

Buffalo Tracks

Educational and Scientific Studies from
Head-Smashed-In Buffalo Jump



Head-Smashed-In
Buffalo Jump
A World Heritage Site

Ethnography and
Ethnology

Archaeology

Anatomy of The Jump

The Plains Bison

Hunting Techniques

The Plains Peoples of
Southern Alberta

Plant and Animal
Resources



Head-Smashed-In
Buffalo Jump



Alberta



Head-Smashed-In Buffalo Jump



The articles in “Buffalo Tracks” are drawn from the foundational research and literature that form the basis of Head-Smashed-In’s interpretive program.

Each feature has been authored and edited by the Archaeological Survey of Alberta or the Research Unit of the Historic Sites branch. Each contains information presented in an easily understood format, and each elaborates on the use of the Buffalo Jump or the “buffalo culture” of the people who used it. The articles are condensed versions of the many scientific reports, ethnographic studies and oral histories that inform us about our past and Head-Smashed-In Buffalo Jump.

The material contained in “Buffalo Tracks” is useful both as preparatory information prior to touring, or as supplementary data to be taken away from the site and absorbed at the visitor’s leisure. The articles are particularly useful aids for teachers and can be used directly in the classroom in the middle school and high school grades.

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Head-Smashed-In Buffalo Jump

A World Heritage Site

Head-Smashed-In Buffalo Jump, located in the Porcupine Hills of Southern Alberta, 18 km north and west of Fort Macleod, is one of the oldest, largest and best preserved buffalo jump sites in North America. Head-Smashed-In was designated a World Heritage Site in 1981. In doing so, the members of UNESCO recognized the outstanding intrinsic value in protecting and preserving this historic site for present and future generations.

Many visitors ask:

What is a World Heritage Site?

What are the criteria for designation as a World Heritage Site?

What makes Head-Smashed-In outstanding?

What is a World Heritage Site?

A World Heritage Site is a piece of property, either cultural or natural, that is an outstanding example of a creation by humans or by the forces of nature. Because the member states of UNESCO (the United Nations Educational, Scientific, and Cultural Organization) recognized the need to preserve such properties for future generations irrespective of National boundaries, the World Heritage Convention was established.

The World Heritage Committee, established by the World Heritage Convention, is comprised of experts in cultural and natural heritage conservation from around the world. It is the responsibility of this committee to identify, protect and promote outstanding examples of cultural and natural properties.

What makes Head-Smashed-In unique as a World Heritage Site?

Machu Picchu in Peru, the Taj Mahal in India, the Palace of Versailles in France and the Pyramid fields of Egypt are but a few of the outstanding cultural properties designated World Heritage Sites. Head-Smashed-In Buffalo Jump joined this exclusive fraternity of World Heritage Sites in 1981. For many visitors it may be unclear why Head-Smashed-In is ranked as a unique cultural place on an equal footing with the pyramids or the Taj Mahal. To the members of the World Heritage Committee, it was clear that Head-Smashed-In Buffalo Jump satisfied the exacting criteria a cultural property must meet to be considered a World Heritage Site.

What did the committee see?

Let us look again at the criteria for an outstanding cultural property and discuss how Head-Smashed-In is unique.

Head-Smashed-In is a very large site, covering 1,470 acres. It contains a wide variety of cultural remains associated with communal buffalo hunting, ranging from drive lane cairns and projectile points to butchered bone and fire-broken rock. These cultural remains, stratified to a depth of 10 meters in some areas of the site, have remained largely undisturbed --one of the only sites of this nature to remain virtually intact. The cultural chronology represented by these undisturbed remains, not to mention their excellent degree of preservation, has provided scientists with a unique opportunity to trace the evolution of communal bison jumping from its earliest beginnings to its eventual abandonment in the 19th century.

Head-Smashed-In was first used for killing bison at least 5,700 years ago and perhaps as early as 10,000 years ago. Except for one major interval, the site was used regularly for hunting buffalo up to the historic period. Its repeated use as a killing site over such a lengthy period of time is a testament to both the ideal conditions of the site for buffalo jumping and the daring and skill of the hunters who used it.

The hunters who first used Head-Smashed-In possessed only rudimentary tools. Their weapons consisted of spears and atlatls (spear-throwers) used with detachable wooden darts tipped with projectile points made of stone. The conventional method of stalking large animals with such simple weapons was dangerous and did not yield sufficient game to feed large groups.

Over time, these early people learned to exploit both the natural topography of the region and their knowledge of bison behavior to hunt them efficiently, despite their lack of sophisticated weapons. Early hunters saw, in the location and topography of Head-Smashed-In, an ideal site for

killing bison. The 18 metre cliff facing east, opposite the prevailing winds, prevented bison from smelling the kill site. A large basin of grassland west of the cliff regularly attracted large herds of bison. Over a period of days they could be lured towards the precipice to their deaths. The large stretch of prairie immediately below the cliff provided a source of fresh water and shelter for camping, butchering and processing activities.

The massive bone deposits (over 10 metres deep) testify to the success of generations of hunters in killing buffalo at this site. The deeply stratified deposits preserve not only the record of hundreds of kills but also the evolution of tools and techniques used in the hunt. The stone tools identify discrete prehistoric periods, and the bones and fire-broken rock reflect distinctive butchering and processing techniques.



The use of buffalo jumps for killing bison represented a significant advance in Plains Indian subsistence. To conduct a hunt and process the kill required small bands of people to unite and organize themselves in ways that would benefit the larger group. This led to a more formalized social organization which would characterize the Plains Indian way of life. The success of these buffalo hunts not only brought groups together but enabled larger groups to remain together, and encouraged the development of distinctive cultural identities. The buffalo, whose carcasses yielded most of the necessities of life for the Plains Indian, assumed sacred status to early people and became a focal point around which the bulk of religious and cultural activities revolved. The abundant supply of buffalo afforded the Plains Indian the time and opportunity to develop a rich spiritual and cultural life. In short, communal buffalo hunting was the catalyst for the development and growth of Plains Indian culture as we know it.

The extraordinary archaeological, historical and ethnological value of this site, combined with its dramatic prairie setting and outstanding interpretive potential, were major factors in the designation of Head-Smashed-In Buffalo Jump as a UNESCO World Heritage Site.

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Ethnography and Ethnology

Ethnography and Ethnology are the primary research activities of anthropologists, particularly those called “social anthropologists.” Their activities are aimed at understanding the diverse customs and beliefs (the culture, as anthropologists use the term) of societies around the world. The difference between ethnography and ethnology concerns the level of explanation that is attempted. In ethnography, the functioning of a single society is examined, whereas ethnology compares many societies to discover universal truths about human behavior.

Ethnography

The word “ethnography” has Greek roots, *ethnos* means “people”, the ending “graphy” refers to “description or writing of a particular subject.” Ethnography is an attempt to understand the culture of a people through the intense study and description of that society. Ethnography tells us what it would be like to be a member of a different ethnic group or society, and gives us a greater understanding of how different cultures operate.

Ethnographic fieldwork is very difficult; it demands that the anthropologists put aside their cultural background and absorb the culture of those they study. To do this, the anthropologists must live with the people they study, learn their language, and gain their confidence. They must become “participant observers.” When the people they study begin to regard them as participants, no different from themselves; the true structure of the culture can be better perceived and understood.

The anthropologist must at the same time continue to observe the actions of the society scientifically. At the end of the fieldwork, the notes, records, and observations must be synthesized into a report, which accurately explains the customs and beliefs of the society being studied. It is traditionally considered difficult for anthropologists to study their own society because of the difficulty in attaining the necessary level of objectivity.

The work of the Anthropologist is crucial to understanding the history of human organization. It can explain customs, which at first glance may seem strange or inappropriate. When seen from the perspective of the society itself, these customs often are sensible, reasonable and essential to the good working of the

society. Understanding different cultures also leads to tolerance, respect and an appreciation for the varied methods of cultural survival.

Ethnology

The word “ethnology” has the same root as ethnography; the ending “ology” refers to “the study of.” Ethnology is the comparative study of human cultures. By comparing societies, ethnology helps us to understand the commonalities of human existence. As well, it points out the differences, and shows where to look for an explanation of these differences. For example, ethnology tells us that most Plains Indians lack true clans. A clan is a group of people who trace their descent to a common ancestor. For example in a farming society a great deal of stability is needed to ensure continued access to land through the generations, and therefore stability, rather than flexibility, is the hallmark of a clan.

Plains Indian organization is based on a residential group called a band. A band is a group of people, not necessarily related, who usually camp and hunt together. Because people can leave to join another band, the flexible structure works well for hunting societies.

The Cheyenne Indians offer a unique example of ethnological study. As the Cheyenne moved from farmland to the Plains, their organizational structure also changed. Their clan structure, which had been appropriate for a farming lifestyle was replaced by a flexible band structure as the people adapted to the hunting climate of the Plains.

The work of ethnography and ethnology is use extensively by archaeologists. By studying the ethnography of the people who lived in an area, the archaeologist can gain insight and understanding into the significance of the items he uncovers in old campsites. Ethnology can reveal general principles about how people interacted with the environment. When an archaeologist tries to understand a site

like Head-Smashed-In Buffalo Jump, he can gain greatly from the ethnographic and ethnological literature. It can confirm his belief that the bison jump was so complex that it could only have been used by a well-organized people. Ethnology and ethnography tell him that communal kills by Plains Indians in historic times were policed by “warrior societies,” and he can infer that the same sort of organization probably operated in the past at Head-Smashed-In. Such studies give value to all human cultures.

Planning Archaeological Research

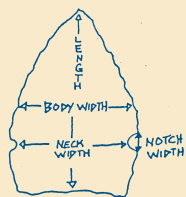
Because archaeological resources are limited and an archaeological site is permanently altered once it has been excavated, the archaeologist will only dig when it is absolutely necessary. To answer important questions about the human past, the archaeologist first studies historical documents, ethnographic material and previous archaeological research to determine whether more information is needed. If excavation is necessary to uncover further information, the archaeologist must submit evidence that this preliminary research has been done and show that excavation is appropriate.

Archaeological research at Head-Smashed-In Buffalo Jump has been conducted to assist the provincial government in the development of the interpretive facilities and programming at the site. This research was conducted in light of previous historical, ethnographic and archaeological research.

Past historical and ethnographic documents dealing with buffalo hunting provided much needed information on techniques used in killing and processing buffalo. Previous archaeological research at the site indicated the nature and depth of the cultural remains at the kill site. Other questions about the Head-Smashed-In site, which had to be answered in order to ensure that the site was both well protected and properly interpreted.

Archaeology

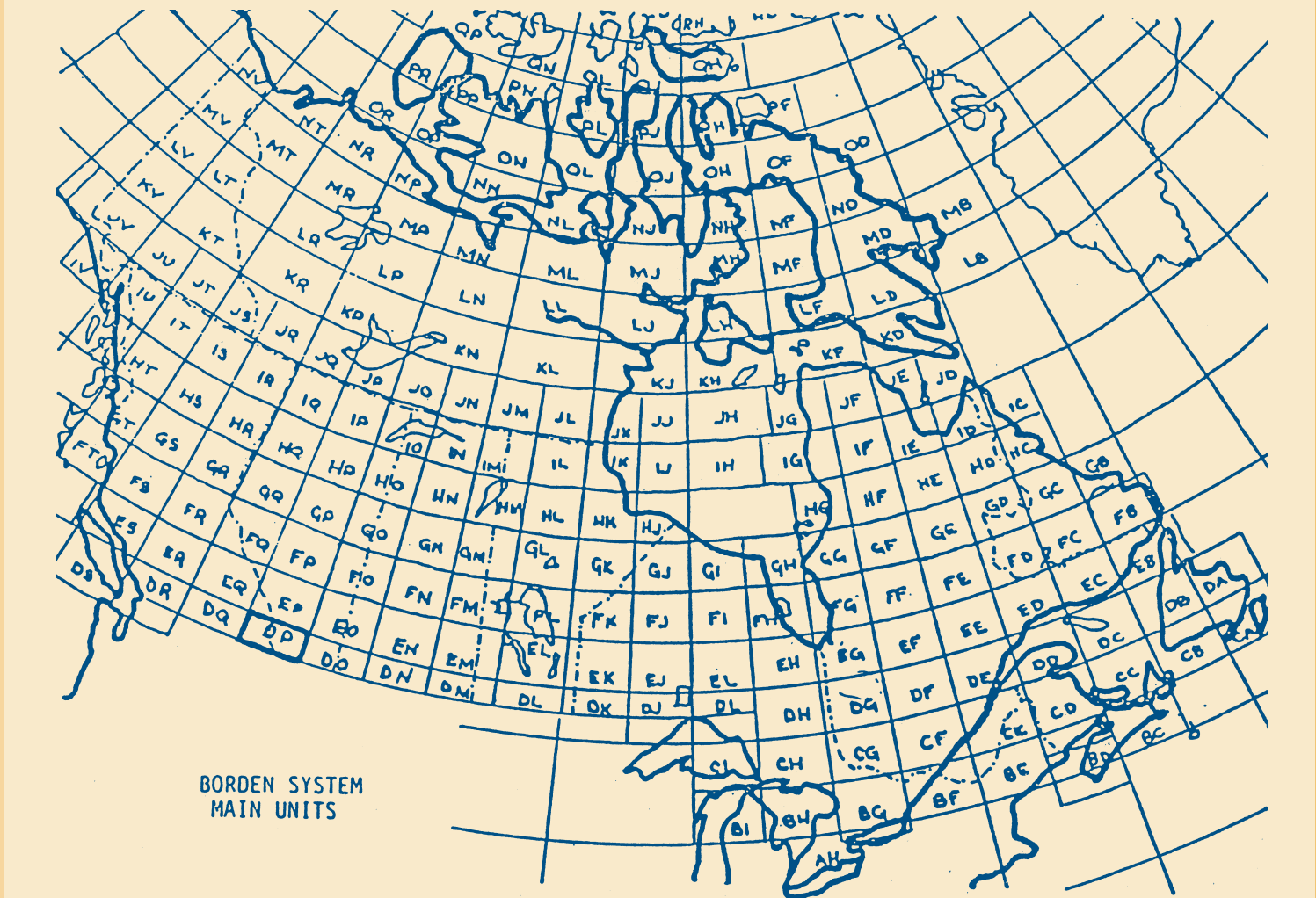
Archaeology is the branch of anthropology that concerns itself with the study of the human past through its physical remains. Unlike the historian, who relies on written, verbal and pictorial records to learn about lifeways of the past, the archaeologist reconstructs cultural history by examining the objects the early people made, used and left behind in the places they occupied.



Archaeological research, like any scientific investigation, is carefully planned and executed. The activities undertaken by an archaeologist include:

- identification of major questions or topics to be addressed by archaeological study
- background research, ground surveys and excavations
- cataloguing and analysis of artifacts, synthesis of scientific reports
- dissemination of research data to members of the archaeological community and the general public





Knowledge about the physical size of Head-Smashed-In and the distribution of artifacts at the site was required for further development. The planners needed to ensure that the construction of parking lots, access roads, the interpretive centre, and other related facilities would be kept away from significant archaeological deposits.

It was also discovered during preliminary research that while a great deal of information existed in regard to buffalo hunting, there were few physical descriptions detailing certain processing activities such as bone boiling. Much of the archaeological work, therefore, concentrated on excavation in areas associated with camp activities rather than the killing site itself. The information gleaned from this research was combined with ethnographic and historical information to develop the interpretive themes and displays featured at the site.

Dissemination of Research

Pages of data on lithics and bone do not automatically tell us what we wish to know about the past. It is the archaeologist's task to take the sum total of the information and apply it to solving the research problem. In order for archaeological research to benefit other members of the archaeological community and the general public, these conclusions must be presented in a form readily understood.

For fellow archaeologists, the researcher will generally prepare scholarly papers for publication or presentation. These papers are very technical and generally require some background in the field to be readily understood.

For members of the public at large, information on archaeological research is communicated through public talks, films, interpretive displays, tours, and written materials--all of which are used at Head-Smashed-In Buffalo Jump.

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Anatomy of the Jump

For thousands of years native people of the Plains hunted the North American Bison. The Plains Indian lifestyle became dependent on hunting buffalo, and the native people adapted numerous hunting techniques to obtain their livelihood. The buffalo jump was the most sophisticated technique developed by native people to capture and kill the bison. Head-Smashed-In Buffalo Jump is one of the oldest and best preserved sites of this kind with its elaborate drive lane complex and deep archaeological deposits still intact. For these reasons, Head-Smashed-In was designated a world heritage site by UNESCO in 1981.

The first archaeologist to investigate the site was Junius Bird of the American Museum of Natural History. Since these first excavations in 1938, three major archaeological projects spanning nine summers of excavation have increased our understanding of this unique and complex archaeological site.

The Head-Smashed-In site is composed of three different components, each of which played a role in the operation of the jump. Each area--the gathering basin, the kill site, and the campsite and processing area--has different kinds of archaeological remains.

The Gathering Basin

West of the cliff lies a large drainage basin 40 square km in extent. This was a natural grazing area that attracted the herds of buffalo that would be driven over the jump. Long lines of stone cairns were built to help the hunters direct the buffalo to the jump. Thousands of these small piles of stones can still be seen marking the drive lanes that extend more than fourteen kilometers into the gathering basin. These cairns may have served as simple mark-

ers, or they may have supported sticks or brush to hide the hunters.

To start the drive, a "buffalo runner" would entice the herd to follow him by imitating the bleating of a lost calf. As the buffalo moved close to the cliff, hunters would circle behind and upwind of the herd and scare the animals by shouting, waving robes, and shooting arrows. As the buffalo stampeded towards the edge of the cliff, the animals at the front would try to stop but the sheer weight of the herd pressing from behind would force them over the cliff.

The Kill Site

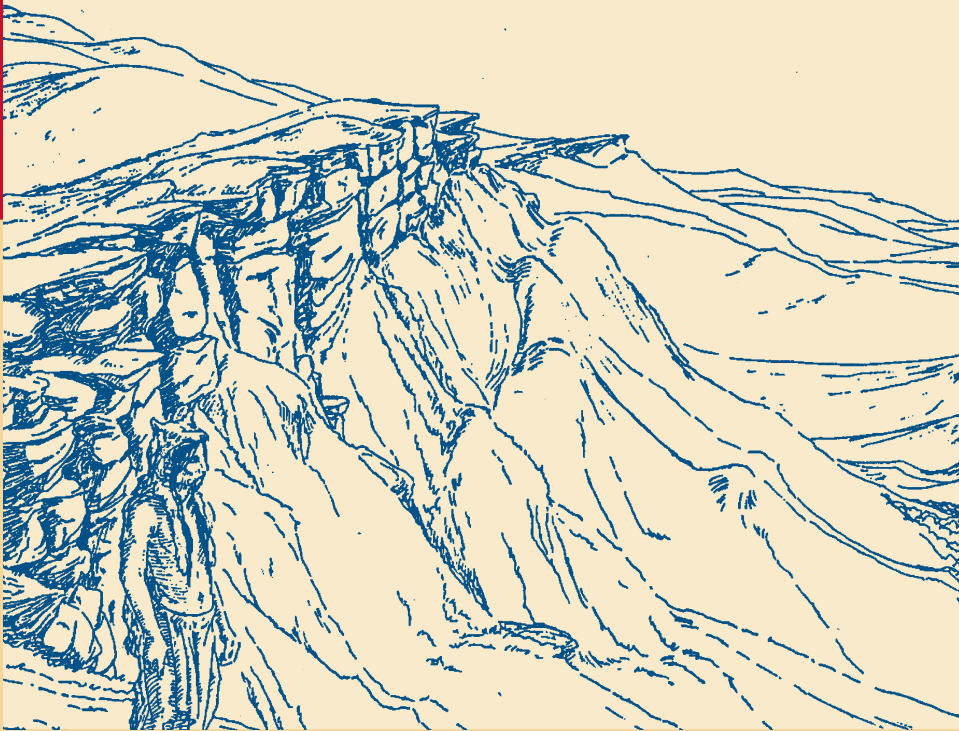
The sandstone cliff north of the interpretive centre contains the actual jump site. This cliff is just one of several such locations along the edge of the Porcupine Hills which were used as buffalo jumps. Another buffalo jump, the Calderwood jump, is visible one kilometre north of Head-Smashed-In.

Against the cliff are deep stratified deposits that contain evidence of use of the jump site going back more than 5,700 years. These deposits consist of accumulated layers of dirt, stone rubble and bones. During each use of the jump, the natives would kill any crippled animals that were not killed outright by the fall. Then they would butcher the animals, removing the useful portions. The remaining animal residue and bones, along with worn or broken stone tools and resharpening flakes, were eventually covered by windblown dirt or "loess" and by rockfall from the cliff.

Over thousands of years of use of the jump, this layered or "stratified" deposit has accumulated to a depth of over eleven metres. The age of these layers and the different artifacts found in them can be determined by using the radiocarbon dating method to date the bone. This information has allowed archaeologists to reconstruct the cultural history of the site.

Artifacts found in the kill site include thousands of arrowheads and dart tips ("projectile points") as well as numerous stone knives and choppers.

The Plains Bison



The Campsite and Processing Area

The hunters camped on the flat area immediately below the kill while they finished butchering the buffalo. A few tipi rings, the stones used to anchor tipis against the wind, can still be seen on the prairie level. It was here that meat was sliced into thin strips and hung on racks to dry in the sun. Large leg bones were smashed to remove the nutritious marrow, and the numerous boiling pits excavated by archaeologists in this area indicate these broken bones were also boiled to render grease. Boiling was done by throwing red-hot rocks into hide-lined pits filled with water.

Much of the meat obtained from the buffalo carcasses was used to make pemmican. In order to make pemmican, grease and marrow and sometimes berries were pounded together with dried meat. Pemmican was a very nutritious staple food that could be preserved for years.

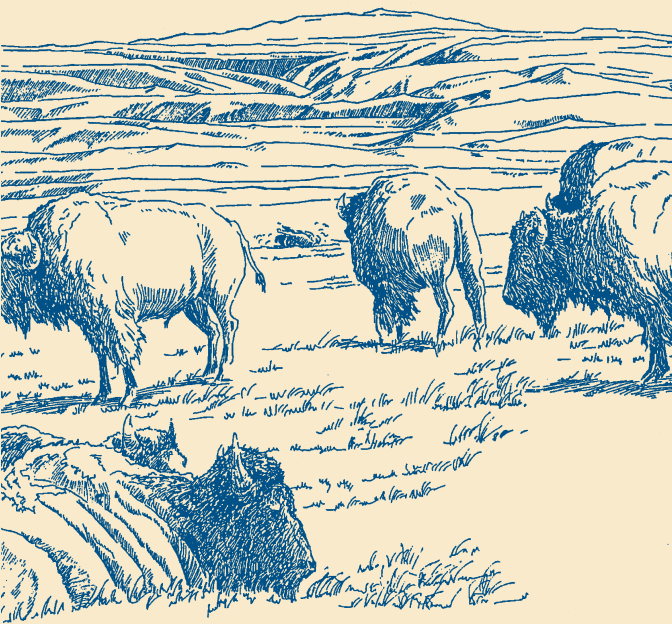
Artifacts found in this area include stone scrapers, knives, choppers, drills, broken arrowheads, pottery, bone awls, and occasionally ornaments such as bone beads. Also in this area are found tons of fire-broken boiling stones.

Buffalo are celebrated in songs, appear on coins and are part of the folklore of the North American Plains. Yet there is no such thing as a North American buffalo. The name “buffalo” only applies to animals found in Africa and Asia. The largest land mammal in North America is properly called a bison. The unique shoulder hump distinguishes it from buffalo, but the name has stuck since it was first used by early European observers.

Bison are actually distant relatives of domestic cattle. Extinct forms, 2 million years in age, have been found in Europe and gigantic forms, now long extinct, entered North America some 100,000 years ago but these animals were never hunted by man. The animal hunted at Head-Smashed-In for 6,000 years is the modern living species called the Plains Bison. This species of bison occupied most of the central region of North America and, together with its close relative the Wood Bison, would have covered a territory extending from Alaska to Mexico and from the Rocky Mountains to the Allegheny Mountains during prehistoric times.

Nobody knows how many bison were present at the time of the first European contact, but estimates in the range of 60 million animals have wide acceptance. Bison were highly mobile, travelled in dense herds and covered a huge territory, all of which combined to make accurate estimates of their numbers all but impossible.

Despite this staggering abundance of animals, a concerted effort to slaughter the species, assisted by the gun and the horse, very nearly succeeded in their total extinction.



By the late 1800s, in less than 100 years of wasteful exploitation, man had reduced the vast herds to about 1,000 animals. Only the efforts of a few farsighted individuals, who moved the animals to remote preserves to protect them, ensured that the species survived to be seen today. Large herds are maintained in remote locations such as Wood Buffalo National Park in northern Canada. Only the Wood Bison remains an endangered subspecies, and this is largely a consequence of inbreeding with the far more numerous Plains Bison.

The typical Plains Bison bull weighs 800 kilograms, stands 1.75 metres tall and is over 3 meters from nose to tail. Both males and females possess permanent horns and the characteristic heavy growth of dark hair around the head, shoulders and front legs. As a rule, females can only be distinguished from males based on their smaller size and their close association with calves. Bison reach sexual maturity at 3 years of age and are fully-grown in 6 years. Captive bison have been known to live for more than 20 years, but the lifespan in the wild is approximately 15 years.

Bison are more efficient grazers than domestic cattle, exploiting a variety of grasses and shrubs during their annual movement between the open plains and the sheltered foothills and river valleys. Bison did not roam aimlessly, but moved in

a predictable and calculated manner in order to exploit ripening forage over the course of the year.

In the summertime large herds joined together on the open prairie to graze on the short grass species. This is the time of the annual rut, and the males challenged one another for access to the breeding females. The agitated nature of the herd made late summer an inappropriate time to attempt communal hunts. Following the rut, the older males left the cow/calf herds to travel in separate smaller groups or as lone bulls. With the approach of fall, the bison moved towards the shelter of the foothills and large river valleys, grazing on the nutritious late maturing grasses. Such grasses were found in abundance in the Olsen Creek valley west of Head-Smashed-In. This was an ideal time to hunt bison. The animals were in prime condition after a long summer grazing on the open plains, their coats thickly haired in anticipation of winter.

Following the long winter the bison were in less than prime condition, and cows in particular were stressed near the end of their 9 month pregnancy. Calves are born in late April and May. They have a reddish coat that soon turns dark brown, and they weigh about 18 kilograms. Calves remain close to the cow for about a year and travel in cow/calf herds as the bison move to the summer grazing areas on the open prairie. Like most mothers, female bison are very protective of their young and maintain a constant watch for predators such as bears, wolves, coyotes, and man.

Adult bison have no natural enemies, other than man, who has hunted them for nearly 12,000 years. Plains hunters exploited several behavioral characteristics of bison, and most important of these was the gregarious nature that promotes the formation of large herds. The herd was usually led by a mature cow whose actions towards signs of danger would cause the herd to move as a group and, if panicked, into a stampeding mass. Although bison are blessed with a keen sense of smell, their eyesight is not as well developed. As a result, they are extremely wary of unfamiliar objects downwind of their immediate surroundings.

Prehistoric hunters piled rock and brush, called "dead-men", along a route leading to a cliff edge such as that found at Head-Smashed-In. The bison would dimly perceive these features on the horizon and would move between the lines when scenting the presence of man at their rear. Hunters would also cover themselves with a wolf or coyote skin, and thus disguised would threaten another hunter who wore the robe of a bison calf. The matriarch of the herd would maneuver to protect this calf. In these ways, a herd was directed into the drive lane of dead-men and finally stampeded as a blindly running mass over the cliff edge.

The importance of the bison was evident in every aspect of Plains Indian Culture, both in material needs and spiritual beliefs.

The Plains hunters understood that the bison were a gift from the Creator. They believed that the bison would and only allow themselves to be captured if the hunters prepared proper ceremonies, including symbolic actions and songs that brought the bison to the cliffs.

It is not surprising that Plains Indian mythology, artwork, song and belief systems were strongly interwoven with the existence of the vast buffalo herds and ready availability of this single most important resource. Although the Plains Indian lifestyle was all but destroyed along with the bison, it too is now celebrating a renewed vigor and presence, as are the isolated herds of North American Bison.

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For more than 10,000 years, increasingly sophisticated hunting techniques evolved among these pedestrian people. But with the arrival of the horse via the Spanish in the 1700s, important modifications increasing mobility and flexibility in hunting strategies appeared.

Stalking

The most ancient method of hunting is stalking. It was usually undertaken by one or two hunters and required great patience and stealth. Because of the bison's poor vision, approach was best conducted in wooded country or on the open plains in midday when the animals were lying down. Care would always have to be taken of wind direction because of the bison's keen sense of smell. In open country, hunters crawling on hands and knees would frequently use disguises such as wolf or buffalo calf skins, and in winter, white robes or blankets.

The presence of a wolf would not necessarily be cause for alarm among the grazing buffaloes. Imitating the bellowing of a calf, particularly if attacked by the false wolf, would be strong attraction to curious, protective cows.

The intent of these procedures was to bring the hunter close enough to an animal to make a lethal strike. Probably more common before the arrival of the horse, stalking was useful when only small quantities of meat were required or when a family was on the move. In addition, the

Hunting Techniques

The prehistoric people of the Great Plains depended almost exclusively on a single species for their livelihood. Bison supplied food for immediate and later use, clothing, bedding, shelter, fuel, tools, weapons, household utilities, means for personal or ritualistic adornment and even the outer symbols of worship. Other animals were hunted but mostly to supplement the diet when bison were scarce and for the several other products they supplied. Despite their vast numbers on the Plains (60 million by some estimates), it was not always easy to predict where or how many bison could be found at any particular time.

Because of the importance of bison for their survival, prehistoric peoples developed an array of hunting techniques. Whether these techniques involved individual hunters or large multi-band communities, each required effective use and intimate knowledge of all aspects of the environment. In the northwestern Plains, bison hunting reached its greatest level of sophistication with the development of communal jumps and pounds.

technique could be used for several other less gregarious animal species taken by native hunters.

The Surround

It was possible for three or more hunters to surround a bison either on foot or on horseback. By approaching on several sides from a considerable distance, preferably on windless days, the animals could be gradually enclosed into a milling group, which could be killed once exhausted. Hunters shouting and waving robes or blankets could generally turn a small herd, but it was not uncommon for animals to break through a tightening human enclosure. Strict organization of duties was necessary.

When attempting a surround on foot, favourable terrain for concealment was advantageous, but on horseback it became especially critical because of the high visibility of a horse and rider. Careful movement of the herd to the proper terrain might be necessary. With the increased mobility of the horse, this technique became popular because of the flexibility of application.

The Pound and the Jump

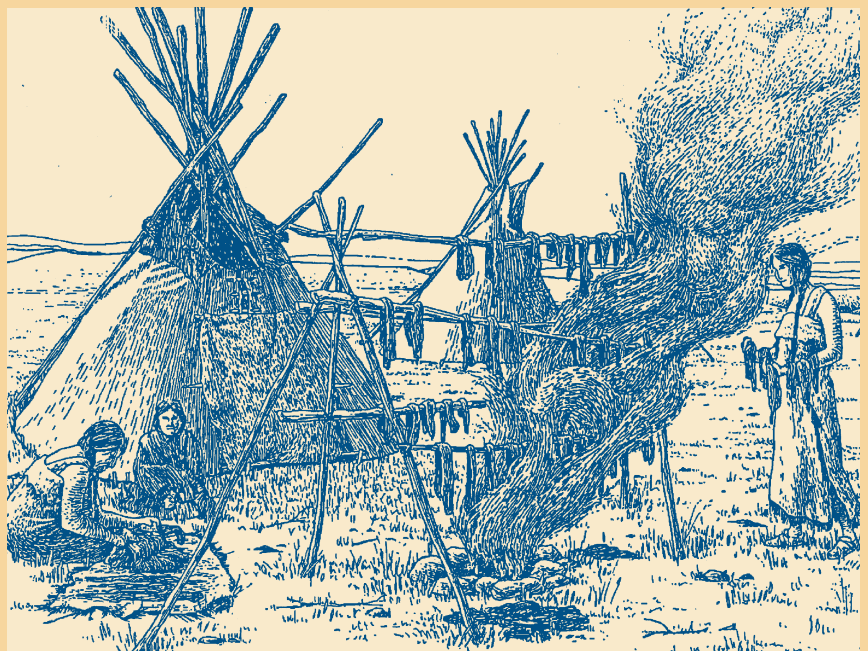
Several days were required to locate and collect the bison before herding them to the kill area. Swift young men dispersed widely, gradually urging the herd toward drive lanes. Once inside the lanes, a specially trained hunter would entice the animals toward the kill by imitating a distressed calf. Hunters following from the rear and others stationed behind the "dead men" shouted and waved blankets to ensure the herd would not reverse direction or turn away.

When the animals were corraled inside a pound, it was necessary to kill the animals from secure positions around the outside of the corral. In the case of the jump, many animals were incapacitated in the fall. Perhaps the greatest investment of effort in both of these techniques was required for processing the large quantities of meat generated. A great number of people were necessary to convert carcasses to storable provisions for the long winters.

The Plains People of Southern Alberta The Blackfoot

The Blackfoot, fiercely independent and very successful warriors, controlled a vast region stretching from the North Saskatchewan River in Alberta to the Yellowstone River of Montana, and from the Rocky Mountains to the Cypress Hills on the Alberta-Saskatchewan border. It was not until the coming of the North West Mounted Police in 1874, just over 125 years ago, that Euro-Canadian settlement in the region began. Until the near extinction of the buffalo by 1881, the Blackfoot pursued their traditional lifeways. Only with the loss of their food supply were they obliged to adapt to the new era.

The term "Blackfoot" actually refers to four tribes - The Blackfoot proper (Siksika), the Bloods (Kainai), the Northern Peigan (Apatohsippiikani) and the Southern Peigan (Aamsskaapiikani). Each tribe was independent, but they all spoke the same language and regarded themselves as allies. The Blackfoot proper are the northernmost of the tribes and currently occupy the Bow River east of Calgary. To the south are the Bloods, situated on the Oldman, Belly and St. Mary rivers west of Lethbridge. To the west of the Bloods are the Northern Peigan on the Oldman River. In Montana, the southern branch of the Peigan occupy the upper Missouri River drainage. This distribution of tribes reflects the area controlled at the time of the treaties; it is thought that throughout the last few hundred years the tribes had been expanding their territory southward.



Other than the family, the band was the basic social unit of the Blackfoot. Bands among the Peigan varied from about 10 to 30 lodges or about 80 to 240 persons. Such bands were large enough to defend themselves against attack and to undertake small communal hunts. The band was a residential group rather than a kin group; it consisted of a respected leader, possibly his brothers and parents, and others who need not be related. A person could leave a band and freely join another. Thus, disputes could be settled easily by simply moving to another band. As well, should a band fall upon hard times due to the loss of its leader or a failure in hunting, its members could split-up and join other bands. The system offered maximum flexibility and was an ideal organization for a hunting people on the Northwestern Plains.

Leadership of a band was based on consensus; that is, the leader was chosen because all the people recognized his qualities. Such a leader lacked coercive authority over his followers. He led only so long as his followers were willing to be led by him. A leader needed to be a good warrior, but, most importantly, he had to be generous. The Blackfoot despised a miser! Upon the death of the leader, if there were no one to replace him, the band might break up. As a result, bands were constantly forming and breaking-up.

During the summer when the bands assembled for tribal ceremonies and communal hunting, the warrior societies would become active. These societies known as "Pan-tribal Sodalities" were very interesting social institutions. Membership was not based on kinship ties but was purchased and crosscut the bands. A number of young men would purchase membership in the lowest society. Throughout their lives, they would continue to purchase membership in higher societies while selling their old positions to the new generation. These warrior societies acted as a police force, regulating camp moves and the communal hunt.

The Blackfoot bands were nomadic. This does not mean they wandered haphazardly over the land. Each relocation was dictated by the bison herds, the weather, and the seasons. This structured movement was known as the seasonal round.

For almost half the year, the Blackfoot bands lived in winter camps strung out along a wooded river valley, perhaps a day's march apart. In areas with adequate wood and game, some bands might camp together all winter. From about November to March, the people would not move camp unless food supplies or firewood became depleted.

In spring the bison returned northward onto the Plains where the new spring grasses provided forage. The people might not follow immediately for fear of spring snowstorms. During this time they might have to live on dried food or game such as deer. Soon, however, the bands would leave to hunt the buffalo. During this time each band traveled separately.

In mid-summer, when the Saskatoon (Sarvis) berries were ripe, the bands came together for the Sun Dance, the major tribal ceremony in historic times. Such tribal ceremonies are described as "Rites of Intensification" because they served the social purpose of binding the loosely organized tribal bands together. Communal bison hunts provided food for the gathering and the bulls' tongues were used as offerings at the ceremony. This was the only time of year when all the people of the tribe assembled at the same place.

After the Sun Dance, the bands again separated to pursue the buffalo. In the fall, the bands would gradually shift to their wintering areas and prepare the bison jumps and pounds. Several bands might join together at particularly good sites, such as Head-Smashed-In. As the bison moved into the area, drawn by water and forage, communal kills would again occur, and the people would prepare dry meat and pemmican for winter. Such dry food stores were used as emergency supplies for those times when the bison were not near. At the end of the fall, the Blackfoot would move back to their winter camps, completing the seasonal round.

With the signing of Treaty No. Seven in 1877 and the destruction of the buffalo herds in the same era, the Blackfoot were settled on reserves in Southern Alberta. The tribes engaged in a heroic struggle to adapt to a new way of life. Despite declining populations due to disease and



starvation, the Blackfoot people maintained their cultural identity. Their numbers have increased since World War II to about 12,000 people. Hand in hand with an increased economic diversity based on farming, ranching, and light industry has come a revitalization of Plains Indian culture and traditions.

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Plant and Animal Resources

The Plains people had a detailed knowledge of the plants and animals of their environment. This knowledge encouraged the ingenious use of plant and animal resources to provide the necessities of life--food, clothing, medicine, shelter, weapons, and implements. Travelling from place to place, they used the plant and animal resources of different parts of the landscape at different times of the year. This seasonal round was closely linked to the movements of their main resource, the plains bison.

The examination and interpretation of bone and plant remains that survive in the archaeological record is one method by which we can gain an understanding of the way in which the Plains people used the resources of their environment. We can learn a great deal from the writings of early European explorers and from memories and experiences of the many native bands living in Southwestern Alberta today.

Plant Resources

At least 185 species of plants were used by the Blackfoot. Although not all the species mentioned here are found in the immediate vicinity of Head-Smashed-In, all occur within southwestern Alberta and are likely to have been used by people as they moved throughout the region.

Buffalo meat was the preferred food of the Plains people but they supplemented their diet with a variety of plant and animal resources. Different parts of various plants contain sugars and starches needed for human survival. Roots, bulbs and tubers contain large amounts of starch. Plants, such as the cattail (*Typha latifolia*), prairie onion (*Allium textile*), arrowhead (*Sagittaria cuneata*) and Indian breadroot (*Psoralea esculenta*) have roots or bulbs that were roasted, boiled or dried and used to supplement the meat diet. Fruits provided the sugar component of the diet. Currants, gooseberries (*Ribes* spp.), saskatoon berries (*Amelanchier alnifolia*) and other berries were very important food sources for the Plains People. Berries were used in soups, stews, and mixed with meat for pemmican. The various bulbs, tubers, berries and meat were dried for winter consumption. The early spring was often a time of food scarcity for the Plains People. At this time of year, their stocks of preserved food, both meat and vegetable, were almost depleted, and new plant growth had not yet begun.

The people who gathered and used these plants knew them well and understood which plants were useful and which were dangerous or poisonous. Without this detailed knowledge, wild plants should not be gathered and at random eaten or used medicinally.

The medicinal use of plants was common among tribes of the Great Plains. The medicine men or women had high status in the tribe because of their knowledge of plants. Many plants were boiled or steeped to extract the juices in a tea or decoction. For example, a tea made from common yarrow (*Achillea millefolium*) was used as a laxative. The roots of Old Man's Whiskers (*Geum triflorum*) were boiled and the liquid used to treat sore eyes. The inner bark of the chokecherry (*Prunus virginiana*) was boiled and the resulting reddish liquid strained and drunk while warm as a cold remedy. Other plants were used to dress wounds and to encourage healing. The down from cattails (*Typha latifolia*) was used to make dressings for wounds and diapers for infants.

Many plants were used in personal care. Porcupine grass (*Stipa spartea*) was bound into a bunch and used as a hairbrush. Sweetgrass (*Hierochloa odorata*) was tied into sachets and used as perfume or soaked in water and the liquid used to wash hair. Plants such as river alder (*Alnus tenuifolia*) produced red and orange dyes. A violet dye was obtained from the roots of the puccoon (*Lithospermum incisum*). These dyes were used to paint personal articles and clothing.

Plants were also used for making weapons and other implements. Saskatoon or chokecherry shoots were used for arrow shafts. The scouring rush (*Equisetum hyemale*) was used to polish the shafts. Containers such as buckets and basins were made from a framework of willow branches, covered with the lining from a buffalo paunch. Small diameter lodgepole pine (*Pinus contorta* var. *latifolia*) were used to construct the framework of the tipi, which was then covered with buffalo skins. Pegs and pins to anchor the tipi were often made of willow wood (*Salix* spp.), while willow branches were used to make sweat lodges.

Although our knowledge of the ceremonial use of the plants is limited due to the secrecy surrounding many rituals, some plants have general ceremonial usage. For instance, braids of Sweetgrass (*Hierochloa odorata*) and Juniper twigs were burned and used as purifying incense.

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Animal Resources

The bison has been called a "walking department store," because almost all parts of the animal were useful. Its flesh, fat and bone marrow provided food; its hide was used for clothing and shelter; and its bones were used for making a variety of tools and implements. The flesh from many other animals was also eaten. Deer, rabbits, and birds added to the diet. The use of a range of animal resources for food ensured that the people usually had a supply of meat even if one animal was scarce.

Everyday clothing was made from buffalo hides sewn together with sinews. Ceremonial clothing was more ornate and may have included eagle feather headdresses and buffalo horn bonnets. The buckskin clothes worn at ceremonies might be highly decorated, and bearskins were used for ceremonial robes. People sometimes wore claw or tooth necklaces.

Bone or horn was often used to make bows. Wooden bows could be wrapped with sinew, which gave them strength and springiness. Bone was also used to make arrowshaft wrenches; these tools were used to make arrow shafts straight and true. Arrows were carried in quivers made from the skins of animals such as the otter, the buffalo and the deer. Otter skins were also used to make grips on lances. Hides were used for making bags and linings for boiling pits. Bone was used to make a wide range of tools and implements. For example, bone awls were used to pierce holes in hides so they could be sewn together with sinews. Spoons could be made from horn.

Animal materials were also used to make many articles that had ritualistic or ceremonial significance. Ceremonial drums were made from hide stretched across a wooden frame. Medicine bundles --bags usually made from buffalo hide and filled with

ritualistic articles--played an important role in many ceremonies. These bundles may have contained articles such as rattles made from skins or bladders, animal claws or teeth and whistles made from bird bones.

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