Pratt Papers, Western American Collections, Beinecke Rare Book and Manuscript Library, Yale University.

39. Manitoba Museum, cat. no. H-4.43-19a and-19b, arrows, originally part of an archery set consisting of eleven arrows, bow, bow case and quiver, all now missing except these two arrows. Donated in 1933 by Philip H. Godsell who purchased the archery set from Calf Child on the Blackfoot Reserve, Gleichen, Alberta.

40. Copway, *Traditional History and Characteristic Sketches of the Ojibway Nation*, 26-30, <http://www.canadiana.org/ECO/PageView/59357/0041?id=56fe203cbcaaddae> (accessed July 2008).

41. Lindstrom, "Native American Responses to the Wanamaker Expedition," 212, 213; "Red Indian's Statue: Continent's First Owner Will Be Honored in American Style," *New York Times*, March 2, 1913, <http://query.nytimes.com/gst/abstract.html?res=9400EFD6163FE633A25751C0A9659C946296D>

42. Massey, "Tradition Begins with the Past," 2:13.



## Bibliography

### Archival Sources

Archives of Manitoba, MG2, B4–6, *Public Interest vs. Capenessweet*, August 1849, I, 23, 33.

Archives of Manitoba, Hudson's Bay Company Archives (HBCA), Winnipeg

Albany Account Book, 1695, B3/d/5

Albany Post Journal, June 27, 1777, to June 27, 1779, F11, B.3/a/73, and 1784–85, B.3/a/84

Brandon House Post Journal, 1817–18, B.22/a/20

Buckingham House Account Books, B.239/d/87–121

Buckingham House Post Journal, 1792–99, B.24/a/1–6

Cocking, Matthew. "Matthew Cocking's Inland Journal," York Factory Post Journal Series, B.239/a/69, Reel 1M158, September 1772

Edmonton House Post Journal, 1795–1808, B.60/a/1–8

Fidler, Peter. "Journal at Red River Settlement with the account of the Population of the Free Canadians and the three Tribes of Indians in this Quarter with a Meteorological Journal and Astronomical Observations made at different places by Peter Fidler, to which is added the Astronomical Observations of Thomas and

Charles Fidler 1815.” Selkirk Papers, MG2, A1, Vol. 69, M187

—. “Journal of a Journey over Land from Buckingham House to the Rocky Mountains in 1792 & 3 by Peter Fidler.” Reel 4M 103, E 3/2, fols. 2–39

—. “Journals of Exploration and Survey, 1789–1806, Number Three—July 25th 1792 to July 4th 1793. A Journal from York Fort Hudson’s Bay, to Cumberland Hudson’s, Manchester & Buckingham Houses—up the Saskatchewan River by Way of Lake Wennepeg in 1792 by Peter Fidler.” E.3/1

—. “Journals of Exploration and Survey, 1790–1809, June 25th, 1807.” E.3/3 (“Journal of a Journey by water in a Canoe from Cumberland House to the East End of the Athapescow Lake by Deers Lake, & Lake Wollaston and from the Entrance of Deers River down the Missin nip pee or Churchill River down to Churchill Factory, & from thence in a Boat to York Factory along the Coast. By Peter Fidler”)

—. Notebook, 1794–1813: “Contents of a Gun Chest of Curiosities, Directed to James Fidler July 4th 1813.” F17, D3, MG1

Fort Dauphin Post Journal, 1819–20, B.51/a/2

Gloucester House Post Journal, 1782–83, B.78/a/8, and 1784–85, B.78/a/12

House of Commons. Papers of Committee of House of Commons, 1749. Appendix to *Report from the Committee Appointed to Inquire into the State and Condition of the Countries adjoining to Hudson's Bay and of the Trade Carried on There, 1749*. Published 1803, HBCA-FC-3207.5 G73

Hudson House Post Journal, B.87/a/8

Ile-a-la Crosse Post Journal, 1810–11, B.89/a/2

Manchester House Post Journal, 1786–1793, B.121/a/1–8

Minutes of the Hudson's Bay Company, 1671 to 1674, A.1/1

Pink, William. "William Pink Inland Journal," York Factory Post Journal Series), B.239/a/63, Reel 1M158, April 1770

York Factory Account Books, 1688–89, B.239/d/1; 1689–90, B.239/d/2; 1693–95, B.239/d/5; 1759–60, B.239/d/50; 1793–94, B.239/d/100; 1798–99, B.239/d/118; 1799–1800, B.239/d/123; 1800–1801, B.239/d/123

York Factory Post Journal, 1714, B.239/a/1

Glenbow Archives, Calgary

David C. Duval Fonds, M4376

George H. Gooderham Fonds, 1901–76, M4738

Lucien Mason Hanks and Jane Richardson Hanks Fonds, M8458

Augustus Jukes Family Fonds, M607

Joe Little Chief Fonds, M4394

*Nitsitapiisini—Our Way of Life*, exhibition leaflet.  
“Raw Eater’s Story Robe.” Glenbow Museum,  
Calgary, [www.glenbow.org](http://www.glenbow.org).

Claude E. Schaeffer Papers, M1100/8

Robert Nathaniel Wilson Papers, M4421, M4422.  
Edited and annotated by Philip H. Godsell.  
Calgary: Glenbow Foundation, 1958.

Paul Wolf Collar Fonds, M2359, M2844, RBT 14

Minnesota Historical Society (MHS), St. Paul

Wilson, Gilbert L. “Hidatsa-Mandan Report,  
1911, American Museum of Natural History,”  
Vol. 10. Document No. M460 2/1.

#### Published Sources

Ahenakew, Edward. *Voices of the Plains Cree*.  
Toronto: McClelland and Stewart, 1973. Reprint,  
Regina: Canadian Plains Research Center,  
University of Regina, 1995.

Allely, Steve. “Ishi’s Archery Tackle.” In Hamm,  
*The Traditional Bowyer’s Bible*, 4:269–90.

Allely, Steve, and Jim Hamm. *Northeast,  
Southeast, and Midwest*. Vol. 1 of *Encyclopedia  
of Native American Bows, Arrows, and Quivers*.  
New York: Lyons Press, 1999.

—. *Plains and Southwest*. Vol. 2 of *Encyclopedia of Native American Bows, Arrows, and Quivers*. Azle TX: Bois d'Arc Press, 2002.

Anderson, Henry R. "The Last Indian Battle." In *The Last Great (Inter-Tribal) Indian Battle*, 37–44. Edited by James H. Carpenter. Lethbridge AB: Lethbridge Historical Society, 1997.

*Annals of Wyoming*. "High-Backed Wolf," 27:1:14, and "Cheyenne Indians," 28:2:183, <http://wyshs.org>. Accessed January 2013.

Attituq Quitsualik, Rachel. "War: Part Six," *Nunatsiaq News*, <http://www.nunatsiaq.com>. Accessed February 11, 2000.

Baillargeon, Morgan. *North American Aboriginal Hide Tanning: The Act of Transformation and Revival*. Gatineau: Canadian Museum of Civilization, 2010.

Baker, Tim. "Bows from Boards." In *The Traditional Bowyer's Bible*, 2:19–50..

Baldwin, Doug. *The Fur Trade in the Moose-Missinaibi River Valley, 1770–1917*. Research Report 8. [Toronto]: Ministry of Culture and Recreation, Historical Planning and Research Branch, 1975.

Baldwin, John. *Bows, Arrows and Quivers of the American Frontier*. West Olive MI: Early American Artistry, 1999.

Baldwin, Stuart J. *The Elk Point Burial "At the Place of the Willows," Alberta*. Occasional Paper No. 11. Archaeological Survey of Alberta, January 1979.

Balfour, Henry. "On the Structure and Affinities of the Composite Bow." *Journal of the Anthropological Institute of Great Britain and Ireland* 19 (1890): 220–50.

Ball, Eve. *Indeh, an Apache Odyssey*. Norman: University of Oklahoma Press, 1988.

Bamforth, Douglas B. *Ecology and Human Organization on the Great Plains*. New York: Plenum Press, 1988.

—. "Historical Documents and Bison Ecology on the Great Plains." *Plains Anthropologist* 32, no. 115 (February 1987): 1–16.

—. "Indigenous People, Indigenous Violence: Precontact Warfare on the North American Great Plains," *Man*, n.s., 29, no. 1 (March 1994): 95–115.

Bamforth, Douglas B., and Nyree Finlay. "Introduction: Archaeological Approaches to Lithic Production Skill and Craft Learning." *Journal of Archaeological Method and Theory* 15, no. 1 (2008): 1–27.

Bancroft-Hunt, Norman. *Warriors: Warfare and the Native American Indian*. London: Salamander Books, 1995.

Barsh, Lawrence Russell, and Chantelle Marlor. "Driving Bison and Blackfoot Science." *Human Ecology* 31, no. 4 (December 2003): 571–93.

Benndorf, Helga, and Arthur Speyer. *Indianer Nordamerikas 1760–1860*. Offenbach a.M.: Deutsches Ledermuseum Offenbach, 1968.

Benson, Foley C. "The Northern Athapaskan Bow: An Analysis of the Role and Importance of Trajectory Weapons in the Hunting Economy of the Kutchin." Master's thesis, Department of Anthropology, Washington State University, Pullman, 1975.

Bergman, C. A., E. McEwen, and R. Miller. "Experimental Archery: Projectile Velocities and Comparison of Bow Performances." *Antiquity* 62, no. 237 (1988): 658–70.

Berry, Susan, and Jack Brink. *Aboriginal Cultures in Alberta: Five Hundred Generations*. Edmonton: Provincial Museum of Alberta, 2004.

Bill, Joseph H. "Notes on Arrow Wounds." *American Journal of Medical Science* 44 (1862): 11, 12, 365–87.

—. "Sabre and Bayonet Wounds; Arrow Wounds." In *The International Encyclopedia of Surgery*, 2:101–18. Edited by John Ashhurst. New York: William Wood, 1882.

Binnema, Theodore. "Allegiances and Interests: Niitsitapi (Blackfoot) Trade, Diplomacy, and

Warfare, 1806–1831.” *Western Historical Quarterly* 37, no. 3 (Autumn 2006): 327–49.

—. *The Common and Contested Ground: A Human and Environmental History of the Northwestern Plains*. Norman: University of Oklahoma Press, 2001.

Bird, Louis. *Our Voices*. Omushkego Oral History Project. Audio tapes and transcripts. <http://www.ourvoices.ca>. Centre for Rupert’s Land Studies, University of Winnipeg.

0014—“Guns and Bows.” Rec. April 2001, transcr. by Roland Bohr.

0051—“Fish Trapping and Caribou Hunting.” Rec. January 1989, transcr. by Justin Dyck.

0077—“Inuit Expedition, Skirmishes.” Rec. April 2003, transcr. by Roland Bohr.

0116—“Guns and Bows II.” Rec. April 2001, transcr. by Roland Bohr.

Bird, Louis, and Roland Bohr. “Arrows and Thundersticks: Technologies Old and New.” In *Telling Our Stories: Omushkego Legends and Histories from Hudson Bay, 189–208*. Edited by Jennifer S. H. Brown, Paul W. DePasquale, and Mark F. Ruml. Peterborough ON: Broadview Press, 2005.

Bishop, Charles, and Victor Lytwyn. “‘Barbarism and Ardour of War from the Tenderest Years’: Cree-Inuit Warfare in the Hudson Bay Region.” In

*Problems in Paradise*, 30–57. Edited by Richard Chacon and Ruben Mendoza. Tucson: University of Arizona Press, 2007.

Blish, Helen H. “The Ceremony of the Sacred Bow of the Oglala Dakota.” *American Anthropologist* 36, no. 2 (April–June 1934): 180–87.

Blitz, John H. “Adoption of the Bow in Prehistoric North America.” *North American Archaeologist* 9 (1988): 123–45.

Bob, Geraldine, Gary Marcuse, Deanna Nyce, and Loma Williams. “Standing Alone.” *First Nations: The Circle Unbroken*. Vol. 1. Video recording. National Film Board of Canada, 1993.

Bodmer, Karl. *Karl Bodmer’s America*. Omaha: Joslyn Art Museum; Lincoln: University of Nebraska Press, 1984.

Bohr, Roland. “Plains Indian Archery Gear of the Historic Period.” Unpublished seminar paper, University of North Dakota, Department of Anthropology, 1996.

Bordewich, Fergus M. *Killing the White Man’s Indian: Reinventing Native Americans at the End of the Twentieth Century*. New York: Doubleday, 1996.

Bourke, Paul, and David Whetham. “A Report of the Findings of the Defence Academy Warbow Trials.” *Arms and Armour*, Summer 2005, 2–27.

Bowe, Howard R., and Donalee M. Deck. *A Legacy of Stone: Projectile Point and Hafted Knife Forms from Eastern Manitoba*. Winnipeg: Anthropology Museum, University of Winnipeg, 1999.

Bowers, Alfred W. *Hidatsa Social and Ceremonial Organization*. Lincoln: University of Nebraska Press, 1992 (1963).

—. *Mandan Social and Ceremonial Organization*. Moscow: University of Idaho Press, 1991. Originally published 1950.

Bradley, Mark. "Beckwourth's Life with the Crow." In *James Pierson Beckwourth, 1798–1866*, <http://www.beckwourth.org/biography>. Accessed June 26, 2013.

Brightman, Robert. *Acaohkiwina and Acimowina: Traditional Narratives of the Rock Cree Indians*. Hull, Quebec: Canadian Museum of Civilization, 1989.

—. *Grateful Prey: Rock Cree Human-Animal Relationships*. Berkeley: University of California Press, 1993.

Brink, Jack W. *Imagining Head-Smashed-In: Aboriginal Buffalo Hunting on the Northern Plains*. Edmonton: AU Press, 2008.

Brink, Jack, and Bob Dawe. "Preliminary Report of the 1988 and 1989 Field Seasons at Head-Smashed-In Buffalo Jump." In *Archaeology*

in *Alberta*, 145–55. Archaeological Survey of Alberta—Occasional Paper No. 33, 1991.

Brooks, James F. *Captives and Cousins: Slavery, Kinship, and Community in the Southwest Borderlands*. Chapel Hill: University of North Carolina Press, 2002.

Brown, Alison K., and Laura Peers. *Pictures Bring Us Messages / Sinaakssiiksi aohtsimaahpihkookiyaawa: Photographs and Histories from the Kainai Nation*. Toronto: University of Toronto Press, 2006.

Brown, Jennifer S. H. “Fields of Dreams: Revisiting A. I. Hallowell and the Berens River Ojibwa.” In *New Perspectives on Native North America: Cultures, Histories, and Representations*, 17–41. Edited by Sergei Kan and Pauline Turner Strong. Lincoln: University of Nebraska Press, 2006.

Brown, Jennifer S. H., and Robert Brightman. *“The Orders of the Dreamed”: George Nelson on Cree and Northern Ojibwa Religion and Myth, 1823*. Winnipeg: University of Manitoba Press, 1988.

Brownlee, Kevin, and E. Leigh Syms. *Kayasochi Kikawenow: Our Mother from Long Ago, An Early Cree Woman and Her Personal Belongings from Nagami Bay, Southern Indian Lake*. Winnipeg: Manitoba Museum, 1999.

Brues, Alice M., "The Spearman or the Archer—An Essay on Selection in Body Build." *American Anthropologist* 61, no. 3 (June 1959): 457–69.

Brumley, John H., and Barry J. Dau. *Historical Resource Investigations within the Forty Mile Coulee Reservoir*. Manuscript Series No. 13. Edmonton: Archaeological Survey of Alberta, 1988.

Bryan, Liz. *The Buffalo People: Prehistoric Archaeology on the Canadian Plains*. Edmonton: University of Alberta Press, 1991.

Burgesse, J. A. "Montagnais Cross-Bows." *Beaver Magazine*, Outfit 274, vol. 23, no. 3, December 1943, 37–39.

Burpee, Lawrence J., ed. *An Adventurer from Hudson Bay: Journal of Matthew Cocking from York Factory to the Blackfoot Country, 1772–1773*. Transactions of the Royal Society of Canada, series 3, vol. 2, 1908.

—. *Journal and Letters of Pierre Gaultier de Varennes de la Verendrye and His Sons*. Toronto: Champlain Society, 1927.

—. *The Journal of Anthony Henday, 1754–55: York Factory to the Blackfoot Country*. Toronto: Canadiana House, 1973.

Byrne, W. J. *Archaeology in Alberta, 1977*. Archaeological Survey of Alberta, Occasional Paper No. 5, 1978.

Calloway, Colin G. "Snake Frontiers: The Eastern Shoshones in the Eighteenth Century." *Annals of Wyoming* 63, no. 3 (1991): 82–92.

—. *Our Hearts Fell to the Ground: Plains Indian Views of How the West Was Lost*. New York: Bedford/St. Martin's, 1996.

Careless, James M. S. *Canada: A Story of Challenge*. Cambridge: Cambridge University Press, 1953.

Carlos, Ann M., and Frank D. Lewis, "Trade, Consumption, and the Native Economy: Lessons from York Factory, Hudson Bay." *Journal of Economic History* 61, no. 4 (December 2001): 1037–64.

Carver, H. P., dir. *The Silent Enemy: An Epic of the American Indian*. Milestone Film and Video, New York, 1992. Restored version of the 1930 original.

Catlin, George. *Letters and Notes on the Manners, Customs, and Conditions of the North American Indians*. Vol. 1. New York: Dover Publications, 1973.

—. *Letters and Notes on the North American Indians*. Edited by Michael MacDonald Mooney. New York: Clarkson N. Potter, 1975.

—. *North American Indians*. Edited by Peter Matthiessen. New York: Penguin Books, 1989.

Chaplin, Joyce E. *Subject Matter: Technology, the Body, and Science on the Anglo-American Frontier, 1500–1676*. Cambridge MA: Harvard University Press, 2001.

Chappell, Edward. *Narrative of a Voyage to Hudson's Bay in His Majesty's Ship Rosamond containing Some Account of the North-Eastern Coast of America and of the Tribes Inhabiting that Remote Region*. London: R. Watts, 1817. Facsimile edition reprint, Toronto: Coles Publishing Company, 1970.

Chavez, Thomas E. "The Segesser Hide Paintings: History, Discovery, Art," *Great Plains Quarterly* 10 (1990): 96–109, <http://digitalcommons.unl.edu>. Accessed January 2013.

Clark, William Philo. *The Indian Sign Language*. Lincoln: University of Nebraska Press, 1982. Originally published 1882.

Coates, William. *The Geography of Hudson's Bay: Being the Remarks of Captain W. Coates, in Many Voyages to that Locality, Between the Years 1727 and 1751*. Edited by John Barrow. London: Hakluyt Society, 1852.

Cocking, Matthew. *An Adventurer from Hudson Bay: Journal of Matthew Cocking from York Factory to the Blackfeet Country, 1772–1773*. Edited by Lawrence J. Burpee. Transactions of the Royal Society of Canada, series 3, vol. 2, 1908.

Comstock, Paul. "Ancient European Bows." In Hamm, *The Traditional Bowyer's Bible*, 2:81–112..

Cooper, John M. *Notes on the Ethnology of the Otchipwe of Lake of the Woods and Rainy Lake*. Washington DC: Catholic University of America, 1936.

—. *Snares, Deadfalls, and Other Traps of the Northern Algonquians and Athapaskans*. Washington DC: Catholic University of America, 1938.

Copway, George. *The Traditional History and Characteristic Sketches of the Ojibway Nation*. London: G. Gilpin, 1850.  
<http://www.canadiana.org>.

Cosner, Aaron J. "The 'Stone Scraper' and Arrow 'Wrench.'" *American Antiquity* 21, no. 3 (January 1956): 300–301.

Cowdrey, Mike, and Ned and Jody Martin. *American Indian Horse Masks*. Nicasio CA: Hawk Hill Press, 2006.

Cowie, Isaac. *The Company of Adventurers: A Narrative of Seven Years in the Service of the Hudson's Bay Company during 1867–1874 on the Great Buffalo Plains, with Historical and Biographical Notes and Comments*. Toronto: W. Briggs, 1913.

Cox, Ross. *Adventures on the Columbia River, including the narrative of a residence of six years*

*on the western side of the Rocky Mountains, among various tribes of Indians hitherto unknown: together with a journey across the American continent.* London: H. Colburn, R. Bentley, 1831.

Crowshoe, Reg, and Sybille Manneschmidt. *Akak'stiman: A Blackfoot Framework for Decision-Making and Mediation Processes.* Calgary: University of Calgary Press, 2002.

Dahlberg, Frances, ed. *Woman the Gatherer.* New Haven: Yale University Press, 1981.

Day, Gordon, "The Penobscot War Bow." In *Contributions to Canadian Ethnology*, 1–15. Edited by David B. Carlisle. Paper No. 31, Mercury Series. Ottawa: National Museum of Man, 1975.

Deloria, Philip Joseph. *Playing Indian.* New Haven CT: Yale University Press, 1998.

DeMallie, Raymond J., ed. *The Sixth Grandfather: Black Elk's Teachings Given to John Neihardt.* Lincoln: University of Nebraska Press, 1985.

Dempsey, Hugh A. "Blackfoot." In *Handbook of North American Indians*, vol. 13, pt. 1: *Plains*, 604–28. Washington DC: Smithsonian Institution, 2001.

Dempsey, L. James. *Blackfoot War Art: Pictographs of the Reservation Period,*

1880–2000. Norman: University of Oklahoma Press, 2007.

Denig, Edwin Thompson. *Five Indian Tribes of the Upper Missouri: Sioux, Arickaras, Assiniboines, Crees, Crows*. Edited by John C. Ewers. Norman: University of Oklahoma Press, 1961.

Densmore, Frances. *Chippewa Customs*. Washington DC: Smithsonian Institution, 1929.

—. *Teton Sioux Music*. New York: Da Capo Press, 1972. Originally published by U.S. Government Printing Office, 1918.

Denys, Nicolas. *Description and Natural History of the Coasts of North America (Acadia)*. New York: Greenwood Press, 1968. Originally published 1908 by Champlain Society.

Diamond, Jared. *Guns, Germs, and Steel: The Fates of Human Societies*. New York: W. W. Norton, 1997.

Dixon, Joseph K. *The Vanishing Race: The Last Great Indian Council*. New York: Bonanza Books, 1913.

Dodge, Richard I. *Our Wild Indians*. Hartford CT: Archer House, 1960. Originally published 1882.

Driver, Harold E., and William C. Massey. "Comparative Studies of North American Indians." *Transactions of the American*

*Philosophical Society*, N.S., 47, No. 2 (1957): 165–456.

Duke, Philip. *Points in Time: Structure and Event in a Late Northern Plains Hunting Society*. Niwot CO: University Press of Colorado, 1991.

Dusenberry, Verne. “Notes on the Material Culture of the Assiniboine Indians.” Ethnographical Museum of Sweden. *Ethnos* 25, nos. 1–2 (1960): 45–62.

Dzeniskevich, G. “Ecology and Chronology of Athapascan Settlement on the Southern Coast of Alaska.” In *North American Indian Studies: European Contributions*, 1:123–28. Edited By P. Hovens. Göttingen: Edition Herodot, 1981.

Elmer, Robert P. *Target Archery*. London: Hutchinson, 1952.

Ewers, John C. *The Blackfeet: Raiders of the Northwestern Plains*. Norman: University of Oklahoma Press, 1958.

—. “Bodily Proportions as Guides to Lineal Measurements Among the Blackfoot Indians.” *American Anthropologist*, n.s., 72, no. 3 (June 1970): 561–62.

—. *The Horse in Blackfoot Indian Culture*. Washington DC: Smithsonian Institution Press, 1985. Originally published 1955.

—, ed. *The Indians of Texas in 1830*, by Jean Louis Berlandier. Washington DC: Smithsonian Institution Press, 1969.

Feest, Christian, “First Nations—Royal Collections.” *American Indian Art Magazine* 32, no. 2 (Spring 2007): 44–55.

Fehrenbach, T. R. *The Comanches: Destruction of a People*. New York: Knopf, 1974.

Fienup-Riordan, Ann, ed. *Eskimo Essays: Yup’ik Lives and How We See Them*. New Brunswick NJ: Rutgers University Press, 1990.

—. “Yup’ik Warfare and the Myth of the Peaceful Eskimo.” In Fienup-Riordan, *Eskimo Essays*, 146–66.

Fleming, Paula Richardson, and Judith Luskey. *The North American Indians in Early Photographs*. New York: Harper and Row, 1986.

Flenniken, Jeffrey J., and A. W. Raymond. “Morphological Projectile Point Typology: Replication, Experimentation and Technological Analysis.” *American Antiquity* 51 (1986): 603–14.

Fletcher, Alice, and Francis LaFlesche. *The Omaha Tribe*. Annual Report of the Bureau of American Ethnology, vol. 27. Washington DC: Smithsonian Institution, 1905–6.

Flores, Dan. “Bison Ecology and Bison Diplomacy: The Southern Plains from 1800 to

1850.” *Journal of American History* 78, no. 2 (September 1991): 465–85.

Fossett, Renée. *In Order to Live Untroubled: Inuit of the Central Arctic, 1550–1940*. Winnipeg: University of Manitoba Press, 2001.

Foster, T. “Metal Projectile Points.” *Saskatchewan Archaeology Newsletter* 24 (1969): 6–11.

Fowler, Loretta. *The Arapaho*. New York: Chelsea House Publishers, 1989.

Fox, William A. “Dragon Sideplates from York Factory: A New Twist to an Old Tail,” 1–11. Adams Heritage, Parks Canada, <http://www.adamsheritage.com>. Accessed August 2004.

Frison, George C. “The Role of Buffalo Procurement in Post-Altithermal Populations on the Northwestern Plains.” *University of Michigan Museum of Anthropology Anthropological Papers* 46 (1972): 11–20.

Gardener, James S. “General Environment.” In *Handbook of North American Indians*, vol. 6: *Subarctic*, 9–14. Edited by June Helm. Washington DC: Smithsonian Institution, 1981.

Gelo, Daniel J., and Lawrence T. Jones III. “Photographic Evidence for Southern Plains Armor.” *Visual Anthropology Review* 25, no. 1 (Spring 2009): 49–65.

Gillespie, Beryl C. "Major Fauna in the Traditional Economy." In *Handbook of North American Indians*, vol. 6: *Subarctic*, 15–18. Edited by June Helm. Washington DC: Smithsonian Institution, 1981.

Gilman, Carolyn, and Mary Jane Schneider. *The Way to Independence: Memories of a Hidatsa Indian Family, 1840–1920*. St. Paul: Minnesota Historical Society Press, 1987.

Ginzburg, Carlo. *Myths, Emblems, Clues*. London: Radius Books, 1990.

Given, Brian. "A Study of European Weapons Technology as a Locus of Native Trade Dependence Prior to the Iroquois Defeat of the Huron, 1648–52." Master's thesis, Carleton University, Ottawa, Canada, 1978.

Gladstone, William. *William Gladstone's Diary*. Pincher Creek AB: Rocky Mountain Echo, 1903.

Gleach, Frederic W. "Controlled Speculation and Constructed Myths: The Saga of Pocahontas and Captain John Smith." In *Reading Beyond Words: Contexts for Native History*, 39–74. Edited by Jennifer S. H. Brown and Elizabeth Vibert. 2nd ed. Peterborough ON: Broadview Press, 2003.

Glover, Richard, ed. *David Thompson's Narrative, 1784–1812*. Toronto: Champlain Society, 1962.

Goddard, Ives. "Synonymy [for Iroquois]." In *Handbook of North American Indians*, vol. 15:

*Northeast*, 319–21. Edited by William Sturtevant. Washington DC: Smithsonian Institution, 1978:

Gough, Barry, ed. *The Journal of Alexander Henry the Younger, 1799–1814*. 2 vols. Toronto: Champlain Society, 1988, 1992.

Goulet, Keith. “The Cumberland Cree Nehinuw Concept of Land.” Paper presented at Indigenous Knowledge Systems: International Symposium, University of Saskatchewan, Saskatoon, May 10–13, 2004.

Government of Canada. *Sessional Papers of the Government of Canada, No. 28, Report of the Northwest Mounted Police 1906*, Ottawa, vol. 11.

Graham, Andrew. *Andrew Graham’s Observations on Hudson Bay, 1767–1791*. Edited by Glyndwyr Williams. London: Hudson’s Bay Record Society, 1969.

Grinnell, George Bird. *Blackfoot Lodge Tales: The Story of a Prairie People*. Lincoln: University of Nebraska Press, 1962.

—. *The Cheyenne Indians: Their History and Ways of Life*. 2 vols. Lincoln: University of Nebraska Press, 1972. Originally published 1923 by Yale University Press.

—. “Childbirth among the Blackfeet.” *American Anthropologist*, o.s., 9, no. 8 (August 1896): 286–87.

—. *The Fighting Cheyennes*. New York: Scribner, 1915.

Hail, Barbara. *Hau Kola! The Plains Indian Collection of the Haffenreffer Museum of Anthropology*. Bristol RI: Brown University, 1993.

Hall, Robert L. *An Archaeology of the Soul: North American Indian Belief and Ritual*. Chicago: University of Illinois Press, 1997.

Hamilton, T. M. *Colonial Frontier Guns*. Chadron NE: Fur Press, 1980.

—. *Native American Bows*. Special Publications No. 5. Columbia: Missouri Archaeological Society, 1982.

Hamm, Jim. *Bows and Arrows of the Native Americans*. New York: Lyons and Burford, 1991.

—. “Lessons from Target Archery,” In Hamm, *The Traditional Bowyer’s Bible*, 4:255–68.

—. “Plains Indian Bows.” In Hamm, *The Traditional Bowyer’s Bible*, 3:115–42.

—, ed. *The Traditional Bowyer’s Bible*. Vols. 1–3. New York: Lyons and Burford, 1992–94.

—, ed. *The Traditional Bowyer’s Bible*. Vol. 4. Guildford CT: Lyons Press, 2008.

Hanna, Warren L. *The Life and Times of James Willard Schultz (Apikuni)*. Norman: University of Oklahoma Press, 1986.

Hanson, Charles E. *The Northwest Gun*. Lincoln: Nebraska State Historical Society, 1955.

—. “Upper Missouri Arrow Points.” *Museum of the Fur Trade Quarterly* 8 (1972): 2–8.

Hanson, James A. *Spirits in the Art*. Kansas City: Lowell Press, 1994.

Harmon, Daniel Williams. *A Journal of Voyages and Travels in the Interior of North America, between the 47th and 58th degree of north latitude, extending from Montreal nearly to the Pacific Ocean, a distance of about 5000 miles, including an account of the principal occurrences during a residence of nearly nineteen years in different parts of the country. To which are added a concise description of the face of the country, its inhabitants, their manners, customs, laws, etc.* New York: Allerton Book Co., 1922.

Hartmann, Horst. *Die Plains-und Praerieindianer Nordamerikas*. Berlin: Museum für Völkerkunde, 1973.

Hassrick, Royal B. *The Sioux: Life and Customs of a Warrior Society*. Norman: University of Oklahoma Press, 1964.

Hearne, Samuel. *A Journey from Prince of Wales's Fort in Hudson's Bay to the Northern Ocean*. New York: Da Capo Press, 1968.

—. *A Journey from Prince of Wales's Fort in Hudson's 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, & 1772.* London: Printed for A. Strahan and T. Cadell, 1795. <http://www.canadiana.org>.

Heath, E. G. *The Grey Goose Wing*. Reading, Berkshire: Osprey, 1971.

Heizer, Robert F. "How Accurate Were California Indians with the Bow and Arrow?" *Masterkey* 44, no. 3 (1970): 108–11.

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

Henday, Anthony. "York Factory to the Blackfeet Country: The Journal of Anthony Henday, 1754–1755." Edited by Lawrence J. Burpee. *Transactions of the Royal Society of Canada*, 3rd ser., vol. 1, sec. 2 (1907): 307–61.

Henry, Alexander. *The Journal of Alexander Henry the Younger, 1799–1814*. Edited by Barry M. Gough. 2 vols. Toronto: Champlain Society, 1988.

Hoebel, E. Adamson. *The Law of Primitive Man: A Study in Comparative Legal Dynamics*. Cambridge: Cambridge University Press, 1961.

Hoffman, Walter James. "The Menomini Indians." *Fourteenth Annual Report of the Bureau of American Ethnology*, 1896, pt. 2: 3–328.

Holm, Bill. "On Making Horn Bows." In *Native American Bows*, 118–20. Edited by T. M. Hamilton. Columbia: Missouri Archaeological Society, 1982.

Holmberg, Daniel: "Arrow Heads and Spear Points: An Experimental Study of Projectile Points." MA thesis, Simon Fraser University, Department of Archaeology, 1994.

Honigmann, John J. "West Main Cree." In *Handbook of North American Indians*, vol. 6: *Subarctic*, 217–30. Edited by June Helm. Washington: Smithsonian Institution, 1981.

Hosie, R. C. *Native Trees of Canada*. Markham ON: Queen's Printer, 1990.

Hotz, Gottfried. *Indian Skin Paintings from the American Southwest—Two Representations of Border Conflicts between Mexico and the Missouri in the Early Eighteenth Century*. Norman: University of Oklahoma Press, 1970.

Houston, Stuart, Tim Ball, and Mary Houston. *Eighteenth-Century Naturalists of Hudson Bay*. Montreal: McGill-Queen's University Press, 2003.

Hughes, Susan S. "Getting to the Point: Evolutionary Change in Prehistoric Weaponry." *Journal of Archaeological Method and Theory* 5, no. 4 (December 1998): 345–408.

Hungry Wolf, Beverly. *The Ways of My Grandmothers*. New York: Quill, 1982.

Hyde, George E. *Red Cloud's Folk: A History of the Oglala Sioux Indians*. Norman: University of Oklahoma Press, 1976. Originally published 1937.

Isham, James. *James Isham's Observations on Hudsons Bay, 1743; and notes and observations on a book entitled A voyage to Hudsons Bay in the Dobbs Galley, 1749*. Edited by E. E. Rich. London: Hudson's Bay Record Society, 1949.

Jackson, John C. *Jemmy Jock Bird, Marginal Man on the Blackfoot Frontier*. Calgary: University of Calgary Press, 2003.

Jefferson, Robert. *Fifty Years on the Saskatchewan*. Vol. 1, no. 5. Battleford SK: Canadian North-West Society Publications, 1929.

Jones, David E. *Native North American Armor, Shields, and Fortifications*. Austin: University of Texas Press, 2004.

Jones, Elizabeth. *Gentlemen and Jesuits: Quests for Glory and Adventure in the Early Days of New France*. Toronto: University of Toronto Press, 1986.

Junkelmann, Marcus. *Die Reiter Roms, Teil III: Zubehör, Reitweise, Bewaffnung*. Mainz: Philipp von Zabern, 1992.

Kalaus, Paul R. "Schiessversuche mit historischen Feuerwaffen des Landeszeughauses Graz an der Prüf und Versuchstelle für Waffen und Munitionen des Amtes für Wehrtechnik." In *Von Alten Handfeuerwaffen: Entwicklung, Technik,*

*Leistung* 40–112. Veröffentlichungen des Landeszeughauses Graz 12, 1989.

Keesing, F. *Cultural Anthropology: The Science of Custom*. New York: Holt, Rinehart and Winston, 1962.

Keyser, James D. “A Lexicon for Historic Plains Indian Rock Art: Increasing Interpretive Potential.” *Plains Anthropologist* 32 (1987): 43–72.

—. “The Plains Indian War Complex and the Rock Art of Writing-on-Stone, Alberta, Canada.” *Journal of Field Archaeology* 6 (1979): 41–48.

—. “Rockart of the Ashland Ranger District, Custer National Forest.” *Archaeology in Montana* 46, no. 2 (2005): 1–52.

Kidd, Kenneth E. *Blackfoot Ethnography*. Manuscript Series No. 8. Archaeological Survey of Alberta, 1986. MA thesis, University of Toronto, 1937.

Kidd, Robert S. *Fort George and the Early Fur Trade in Alberta*. Provincial Museum and Archives Publication No. 2, Edmonton, 1970.

King, J. C. H. *First Peoples, First Contacts: Native People of North America*. Cambridge MA: Harvard University Press, 1999.

Kinietz, Vernon W. *The Indians of the Western Great Lakes, 1615–1760*. Ann Arbor Paperbacks. Ann Arbor: University of Michigan Press, 1965.

Klann, Kilian. *Die Sammlung indianischer Ethnographica aus Nordamerika des Herzog Friedrich Paul Wilhelm von Württemberg*. Wyk auf Föhr, Germany: Verlag für Amerikanistik, 1999.

Kluckhohn, Clyde, W. W. Hill, and Lucy Wales Kluckhohn. *Navaho Material Culture*. Cambridge MA: Belknap Press of Harvard University Press, 1971.

Koppedraye, Kay. "Cultural Signatures: Lakota Bows." <http://www.sfmission.org>. Accessed July 2006.

Krackow Company. "Penobscot," 11. <http://www.krackow.com>.

Krech, Shepard. *The Subarctic Fur Trade: Native Social and Economic Adaptations*. Vancouver: University of British Columbia Press, 1984.

—. *The Ecological Indian: Myth and History*. New York: W. W. Norton, 1999.

Lancaster, Richard. *Piegán: A Look from Within at the Life, Times, and Legacy of an American Indian Tribe*. Garden City NY: Doubleday, 1966.

Läng, Hans. *Kulturgeschichte der Indianer Nordamerikas*. Göttingen: Lamuv Verlag GmbH, 1989.

Laubin, Reginald, and Gladys Laubin. *American Indian Archery*. Norman: University of Oklahoma Press, 1980.

—. *The Indian Tipi: Its History, Construction and Use*. Norman: University of Oklahoma Press, 1977.

Laudicina, Nelly. "Of Natives and Justice in the District of Assiniboia, 1844–1872." In *Papers of the Rupert's Land Colloquium 2010*, 251–59. Winnipeg: Centre for Rupert's Land Studies, University of Winnipeg, 2010.

Lehmann, Herman. *Nine Years Among the Indians (1870–1879)*. Austin TX: Van Boeckmann-Jones Co., 1927.

Leighton, Anna L. *Wild Plant Use by the Woods Cree (Nihithawak) of East-Central Saskatchewan*. Canadian Ethnology Service Paper 101. Ottawa: National Museum of Man, Mercury Series, 1985.

Lewis, Meriwether, and William Clark. *Original Journals of the Lewis and Clark Expedition, 1804–1806*. Edited by R. G. Thwaites. 8 vols. New York: Dodd, Mead, 1904–5.

Lewis, Oscar. *The Effects of White Contact upon Blackfoot Culture*. Seattle: University of Washington Press, 1966.

—. "Manly-Hearted Women among the North-Piegian." *American Anthropologist* 43, no. 2, pt. 1 (April–June 1941): 173–87.

Linderman, Frank Bird. *Plenty Coups, Chief of the Crows*. Lincoln: University of Nebraska Press, 1962. Originally published 1930.

—. *Pretty Shield, Medicine Woman of the Crows*. Lincoln: University of Nebraska Press, 1972. Originally published 1932.

Lindstrom, Richard. "Not from the Land Side, but from the Flag Side: Native American Responses to the Wanamaker Expedition of 1913." *Journal of Social History* 30, no. 1 (Autumn 1996): 209–27.

Lister, Kenneth R. "Provisioned at Fishing Stations: Fish and the Native Occupation of the Hudson Bay Lowland." In *Boreal Forest and Sub-Arctic Archaeology*, 72–99. Edited by C. S. Reid. Occasional Publications No. 6. London ON: London Chapter of the Ontario Archaeological Society, 1988.

Lowie, Robert H. *Indians of the Plains*. Garden City NY: Natural History Press, 1963. Originally published 1954.

Lowrey, Nathan S. "An Ethnoarchaeological Inquiry into the Functional Relationship between Projectile Point and Armor Technologies of the Northwest Coast." *North American Archaeologist* 20, no. 1 (1988): 47–73.

Lucas, Fred W. *Appendiculae Historicae*. London: Henry Stevens and Son, 1891.

Lytwyn, Victor Petro. "The Hudson Bay Lowland Cree in the Fur Trade to 1821: A Study in Historical Geography." PhD thesis, University of Manitoba, Winnipeg, 1993.

—. *Muskegowuck Athinuwick: Original People of the Great Swampy Land*. Winnipeg: University of Manitoba Press, 2002.

Mails, Thomas E. *Plains Indians: Dog Soldiers, Bear Men, and Buffalo Women*. New York: BBS Publishing Corporation, 1973.

Mallery, Garrick. *Picture Writing of the American Indians*. New York: Dover Publications, 1972. Originally published 1888–89.

Malone, Patrick M. *The Skulking Way of War: Technology and Tactics among the New England Indians*. Baltimore: John Hopkins University Press, 1991.

Mancke, Elizabeth. *A Company of Businessmen: The Hudson's Bay Company and Long Distance Trade, 1670–1730*. Winnipeg: Rupert's Land Research Centre, University of Winnipeg, 1988.

Mandelbaum, David G. *The Plains Cree*. New York: AMS Press, 1979. Originally published 1940.

Marquis, Thomas B. *Wooden Leg: A Warrior Who Fought Custer*. Minneapolis: Midwest Co., 1931.

Marshall, Joseph M. "Primitive Sioux Archery." *Traditional Bowhunter*, August/September 1993, 23–30.

Martin, Tom. "United States Army Indian Scouts and Cavalry Troopers Guidons," *American*

*Vexillum Magazine*, 1–7,  
<http://www.americanvexillum.com> (accessed  
July 2005).

Mary Rose Trust. “Armament—Page 6 of  
9—Longbows,” <http://www.maryrose.org>.  
Accessed February 22, 2011.

—. “The Discovery and Excavation of the Mary  
Rose,” 1–4, <http://www.maryrose.org>. Accessed  
February 22, 2011.

Mason, Otis Tufton. *North American Bows,  
Arrows, and Quivers*. Mattituck NY: Amereon  
House, 1995. Originally published as Smithsonian  
Report, 1893.

—. *The Origins of Invention*. London: Walter  
Scott Ltd., 1895.

Mason, Otis Tufton, W. H. Holmes, Thomas  
Wilson, Walter Hough, Weston Flint, W. J.  
Hoffman, and John G. Bourke. “Arrows and  
Arrow-Makers.” *American Anthropologist* 4, no. 1  
(January 1891): 45–74.

Massey, Jay. *The Bowyer’s Craft*. Girdwood AK:  
Bear Paw Publications, 1987.

—. “Traditional Roots.” In *The Traditional  
Bowyer’s Bible*, 3:13–16.

—. “Tradition Begins with the Past.” In Hamm,  
*The Traditional Bowyer’s Bible*, 2:11–18.

Matthews, Maureen. “Thunderbirds.” *Ideas*.  
Transcript of CBC Radio Broadcast, May 15 and

16, 1995, Canadian Broadcasting Corporation, Toronto.

Maximilian, Prince of Wied. *Travels in the Interior of North America, 1832–1834*. Vols. 22–24 of *Early Western Travels, 1748–1846*. Edited by Reuben Gold Thwaites. Reprint, New York: AMS Press, 1966.

—. *Reise in das Innere Nordamerika*. 2 vols. Augsburg: Weltbild Verlag, 1995. Originally published 1839–41.

—. *Reise in das Innere Nordamerika*. Vignettenband. München: Verlag Lothar Borowsky, 1995.

Mayer-Oakes, William J. *Archaeological Investigations in the Grand Rapids, Manitoba, Reservoir, 1961–1962*. Winnipeg: University of Manitoba Press, 1970.

McClintock, Walter. *The Old North Trail: Life, Legends, and Religion of the Blackfeet Indians*. Lincoln: University of Nebraska Press, 1992. Originally published 1910 by Macmillan.

McCormack, Patricia. “The Many Faces of Thanadelthur.” In *Reading Beyond Words: Contexts for Native History*, 329–64. Edited by Jennifer S. H. Brown and Elizabeth Vibert. Peterborough ON: Broadview Press, 2003.

McCracken, Harold, Waldo Wedel, Robert Edgar, John H. Moss, H. E. Wright Jr., Wilfred M. Husted, and William Mully, eds. *The Mummy*

*Cave Project in Northwestern Wyoming*. Cody WY: Buffalo Bill Historical Center, 1978.

McGonagle, Roberta Lee. "Metal Projectile Points from the Deapolis Site, North Dakota." *Plains Anthropologist* 18, no. 59 (1973): 218–27.

Mead, Margaret. "Warfare Is Only an Invention." In *War: Studies from Psychology, Sociology, Anthropology*. Edited by Leon Bramson and George W. Goethals. New York: Basic Books, 1964.

—. "Alternatives to War." In *War: The Anthropology of Armed Conflict and Aggression*. Edited by M. Fried, M. Harris, and R. Murphy. Garden City NY: Natural History Press, 1968.

Meijer Drees, Laurie, "'Indians' Bygone Past': The Banff Indian Days, 1902–1945." *Past Imperfect* 2 (1993): 7–28.

Meyer, David. "Comment on McCullough's View of Protohistoric Cree and Blackfoot in Alberta and Saskatchewan." *Saskatchewan Archaeology* 4 (1983): 45, 46.

—. "People Before Kelsey: An Overview of Cultural Developments." In *Three Hundred Prairie Years: Henry Kelsey's "Inland Country of Good Report,"* 54–73. Edited by Henry Epp. Regina: Canadian Plains Research Center, University of Saskatchewan, 1993.

Meyer, David, and Paul C. Thistle. "Saskatchewan River Rendezvous Centers and Trading Posts: Continuity in a Cree Social Geography." *Ethnohistory* 42, no. 3 (Summer 1995): 403–44.

Meyer, Roy W. *The Village Indians of the Upper Missouri: The Mandans, Hidatsas, and Arikaras*. Lincoln: University of Nebraska Press, 1977.

Milloy, John S. *The Plains Cree: Trade, Diplomacy, and War, 1790 to 1870*. Winnipeg: University of Manitoba Press, 1988.

Morantz, Toby. "Old Texts, Old Questions: Another Look at the Issue of Continuity and the Early Fur Trade Period." *Canadian Historical Review* 73, no. 2 (1992): 166–68.

Moreau, William E., ed. *The Writings of David Thompson: The Travels 1850 Version*. Vol. 1. Montreal: McGill Queen's University Press, 2009.

Morgan, Lewis Henry. *Ancient Society or Researches in the Lines of Human Progress from Savagery through Barbarism to Civilization*. Chicago: Charles H. Kerr and Co., 1877.

Morse, Edward S. "Ancient and Modern Methods of Arrow Release." *Essex Institute Bulletin* 17 (October–December 1885): 145–98.

Nabokov, Peter. *Two Leggings: The Making of a Crow Warrior*. New York: Thomas Y. Crowell Company, 1967.

Nagler, Forrest. "The Bow and Arrow for Big Game." *Beaver Magazine*, Outfit 268, vol. 17, no. 2, September 1937, 18–22.

Nevins, John Birkbeck. *A Narrative of Two Voyages to Hudson Bay with Traditions of the North American Indians*. London: Society for Promoting Christian Knowledge, 1847.

Nisbet, Jack. *Sources of the River: Tracking David Thompson across Western North America*. Seattle: Sasquatch Books, 1994.

Noble, William C., and John W. Pollock. "Archaeology of the Hawley Lake Area, Hudson Bay Lowlands, Ontario." In *Canadian Archaeological Association—Collected Papers*, 79. Archaeological Research Report No. 6. Toronto: Ontario Ministry of Culture and Recreation, Historical Sites Branch, 1975.

Nute, Grace Lee. "Minutes of the Hudson's Bay Company, 1671–1674." *Beaver Magazine*, Outfit 274, September 1943.

Nye, Wilbur Sturtevant. *Plains Indian Raiders*. Norman: University of Oklahoma Press, 1968.

Odom, William. "Black Powder Ballistics," 1–4. *Bill's World Buckskinner's Notebook*, <http://www.televar.com>. Accessed June 28, 2004.

—. "Black Powder in the Rain," 1–3. *Bill's World Buckskinner's Notebook*, <http://www.televar.com>. Accessed June 28, 2004.

Oetelaar, Gerald A., “Moving Beyond the Technical Imperatives: The Role of Ceremonial Facilities in Communal Foraging.” Paper presented in a session entitled “Roles of Facilities and Technologies in Communal Foraging” convened at the Sixth World Archaeological Congress, Dublin, Ireland, June 29–July 4, 2008, <http://www.nevada-archaeology.org> (accessed June 16, 2011).

Oldmixon, John. “The History of Hudson’s-Bay” (1708). In *Documents Relating to the Early History of Hudson Bay*. Edited by J. B. Tyrrell. Toronto: Champlain Society, 1968.

Otterbein, Keith F. “Why the Iroquois Won: An Analysis of Iroquois Military Tactics.” In *Feuding and Warfare: Selected Works of Keith F. Otterbein*, 1–8. Edited by Keith F. Otterbein. Langhorne PA: Gordon and Breach, 1994.

Peck, Trevor Richard. *Bison Ethology and Native Settlement Patterns during the Old Women’s Phase on the Northwestern Plains*. Oxford: Archaeopress, 2004.

Penzer, N. M., ed. *The World Encompassed and Analogous Contemporary Documents Concerning Sir Francis Drake’s Circumnavigation of the World*. London: Argonaut Press, 1926.

Petitot, Emile. *Traditions Indiennes du Canada Nord-Ouest*. Paris, 1886. Newberry Library, Chicago. B858.67.

Pettipas, Leo. *“Other Peoples’ Heritage”*: A Cross-Cultural Approach to Museum Interpretation. Winnipeg: Association of Manitoba Museums, 1994.

Phillips, Ruth B. *Patterns of Power: The Jasper Grant Collection and Great Lakes Indian Art of the Early Nineteenth Century*. Kleinburg ON: McMichael Canadian Collection, 1984.

Piers, Sir Charles BT. “Firearms of the Hudson’s Bay Company.” In *Beaver Magazine*, Outfit 264, March 1934, 10–12, 62, 63.

Pilon, Jean-Luc. *Washahoe Inninou Dahtsuounoaoou: Ecological and Cultural Adaptation along the Severn River in the Hudson Bay Lowlands of Ontario*. Conservation Archaeology Report, Northwestern Region, Report No. 10. Kenora: Ministry of Citizenship and Culture, 1987.

Pope, Saxton T. *Bows and Arrows*. Berkeley: University of California Press, 1974. Originally published 1923.

Prins, Harald E. L. “Chief Big Thunder (1827–1906) The Life History of a Penobscot Trickster.” *Maine History* 37, no. 2 (1998): 140–58.

Prucha, Francis Paul. *The Great Father—The United States Government and the American Indians*. Vol. 2. Lincoln: University of Nebraska Press, 1984.

Pyszczyk, Heinz W. "Historic Period Metal Projectile Points and Arrows, Alberta, Canada: A Theory for Aboriginal Arrow Design on the Great Plains." *Plains Anthropologist* 44, no. 168 (1999): 163–87.

—. "The Use of Fur Trade Goods by the Plains Indians, Central and Southern Alberta, Canada." *Journal Canadien d'Archéologie* 21 (1997): 45–84.

Raczka, Paul M. "Ohkiniksi: War Medicines of the Northwest Plains." In *The People of the Buffalo: The Plains Indians of North America—Military Art, Warfare and Change*, 1:130–38. Edited by Colin F. Taylor and Hugh A. Dempsey. Wyk auf Föhr, Germany: Tatanka Press, 2003.

—. *Winter Count: A History of the Blackfoot People*. Brocket AB: Old Man River Cultural Centre, 1979.

Radisson, Pierre-Esprit. *Voyages of Peter Esprit Radisson: Being an Account of His Travels and Experiences among the North American Indians from 1652 to 1684*. Transcribed by Gideon D. Scull. Boston: Prince Society, 1885.

Ray, Arthur J. *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. Originally published 1974.

Record, Samuel J. *The Mechanical Properties of Wood Including a Discussion of the Factors Affecting the Mechanical Properties, and Methods of Timber Testing*. <http://library.beau.org>, EBook #12299. Accessed May 8, 2004.

Reeves, Brian O. K. "Communal Bison Hunters of the Northern Plains." In *Hunters of the Recent Past*, 168–94. Edited by L. B. Davis and Brian O. K. Reeves. London: Unwin Hyman, 1990.

—. "Culture Change in the Northern Plains: 1000 BC–AD 1000." *Archaeological Survey of Alberta, Occasional Paper* No. 20. Edmonton: Alberta Culture Historical Resources Division, 1983.

—. *Head-Smashed-In: 5500 Years of Bison Jumping in the Alberta Plains*. Lincoln NE: J and L Reprint Company, 1990.

Reid, C. S. "The Dragon Sideplate: Its Origins, Variations, and Chronologies on Fur Trade Sites." *Ontario Archaeology*, no. 30, 1978: 3–15.

Rich, Edwin Ernest, ed. *The History of the Hudson's Bay Company, 1670–1870*. London: Hudson's Bay Record Society, 1958–59.

—. *Letters Outward, 1679–1694*. vol. 11. Toronto: Champlain Society for the Hudson's Bay Record Society, 1948.

—. *Minutes of the Hudson's Bay Company, 1671–1674*. Toronto: Champlain Society, 1942.

Richardson, Sir John. *Arctic Searching Expedition: A Journal of a Boat-Voyage through Rupert's Land and the Arctic Sea, in Search of the Discovery Ships under Command of Sir John Franklin: With an Appendix on the Physical Geography of North America*. Vol. 1. London: Longman, Brown, Green and Longmans, 1851. <http://peel.library.ualberta.ca>.

Roberts, Ned. *The Muzzle-Loading Cap Lock Rifle*. Manchester NH: Granite State Press, 1940.

Robson, Joseph. *An Account of Six Years Residence in Hudson's Bay, from 1733 to 1736 and 1744 to 1747*. Toronto: Printed by J. Payne and J. Bouquet et al., 1752. Reprint, Toronto: S. R. Publishers Limited, 1965.

Rogers, Edward S. *The Material Culture of the Mistassini*. Ottawa: National Museum of Canada, 1967.

Rogers, Spencer L. "The Aboriginal Bow and Arrow of North America and Eastern Asia." *American Anthropologist*, n.s., 42, no. 2, pt. 1 (April–June 1940): 255–69.

Rosebush, Waldo E. *American Firearms and the Changing Frontier*. Spokane WA: Eastern Washington State Historical Society, 1962.

Rudderbows Archery.  
<http://www.rudderbows.com>.

Russell, Carl P. *Guns on the Early Frontiers*. New York: Bonanza Books, 1957.

Russell, Dale R. *The Eighteenth-Century Western Cree and Their Neighbours*. Hull QC: Canadian Museum of Civilization, 1991.

—. “The Puzzle of Henry Kelsey and His Journey to the West.” In *Three Hundred Prairie Years: Henry Kelsey’s “Inland Country of Good Report,”* 74–88. Edited by Henry Epp. Regina: Canadian Plains Research Center, University of Saskatchewan, 1993.

Russell, Osborne. *Journal of a Trapper*. Lincoln: University of Nebraska Press, 1965.

Schilz, Thomas F., and Donald E. Worcester. “The Spread of Firearms among the Indians on the Anglo-French Frontiers.” *American Indian Quarterly* 8, no. 2 (Spring 1984): 103–15.

—. “The Spread of Firearms among the Indian Tribes on the Northern Frontier of New Spain.” *American Indian Quarterly* 11, no. 1 (Winter 1987): 1–10.

Schoolcraft, Henry R. *Information Respecting the History, Condition, and Prospects of the Indian Tribes of the United States*. Vol. 3. New York: Paladin Press, 1969. Originally published by Lippincott, Grambo, and Co., 1853.

Schulamt der Stadt Zürich, ed. *Indianer Nordamerikas: Katalog zur Sammlung Hotz*. Zürich: Schulamt der Stadt Zürich, 1975.

Schultz, James Willard. *Blackfeet and Buffalo: Memories of Life among the Indians*. Norman: University of Oklahoma Press, 1962.

—. *Friends of My Life as an Indian*. New York: Houghton and Mifflin, 1923.

—. “The Theft of the Sacred Otter Bow Case.” *Boy’s Life*, July, August, and September 1935.

Schulze-Thulin, Axel, ed. *Indianer der Prärien und Plains: Reisen und Sammlungen des Herzogs Paul Wilhelm von Württemberg (1822–24) und des Prinzen Maximilian zu Wied (1833–34) im Linden Museum Stuttgart*. Stuttgart: Linden Museum, 1987.

Secoy, Frank Raymond. *Changing Military Patterns on the Great Plains (17th Century through Early 19th Century)*. Seattle: University of Washington Press, 1953.

Sharp, Henry S., “The Null Case: The Chipewyan.” In *Woman the Gatherer*, 221–44. Edited by Frances Dahlberg. New Haven: Yale University Press, 1981.

Silsby, Scott. “Stone Points.” In Hamm, *The Traditional Bowyer’s Bible*, 3:275–326.

Skinner, Alanson B. *Notes on the Eastern Cree and Northern Saulteaux*. New York: American Museum of Natural History, 1911.

Slobodin, Richard. “Eastern Kutchin Warfare,” *Anthropologica* 2 (1960) 76–94.

Smith, Brian J. "How Great an Influence Was the Gun in Historic Northern Plains Ethnic Movements? An Ethnohistorical Assessment." In *Cultures in Conflict: Current Archaeological Perspectives—Proceedings of the Twentieth Annual Conference of the Archaeological Association of the University of Calgary*, 253–61. Edited by Diana Claire Tkaczuk and Brian C. Vivian. Calgary: University of Calgary Archaeological Association, 1989.

Smith, Donald B. *Long Lance: The True Story of an Imposter*. Lincoln: University of Nebraska Press, 1983.

Smith, H. Clay. "Caraya cordiformis (Wangenh.) K. Koch, Bitternut Hickory," USDA Forest Service, <http://www.na.fs.fed.us>. Accessed February 22, 2011.

Smith, James G. E. "Chipewyan, Cree, and Inuit Relations West of Hudson Bay, 1714–1955." *Ethnohistory* 28, no. 2 (Spring 1981): 133–56.

—. "The Western Woods Cree: Anthropological Myth and Historical Reality." *American Ethnologist* 14, no. 3 (August 1987): 434–48.

Smyth, David. "Missed Opportunity: John Milloy's *The Plains Cree*." *Prairie Forum*, Fall 1992, no. 2, 337–54.

—. "The Niitsitapi Trade: Euroamericans and the Blackfoot-Speaking Peoples to the Mid-1830s." PhD thesis, Carleton University, Ottawa, 2001.

Speck, Frank G. *Naskapi, the Savage Hunters of the Labrador Peninsula*. Norman: University of Oklahoma Press, 1935.

—. *Penobscot Man*. Philadelphia: University of Pennsylvania Press, 1940.

Spiess, Arthur E. *Reindeer and Caribou Hunters: An Archaeological Study*. New York: Academic Press, 1979.

Steckel, Richard H., and Joseph M. Prince. "Tallest in the World: Native Americans of the Great Plains in the Nineteenth Century," *American Economic Review* 91 (March 2001): 287–94.

Stefánsson, Vilhjalmur. *The Friendly Arctic: The Story of Five Years in Polar Regions*. New York: Macmillan, 1943. Originally published 1921.

—. *My Life with the Eskimo*. New York: Macmillan, 1913.

Stefánsson, Vilhjalmur, and A. M. McCaskill, eds. *The Three Voyages of Martin Frobisher: In Search of a Passage to Cathay and India by the North-West, A.D. 1576–8*. 2 vols. London: Argonaut Press, 1938.

Stockel, H. Henrietta. *The Lightning Stick: Arrows, Wounds, and Indian Legends*. Las Vegas: University of Nevada Press, 1995.

Stodiek, Ulrich, and Harm Paulsen. *Mit dem Pfeil, dem Bogen . . . : Technik der steinzeitlichen Jagd*. Oldenburg: Isensee Verlag, 1996.

Szabo, Joyce M. "The Question of Artistic License and Plains Representational Imagery." *American Indian Art Magazine*, Autumn 1998: 80–90.

Taillon, Ron. "Hidatsa Archery." *Primitive Archer* 3, no. 4 (1995): 26–32.

—. "Understanding Old Bows." *Primitive Archer* 6, no. 2 (1998): 31–40.

Tanner, Adrian. *Bringing Home Animals: Religious Ideology and the Mode of Production of the Mistassini Cree Hunters*. London: C. Hurst and Company, 1979.

Taylor, Colin F. *Buckskin and Buffalo*. London: Salamander Books, 1998.

—. *Native American Weapons*. Norman: University of Oklahoma Press, 2001.

Thaler, Monika, ed. *Die Welt der Indianer: Geschichte, Kunst, Kultur von den Anfängen bis zur Gegenwart*. München: Verlag Lothar Borowsky, 1994.

Therriault, Madeline Katt. *Moose to Moccasins: The Story of Ka Kita Wa Pa No Kwe*. Toronto: Natural Heritage/Natural History Inc., 1995.

Thompson, David. *David Thompson's Narrative, 1784–1812*. Edited by Richard Glover. Toronto: Champlain Society, 1962.

—. *The Writings of David Thompson: The Travels 1850 Version*. Vol. 1. Edited by William E. Moreau. Montreal: McGill Queen's University Press, 2009.

Thompson, Maurice. *The Witchery of Archery: A Complete Manual of Archery*. New York: Charles Scribner's and Sons, 1878.

Thwaites, Reuben Gold, ed. *Early Western Travels, 1748–1846*. Vols. 22–23. *Parts 1–3 of Maximilian, Prince of Wied's, Travels in the Interior of North America, 1832–1834*. New York: AMS Press, 1966.

Tottle, Terry P. *The History and Archaeology of Pine Fort*. Manitoba Archaeological Society, Preliminary Report No. 7, 1981.

—. *John Long's Journal*. Vol. 2 of *Early Western Travels*. Cleveland: Arthur H. Clark Company, 1904.

Townsend, Joan B. "Firearms Against Native Arms: A Study in Comparative Efficiencies with an Alaskan Example." *Arctic Anthropology* 20, no. 2 (1983): 1–32.

Trenholm, Virginia Cole. *The Shoshonis: Sentinels of the Rockies*. Norman: University of Oklahoma Press, 1964.

Truettner, William H. *The Natural Man Observed: A Study of Catlin's Indian Gallery*. Washington DC: Smithsonian Institution Press, 1979.

Turney-High, Harry Holbert. *Ethnography of the Kutenai*. New York: Kraus Reprint Co., 1969. Originally published as *American Anthropological Association Memoir* No. 56, 1941.

Tyrrell, J. B., ed. *David Thompson's Narrative of His Explorations in Western America: 1784–1812*. Toronto: Champlain Society, 1916.

—. *Documents Relating to the Early History of Hudson Bay*. Toronto: Champlain Society, 1968. Originally published 1931.

—. "Letters of La Potherie." In *Documents Relating to the Early History of Hudson Bay*, 143–370. Toronto: Champlain Society, 1968.

Van Buren, G. E. *Arrowheads and Projectile Points*. Garden Grove CA: Arrowhead Publishing, 1974.

Van Stone, James W. *Material Culture of the Blackfoot (Blood) Indians of Southern Alberta*. Chicago: Field Museum of Natural History, 1992.

—. *Material Culture of the Davis Inlet and Barren Ground Naskapi: The William Duncan Strong Collection*. Chicago: Field Museum of Natural History, 1985.

Verbicky-Todd, Eleanor. *Communal Buffalo Hunting among the Plains Indians: An Ethnographic and Historical Review*. Occasional Paper No. 24. Edmonton: Archaeological Survey of Alberta, 1984.

Vermander, Joseph. "The Use of the Bow by Our Indians." *Manitoba Historical Society Transactions*, ser. 3, no. 22 (1965–66 season), <http://www.mhs.mb.ca>.

Vestal, Stanley, ed. *New Sources of Indian History, 1850–1891*. Norman: University of Oklahoma Press, 1934.

Vibert, Elizabeth. *Traders' Tales: Narratives of Cultural Encounters in the Columbia Plateau, 1807–1846*. Norman: University of Oklahoma Press, 1997.

Vonderhey, William. *Secrets of the Omaha Bow*. Grantville PA: William Vonderhey, 1992.

Waldorf, D. C. *The Art of Making Primitive Bows and Arrows*. [Branson MO]: D. C. Waldorf, 1985.

Walking Elk, Phil. *The Art of Making Indian Bows and Arrows*. Norman OK: Wolf Vision Publishing, 1990.

Wallace, Ernest, and E. Adamson Hoebel. *The Comanches: Lords of the South Plains*. Norman: University of Oklahoma Press, 1976. Originally published 1952.

Wallentine, Doug. *Making Arrows the Old Way*. Liberty UT: Eagle's View Publishing, 1987.

Warburton, Miranda, and Philip Duke. "Projectile Points as Cultural Symbols: Ethnography and Archaeology." In *Beyond Subsistence: Plains Archaeology and the Postprocessual Critique*, 211–28. Edited by Philip Duke and Michael C. Wilson. Tuscaloosa: University of Alabama Press, 1995.

Wedel, Waldo R., and George C. Frison, "Environment and Subsistence." In *Handbook of North American Indians*, vol. 13, pt. 1: *Plains*, 44–60. Edited by Raymond J. DeMallie. Washington DC: Smithsonian Institution, 2001.

Weitzner, Bella, ed. *Notes on the Hidatsa Indians Based on Data Recorded by the Late Gilbert L. Wilson*. Anthropological Papers of the American Museum of Natural History, vol. 56, pt. 2: 229–46. New York, 1979.

Weltfish, Gene. *The Lost Universe: Pawnee Life and Culture*. Lincoln: University of Nebraska Press, 1977. Originally published 1965.

White, Catherine M., ed. *David Thompson's Journals Relating to Montana and Adjacent Regions, 1808–1812*. Missoula: Montana State University Press, 1950.

White, Richard. "The Winning of the West: The Expansion of the Western Sioux in the Eighteenth

and Nineteenth Centuries,” *Journal of American History* 65 (1978): 319–43.

Wiley, Patrick S. *Prehistoric Warfare on the Great Plains: Skeletal Analysis of the Crow Creek Massacre Victims*. New York: Garland Publishing, 1991.

Williams, Glyndwr, ed. *Hudson’s Bay Miscellany, 1670–1850* (Winnipeg: Hudson’s Bay Record Society, 1975).

Wilson, Elijah Nicholas. *Among the Shoshones*. Medford OR: Pine Cone Publishers, 1971. Originally published in 1910 as *The White Indian Boy*.

Wilson, Gilbert Livingstone. *The Horse and the Dog in Hidatsa Culture*. Lincoln NE: J and L Reprint Company, 1978. Originally published by American Museum Press, 1924.

—. *Hidatsa Eagle Trapping*. Anthropological Papers of the American Museum of Natural History, vol. 30, pt. 4. New York: American Museum of Natural History, 1928. Reprint, Lincoln NE: J and L Reprint Company, 1978.

Wilson, Joseph Andrew Park. “Material Culture Correlates of the Athapaskan Expansion: A Cross-Disciplinary Approach.” PhD thesis, University of Florida, 2011.

Wilson, Ruby E. *Frank J. North, Pawnee Scout Commander and Pioneer*. Chicago: Swallow Press, 1984.

Wilson, Thomas. "Arrow Wounds." *American Anthropologist* 3 (1901): 513–31.

Wissler, Clark. *Material Culture of the Blackfoot Indians*. Anthropological Papers of the American Museum of Natural History, vol. 5, pt 1. New York: American Museum of Natural History, 1910.

—. *Material Culture of the Blackfoot Indians*. New York: AMS Press, 1975. Reprint of 1910 original edition.

—. *Societies and Dance Associations of the Blackfoot Indians*. Anthropological Papers of the American Museum of Natural History. New York: American Museum of Natural History, 1913.

Wood, W. Raymond, and Lee Irwin. "Mandan." In *Handbook of North American Indians*, vol. 13, pt. 1: *Plains*, 349–64. Edited by Raymond DeMallie. Washington DC: Smithsonian Institution, 2001.

Woodland Archery,  
<http://www.woodlandarchery.com>.

Woodward, Arthur. "Trade Goods of 1748." *Beaver Magazine*, Outfit 279, December 1948.

Württemberg, Paul Wilhelm, Duke of. *Paul Wilhelm, Duke of Württemberg—Travels in North America, 1822–24*. Edited by Savoie Lottinville. Norman: University of Oklahoma Press, 1973.

—. *Reise nach dem nördlichen Amerika in den Jahren 1822 bis 1824*. München: Verlag Lothar Borowsky, 1979.



## Index

Page numbers refer to the print edition.

Adapozis (Burnt Arrow, Hidatsa culture hero),  
[196](#)

Adobe Walls, Battle of, [302](#)

age-graded society system, [110](#), [117](#), [180](#), [184](#)

Akimiski Island, [18](#), [22](#), [25](#), [27](#), [237](#), [248](#)

Albany Post, [192](#), [193](#), [218](#), [385n95](#), [394n55](#);  
accidents with firearms recorded at, [170](#),  
[377nn59–60](#); arrowheads made or traded at, [99](#),  
[100](#), [355n40](#), [356n48](#); Cree war parties recorded  
at, [245](#); firearms traded or repaired at, [144](#), [148](#),  
[355n41](#), [372n96](#), [390n3](#)

Albany River, [247](#)

alder (*Alnus crispa*), [19](#)

Allely, Steve, [xiv](#); drawings by, [72](#), [79](#), [320](#), [321](#),  
[322](#), references to other drawings by, [345n30](#),  
[349n63](#), [356n53](#), [358n67](#), [359nn74–75](#), [365n133](#),  
[381–82n33](#), [405n53](#)

ambush tactics: in combat, [240](#), [249](#), [250](#), [268](#),  
[283](#), [284](#), [286](#), [287](#), [290](#), [303](#); in hunting, [211](#),  
[405n54](#)

American Civil War, [59](#), [142](#)

American Fur Company, [137](#) fig. [45](#), [144](#), [147](#),  
[285](#), [370n57](#)

ammunition: accidents with, 170; black powder, 123, 128, 308, 311; captured in war, 289; lack of, 139, 213, 282, 311; metal cartridges, 129, 136, 142, 166, 270, 296; paper cartridges, 366n16; preservation of, 308; traded to Aboriginal people, 25, 26, 99, 100, 143, 147, 205, 232, 250, 281, 282, 311; use in combat, 128, 248, 250, 270, 279–83, 406n66, 407n70; use in hunting, 216–18

Apache, 159, 164, 257, 302, 364n130, 378n13, 409n105

Apetway-wetungk (Saulteaux person), 169

Arapaho: age-graded society system of, 180; archery artifacts collected from, 358n67; arrow poison among, 162; conflict with other Aboriginal peoples, 120, 302; lithic arrowheads in culture of, 183, 384n52; locations of, 29, 34, 342n7; photographs of, 381n24; social contexts of archery in culture of, 121, 232, 364n120

archer's paradox, 84, 85 fig. 27, 353n7

Arikara, xii, 125; conflict with other Aboriginal peoples, 120, 284, 285, 405n50, 407n75; epidemic diseases among, 302; ledger drawings of, 276, 278 fig. 56, 301, 323, 408n79; locations of, 28, 35, 118, 342n7; trade of firearms to, 271

armor: effectiveness of, 160, 161, 169, 170, 290; for horses, 256, 257, 258 fig. 53, 304, 401n4; metal, 127, 155, 157; rawhide and leather, 72, 187, 253

arrow grooves, 120, 196, 197, 386n107

arrowheads: Aboriginal manufacture of lithic, 117, 183, 184, 309, 375n26, 360n81; barbed, 102, 165; fishing, 110; images of lithic, 91 fig. 29, 92 fig. 30, 95 fig. 34, 97 fig. 36, 96–98, 110 fig. 41; images of metal, 75 fig. 22, 83 fig. 26, 91 fig. 29, 92 figs. 30–31, 93 fig. 32, 94 fig. 33, 95 fig. 34, 96 fig. 35, 97 fig. 36, 109 fig. 40, 111 fig. 42, 112 fig. 43, 157 fig. 46; introduction of metal, 4–8, 14–15, 79–81; lithic, 38, 96, 125, 204; made from bone, 104, 109, 359n72; made from rawhide/sinew, 93; made from scrap metal, 89, 90; manufactured by HBC, 100; manufacturer-marked metal, 356n53; mass production of, 100; metal traded to Aboriginal people, 98, 99, 101, 102, 205; origins of lithic, 43, 81, 89–90, 183, 184, 204; penetrative capabilities of lithic, 355n31; penetrative capabilities of metal, 157, 159, 161, 275, 374n19, 375n26; positioning on arrow shaft, 102, 103, 357n61; recycling of lithic, 117, 363n105; removal from wounds, 154, 155, 158, 163, 166–69; resemblance of metal to lithic arrowheads, 91; shape and weight of lithic, 354n19, 355n35; shape and weight of metal, 81, 98, 102, 109, 165, 355n35, 357n58; shift from lithic to metal, 69, 89, 97, 106, 171, 203, 297, 298; spiritual aspects of lithic, 187, 188; symbolism of metal, 172, 176; transportation of lithic, 379n18; use in combat of lithic, 94, 97, 163–66; use in combat of metal, 97, 162, 253, 280, 285; with crosspieces, 106 fig. 37, 358n69;

wooden blunts, 75, 106, 10 fig. 38, 108, 109, 123, 176, 181, 254, 313 fig. 57, 412n28

arrow-making tools, 39, 117, 184, 352n85, 363n105

arrow poison, 81, 162–63, 375n24

arrow release, 83 fig. 26, 87 fig. 28, 87–89, 107 fig. 38, 107, 108, 209 fig. 50, 328, 354n15, 396n86

arrows. See *individual Aboriginal peoples*, arrows of

arrow shafts: barreled wooden 83–84, 314, 325; hollow reed, 82–83, 97 fig. 36, 98, 159; split timber, 82–83, 106–8

ash (green, *Fraxinus pennsylvanica*), 32

ash (white, *Fraxinus americana*), 32, 70

ash wood: arrows made from, 82, 83; bows made from, 46, 53–55, 57, 64 fig. 13, 66, 69 fig. 17, 113, 157 fig. 46, 158, 206, 261, 266, 343n15, 345n28, 351n76; occurrence of in southern Alberta, 339n63

Asiniskawidiniwak (Rock Cree), 15, 367n29

aspen (*Populus tremuloides*), 19

Assiniboine (people): as guides, 308; bows used by, 351n75, 387n116, 403n28; conflicts with other Aboriginal peoples, 118, 252–53, 290, 291, 293, 300, 403n28, 409n94; firearms used by, 138, 142–43, 263, 274–75, 285–86; lithic arrowheads

used by, 94, 96; locations of, 17, 29, 219, 342n7; metal arrowheads made and used by, 82, 165, 253; opposition to firearms sales to neighboring Aboriginal peoples, 271; shields used by, 187; spiritual concepts of, 123; weapons of, 369n47

Assiniboine (river), 93 fig. 32, 209, 264

asymmetrical bows, 42, 64 fig. 13, 64, 65 fig. 14, 66–69 figs. 15–17, 176, 179 fig. 47, 198, 266, 351n76, 405n49

Athapaskan, 15, 86 fig. 28, 180, 206, 210, 217, 309, 351n75, 352n86, 412nn24–25

atlatl, 43

Atsina, 338n55. *See also* Gros Ventre des Prairies

Attituq Quitsualik, Rachel, 238, 398n15

Avon Bison Jump, Montana, 91 fig. 29, 91

Avonlea archaeological complex, 43

Awatixa-Hidatsa, 184–85

Bacqueville de la Potherie, 18, 215

Baffin Island, 239

Baldwin, John, 101, 102, 331n3, 356n55

balsam fir (*Abies balsamea*), 19

Banff Indian Days, 5, 10

Bear Island, Ontario, 77, 78

Bear Paw Mountains, 31

bears, 215–17, 228, 307, 315, 393n39, 393n46;  
confrontations with, 215, 216. *See also* black bear,  
grizzly bear, polar bear

Bear Standing Up (Blackfoot), 219

Bear White Child (Crow legend), 113

beaver (*Castor canadensis*), 20, 22, 27, 33, 99,  
104, 114, 137, 138, 144, 215, 228, 292, 298, 306,  
388n119, 389n128, 393n40, 394n47

Beaver Hills, 31

Beckwourth, Jim, 114, 361–62n94

Belcher Islands, 236, 241, 247

beluga whale (*Delphinapterus leucas*), 20, 25

Benson, Foley, 309, 412n25

Berens, William (Ojibwa), 188

Berry, Hugh, 179, 314

Bill, Joseph H., 163, 168, 374n22, 376n31,  
376n41, 376n51

Binnema, Theodore, 35, 338n55

birch (*Betula papyrifera*), 19, 70, 71, 74, 321,  
364n124, 390n4

Bird, James, 149, 177, 283, 372n101, 408n84,  
409n87

Bird, Jemmy Jock, 177

Bird, Louis (Swampy Cree): collecting oral histories, [xii](#), [11](#); examining Aboriginal archery objects, [12](#); on caribou hunting, [22](#), [24](#), [391n18](#), [395n69](#); on climate restrictions in using bows, [70](#); on Cree mythological creatures, [388n118](#); on firearms, [140](#), [151](#), [194](#), [230](#); on fishing with arrows, [213](#); on hunting bears, [215–17](#); on hunting birds, [214](#), [392n35](#); on kindness to orphans as a Cree cultural value, [377n65](#); on manufacture of arrows, [106](#), [107](#), [110](#), [114](#), [359n72](#); on manufacture of bows, [46](#), [51](#), [71 fig. 19](#), [72 fig. 20](#), [73 fig. 21](#), [76](#), [77](#), [343n16](#), [352n85](#); on quivers, [180](#); on Swampy Cree archery culture, [308](#), [310](#); on Swampy Cree conflicts with other Aboriginal peoples, [235–37](#), [241](#), [244](#), [245](#), [247](#), [249](#), [397n4](#), [399n28](#); on Swampy Cree habitation in the Hudson Bay Lowlands, [21](#)

bison hunting, [220–29](#); ceremonial, [186](#); eyewitness accounts of, [134](#), [135](#), [153–54](#), [173](#), [174](#), [225–27](#), [265](#); firearms used for, [219](#), [232](#), [263](#), [405–6n54](#), [408n78](#); on foot, [33](#), [37](#), [38](#), [220–22](#), [405](#), [406n54](#), [408n78](#); and preference for archery on horseback, [100](#), [217–19](#), [232–33](#), [289](#), [299](#), [304](#), [308](#), [311](#), [332–33n7](#), [394n53](#); and preference for bison cows, [207–9](#), [224](#), [228](#); shooting distances in, [85](#), [161](#), [197 fig. 48](#), [374n19](#); timing and locations of, [36–40](#)

bison jump, [37](#), [38](#), [40 fig. 4](#), [91](#), [220](#), [221](#), [224](#), [395n63](#)

bison pound, [37–39](#), [39 fig. 3](#), [220](#), [221](#), [222](#), [223](#), [224](#), [366n10](#), [393n47](#)

black bear (*Ursus americanus*), 20, 33, 215

Black Chest (Mandan), 119, 357n58

Blackfeet, 29, 55, 177, 284, 344n27, 345n28, 368n38, 403n29. *See also* Niitsitapi

Blackfoot, xi; age-graded societies of, 180, 181, 184, 382n43; archery origin traditions of, 38, 183, 340n85, 345–46n36; archery skills of, 154, 224, 390n6, 396n86; body height of, 259, 353n3, 403n29; bows of, 46, 52 fig. 12, 66, 68 fig. 16, 198, 345n30, 383n47, 405n53; bows and arrows used by women, 114, 361n93, 409n90; bow woods used by, 55; capture of weapons by, 56, 177, 201, 289, 312; combat methods of, 284–86, 289, 299–301, 403n28; conflict with other Aboriginal peoples, 143, 156, 162, 252, 253, 268–71, 290, 293, 332n7, 411n124, 411n128; craft specialists among, 110, 112, 117, 118; firearms used by, 133, 142, 149, 151, 201, 288, 311, 367n23; hunting methods of, 38, 220; interviews with, 11; locations of, 17, 29, 34, 37, 342n7; manufacture of arrows by, 103, 104, 125, 314, 357n58, 358n67; metal arrowheads traded to, 101; and objection to firearms sales, 283; population estimates of, 146, 147; and preference for archery in mounted bison hunting, 218, 219, 232, 332–33n7; rejecting travel to Hudson Bay, 2, 378n10; shields used by, 187; and spirituality in combat, 123, 179, 291, 292, 312, 314, 388n119, 389n128, 134; taking of captives by, 247, 292, 293; terminology of, 29; weapons of, 172, 179, 262, 287. *See also* Niitsitapi

Black Hills, [31](#), [319](#)

black locust (*Robinia pseudoacacia*), [70](#)

black spruce (*Picea mariana*), [19](#), [70](#), [74](#), [82](#), [106](#)

black-tailed deer (*Odocoileus hemionus columbianus*), [218](#)

Black Wolf (Mandan mythical character), [117](#)

Blitz, John H., [43](#)

Blood: archery skills of, [232](#); arrows of, [98](#), [102](#); body height of, [403n29](#); bows and arrows of, [182](#), [183](#), [342n12](#), [356n57](#), [358n67](#), [383n47](#), [387n117](#); bison pounds used by, [223](#); captives taken by, [292](#); conflict with Americans, [140](#), [369–70n57](#); conflict with other Aboriginal peoples, [270–73](#), [285](#); firearms traded to, [144](#), [149](#); firearms used by, [232](#), [270](#), [273](#); legends of, [38](#), [183](#), [389n128](#), [395n70](#); locations of, [29](#); origin traditions of firearms among, [132](#), [272](#); origin traditions of horses among, [402n17](#); population estimates of, [146](#). *See also* Kainai

Bodmer, Karl, [10](#), [176](#), [178 fig. 47](#), [285](#), [379n14](#), [380n21](#), [380n23](#)

Bourdeaux, Michel, [280](#)

Bourke, John G., [164](#)

Bowers, Alfred, [115–19](#), [122](#), [362n98](#)

bow lance, [198](#). *See also* lances

Bow River, Alberta, [38](#), [220](#), [222](#), [271](#), [273](#), [293](#), [339n63](#)

bows. *See* asymmetrical bows; composite bows; horn bows; *individual Aboriginal peoples*, bows of; sinew-backed bows; Sudbury bow

brain-tanned leather, [39](#), [108 fig. 39](#), [179](#), [180](#), [387n115](#)

Brandon House, [123](#), [144](#), [145](#), [164](#), [263](#)

Brant River, [214](#)

Bruised Head, Mike (Kainai), [10](#), [55](#), [344n25](#)

Buché, Bapteste, [280](#), [281](#)

Buckingham House, [38](#), [96 fig. 35](#), [99](#), [144](#), [145](#), [148](#), [169](#)

Buechel, Father Eugene, [320](#)

Buffalo Bird Woman (Hidatsa), [90](#), [104](#), [114](#), [115](#), [119](#), [120](#), [185](#), [362n96](#), [378n11](#)

Bulls Back Fat (Blood/Kainai), [370n57](#)

Bull Shield (Crow), [186](#)

Bureau of Indian Affairs (U.S.), [2](#)

Burnt Arrow (Adapozis, Hidatsa culture hero), [196](#)

Button, Thomas, [239](#)

Cahoon, Francis, [58](#), [59](#)

Calgary Stampede, [10](#)

Canadian Museum of Civilization, [xiv](#), [12](#), [320](#)

Canadian River, Texas, [302](#)

Cape Henrietta Maria, [22](#), [241](#)

Capennesseweet (Saulteaux), [169](#)

caribou, [18](#), [21](#), [22](#), [26](#), [40](#); barren-ground (*Rangifer tarandus groenlandicus*), [19](#), [22](#), [24](#), [271](#); drives of, [23](#), [74](#), [210–12](#), [220](#), [240](#), [391n17](#), [395n69](#); hedges, [23](#), [24](#), [210–12](#), [337n33](#), [391–92n18](#); hunting of, [23](#), [107](#), [210–13](#), [215](#), [218](#), [220](#), [231](#), [303](#), [306](#), [307](#), [337n31](#), [367–68n29](#); woodland (*Rangifer tarandus caribou*), [19](#), [25](#), [27](#)

Caribou Lake, Ontario (Oji-Cree community), [313](#)  
[fig. 57](#)

Carlton House, [144](#), [149](#)

Carr, General Eugene Asa, [288](#)

Catlin, George: on Aboriginal archery, [134](#), [269](#), [299](#), [402n16](#); on Aboriginal bows, [55](#), [345n28](#); on Aboriginal hunting methods, [216](#), [220](#), [227](#); on Aboriginal population estimates, [146](#); on firearms used by Aboriginal people, [156](#); on metal arrowheads traded to Aboriginal people, [100](#), [101](#); on social aspects of archery in Aboriginal cultures, [175](#), [176](#), [380n23](#); travels of [10](#), [55](#)

Chappell, Edward, [212](#), [236](#), [246](#)

Charred Body (Awatixa-Hidatsa culture hero), [185](#), [196](#)

Cheyenne: antelope hunting by, 38, 220; arrows of, 96, 104, 113, 115, 124, 125, 357n58, 358n67, 365n137; bows of, 68, 136, 404n37; concepts of warfare of, 295; conflicts with other Aboriginal peoples, 118, 120, 268–69, 302; firearms used by, 143, 191, 367n28; lithic projectile points made and used by, 162, 183–86; locations of, 29, 34, 342n7; symbolism of archery among, 121, 173, 186–89, 195, 202, 383n46; treatment of arrow wounds by, 167, 168; U.S. Army service of, 113; weapons of, 287–88

Cheyenne River Reservation, 1, 347n55

Chipewyan, 15, 77, 193, 210, 236, 240, 243, 246, 250, 286, 307, 399n40

Chippewa, 313, 349n67, 362n99. *See also* Ojibwa chokecherries (*Prunus virginia*), 32, 54, 55, 83, 112, 181, 342n12, 349n67

Churchill River, Manitoba, 18, 109 fig. 40, 238, 248

Clapham, John, 6, 333n10

Clark, William Philo, 113, 360n87

Cocking, Matthew, 253, 270

Colby, Clarence H., 48 fig. 8, 319, 342n12

Comanche: arrow poison among, 162; bows of, 260, 345n30; bow woods used by, 55; conflict with other Aboriginal Peoples, 302, 407n75; conflict with Texas Rangers, 141; height of, 259,

403n29; images of, 381n24; shields used by, 269; symbolism of arrows among, 124, 364n130

Comcomly (Chinook), 100

competency ceremony, 1, 3 fig. 1, 4 fig. 2

composite bows, 58, 88, 156, 158, 159 table 1, 160, 326, 344n22, 346n39, 353n7. *See also* horn bows

Compton, Will, 88

Cooke, L. W., 284

Cooper, John M., 75, 78, 235

copper, 93, 238, 388n122

Copper River Inuit, 238, 240

Copway, George, 315

cottonwood (*Populus balsamifera* spp. *trichocarpa*), 32

counterfeiting (of guns), 149

Cowessess Boarding School, 312, 413n34, 414n35

Cowie, Isaac, 201, 264

coyote (*Canis latrans*), 33

Crane Bear, Clifford (Siksika), xiv, 11, 12, 46, 49, 102, 179, 356n57

Cree: archery skills of, 211; arrows of, 93 fig. 31, 94, 99, 106, 107 fig. 38, 108–10, 125; beluga

whale hunting by, 20, 26; bird hunting by, 28, 215; bows of, 46 fig. 6, 51, 53 fig. 12, 70 fig. 18, 71 fig. 19, 72 fig. 20, 74, 76, 77, 108, 208 fig. 50, 240, 261, 320, 342n12, 344n17, 403n28, 414n35; caribou hunting by, 23, 24, 25, 212; conflict with other Aboriginal peoples, 6, 7, 50, 97, 127, 156, 236–47, 270–72, 274, 284, 285, 289–93, 360n93; firearms used by, 142, 145, 156, 192, 193, 211, 217, 232, 248–51, 263, 270–72, 275, 286, 407n71; horses used by, 132; hunting methods of, 220, 229, 232, 308; images of, 412n28; and intermarriage with fur traders, 177; lithic projectile points made and used by, 94, 96, 97, 309; locations of, 15, 17, 29, 34, 219, 335n1, 336n2, 339n73; oral histories of, 11; population estimates for, 21; seasonal subsistence activities of, 22–28, 335n1; shields used by, 187; spiritual aspects of hunting and warfare among, 123, 199, 200, 202, 237; weapons of, 253, 261, 262. *See also* Plains Cree, Rock Cree, Swampy Cree

Crooked Meat Strings (Blackfoot), 174, 284, 287, 292, 299, 345n31, 360–61n93, 411n125

Crow: archery in ceremonies of, 186; arrows and arrowheads of, 101, 125, 163, 183; bows of, 345n28, 349n63; conflict with other Aboriginal peoples, 266–74, 286, 293; firearms used by, 136; legends of, 113, 175, 183, 185; locations of, 29, 35, 342n7; mounted archery employed by, 232; and restrictions against women's use of bows and arrows, 173, 361n94; and spiritual beliefs in

regard to ermine skin, [179](#); weapons of, [344n27](#);  
William Wildschut's writings on, [360n85](#)

crowberry (*Empetrum nigrum*), [19](#), [26](#)

Crow Creek Reservation, [3 fig. 1](#)

Crowshoe, Reg (Peigan), [177](#)

culture areas, [13](#)

Cumberland House, [99](#), [144](#), [152](#)

Cuthand, Stan (Plains Cree), [200](#), [388n123](#)

Cypress Hills, [31](#)

Dakota, [29](#), [118](#), [351n75](#). *See also* Lakota, Sioux

Dawes Act (General Allotment Act), [1](#), [118](#), [119](#)

Déné, [15](#), [76 fig. 23](#), [193](#), [236](#), [238](#), [239](#), [246](#), [247](#),  
[251](#), [307](#), [399n40](#)

Denig, Edwin Thompson, [362n94](#)

Denys, Nicolas, [390n5](#)

Diamond, Jared, [127](#)

dogwood (*Cornus stolonifera* or *stricta*), [83](#), [158](#),  
[202](#)

Doll, Maurice, [133](#), [134](#), [367n27](#), [404n38](#)

Doty, James, [146](#), [147](#)

douglas fir (*Pseudotsuga menziesii*), [32](#)

dragon side plate, [137](#), [150](#), [199](#), [200 fig. 49](#), [201](#),  
[389n128](#)

Drake, Sir Francis, 60–62, 346n43

Duke, Philip, 43, 89

Dumas, Margaret and William (Cree), xiv, 11, 350n71, 390n5

Duval, David C., 271, 407n71

dwarf birch (*Betula glandulosa*), 19

Dying Young Man (Blackfoot), 179

Eagle Ribs (Pitoxpikis, Kainai-Blackfoot), 146, 289, 291, 293, 390n6, 410n109, 410n116, 411n123

Edmonton House, 140, 149, 151, 152, 177, 283, 370n57

elk (*Cervus elaphus*), 31, 33, 36, 179, 308

Elk Bull (Po-nok-se-ta-mek, Blackfoot), 145

Elk Point site, Alberta, 92 fig. 31, 321

Elk River, Montana, 101, 170

elm (*Ulmus procera*), 32, 53

Elmer, Robert P., 84

End Rock (Hidatsa), 227, 396n86

epidemic diseases, 21, 118, 119, 120, 146, 147, 247, 292, 293, 300, 302, 306

Ethnologisches Museum Berlin, xiv, 50 fig. 10, 334n17, 351n79, 388n117

Ewers, John C., 55, 396n86, 401n13

Fidler, Peter: on Aboriginal hunting methods, 213, 218, 221–24, 395n70, 396n90; on arrows of Pikani, 89, 90, 115; on collecting Aboriginal artifacts, 354–55n29; on combat methods of Aboriginal peoples, 254, 270; and ethnographic observations of Pikani people, 38, 39; on fireams traded to Aboriginal peoples, 145; on firearms used in ceremonies, 193; on firearms used in combat, 156, 164, 270–73, 279, 286, 299, 376n37, 406n66; on firearms used in hunting, 152, 218–20, 263, 393n40; on horses, 221, 224, 227, 255; on intertribal conflict, 123, 156, 164, 218, 219, 270–73, 279–82, 293, 294; on lynx and hare population cycles, 336n13; on Pikani preference for bison cows, 228; on Saukamappee (Cree/Pikani leader), 395n64; on scarcity of trees in Plains, 54, 339n63; on treatment of arrow wounds, 164, 165; travels of, 14, 229

firearms: breech-loading, 5, 6, 128, 129, 136, 142, 143, 269, 286, 296, 304, 311, 333n7; flintlock, xiii, 130 fig. 44, 131, 133, 137, 140, 142, 143, 147, 148, 150, 206, 209, 264, 276, 400n52, 404n37, 407n71, 408n78; matchlock, 129, 131, 150; percussion lock, 140, 143, 209, 264, 288, 333n7, 400n52; pistols, 138, 140, 141, 144, 147, 265, 270, 276, 288, 370n57; repeating, xiii, 6, 8, 124, 128, 136, 140, 142, 143, 191, 201, 269, 270, 286, 287, 296, 304, 311, 389n128; revolvers, 136, 141, 288, 304, 311, 331n3; rifles, 6, 8, 129, 132, 140, 141, 142, 143, 148, 191, 201, 216, 217, 267, 272, 287, 288, 301, 302, 304, 366–67n23,

389n128, 407n71; wheel lock, 150, 400n52. *See also* fowling pieces

fish weirs, 26, 213

Flathead (Interior Salish): arrows of, 162; bows of, 56, 58, 387n116; conflict with other Aboriginal

peoples, 253, 269, 271, 279, 280, 282–84, 287, 300, 301, 408n82; locations of, 342n7

flint: Aboriginal traditions of use for arrowheads, 38, 81, 90, 93, 96, 117, 163, 164, 183, 184, 249, 379n18; trade of, 125, 249; use in firearms as gunflints, 99, 131, 138, 140, 170, 195, 264

flintlock. *See* firearms

Fort Benton, 297

Fort Berthold Reservation, 118, 119, 362n98

Fort Buford, 276

Fort Dauphin, 213

Fort Ellice, 264

fortifications, 215; use in combat, 141, 269, 289, 311

Fort Marion, 313

Fort McKenzie, 56, 156, 285, 370n57, 379n17

Fort Michilimackinac, 144

Fort Qu'Apelle, 264

Fort Severn, 25

Fort Sill, Oklahoma, 165

Fort Union, 138, 146, 396n84

Forwood, W. H., 165

Fossett, Renée, 237, 247

Four Bears (Mato Tope, Mandan), 269

fowling pieces, 28, 143, 213, 214, 249

Fox, William, 199

Franklin Expedition, 248

*Fraxinus americana* (ash), 32, 70

Fringe, The (Crow healer), 166, 167

Frobisher, Sir Martin, 60, 77, 239, 247, 331n4, 346n43

game-of-the-arrow, 134, 135, 368n30

Garrison Dam, 119

garter snake (*Thamnophis radix*), 198, 387n117

Given, Brian, 6

Gleach, Frederic W., 13

Glenbow Museum and Archives, Calgary, xiii, 11, 12, 102, 179, 314, 340n85, 342–43n12, 345n31, 356n57, 358n67, 360–61n93, 381n32, 382n34

Gloucester House, 150, 170, 171, 377n58, 377n65

Glover, Richard, 96

Goddard, A., 78

Goodbird (Hidatsa), 115, 362n96, 378n11

Good Eagle (Blackfoot), 289

Gooderham, George H., 179

Gosiute, 375n29

Graham, Andrew, 21, 26, 132, 193, 212, 213, 250, 261, 333n14

Grand Canyon, 11

Grinnell, George Bird, 54, 55, 96, 115, 136, 162, 183, 357n58

grizzly bear (*Ursus horribilis*), 33, 156, 216, 393n46

Groseilliers, Medard Chouart, Sieur des, 204, 205

Gros Ventre des Prairies, 3, 29, 112, 140, 149, 180. *See also* Atsina

Gwichin, 243. *See also* Kutchin

hackberries (*Celtis occidentalis*), 32

Hairy Breasts (Northern Algonquian mythical beings), 240

Hall, Robert, 201

Hallowell, Irving A., 188

Hamilton, T. M., 87, 144, 387n116

Hamm, Jim, xiv, 55, 345n29, 359n74, 386n107, 405n53

Hand Hills, 31

Hanson, Charles E., 147, 170

harbor seal (*Phoca vitulina*), 20

Harmon, Daniel Williams, 340–41n94

Hayes Island, 143

Hayes River, 27

Head-Smashed-In Buffalo Jump, Alberta, 37, 363n105, 395n63

Heammawihio (Cheyenne culture hero), 184

Hearne, Samuel, 76, 76 fig. 23, 210, 240, 243, 246, 250, 306, 321

Heizer, Robert, 62

Henday, Anthony, 3, 125, 218, 224, 263, 292, 308, 311, 334n17, 378n10

Henry, Alexander the Younger: on Aboriginal arrows, 90, 100; on Aboriginal bows, 46, 53, 56, 57, 341n7; on Blackfoot population estimates, 146; on Blackfoot weapons, 172; on firearms used in hunting, 217, 220, 231, 263, 405–6n54; on intertribal conflict, 282–83

Hickman, Clarence, 84

hickory (*Caraya cordiformis*), 55, 66, 67 fig. 15, 70, 72 fig. 20, 74, 76, 112, 198, 260, 344n26, 349n63

Hidatsa, xii; age-graded societies of, 110, 116; archery skills of, 227, 263; arrows of, 81–83, 82 fig. 26, 90, 97, 104, 106 fig. 37, 121, 124, 162,

196; bows of, 63, 64 fig. 13, 66, 67 fig. 15, 68, 154, 155, 176, 198, 266, 347n55, 405n49; bow stringing methods used by, 65 fig. 14, 348n57; concepts of knowledge transfer among, 117, 118, 119, 362n98; conflict with other Aboriginal peoples, 120, 271; creation myths and legends of, 184, 185, 196; epidemic diseases among, 302; hunting methods of, 220; involvement in fur trade, 102; and kinnickinnick (Native tobacco), 202; locations of, 28, 35, 342n7; methods for carrying bows, arrows, and quivers, 206, 379n18; military symbols among, 380n19; protective gear used in archery by, 207; quivers of, 175, 379n16; and restrictions against women using bows and arrows, 115, 173, 174, 364n116, 378n11; weapons of, 53, 270. *See also* Wolf Chief, Henry

High-Backed Wolf (Cheyenne), 191, 287, 385n87, 409n101

Homeguard Cree (“Homeguard Indians”), 7, 377n58

Honigmann, John J., 213

Hopkins, Edward Martin, 12, 387n116

horn bows, 45, 46, 56, 67 fig. 15, 198, 349n59, 349n63; Asiatic, 58, 156; characteristics and performance of, 58, 59, 345n34, 345–46n36, 404n37; descriptions of, 53, 56, 57; in Aboriginal myths, 185; manufacture of, 116, 121, 363n102; used in courting, 176, 380n21; wooden bows resembling, 345n34, 382n34, 387n116

Hudson Bay: Aboriginal peoples living on, 7, 14, 17, 21, 22, 76, 128, 189, 190, 212, 215, 241; Aboriginal traditions about, 388n118; arrowheads traded on, 205; climate and environmental conditions on, 18, 19, 21, 25, 26, 30, 150, 151, 210, 214, 222; intertribal conflict on, 235, 236, 245, 247, 248, 250, 286; limitations of resources on, 40; firearms traded on, 69, 143, 144, 170, 233; trade on, 2, 15, 238, 305

Hudson House, 99, 274

Hudson's Bay Company (HBC): employment of mixed-descent individuals by, 213; fur trade by, xi, xii, 7, 28; relations with Aboriginal peoples, 2, 7, 252, 305; trade goods of, 98, 100, 101, 137 fig. 45, 142, 143, 150, 205, 218; trading posts of, 25, 96, 214

Huron, 247

Ile-a-la Crosse, 385n97, 408n83

Ile de l'Ourson, 213

Indian Wars, U.S., 123, 154, 162, 168, 234, 314

Ingalik, 73 fig. 21, 74

Inuit: arrows of, 106 fig. 37, 107, 196, 358n69; bows of, 71, 76, 77, 77 fig. 24, 328, 329, 331n4, 346n43; burial customs of, 190; conflict with Europeans, 239; conflict with Déné, 235–51, 399n40; conflict with other Aboriginal peoples, 235, 236–40, 249–51, 333n14, 397n6, 397n9;

conflict with Swampy Cree, 240–48, 399n28;  
hunting caribou by, 23, 210

Inupiat, 239

Iroquois, 3, 140, 148, 191, 235, 236, 247, 249,  
397–98n9

Isham, James: on Aboriginal bows and arrows, 75,  
75 fig. 22, 76, 109, 109 fig. 40, 321, 350n69,  
359n79; on caribou hunting, 23, 392n19; on  
hunting geese, 214, 392n35

Ishi (Yahi/Yana), 61, 347n48

jack pine (*Pinus banksiana* or *Pinus divaricata*),  
19, 32

Jackson, John C., 177

Jacobsen, Johan Adrian, 74

James Bay, 7, 15, 17 map 1, 18, 22, 99, 100, 214,  
235, 237, 241, 246, 247, 305, 312, 392n33

Jefferson, Robert, 152, 153, 171

Juneberries. *See* Saskatoon berries

juniper (*Juniperus* spp.), 32, 60

Junkelmann, Marcus, 156, 158, 159 table 1, 160

Kainai, 11, 29, 55, 98, 140, 181, 183, 271, 370n57

Kalispel, 275

Kane, Paul, 10, 380

Kansa, 164, 165, 217, 332n4, 343n12, 394n53

Kashechewan. *See* Albany River

Kelsey, Henry, 249

Keyser, James D., 255 fig. 51, 256 fig. 52, 257, 322

Kidd, Kenneth, 112

Kiowa, 55, 165, 260, 276, 302, 320n12, 345n30, 381n24, 407n75

Kiowa-Apache, 302

Kipling, John, 150, 170, 171, 377n58

Kipp, James, 144, 382n26

Kipp, Joseph, 382n26

Kit Fox Society, 183

Kixtipistamik (Striped Bull, Kainai-Blackfoot), 293

Knife River flint, 125

Kootana Appe, (Kutana Api, Pikani-Blackfoot), 276, 278, 301

Koppedraye, Jaap, xiv, 58, 346n39

Koppedraye, Kaye, xiv, 320

Kranabaecker, August, 334n17

Kroeber, Alfred, 61

Kutchin (Gwichin), 243, 248, 249, 309, 310

Kutenai, [56](#), [147](#), [218](#), [271](#), [300](#), [332n7](#), [342n7](#), [387n116](#), [408n82](#), [410n110](#)

Labrador tea (*Ledum groenlandicum*), [19](#)

La France, Joseph, [239](#)

Lake Athabasca, [152](#)

Lake of the Woods, [75](#)

Lake Sakakawea, [119](#)

Lake Superior, [19](#), [150](#), [368n38](#)

Lake Temagami, [77](#)

Lake Winnipeg, [30](#), [336n2](#)

Lakota, [xii](#); archery techniques of, [197 fig. 48](#), [404n39](#); archery traditions of, [259](#); archery training among, [174](#), [378n9](#); arrows of, [124](#), [167](#), [363n99](#), [374n19](#); bows of, [48 fig. 8](#), [49 fig. 9](#), [320](#), [343n12](#), [347–48n55](#), [349n63](#); bow lances used by, [198](#); competency ceremonies for, [1](#); conflict with other Aboriginal peoples, [118](#), [120](#), [167](#), [268](#), [269](#), [285](#), [405n50](#); firearms used by, [143](#), [287](#); and hunting bison on horseback, [209](#); locations of, [29](#), [259](#); and preference for archery in mounted bison hunting, [332n7](#). *See also* Dakota, Sioux

Lamack, Tom, Jr. and Sr., [264](#), [265](#)

La Malice (Métis), [334n17](#)

Lancaster, Richard, [133](#), [134](#), [367n28](#), [386n100](#)

lances, [8](#), [42](#); used in combat, [255 fig. 51](#), [256](#), [257](#), [261](#), [288](#); used in hunting, [211](#), [216](#), [229](#), [306](#)

Larson site, South Dakota, [284](#)

Laughton, Gilbert, [150](#)

Lehmann, Herman, [364n130](#)

Lewis and Clark Expedition, [90](#), [253](#), [405n50](#)

Like-a-Fishhook Village, [118](#), [119](#)

Linden Museum, Stuttgart, Germany, [xiv](#), [12](#), [343n12](#), [387n116](#)

Linderman, Frank Bird, [101](#), [183](#)

Lisa, Manuel, [140](#)

Little Big Horn, Battle of, [343n12](#)

Little Chief, Joe (Blackfoot), [114](#), [117](#), [118](#), [125](#), [132](#), [289](#), [360n93](#), [367n23](#), [371n84](#)

Little Ice Age, [151](#)

Little Rocky Mountains, [31](#)

lodgepole pine (*Pinus contorta*), [32](#)

Long, Sylvester, aka Chief Buffalo Child Long Lance, [352n89](#)

Loring, Frank, [352–53n90](#)

Lytwyn, Victor, [212](#), [215](#), [397n9](#)

Mackenzie, Alexander, [151](#)

Maguigoxkinas (Wolf Collar, Blackfoot), [289](#), [410n108](#)

Malone, Patrick, [263](#)

Manchester House, [144](#), [149](#), [150](#), [156](#), [270](#)

Mandan, [xii](#); age-graded societies of, [110](#), [116](#), [362n98](#); and archery equipment used in courting, [175](#), [176](#), [178 fig. 47](#), [380n21](#); archery games of, [134](#); arrows of, [81](#), [82](#), [90](#), [104](#), [196](#), [197](#), [357n58](#); bows of, [63](#), [64](#), [64 fig. 13](#), [68](#), [155](#), [266](#), [347n55](#), [349n63](#), [405n49](#); burial customs of, [190](#); ceremonies of, [186](#), [197](#); conflict with other Aboriginal peoples, [120](#), [269](#), [405n50](#); epidemic diseases among, [118](#), [146](#), [302](#); firearms used by, [145](#), [147](#), [165](#), [270](#), [271](#); hunting methods of, [220](#); and intermarriage with fur traders, [381n26](#); locations of, [28](#), [35](#), [342n7](#); military symbols among, [380n19](#); population estimates of, [146](#); restrictions on manufacture of bows and arrows among, [115–20](#), [122](#), [362n98](#); weapons of, [53](#), [344n27](#)

Mandelbaum, David, [15](#), [127](#), [335–36n1](#), [349–50n67](#), [366n10](#), [376n36](#)

Manitoba Museum, Winnipeg, [xiii](#); arrowheads at, [93 fig. 32](#), [94 fig. 33](#), [109 fig. 40](#), [111 fig. 42](#), [112 fig. 43](#); arrows at, [107](#), [122](#), [314](#), [358n67](#), [358n71](#), [359n73](#), [359n76](#), [359n78](#), [414n39](#); bows at, [70 fig. 18](#), [359n76](#), [364n124](#), [387nn116–17](#); ethnographic collections of, [12](#); ethnographic photographs at, [412n28](#)

Marest, Father Gabriel, [17](#), [18](#)

Marias River, [370n57](#)

Mary Rose, [60](#)

Mason, Otis Tufton, 66, 69, 230, 266, 349n66, 350n67, 386n107, 398n18

Massan, Horace (Cree), xiv, 11, 350n71, 390n4

Massey, Jay, 316

matchlock. *See* firearms

Matonabee (Chipewyan), 307

Mato Tope (Four Bears, Mandan), 269

McCord Museum, Montreal, xiii, 12, 342n12

McDonald, Finan, 279–81, 283, 301

McDougall, J. B., 313

McEvoy, Linda (Dakota), 11

McEwen, Edward, 158, 159 table 1

McLaughlin, James, 1, 2, 4 fig. 2

McLaughlin, South Dakota, 4 fig. 2

Membertou (Mi'kmaq), 190, 193

Menomini, 199, 202, 386n101, 389n125, 389n132

mesquite wood (*Prosopis fuliflora*), 159

Métis, 139, 142, 156, 191, 219, 232, 332–33n7, 334n17, 380n23

Middle Missouri archaeological complex, 35

Milk River, 31

Miller, Alfred Jacob, 40 fig. 4

Mississippi River, [10](#), [30](#), [259](#)

Missouri River, [28](#), [31](#), [55](#), [110](#), [234](#), [302](#)

Mistassini Cree, [74](#), [180](#), [199](#), [308](#)

mitew (Cree shaman), [242](#), roles in combat, [236](#), [242](#), [244](#), [245](#)

Montagnais, [23](#), [107](#), [210](#)

Montana Historical Society, [xiv](#), [12](#), [344n25](#)

Montecuccolli musket, [155](#), [156](#), [160](#)

moose (*Alces alces*): hunting of, [107](#), [139](#), [211](#), [213](#), [215](#), [303](#), [308](#), [311](#), [316](#), [334n17](#), [359n72](#), [390n5](#); in Hudson Bay Lowlands, [19](#), [20](#), [40](#); in Plains, [33](#); tendons of, [158](#); use of hide of, [180](#)

Moose Factory, [144](#), [218](#), [312](#), [413n33](#), [414n35](#)

Moose Head Hill, [164](#)

Moose River, [143](#)

Morgan, Henry Lewis, [2](#), [331n2](#)

Morkin site, Alberta, [93](#) [fig. 30](#)

Morse, E. S., [87](#), [89](#), [354n15](#)

mountain lion (*Felis concolor*), [33](#); quivers/bow cases from skin of, [175](#), [176](#), [191](#), [379n16](#)

mountain sheep (*Ovis canadensis*), [32](#); hunting of, [33](#), [38](#), [218](#), [220](#), [395n64](#)

mountain sheep horn, [56](#), [58](#), [344n27](#), [345n28](#), [345n36](#), [363n102](#), [380n21](#), [404n37](#)

mule deer (*Odocoileus hemonius*), 33, 218

Mummy Cave archaeological complex, 43, 98, 395n63

Munroe, Hugh, 114

Musselshell River, Montana, 267

Nabokov, Peter, 360n85

Nagler, Forrest, 62

Napi (Blackfoot culture hero), 38, 183, 395n70

Naskapi, 107, 108 fig. 39, 208 fig. 50, 322, 359nn74–75

Nayhanimis (Northern Algonquian mythical character), 240

Ne-je-ta-ke (Only Woman, Blackfoot), 145

Nelson, George, 191, 229, 240, 388n123

Nelson, Molly, aka Molly Spotted Elk (Penobscot), 78, 352n89

Nelson House Cree, 70 fig. 18, 108, 359n76

Nelson River, Manitoba, 17, 109 fig. 40, 111 fig. 42, 359n78, 397n6

Netley Creek, Manitoba, 158

Nez Perce, 56, 282, 342n7

Niitsitapi, 29. *See also* Blackfeet, Blackfoot

North Cave Hills site, South Dakota, 256 fig. 52, 258 fig. 53, 402n14, 402n19

North Platte River, 287

North Saskatchewan River, 29, 31, 38, 150

North West Company (NWC): employees of, 46, 279, 280, 341n7, 405n54, 407n70; sales of firearms to Aboriginal peoples by, 271; trade goods of, 137 fig. 45, 137, 138, 149, 368n38; trading posts of, 93 fig. 32, 96 fig. 35

Northwest Museum of Art and Culture, Spokane WA, xiv, 12, 48 fig. 8, 49 fig. 9, 342n12, 343n15

obsidian, 93, 96, 97, 125, 162, 355n31

Ojibwa: arrow makers among, 115; bows of, 209 fig. 50, 313 fig. 57, 315, 412n28; ethnographic documentation on, 70, 75, 77; firearms used by, 192, 217, 229, 232, 406n54; hunting methods of, 23, 26, 210; locations of, 15, 29, 342n7; spiritual concepts of, 188, 199, 200, 240, 385n98, 386n101, 388nn122–23

Okipa (Mandan ceremony), 186

Oldmixon, John, 137, 138, 236, 237

Old Women's archaeological complex, 34, 37

Omaha, 50 fig. 10, 65 fig. 14, 120, 332n4, 343n12, 348n57, 365n1, 380n21

Omushkego, xi, xii; arrows of, 106; arrow release methods used by, 107; bows of, 70, 71 fig. 19, 73, 154, 240, 343n16; conflict with other Aboriginal peoples, 235, 241, 243–45; firearms used by, 140, 151, 194, 195, 249; locations of, 7, 15;

mythological creatures of, [388n118](#); oral traditions of, [11](#); quivers of, [180](#); and restrictions against women using archery, [114](#), [310](#); shamanistic concepts of, [242](#); social values among, [377n65](#); subsistence activities of, [20–25](#), [28](#), [211](#), [213](#), [214](#), [395n69](#). *See also* Swampy Cree

One Bull (Lakota), [404n39](#)

One Gun archaeological complex, [34](#), [35](#)

Only Woman (Ne-je-ta-ke, Blackfoot), [145](#)

Osage, [51 fig. 11](#), [55](#), [202](#), [217](#), [302](#), [394n53](#)

osage orange (*Maclura pomifera*), [51 fig. 11](#), [55](#), [58](#), [59](#), [70](#), [161](#), [259](#), [260](#), [342n10](#), [345n30](#), [350n67](#)

otter. *See* river otter

Owen, Charlie George (Ojibwa), [385n98](#)

Owl Child, Spencer (Blackfoot), [112](#)

Paiute, [11](#)

parfleche, [39](#), [187](#), [254](#), [384n72](#). *See also* rawhide

Paul, Gabriel, [78](#), [79 fig. 25](#), [352n90](#)

Pawnee: arrows of, [120](#), [162](#), [364n123](#); conflicts with other Aboriginal peoples, [165](#), [268](#), [269](#), [276](#), [288](#), [301](#), [407n75](#), [408n78](#); firearms used by, [148](#); locations of, [342n7](#); Skidi band of, [120](#), [364n123](#)

Peck, Trevor Richard, [35](#), [339n75](#)

Pecos River, Texas, [166](#)

Peel River, [238](#)

Peigan, [11](#), [29](#), [38](#), [56](#), [117](#), [146](#), [177](#), [340n85](#),  
[381n32](#)

Pelican Lake archaeological complex, [43](#)

Pend-d'Oreille, [56](#)

Penobscot, [78](#), [353n90](#)

Penobscot bow, [42](#), [78](#), [79](#) fig. [25](#),  
[352–53nn88–90](#)

percussion lock. *See* firearms

photography, [9](#), [10](#), [84](#)

phragmites reed, [159](#)

Piegan: age-graded societies of, [180](#), [181](#), [382n43](#);  
bows of, [54](#), [56](#); capture of enemy weapons by,  
[177](#), [179](#); conflict with other Aboriginal peoples,  
[124](#), [267](#), [268](#), [279–82](#), [284–86](#), [409n93](#); firearms  
used by, [133](#), [142](#), [144](#), [270](#), [272](#), [367n8](#),  
[386n100](#); and intermarriage with fur traders, [114](#),  
[177](#), [381n26](#); origin of horses among, [402n17](#); and  
participation in warfare by women, [361n93](#);  
population estimates of, [146](#); quivers of, [179](#),  
[381n26](#), [381n33](#); taking of captives by, [292](#);  
terminology, [29](#)

Pigeon Society, [181–83](#), [382n43](#)

Pikani: animal hides used by, [39](#); arrows of, [89](#),  
[93](#), [94](#), [96](#), [97](#), [115](#), [128](#); and actions against trade  
of firearms to neighbors, [270](#), [271](#), [408n82](#);

combat methods of, 254, 255, 275, 276, 278, 403n28;  
conflicts with other Aboriginal peoples, 217, 218, 253, 255, 256, 261, 271, 274, 290, 291, 293;  
firearms used by, 151, 219, 254, 393n40, 406n66;  
hunting methods of, 39, 216, 219, 220, 222, 224, 227, 395n64, 395n70, 396n90; sojourners among, 38, 50, 220, 254, 276, 393n47, 400–401n2;  
spiritual concepts of, 123, 202; taking of captives by, 292; and trade with HBC, 144, 149;  
terminology, 29; weapons of, 172, 253, 261, 262

Pilon, Jean-Luc, 214

Pine Fort, Manitoba, 93 fig. 32, 94 fig. 33, 111 fig. 43, 322

Pink, William, 270

Pitoxpikis. *See* Eagle Ribs

Pitt Rivers Museum, Oxford, 387n116

Plains Cree: and archery used in mounted bison hunting, 153, 171; arrows of, 358n71, 376n36; bows of, 46 fig. 6, 52 fig. 12, 349n67, 366n10; combat methods of, 284, 299; conflict with other Aboriginal peoples, 156, 201, 293, 300, 411n124; firearms used by, 143, 152, 171, 232, 366n10; hunting methods of, 39 fig. 3; locations of, 29, 34, 342n7; manufacture of archery equipment in residential schools by, 312; quivers of, 379n17, 411n128; rattlesnake effigy of, 387n115; spiritual concepts and mythological characters of, 183, 200, 388n123; weapons of, 262, 331n3

Plains Ojibwa, 29, 232, 342n7

Plenty Coups (Crow), 101, 161, 162, 166, 183, 296, 334n17, 356n52

plow, symbolism of, 1, 2, 3 fig. 1, 4 fig. 2

Pointed Arrow (Plains Cree culture hero), 183

polar bear (*Ursus maritimus*), 20, 27, 215, 216

Po-nok-se-ta-mek (Elk Bull, Blackfoot), 145

Pony Express, 163, 375n29

Pope, Saxton: on Aboriginal arrows, 82, 83, 355n31; archery experiments by, 61, 62, 66, 68 fig. 16, 320n12, 349n62, 353n7; and influence on other researchers, 63, 69, 79, 87, 347n51; on methods of arrow release, 88, 89; social Darwinist views of, 62; and work with Ishi, 61, 62

poplar (*Populus balsamifera*), 19, 339n63

porcupine (*Erithizon dorsatum*), 20

Potawatomi, 313

Potherie, Bacqueville de la, 18, 189, 215, 236

Potts, Jerry (Peigan), xiv, 11, 117, 363n108

Powell, John Wesley, 11

Powiaken (Plateau-Salish), 162

prairie chicken (*T. cupido*), 33

prairie turnip (*Psoralea esculenta*), 32, 35, 185

Pretty Shield (Crow), 125, 175, 183

pronghorn antelope (*Antilocapra americana*), 32, 33, 38

purple poppy mallow (*Callirhoe involucrate*), 32

Pyszczyk, Heinz W., xiv, 98, 300

Quapaw, 277 figs. 54–55, 322

Qu'Apelle River, 264

Questach (Cree), 192, 193

quillwork, 53, 78, 116, 176, 198, 261, 369n47, 380n19, 387n115

Radisson, Pierre Esprit, 28, 205, 214, 215, 392n33

Rainy Lake, 75

rattlesnake, 57, 158, 198, 387nn115–16

Raw Eater (Siksika-Blackfoot), 288

rawhide, 26, 39, 74, 168, 180, 187, 205, 254, 262, 384n72; armor made from, 169, 187, 304, 401n4; arrowheads made from, 93; bowstrings made from, 209, 343n15; shields made from, 97, 160, 161, 187, 254, 269, 275, 401n13. *See also* parfleche

Ray, Arthur J., 139, 144, 300

Red Arrow (Blackfoot), 292

Red Deer River, Alberta, 271

Red Hawk, Jay, xiv, 103

Red Woman (Crow legend), 175, 183, 185

Reeves, Brian O. K., 43

Reid, C. S., 199

repeating firearms. *See* firearms

Residential Schools, 312

revolvers. *See* firearms

Richardson, Sir John, 248

Richardson Hanks, Jane, 345n31

rifle pits, 289, 311, 402n16

river otter (*Lutra canadensis*): arrow fletching tied with sinew of, 114; and Blackfoot spiritual concepts, 179, 388n119, 389n128; hunting of, 215; natural habitat of, 33; procurement of pelts of, 22; quivers/bow cases from skin of, 52 fig. 12, 175, 176, 177, 179, 314, 369n47, 381n33

Robson, Joseph, 190, 238, 248, 333n14

Rock Cree (Asiniskawidiniwak), 15, 70 fig. 18, 107, 350n71, 359n76, 367n29

Rogers, Edward S., 74

Rogers, Spencer L., 87, 349n66, 351n80

Roman military, archery of, 156

Royal Alberta Museum, Edmonton, xiii, 12, 92 figs. 30–31, 96 fig. 35, 109, 110 fig. 41, 183, 358n67, 367n27, 387n115

Rundle, Robert, 177

Running Eagle (Blackfoot), 284, 360n93

Runs-the-Enemy (Tok-kahin-hpe-ya, Lakota), 174

Rupert River, 143

Russell, Dale, 17, 335–36n1

sage grouse (*Centrocercus urophasianus*), 33

Sakatow (Pikani-Blackfoot), 38, 220

Salish, 162, 253, 269, 279, 282, 283, 284, 287, 300, 301, 408n82. *See also* Flathead

Sand Hills, 54, 55

Sarcee (T'suu Tina), 29, 144, 145, 156, 270, 300, 342n7

Saskatchewan River, 29, 30, 31, 34, 38, 141, 150, 339n73

Saskatoon berries (Juneberries) (*Amelanchier alnifolia*), 32, 36, 54, 83, 85, 158, 192

Satamore (Set-ema'-i, Kiowa), 165

Saukamappee (Plains Cree/Pikani): bears killed by, 216; biographical information on, 252, 393n47; descriptions of bows and arrows by, 51, 53, 93, 94, 96, 97, 253, 259, 261, 262, 286, 403n28; descriptions of intertribal combat by, 252–55, 257, 275, 276, 290, 291, 294, 301; hosting David Thompson, 50; on spiritual concepts relating to warfare, 123, 202; on use of firearms, 216, 217, 274–76; on use of horses, 271;

on use of shields and warclubs, 187, 254, 262, 274, 303

Saulteaux, 15, 164, 169, 217, 263, 264

Schlup, Sabrina and Thomas, xv, 160

Schultz, James Willard, 142, 177, 179, 381n26

Secoy, Frank Raymond, 169, 333n13

Segesser, Father Philipp von Brunegg von, 402n22

Segesser hide paintings, 257, 258 fig. 53, 322 fig. 53, 402n22

Severn House, 28, 213, 215

Severn River, 25

Shaking Tent Ceremony, 192

shaman, 189, 192, 194, 195, 241, 244, 245, 249, 250. *See also* mitew

Shamattawa River, 21

Sharp (Piegan), 56

sharp-tailed grouse (*Tympanuchus phasianellus*), 33

Shell (Cheyenne), 115, 167, 168

shields, 186, 187, 273, 401n13; use of in combat, 97, 160, 251, 253–57, 269, 274, 275, 278, 290, 401n4, 407–8n75; wooden, 240. *See also* rawhide

Shoshone (Shoshoni): archery objects in burial customs of, 191; arrows of, 93, 94, 96, 253, 354–55n29; bows of, 51, 253, 259, 354–55n29; conflict with other Aboriginal peoples, 163, 202, 252, 253, 271, 293, 300, 403n28; E. N. Wilson living among, 375n29; firearms used by, 270, 274; horses used by, 255–57, 261, 262; hunting methods of, 216, 227, 228; lack of firearms among, 147, 293, 300; locations of, 29, 342n7; shields and body armor used by, 187, 253, 254; treatment of arrow wounds by, 163. *See also* Snake Indians

Sih-Sä (Red Feather, Mandan), 179 fig. 47, 380n21

Siksika, 11, 12, 29, 102, 179, 181, 182, 288, 299, 314, 319–20, 340n85, 342n12, 345n31, 356n57, 383n47

*Silent Enemy, The*, 77, 78

silver buffalo berries (*Shepherdia argentea*), 32

Silvy, Father Antoine, 250

Simpson, Sir George, 12, 387n116

sinew: arrowheads made from, 93; bowstrings made from, 53, 113, 209, 383n47; use as cordage, 20, 26, 33, 39, 287; use for attaching arrow fletchings and arrowheads, 80–82, 83 fig. 26, 84, 102, 104, 105, 114, 164, 165, 167

sinew-backed bows: affected by moisture, 210; cable-backed, 73, 77 fig. 24, 328–29, 350n73,

351n75; construction details of, 45, 46, 53, 54, 56–58, 60, 156, 158, 206, 259, 260, 326, 328; covered with snake skins, 198, 387nn116–17; descriptions of, 51, 66, 158, 206, 319–20n12, 347–48n55, 349n63, 369n47, 382n34, 387n116; locations of, 342n7; images of, 52 fig. 12, 67 fig. 15, 69 fig. 17, 77 fig. 24, 157 fig. 46; made from horn or antler, 116, 349n63; occurrence of, 53, 60, 71, 259, 261; performance of, 55, 158, 159 table 1, 159, 206, 261, 299, 328, 344n22, 351n76; trade value of, 56, 120, 121, 364n116; and use in courting, 176; and use in combat, 136

Sioux, 1, 11; archery objects in burial customs of, 190; arrows of, 83 fig. 26, 362–63n99; arrow release method used by, 87 fig. 28, 88, 89; bows of, 63, 68, 158, 159 table 1, 319, 320, 332n7, 342–43n12, 347n55, 369n47; ceremonies of, 186; conflict with other Aboriginal peoples, 169, 294, 365n1, 410n110; and hide scraper made from recycled gun barrel, 370n59. *See also* Dakota, Lakota

Sitting Bull (Lakota), 1, 332–33n7, 342–43n12, 374n19, 378n9

Skinner, Alanson, 71, 337n31, 391n17

Small Ankle (Hidatsa), 90, 104, 115, 363n102

smallpox. *See* epidemic diseases

Smith, James G. E., 17

Smithsonian Institution, 11, 66, 179, 278 fig. 56, 321, 323, 348n57, 399n40, 408n79

Smyth, David, 13, 338n55, 408n82

Snake Indians, 272–75, 290, 291, 343–44n17, 354–55n29, 397n4, 410n110. *See also* Shoshone (Shoshoni)

snakewood, 83, 162, 374–75n24

social Darwinism, 2, 62, 87

Sohon, Gustavus, 380n23

South Saskatchewan River, 30, 31, 141

spears, 23, 37, 42, 184, 190, 211, 212, 240, 248, 254, 306. *See also* lances

spear thrower and dart. *See* atlatl

Speck, Frank G., 108 fig. 39, 235, 352–53n90, 359n74

Spokane (people), 282

Spotted Bear (Lakota), 259

Spotted Elk, Molly. *See* Nelson, Molly

Spotted Tail (Lakota), 268

Standing Alone, Pete (Kainai/Blood), 182, 384n48

Standing Rock Reservation, 4 fig. 2, 404n39

Stevens, Isaac, 147

Stiimiksato'si (Blackfoot), 154

Stockel, Henrietta, [87](#), [88](#)

Striped Bull (Kixtisipistamik, Kainai-Blackfoot), [293](#)

sturgeon (*Acipenser fulvescens*), [20](#), [26](#), [71](#), [74](#), [213](#)

Sudbury bow, [72 fig. 20](#), [73 fig. 21](#)

Summit Springs, Battle of, [288](#)

Sun Dance, [36](#), [185](#), [195](#), [292](#)

Sutherland, George, [149](#), [170](#), [192](#)

Swampy Cree, [xi](#), [xii](#), [7](#); arrows of, [365n134](#); bows of, [46](#), [71](#), [72 fig. 20](#), [76](#), [307](#), [343n16](#); burial customs of, [190](#); caribou hunting by, [24](#), [212](#), [215](#), [216](#), [220](#); conflict with other Aboriginal peoples, [236](#), [237](#), [240](#), [247](#), [397n6](#); firearms used by, [128](#), [129](#), [248](#), [305](#), [307](#); locations of, [15](#); spiritual concepts of, [179](#), [381n30](#); subsistence activities of, [24](#), [26](#), [229](#), [307](#), [312](#). *See also* Omushkego

Sweetgrass Hills, [284](#)

Taillon, Ron, [xv](#), [66](#), [67](#)

Tailrace Bay archaeological site, [112 fig. 43](#)

Tall Bull (Cheyenne), [269](#), [288](#)

tamarack (*Larix laricina*), [19](#), [51](#), [70](#), [73](#), [74](#), [343n16](#), [403n28](#)

Tanner, Adrian, [308](#)

Tate, James, 144

Ta-Tunga-O-Kay-Snay (Sioux), 169

Theriault, Madeline Katt, 77, 78, 352n85

Thompson, David: on Aboriginal armor, 253; on Aboriginal arrows, 93, 94, 96, 97, 128, 229, 254; on Aboriginal bows, 3, 51, 53, 198, 229, 254, 261, 276, 278, 321 fig. 22, 343–44n17, 390n4; on Aboriginal concepts and customs in regard to war, 172, 202, 254, 276, 278, 291, 389–90n134; on Aboriginal hunting methods, 215, 216, 222; on Aboriginal peoples' use of firearms, 128, 217, 275, 276, 280–82, 372n107; biographical information on, 400–401n2; on intertribal conflict, 93, 94, 123, 187, 217, 252, 253, 257, 259, 276, 278, 280–82, 293, 333n14, 403n28; sojourn among Pikani by, 50, 51, 393–94n47; travels of, 14

Thompson, Maurice and Will, 59

Three Bears (Blood/Kainai), 132, 271, 272, 407n71

Three Suns/Big Nose (Piegan), 284

thunderbirds, 117, 184, 185, 194–200, 385n98, 386n101, 388n119, 388n122, 123

Timber Lake, South Dakota, 1

Tomison, William, 99, 141, 144, 145, 149–52, 156, 169, 274

Townsend, Joan, 303

trapping, [22](#), [25](#), [26](#), [28](#), [117](#), [237](#), [298](#), [306](#), [309](#)

turkey. *See* wild turkey

Two Leggings (Crow): on Aboriginal bows, [55](#), [112](#), [113](#), [198](#), [287](#), [344n26](#); on Crow ceremonies involving archery, [186](#); on firearms, [142](#), [170](#), [171](#), [287](#), [408n78](#); on intertribal conflict, [124](#), [266–69](#), [284](#), [286](#); on use of shields, [187](#); William Wildschut's cooperation with, [360n85](#)

underwater panther (mythical being), [198–200](#), [389n125](#)

Ute, [11](#), [319–20](#)

Verendrye, Sieur Pierre Gualtier La, [xiv](#), [292](#), [407–8n75](#)

volley fire: of arrows in combat, [239](#); of arrows in hunting, [211](#); of firearms in combat, [280](#), [284](#); of firearms in hunting, [211](#), [405–6n54](#)

Walker, William, [99](#), [141](#), [149](#), [156](#)

Walpole Island Agency, [313](#), [414n37](#)

warble fly, [24](#)

Ward, John, [38](#), [219](#), [220](#), [222](#)

Washakie (Shoshone), [163](#), [375n29](#)

Weasel Moccasin, Daniel (Kainai/Blood), [182](#)

Weltfish, Gene, [120](#), [364n123](#)

wheel lock. *See* firearms

White Antelope (Cheyenne), [269](#)

White Buffalo (Piegan), 56

White Bull (Lakota), 209, 332–33n7, 374n19

White Calf, James (Piegan), 133, 134, 367n28, 386n100

White Eagle (Blackfoot), 145, 289, 371n84, 410n109

White Grass, Shortie (Piegan), 56

White Quiver (Ksiks Unopachis, Piegan), 179

white spruce (*Picea glauca*), 19, 32

Wied, Maximilian Prinz zu: on Aboriginal archery skills, 232; on Aboriginal use of firearms, 232, 286, 369n47, 369–70n57; on Aboriginal weapons, 53, 55, 56, 81, 138, 142, 196, 262, 286, 299, 344–45n27, 369n47, 379nn16–17; on body height of Aboriginal people, 403n29; collection of Aboriginal artifacts by, 12; on intertribal conflict, 285, 286, 299, 402n16, 409nn93–94; population estimates by, 146

wild pear, 192

wild plum (*Prunus* spp.), 32

wild turkey (*Meleagris gallopavo*), 33; feathers of, 365n137

Wilkinson, Mitch, 260, 261

Willow Indians. *See* Gros Ventre des Prairies

willow ptarmigan (“partridge,” *Lagopus lagopus*), 28, 215

Wilson, Elijah Nicholas, [163](#), [164](#), [191](#), [216](#), [227](#), [375n29](#)

Wilson, Frederick, [64 fig. 13](#)

Wilson, Gilbert L.: on Aboriginal arrows, [80](#), [90](#), [97](#), [104](#), [118](#), [119](#), [162](#), [185](#), [196](#), [374n24](#); on Aboriginal bow-stringing methods, [356–57n57](#); archery knowledge of, [63](#); on asymmetrical bows, [64](#), [66](#), [347–48n55](#), [405n49](#); on bows made from mountain sheep horn, [58](#); ethnographic work of, [63](#); on Hidatsa social customs, [378n11](#); on value of sinew-backed wooden bows, [364n116](#)

Wilson, Joseph, [309](#)

Wilson, Robert Nathaniel, [37](#), [292](#), [340n85](#), [345–46n36](#), [389n128](#), [402n17](#)

Wilson, Thomas, [374n19](#)

Winisk River, [20](#), [21](#), [26](#)

Wissler, Clark, [52 fig. 12](#), [103](#), [180](#), [319–20](#), [342–43n12](#), [357n58](#), [357n62](#), [382n43](#)

wolf (*Canis lupus*), [33](#), [144](#), [220](#), [224](#), [225](#), [228](#)

Wolf Chief, Henry (Hidatsa): on Aboriginal arrows, [80](#), [83](#), [90](#), [97](#), [104](#), [115](#), [118](#), [119](#), [124](#), [162](#), [167](#), [196](#), [356–57nn57–58](#), [374–75n24](#), [379n18](#); on Aboriginal quivers, [175](#); on asymmetrical bows, [63](#), [64 fig. 13](#), [66](#), [266](#), [347–48n55](#); biographical information on, [355n33](#), [363n102](#); on bison hunting, [173–75](#), [225–29](#), [396n86](#); on bow-stringing methods, [64 fig. 14](#); on decorations for bows relating to warfare, [380n19](#);

on Hidatsa archery techniques, [396n86](#); on horn/antler bows, [58](#), [59](#), [185](#), [380n21](#); on use of bows in cold weather, [206](#), [207](#); on use of firearms, [270](#)

Wolf Collar (Maguigoxkinas, Blackfoot), [289](#), [410n108](#)

Wolf Tail (Piegan), [56](#)

wolverine (*Gulo gulo*), [33](#)

Writing-on-Stone, Alberta, [95](#) [fig. 34](#), [254](#), [255](#) [fig. 51](#), [256](#) [fig. 52](#), [256](#), [257](#), [258](#) [fig. 53](#)

Württemberg, Herzog Paul von: on Aboriginal arrows, [164](#), [165](#); collection of Aboriginal artifacts by, [12](#), [51](#) [fig. 11](#), [319](#), [331–32n4](#), [342–43n12](#), [349n63](#), [387n116](#); on intertribal conflict, [276](#), [365n1](#); on personal use of Aboriginal bows and arrows, [334n17](#); on use of firearms, [217](#), [365n1](#), [394n53](#)

Yana/Yahi, [61](#)

York Factory, [24](#), [98](#), [99](#), [151](#), [156](#), [199](#), [212](#), [213](#), [249](#), [350n69](#), [367n24](#)

Young Jip Bow and Arrow Museum, Paju, South Korea, [xiv](#)

Yup'ik, [239](#), [246](#), [398n18](#)



About the Author

**Roland Bohr** is an associate professor of history and the director of the Centre for Rupert's Land Studies at the University of Winnipeg.