A PRELIMINARY ARCHAEOLOGICAL ASSESSMENT
OF NAHANNI NATIONAL PARK AND VICINITY

by

CHARLES W. AMSDEN

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Abstract

During the summer of 1977 a preliminary archaeological reconnaissance was conducted in Nahanni National Park, N.W.T. and vicinity. The first objective of this study was the inspection of five visitor impact areas within the park and three potential development areas nearby. The second objective was to acquire sufficient knowledge of the park's archaeological resources to guide future, more intensive, archaeological examination there. The environmental and historical background necessary to an evaluation of these resources is presented. All cultural remains observed in each area investigated are described, and each area is assessed with respect to its archaeological potential. Cabins and caches related to relatively recent trapper-prospector activity were found in almost all areas. Aboriginal sites of the prehistoric and early historic periods were found to be concentrated in the lowermost portion of the South Nahanni watershed, and the relevant background information suggests this is to be expected. Recommendations are made for more intensive archaeological research in the area.
Acknowledgements

Several individuals and organizations are thanked for assistance provided during one or more stages of the project. David Riddle and Dr. L. P. Stene, both of Winnipeg, were able field assistants. Dr. Stene's enthusiasm and expertise in geomorphology are especially appreciated. Supt. Eric Hiscock and the entire staff of Nahanni National Park cheerfully assisted in every possible way and bailed the field party out of a couple of jams; Art Cochrane, Ted Bastien, and Phil Burton helped above and beyond the call of duty. Major field equipment items were generously loaned by Arctic Research Laboratory, Inuvik (thanks to John Ostrick); the Dept. of Fisheries, Fort Simpson; R. & R. Research, Ltd., Winnipeg (thanks to Dr. R. R. Riewe); and Don Pike, Winnipeg. Several present or former residents of the Nahanni area provided historical or ethnographic information; Ernie Leith, Father Mary, Dick Turner, Raymond Vitale, and especially Charles Yohin are thanked in this regard. Anna Cairns, Canadian Wildlife Service, Edmonton shared her intimate knowledge of the Flat-Nahanni confluence area verbally and in correspondence. Dr. J.F.V. Millar, Saskatoon, provided information on previous archaeological research in the area and donated several artifacts; he was also a gracious host. Ian Clarke, John D. Combes, and Don Pike, all of the Parks Canada Regional Office in Winnipeg, assisted in various ways; the enthusiastic and patient support of John Combes, Chief Archaeologist, is especially appreciated. Finally, Sheila
C. Amsden did all of the typing in her usual efficient, and normally cheerful manner; her continued contribution in other, less tangible, ways cannot be sufficiently acknowledged.
Figure 1. Nahanni National Park and areas investigated in 1977.
(Drawing by Dianne Milton).
Introduction

Nahanni National Park is an irregular 4,760 km\(^2\) tract along the lower South Nahanni River and the lower part of the Flat River in the southwestern portion of the District of Mackenzie, Northwest Territories (Fig. 1). It was declared a national park in 1974, and both prior to and since then there have been a number of studies aimed at assessing the resources of the park for planning, management, and interpretive purposes. To date, virtually every aspect of the park's unique natural and historical features have received at least preliminary attention. The only exception to this is that the park's archaeological resources are virtually unknown.

In order to fill this void, the present author was contracted by Parks Canada in 1977 to conduct a preliminary archaeological reconnaissance of the park. The overall objective of this study was to acquire the necessary background information for assessing the archaeological potential for Nahanni National Park for the purpose of management and development of these archaeological resources. The specific objectives of the study were threefold. The first objective involved inspection of present and potential visitor impact areas to ensure that current visitor activity or future development does not destroy significant archaeological remains. The eight designated areas were: Rabbitkettle Lake; Virginia Falls; the mouth of the Flat River; Deadmen Valley; Nahanni (Kraus') Hot Springs; and three possible Visitor Service Centre sites near the Liard River--the Nahanni Butte area, the mouth of the Blackstone River,
and the uplands south of the Netla River (Fig. 1). The second objective was to gain a general impression of the nature and distribution of archaeological sites and major environmental features within the park in order to facilitate planning future, more intensive, investigations. The third objective was the collection of the necessary background of data on the ethnography, history, and environment of the park and vicinity to be used along with the data obtained through field work in resource management and subsequent interpretation.

This report presents the results of the 1977 archaeological survey and subsequent analysis, as well as the relevant background information and recommendations. The report is divided into four chapters. The first of these presents the necessary environmental, ethnographical, historical and archaeological background on the park and the immediate vicinity necessary to the meaningful interpretation of the 1977 fieldwork. The next chapter describes the actual archaeological survey and the specific methods used in acquiring data. Then, the results of the survey are presented separately for each of the specific areas investigated. In the final chapter, the survey results and background information are synthesized into a preliminary assessment of the archaeological resources of Nahanni National Park and vicinity, and recommendations are offered for future research.
In order to place the results of the 1977 archaeological survey in perspective, it is necessary to consider the natural and historical background of Nahanni National Park. Because the boundaries of the park do not coincide with those of any natural units, it is most productive to treat the total South Nahanni watershed as a more coherent and more manageable unit. It should also be noted that the background information presented here, especially that relating to natural history, is not intended as an exhaustive summary of current knowledge. Rather, the present discussion is limited to isolating those features which (1) were probably most prominent in determining the nature of past human utilization of the region, or (2) bear directly on the nature of the discoverable material remains of that utilization. For present purposes it is most convenient to group the various sorts of background data into the broad categories of physical environment, biology, ethnography, history, and previous archaeological research.

Physical Environment
Physiography and Geology
The South Nahanni watershed encompasses an area of over 36,000 km², extending eastward from the Yukon border to the Liard River. Certainly the most imposing features of the physical environment are the vast mountain ranges which occupy all but a very small proportion of the area. In the northern half of the watershed, the southernmost portion of the
Mackenzie Mountains predominate, at the extreme eastern edge of the southern terminus is the Nahanni range, an extension of the Franklin Mountains to the north. South of the Mackenzies, from west to east, are the Logan and Selwyn Mountains, the Highland Plateau and the Liard Plateau (Addison 1974). The highest elevations occur in the west, in the Logan Mountains. Here peaks over 2,500 m (8,000 ft.) a.s.l. are not uncommon. In the eastern section, most of the higher mountains tend to fall between 1,400 and 1,800 m (4,500 to 6,000 ft.). According to Ford (1974: 13-14), the origin of the mountains can be traced to the Cretaceous period, when the injection of a large granitic batholith in the region around the park's western boundary resulted in massive folding of the overlying consolidated Paleozoic sediments. Although these sediments, constituting the bedrock geology of the mountains, are diverse in nature, limestones, dolomites, sandstones, siltstones and shales constitute the predominant rock types (Ford 1974).

Although the mountains of the South Nahanni are now appreciated primarily for their scenic splendour, they do have significance with respect to prehistoric and historic patterns of utilization of the region. First, the higher mountain ranges obviously impose severe restrictions on travel and settlement within the area. On the positive side, the composition and structure of the mountains ensures an abundant source of raw materials for the manufacture of stone tools. Coarse-grained cherts and siltstones occur both in outcrops and in pebble form in many of the stream beds and, though not ideal for flintknapping purposes, they are certainly adequate. Finally, a number of economically important minerals, including gold and several base metals, occur in the mountains. As Addison (1974: 63-65) suggests, the presence of significant gold deposits is perhaps more imagined than real. Nevertheless, the prospect of "striking
"it rich" has been the primary impetus drawing non-natives (and to a lesser extent, natives as well) to the Nahanni region during this century.

Although mountains clearly predominate the landscape of the South Nahanni, major lowland areas do exist in the easternmost sector of the region. The Mackenzie Plain extends from the north, separating the Mackenzie mountains from the Nahanni range, and within the park it occupies a stretch of approximately 25 km between the mouth of First Canyon and the Twisted Mountain. The western edge of the Great Slave Plain is approximately 15 km west of the mouth of the South Nahanni River at Nahanni Butte, just outside of the easternmost boundary of the park (Addison 1974: Fig. 2.1.1). With the exception of a few prominent rises, elevations tend to be less than 300 m (1,000 ft.) a.s.l. on the Mackenzie Plain, and they are generally below 200 m (600 ft.) on the Great Slave Plain.

### Hydrology

Equally important as the mountains to the Nahanni landscape is the vast stream system of the South Nahanni itself. The South Nahanni River, the primary tributary of the Liard, originates in the Logan Mountains at the Yukon border. From there it flows in a generally southeasterly direction over 600 km to its mouth at Nahanni Butte, slightly more than one-half of this being within the present boundaries of the park. From well above the northwestern boundary of the park to Virginia Falls, the river is wide and relatively quiet (although the current is deceptively swift) and flows through a broad glacial valley. Virginia Falls is nearly 100 m in height and represents the only major obstacle to river travel. Below the falls, the character of the river changes dramatically, passing through a long series of gorges and canyons
until it finally enters the plain. Below the canyon, the river flows rather quietly to its mouth, although one section of braided, often shallow, and constantly shifting channels ("The Splits") can present problems to the water traveller.

Of the South Nahanni River's many tributaries, most important by far is the Flat River. This river originates some 50 km due west of the park's western boundary, and from there it flows through a formerly glaciated valley in a direction roughly paralleling that of the South Nahanni River until it enters the latter at a point just upstream from Third Canyon. In all, the river's course extends over 200 km, although only the lower 80 km - all navigable - are within the park. Numerous other tributaries enter the South Nahanni on both sides. For the most part, these are unnavigable by watercraft, although the valleys, particularly those to the south, do offer access into the surrounding mountains.

Although accurate records have not been kept, the South Nahanni usually freezes up from mid-October to early November, and break-up occurs normally in late April or early May (Addison 1974:87). Peak flows normally occur in June, and these are frequently of major flood proportion. The most recent major flood, in 1962, reached up to 75 cm above the existing banks at both Deadmen Valley and Nahanni Hotsprings. Addison (1974:93) suggests that floods of this magnitude probably occur on the order of every 25 to 50 years. This is of critical importance to the archaeologist, because at such times major loads of silt are deposited along the banks of the river, covering up the ground surface and any archaeological remains which may occur there. A further complication is the fact that the South Nahanni River along much of its course is actively shifting its channel and cutting into its banks; therefore, not only are all archaeological remains of any antiquity along the banks of the South Nahanni
covered by deep layers of silt, but many of these have since been washed away. For this reason, periodic silt deposition and bank erosion are probably the two most important features of the hydrology of the South Nahanni in terms of its potential for archaeological research, and their effect should not be underestimated in any evaluation of the park's archaeological resources.

A final river-related feature which is worthy of note here are the canyons along the South Nahanni River which, in places, are up to 1,200 m deep. There are three of these major canyons, ranging in length from 14 km to 35 km. The easternmost of these, First Canyon, is the most spectacular and bears the most relevance to the archaeology of the region. Here the swiftness of the current and two major riffles make upstream travel by canoe during the open-water season quite difficult; even during the winter months, travel over the ice can be extremely hazardous due to thin ice, patches of open water, and overflow (Patterson 1966; Addison and Anthony 1977).

Another important feature, seen most readily in First Canyon and its tributary Lafferty Canyon but also occurring in other parts of the park, are the numerous limestone caves and rock shelters (Ford 1973, 1974, 1977). These have been the source of much speculation about prehistoric habitation; however, with a very few exceptions, all of these caves occur high on the face of cliffs and access is difficult, if not impossible. It therefore seems unlikely that the caves would have been occupied in the past, and previous speleological and archaeological research has tended to confirm this assumption.

Lakes are rare within the South Nahanni watershed, and those that do occur are small. Brintnell (Glacier) Lake, a few kilometers north of the park's northwestern boundary, is probably the largest in the watershed, measuring slightly
over 300 hectares. Smaller lakes include Rabbitkettle and Hole-in-the-Wall in the northwestern corner of the park; Sea Plane, McMillan, and Clark Lakes near the Flat River just outside the park's southwestern boundary; and Yohin Lake between Yohin Ridge and the Jackfish River near the park's eastern boundary. Of these, Yohin, though shallow and marshy, probably possesses the greatest potential for human habitation due to its sizable fish population and relative ease of access from the Liard River.

There are also a number of warm and mineral springs within the Nahanni watershed. Principal among these are: Rabbitkettle Hotsprings near Rabbitkettle Lake; Wild Mint Hotsprings near the Flat River; and Nahanni (Kraus') Hotsprings at the mouth of First Canyon. It is difficult to estimate the effect these springs may have had on prehistoric settlement, though the Nahanni Hotsprings in particular provides a unique habitat (see Marsh and Scotter 1975) and attracted the Kraus family to settle there on a permanent basis up until 1971.

Quaternary Geology
Evidence presented by Fort (1974, 1976) indicates that portions of the South Nahanni region were glaciated during at least three separate periods in the past. Indeed, remnant alpine glaciers still exist in portions of the Logan and Selwyn Mountains. Although each of the glaciations had a major effect on the landscape, only the latest event—occurring during late Wisconsin times—is directly relevant to the archaeology of the area. During the classical Wisconsin period, sometime after 30,000 years ago, glaciers entered the region from two directions. In what is now the northwestern corner of the park, valley glaciers, related to the Cordilleran glaciation, extended into the Hole-in-the-Wall
Valley and near the Rabbitkettle River. This is termed the Hole-in-the-Wall glaciation (ibid.). From the west, a small lobe of the Laurentide ice sheet penetrated only a slight distance up the Nahanni Valley approximately to the mouth of Jackfish River. This has been labelled the Jackfish glaciation (ibid.).

The rest of the park, nearly all of it, was unglaciated, being within the ice-free corridor extending southward from the Beringian Refugium (Prest et al. 1967). This does not mean, however, that all of the South Nahanni region was open for occupation. The Jackfish glaciation formed an ice dam which backed the South Nahanni River up to a maximum level of 400 m a.s.l., thus forming a glacial lake, Lake Tetcela. This lake inundated the lowland area east of First Canyon, Deadmen Valley, and all three of the canyons. The mountains surrounding this area, however, would have been exposed at this time, as was all the area of the Flat and South Nahanni Valleys west of Third Canyon (Ford 1974, 1976). The significance of this should be obvious: most of what is now Nahanni National Park was part of that very small proportion of Canada which was open to the first immigrants from Asia.

Recession of the late Wisconsin glacial ice and the subsequent draining of Lake Tetcela may have begun as early as 14,000 years ago; the lake had probably disappeared completely by 8,000 years ago, with post-glacial conditions existing since that time (Ford 1974: 181).

Climate
In the most general of terms, the climate of the South Nahanni watershed can be characterized as being continental subarctic. Due to the absence of long-term weather records, and extreme local variations in weather patterns, it is nearly impossible to depict the area's climate in any precise fashion; however,
Addison (1974) presents a useful summary of what little information is currently available.

Comparisons of short-term records at Tungsten, at the headwaters of the Flat River, with those from Fort Simpson suggest a general pattern of change in weather as one proceeds from the upper to the lower end of the watershed. The upper regions experience cooler summers, warmer winters, and roughly 40 to 50 percent more rainfall than does the region around the mouth of the river. At Tungsten the highest recorded temperature was 28°C in August, and the lowest in December and January was 50°C below zero. The average total annual precipitation is 55.4 cm, and an average of 256.5 cm of snow falls there each year. At Fort Simpson, the average total annual precipitation is 34.5 cm, the recorded summer maximum temperature is 35°C, and winter minima occasionally reach 55°C below zero (Addison 1974: 72-75).

It is important to bear in mind that the general weather pattern depicted above is complicated by several factors related to the mountainous terrain of the Nahanni area. One of the principal orographic effects is the fact that temperatures decrease significantly with higher elevations. Thus, in alpine localities, the weather is more characteristic of that in arctic regions, and freezing temperatures and snow are common in summer. Chinooksa appear to be common in the region and are known to have melted snow in March. It is also characteristic of the region that winds, often reaching relatively high velocities, are funneled through valleys and passes.

For prehistoric studies, information on paleoclimates would be particularly useful; but, unfortunately, this type of data is lacking for the general Nahanni region. During Pleistocene times the climate was, of course, colder than at present, and it was probably drier over most of the
un glaciated portion of the watershed. A general warming trend has obviously characterized the post-Pleistocene period.

It is quite difficult to assess the significance of past and present climatic factors in terms of their direct influence on human settlement within the Nahanni region. Climate has probably been less important in the direct sense than other physical and biological factors. It can be seen, however, as being quite important indirectly in terms of its influences on the ecology of the area.

Biology
For two major reasons, the biology of the South Nahanni region is perhaps the most important consideration relevant to the overall archaeological potential of Nahanni National Park. First, the distribution and abundance of specific types of plant and animal resources are major determinants of the nature and intensity of human exploitation of the area. Therefore, knowledge of the biology can be useful in predicting the relative numbers and types of archaeological sites which might be expected to occur within the park's boundaries. Biological factors, especially vegetation patterns, are also relevant to an archaeological assessment insofar as they affect the types of archaeological investigations which may be effectively pursued. These two factors serve as the basis for organizing the biological background information presented in this section.

Vegetation
Detailed botanical studies of certain localities by several investigators have resulted to date in the identification of several hundred plant species and scores of communities
(Addison 1974; Scotter and Cody 1974). For present purposes, and at the risk of oversimplification, the vegetation of the South Nahanni region is treated in terms of two broad zones. The boreal forest occupies the plains, valley bottoms, and slopes up to tree-line (at about 1,100 to 1,200 m a.s.l.). Those areas above tree-line consist of alpine tundra.

The boreal forest consists primarily of tall stands of trees to heights of 9 to 15 m, with a thick understory of shrubs or an open forest floor. The most prominent tree species in these communities are white spruce (Picea glauca), black spruce (Picea mariana), lodgepole pine (Pinus contorta), Jackpine (Pinus banksiana), balsam poplar (Populus balsamifera), trembling aspen (Populus tremuloides), and white birch (Betula papyrifera). The shrub layer is predominated by alder (Alnus spp.), squashberry (Viburnum edule), and wild rose (Rosa acicularis); willows (Salix spp.) are common along river banks. In more open forest areas, the forest floor consists largely of feather mosses or reindeer lichen (Scotter and Cody 1974).

The forest environment can be seen as having both positive and negative effects on settlement within the Nahanni region. The principal positive effect is the provision of abundant wood resources for fuel and the manufacture of shelter and technological items (e.g. tools, boats, sleds, etc.). There is also a variety of edible plant species, primarily berries, which are abundant in many localities and which could serve as an important supplement to a meat diet — although the forest plant species are inadequate as a primary subsistence base. Finally the tall, dense forest cover serves as an effective break against harsh winter winds; this can be an important factor in subarctic environments.

On the negative side, dense vegetation is an impedence to overland travel and visibility. The latter is important in terms of hunting strategies. Boreal forest areas usually tend
to be less productive habitats for large herding herbivores as compared with tundra and grassland environments and, as a result, cannot support sizable human populations in the absence of good fish supplies. It should be noted, however, that all of the disadvantages listed here are shared by all forest regions over most of Canada, so they do not constitute in themselves sufficient reason for avoiding the Nahanni drainage in preference of neighbouring forested regions.

The primary negative effects of the dense forest cover in the lower elevations of the Nahanni accrue to the archaeologist attempting extensive surface survey for past cultural remains. In many localities, big stands of shrubs or immature spruce make it difficult to walk, locate one's position, or sample locations on air photos or maps, let alone discover artifacts on the ground or dig test pits. In more open areas with mature spruce stands, the ground surface is usually covered by a carpet of moss or lichens up to several centimeters thick. As a result, archaeological sites containing only surface evidence are almost invariably obscured by vegetation. This suggests that almost any inventory of sites located primarily through surface survey techniques will be heavily biased in favour of those recognizable by the presence of above-the-ground features, and these are normally primarily of recent age.

At mountain elevations well above tree-line, at 1,000 to 1,200 m a.s.l., the vegetation is characterized by alpine tundra. Here boreal species are absent or severely stunted, and vegetation is limited primarily to mountain avens (*Dryas* spp.), ericaceous shrubs, sedges, and grasses (Scotter and Cody 1974).

With respect to factors affecting human use and archaeological investigations, the situation in high alpine areas is just the opposite of that in the forests. Travel is relatively unhindered by vegetation, and visibility is
practically unlimited; but most of these areas are difficult
to reach from the valley floor, wood for fuel is scarce to
absent, and there is no protection from the often fierce
elements. Thus, human utilization of the alpine tundra zone
has probably been limited primarily to occasional temporary
and specialized exploitation. Archaeologically, site survey
is more easily conducted here but, for the reasons mentioned
above, there are probably far fewer cultural remains to be
found than in the forest.

It should be noted that the above characterization of
Nahanni vegetation is restricted to the modern environment,
though it probably applies to most of the post-Pleistocene
period as well. During this period, however, forest fires
have played a major role in altering the vegetation pattern,
and any individual locality has probably gone through
several cycles of succession. In the absence of paleo-
ecological research in the region, little can be said about
Nahanni vegetation during Pleistocene times. Considering
the general climatic conditions and the periglacial environ­
ment of most of the region, however, tundra-type vegetation
probably dominated most of the area, with forests limited
perhaps to a few lowland refugia (Ford 1974: 179-180).

Faunal Resources
Although the knowledge of the wildlife of the South Nahanni
watershed is not yet as extensive as might be desired, there
has been sufficient study to allow preliminary assessment of
the basic faunal resources available to former human
inhabitants of the region (see Addison 1974; Carbyn and
For present purposes, discussion of these resources is
limited to those most likely to have figured prominently in
aboriginal subsistence strategies, and includes fish, larger
birds, and larger mammals.

Addison (1974) implies that fish are probably the least known of the faunal types in the Nahanni region, with the largest systematic collection having been made by Addison himself. Perhaps this is due, at least in part, to the paucity of fish in the South Nahanni in relation to other northern regions. As Addison (1974:131) states, "there is good reason to believe that the productivity of all trophic levels of the South Nahanni aquatic ecosystem is very low, with this being especially true for the sport fishes, such as lake trout, grayling, Dolly Varden, and pike".

Only a few species reach sufficient size and occur in adequate numbers to make even potentially significant contributions to the subsistence base. These include lake trout (*Salvelinus namaycush*), Dolly Varden (*Salvelinus malma*), northern pike (*Esox lucius*), and grayling (*Thymallus arcticus*). Suckers and certain whitefish also occur in portions of the drainage (Addison 1974). While grayling, Dolly Varden, pike and other species can be taken in the South Nahanni and Flat Rivers, and grayling are more concentrated at the mouths of the clear tributaries, the few small lakes in the watershed appear to contain the best stocks of fish. Lake trout are reported in Hole-in-the-Wall, Glacier and some of the other alpine lakes in the upper regions of the drainage, and grayling occur in most of these as well. A few other lakes, particularly Sea Plane and Yohin, are known to contain good pike populations. Yohin Lake, in fact, is a traditional winter fishing grounds for natives of the Nahanni Butte region and appears to be the only such location in the area (Charles Yohin 1977: pers. com.).

Although the data are admittedly meager, it would seem that with the exception of Yohin Lake (and possibly a couple of others), fish resources in the South Nahanni drainage are inadequate to serve even as a "backup" within a
diversified subsistence pattern. This is significant insofar as good fish supplies appear to be a primary determinant of which localities in the Mackenzie Basin were most heavily settled in the prehistoric and recent past.

The birds of the South Nahanni Basin are known primarily from species check lists (Addison 1974). The area is near a major flyway along the Liard and Mackenzie Rivers, and several species of ducks and geese have been reported from various localities within the park. Yohin Lake appears to have the highest concentration of waterfowl, and several migratory species are believed to nest there during the summer months. These could provide a significant seasonal contribution to the subsistence base of any human populations exploiting the area. Of the resident birds, several species of grouse and ptarmigan occur within the park and would probably be the most important for subsistence purposes. One or more of these species can be found in virtually every section of the region and, although not particularly numerous, they can provide emergency food sources.

The most striking feature of the mammalian fauna of the Nahanni region is the extraordinary range of species known to occur there. The list of species is too lengthy to repeat here (see Addison 1974: 213-224), but it includes virtually every mammal common to northern Canadian forests and alpine regions, as well as a few species (e.g. whitetail deer, mule deer) which appear to represent recent northerly extensions of their range. Of course, any of the mammals can be eaten - and under dire circumstances they probably have been - but the ungulates would probably form the foundation of the subsistence base. These include moose (Alces alces), woodland caribou (Rangifer tarandus), Dall sheep (Ovis dalli), and mountain goat (Oreamnous americanus). In addition, black bear (Ursus americanus), grizzly bear (Ursus arctos), snowshoe hare (Lepus americanus), and beaver (Castor canadensis) could be
important food sources at certain times.

Moose are found throughout the watershed and are very abundant in some localities, particularly marshy lowland areas, around some lakes, and mineral licks. Being normally solitary animals, it is unusual to encounter them in groups, although there are apparently some districts within the park that are utilized as yarding areas during the winter months. Carbyn and Patriquin (1976: ALUR map) designate the Cache Creek and Clausen Creek areas as moose winter ranges.

Caribou have also been sighted in all portions of the South Nahanni watershed; however, they appear to be more abundant in the area upriver from Deadmen Valley. It is difficult to say much about the relative abundance of caribou because they are subject to seasonal movement, aggregation and dispersal patterns which are as yet poorly known. Although they tend to utilize the alpine tundra most extensively in summer and move down into the forest in winter, small permanent herds are reported in the upper portions of Prairie and Wrigley Creeks, and major concentrations have been observed in spring along the valleys in the headwaters area of the South Nahanni. Elsewhere in the general region, caribou seem to occur only in small, widely scattered bands. Kraus (in Addison and Bates 1977: 33-36) believes that caribou follow a large annual circuit through the upper Nahanni region, and he reports seeing groups of up to 100 individuals moving northward through the McMillan Lake area during the fall. It should be noted that regular migrations of this nature have not yet been substantiated by wildlife biologists; and, at any rate, they could not approach the dimensions of the migrations of barren ground caribou upon which some modern northern native populations have become so dependent. Thus, caribou can be seen as a resource available throughout the region and which might be locally and seasonally significant in the upper portions of the area.
Dall sheep and mountain goat were probably less important subsistence resources than the combination of moose and caribou. Although some sheep may be found throughout the region, the densest populations appear to be in the Mackenzie Mountains north of the South Nahanni River. Although they are normally restricted to the higher alpine terrain, they frequently come down to utilize salt licks in Deadmen Valley and Clausen Creek. Sheep are now most frequently encountered singly or in small groups; however Kraus (in Addison and Bates 1977: 60) states that they were formerly much more numerous, and could be seen in groups of up to 40 or 50 individuals in the Ram Creek area. Sheep, then, would appear to be another species which might be exploited on a localized and seasonal basis. Mountain goats are found only in some parts of the Logan Mountains (Addison 1974: 223). Due to the difficulty of capturing this species and its relative scarcity in the Nahanni region, goats probably represent a minor food resource in relation to the other three ungulates.

Black bears are common throughout the South Nahanni region and probably represented a significant supplement to the more basic food resources when encountered. Grizzly bears are much less common and appear to be concentrated more in the upper regions of the park. The snowshoe hare, which often serves as an important "backup" resource for most northern forest populations, appears to be less common in the Nahanni than in other areas. Beavers, valued by modern Canadian society only for their furs, are in fact a useful food item and are exploited for that purpose by most northern aboriginal societies. In the Nahanni region they are more common on the southwest side of the South Nahanni, particularly in the areas of the Flat River drainage and the headwaters of the South Nahanni, where they are very common (Addison 1974).

In addition to those species which are considered important primarily as food resources, there is also a wide
variety of fur-bearing mammals. The list of species in this category, in addition to the previously mentioned beaver, includes muskrat (*Ondatra zibethica*), timber wolf (*Canis lupus*), red fox (*Vulpes vulpes*), marten (*Martes americana*), fisher (*Martes pennanti*), ermine (*Mustela erminea*), least weasel (*Mustela rixosa*), mink (*Mustela vison*), wolverine (*Gulo luscus*), otter (*Lutra canadensis*), and lynx (*Lynx canadensis*). Certainly some of these species are rare within the area, and others are restricted to specific habitats. Marten seem to be the most common of the furbearers within the region and, in recent times at least, among the most valued. Generally, the South Nahanni watershed is considered to be good trapping country. However, it is to be borne in mind that this would be an important factor only since the advent of the fur trade in the early 1800s.

The mammalian fauna of the Nahanni region has probably remained essentially the same throughout most of post-Pleistocene times. It is worth noting, however, that wood bison (*Bison bison*) formerly inhabited portions of the Liard drainage. The last one was reportedly killed in 1888 (J.F.V. Millar 1978: pers. com.). To my knowledge, no paleoentological specimens of mammalian fauna have been collected in the South Nahanni watershed; therefore, it is impossible to state whether or not the unglaciated portions of the region served as a refugium for the large herding herbivores during the Pleistocene.

In assessing the subsistence potential of the Nahanni region it is important not to be deceived by the great variety of species occurring there. Certainly there are many potential food species but none of these are sufficiently abundant to provide a reliable subsistence base for a permanent population of any size. Research in other areas in northern Canada has shown that in order for any region to support a permanent population, it must possess either
sizable herds of large mammals (e.g. migrating barren ground caribou) or large, reliable populations of fish. Except for the region around Yohin Lake and possibly a couple of other lakes, the South Nahanni region fails to meet either of these requirements, yet there are neighbouring regions which do. It would appear, therefore, that in comparison with these other regions the primary attraction of the Nahanni region would be its populations of Dall sheep, woodland caribou, and, in more recent times, fur-bearing mammals. These resources tend to require exploitative strategies which are seasonal, localized, and not conducive to large population aggregates.

**Ethnography**

Ethnography, the systematic description of the distribution and cultural patterns of contemporary societies, can provide especially useful information to the archaeologist, particularly when initiating research in an area. Not only do data on the life ways of modern and historically documented groups provide direct documentation of the later manifestations of the archaeological record, but they also indicate those patterns of exploitation which have proven to be the most successful adaptation to a given environment. In this manner the archaeologist gains insight into which particular localities within a given region are most likely to contain evidence of the more remote prehistoric past. In fact, many of the more important older archaeological sites are precisely those which are most heavily utilized by the contemporary and recent historic populations.

Unfortunately, the ethnography of the South Nahanni region is probably the most poorly known and most confused of any comparably sized region in Canada. This stems in large part from the fact that no comprehensive ethnographic study has ever been conducted within the region itself. The few
statements by competent ethnographers concerning the South Nahanni region have all been derived from informants residing in more distant settlements, such as Lower Post (Honigmann 1954), Telegraph Creek (Teit 1956), and Fort Nelson (Honigmann 1946), all in British Columbia. It is clear that, at least during this century, individuals or parties from several different neighbouring regions have utilized at least portions of the South Nahanni at one time or another. When any of these people have been encountered in a specific locality at a specific time by trappers, prospectors, or other travellers in the area, it has often been mistakenly assumed that those natives contacted represented the permanent population of the entire region. Thus, much of the currently available ethnographic information lacks the temporal and spatial controls necessary for reliability. A final problem relates to the fact that northern Athapaskan speaking groups are not particularly prone to designating themselves by a distinct name, nor are they concerned with classifying neighbouring peoples into distinct categories. As a result, it is nearly impossible to elicit from native informants "tribal" designations for any particular region. Because of all this confusion surrounding Nahanni regional ethnography, the present discussion is limited to isolating those observations which can be considered reliable and to organizing the remaining confusion as much as possible.

If any sense is to be made of the ethnographic literature of the South Nahanni region, it is necessary to establish at least a rudimentary temporal framework. For present purposes, the total historical time span is divided into three parts corresponding roughly to the first half of the 19th century, the second half of that century, and the 20th century. It should be noted that this framework is not based on any specific historical event, but is intended simply as a means of separating documented observations made during often
widely separate time periods.

**Early 19th Century**
The first white contact with Indians of the Nahanni drainage was made in 1823 (Addison 1974). Since it is difficult to assess just what impact this initial contact had on native culture, the period roughly from 1800 to 1850 is here considered the period of initial contact during which the location of populations and general life ways were essentially similar to those that existed in the late aboriginal times. This period corresponds to what Helm et al. (1975) have termed the incipient-early contact stage. At this time, and probably for centuries previous, the region was occupied by Indians speaking one or more dialects of the Athapaskan (Dene) language family, as was virtually all of interior northwestern Canada and Alaska. The northern Athapaskan language family is divided into several distinct, though often closely related, languages and dialects, and these are normally used as the basis for dividing the Athapaskans into smaller units corresponding to "tribes" or "societies".

There is evidence that the territories occupied by at least two of these units included portions of the South Nahanni drainage. The Slave occupied the lowland areas around the upper Mackenzie, lower Liard, and lower Fort Nelson Rivers; all ethnographic sources agree that this territory included the lower South Nahanni River, from its mouth upriver to approximately First Canyon or Deadmen Valley. In fact, these people have continued to utilize this area into modern times, and the current residents of Nahanni Butte are Slave speakers.

An area which includes most of the South Nahanni drainage upstream of First Canyon, as well as the Beaver and upper portions of the Smith and Coal Rivers in the Yukon, is
considered by most authors to be the territory of the Espatotena (Esbataotinne) or "Goat Indians", sometimes called "Sheep Indians" (Honigmann 1949, 1954; Jenness 1963; Osgood 1936; Teit 1956). There is general consensus that the Espatotena were either a subdivision of, or were closely related to, the Kaska Indians of the southwestern Yukon and northern British Columbia. Beyond this, literally nothing is known about the Espatotena (Honigmann 1949: 33). In fact, there is no indication of the population size, and there is some ambiguity as to whether this was a cohesive group which permanently resided in the total area attributed to them, or whether it was simply a shifting ephemeral collection of families which sporadically entered the area from neighbouring territories. Given the total lack of information (other than a name) there is a nagging suspicion that the latter has been the case (cf. Addison 1977: 60).

A third group is sometimes indicated as having used at least portions of the South Nahanni drainage. This group is the "Mountain Indians", whose territory centered upon the Keele and Redstone Rivers (see Osgood 1936). Honigmann (1954: 12), however, suggests that they may have ranged into the headwaters area of the South Nahanni River, and Jenness (1963: 396, 427) states that one band at the headwaters of the Keele River was either a branch of the Espatotena or very closely allied to them. Indeed, Helm (1975: map) attributes the whole Espatotena territory to the Mountain Indians.

Late 19th Century
Because ethnographers have concentrated on reconstructing the situation prior to 1850, and local oral historical accounts only extend back to about the turn of the century, the period in between is perhaps the most enigmatic. By this time the fur trade had a firm grasp on the region, resulting in
significant alterations of the aboriginal population distribution and exploitative practices (see Helm et al. 1975). It is likely that the Slave and residents of the upper Nahanni region (presumably still considered Espatotenà) continued to utilize their former territories, but probably in a much different fashion. With the emphasis on the trapping of furs and the trading of these for commercial food and tools, the natives of the South Nahanni probably spent increasing proportions of their time at one or the other of the major trading posts at Fort Halkett and Lower Post in British Columbia and Fort Liard, N.W.T. (Honigmann 1954: 20). Presumably referring to this period, Jenness suggests that at least some families were oriented more to the north for trading purposes. He states, "Mr. Charles Camsell informs me that in the nineteenth century there was a route overland from the South Nahanni River to the Keele by which the Goat Indians of the former river carried their furs to Norman" (Jenness 1963: 427). Although there may have been some fairly permanent occupation of the area around the mouth of the South Nahanni (Charles Yohin 1977: pers. com.), the occupation of the remainder of the drainage was probably restricted primarily to the winter months and consisted of widely dispersed small clusters of families practicing subsistence hunting and, of course, trapping.

20th Century
The most recent period of Nahanni regional ethnographic history, beginning about the time of the Klondike gold rush in 1898, is probably the best documented because it is based largely on the accounts of first hand observations. The Slave Indians were probably maintaining at least semi-permanent residences at the mouth of the South Nahanni at the turn of the century and, since the establishment of the
fur trading post at Nahanni Butte in 1915, at least a few families have maintained a permanent residence there. The Slave use of the South Nahanni watershed, mainly for hunting and trapping purposes, has been restricted primarily to that portion below First Canyon, although on occasion individual families or groups of families have ventured over most portions of the watershed.

There is less certainty as to whether the area above First Canyon was occupied on a permanent basis during the period around the turn of the century. It is almost certain, however, that there has been no permanent occupation during at least the last few decades. There is sufficient reliable evidence indicating that, on a seasonal and localized basis, certain portions of the region were utilized by at least four separate groups of natives. First, Slave Indians from the Nahanni Butte and Netla areas used to spend winters trapping in the general region about the headwaters of the Meilleur, Caribou and Marten Rivers (various Addison interviews; Charles Yohin 1977: pers. com.). In arriving at these trapping grounds, the families normally followed an overland route which proceeded up Matson or Clausen Creek, north to near the mouth of the Meilleur, then up that river and its tributaries until they reached their destination. In spring, they often used skin boats to float down the Caribou or Meilleur Rivers, then the Nahanni to its mouth.

A somewhat similar practice, which may date back well into the 1800s or even the prehistoric period, involved natives of the Wrigley-Fort Norman areas (presumably Mountain Indians). Families would proceed overland in the fall up the north Nahanni or the Redstone River into the general area about the headwaters of Wrigley Creek, where they spent the winter trapping and hunting. In spring they would float down Wrigley Creek, the South Nahanni and finally the Mackenzie River, to Wrigley or Fort Norman where they spent
the summer and traded (Clark in Addison and Anthony 1977: 237-238; Charles Yohin 1977: pers. com.).

A third group utilizing a portion of the Nahanni watershed consisted of natives from the Telegraph Creek-McDames Creek region, who were probably Tahltan or Kaska. Clark (Addison and Anthony 1977: 280) and Kraus (Addison and Bates 1977: 73-74) report meeting six men from this area who were in the McMillan Lake region prospecting and trapping. They state further that it was common practice around 1900 for natives from these areas to use the general Flat River near McMillan Lake and the headwaters of the Beaver and Coal Rivers for trapping and occasionally prospecting.

It is also possible that in the early part of this century, natives (presumably Slave) from the Fort Liard region also used this same general area. Clark (Addison and Anthony 1977:251) describes a trail which led from Fort Liard up the LaBiche, across to and up the Beaver River. Although it is not clearly documented, it also seems likely that Kaska Indians from the Pelly and Ross Rivers also occasionally ventured across the divide into the upper Flat and Nahanni regions in the earlier part of the century.

From these documented accounts, the total pattern which emerges is one in which there was no permanently resident population in the upper part of the Nahanni during this century, but selected parts of it were utilized on a seasonal basis by families from virtually every surrounding area. It is also significant that, except for the area downriver from First Canyon, the major areas of occupation in the mountainous regions were outside the present boundaries of Nahanni National Park. The park itself, certainly that adjacent to the South Nahanni River, appears to have been used primarily for transportation purposes only. Certainly, some families did on occasion spend some time there, but this would have
minimal impact on the archaeological record. Although this
general pattern of land use can only be ascribed with any
confidence to this century, it is possible that it may apply
equally well throughout most of the fur trade period.

"Nahani Indians"
While the above discussion represents a reasonably thorough
summary of the little reliable information currently available
on the ethnography of the Nahanni region, at least some
attempt should be made here to clear up (or reorganize) the
confusion relating to the identity of the "Nahani Indians".
All trained ethnographers writing in recent times have agreed
that the term "Nahani" has never been a self-designation for
any one Indian group but has instead been applied by various
societies to different Indians who were either hostile or
remote (Honigmann 1957, 1954: 21; Jenness 1963: 427; Osgood
1936: 13). Although there have been various suggestions for
the origin of the term itself, the most plausible are those
of Jenness (1963: 427) who says it means "people over there
far away" and Honigmann (1957: 36) who suggests that it is
based on the bound morpheme na- signifying "enemy" or "hostile".
Within the broad area encompassing the eastern Yukon, western
Mackenzie District, and northern British Columbia, virtually
every society has at one time or another applied this label
to the inhabitants of one or more other territories within
the broader region. In this sense, the Nahani Indians as a
single, discrete population or society have probably never
existed.

When the term Nahani has been used by ethnographers to
designate a single society or population, it invariably refers
to the Kaska Indians, including the Espatotena, although
occasionally other closely related linguistic groups are
included as well (see all of the above listed sources plus
Swanton 1910 and Teit 1956). In this sense it may be legitimate to speak of Nahani Indians inhabiting the Nahanni River, although it would be misleading inasmuch as the proper designation is currently Kaska or Espatotena.

A final complication involves the apparently fairly recent practice of designating the Slave speaking natives of the Nahanni Butte and Netla regions as "Nahanni" Indians (Addison and Anthony 1977: 281, Charles Yohin 1977: pers. com.). This follows a fairly common practice by natives and non-natives alike of associating a particular social group with the geographical area where they reside. It is suggested that Parks personnel eschew the terms "Nahani" and "Nahanni" and, instead, refer to the natives of the Nahanni region as Slave, Kaska, Espatotena, or another accepted designation depending on the actual group being referred to.

Another term occasionally applied to certain natives in the region which may be a source of confusion is the "Beaver Indians" (see Addison and Bates 1977: 23). This term probably refers to inhabitants of the Beaver River region in the southeastern Yukon, who were Kaska speakers; or it may be a local term for the Slave-speaking residents of the Liard in the vicinity of Fort Liard (see Honigmann 1954: 23). It is important, unless the specific context warrants it, that this use of the term not be misconstrued as referring to the Beaver Indians of the Peace River district of northern Alberta and British Columbia.

History
A comprehensive history of the South Nahanni watershed has yet to be written. As a means of collecting the necessary raw material for the preparation of such a history, W.D. Addison has interviewed several present and former residents of the region and has prepared a preliminary chronology (Addison and
Addison 1977). In addition, R.M. Patterson (1966) and Dick Turner (1975, 1976) have written popular books dealing with their personal recollections of events in the region spanning the period 1927 through 1971. The present brief summary of what is known of Nahanni history draws primarily upon the Addisons' chronology and published interviews and is limited to highlighting those past events which are expected to bear most directly on the archaeological record. It therefore excludes most of the interesting stories and adventures which have brought an aura of mystery to the Nahanni.

So far as is known, the first non-native to visit the South Nahanni region was A. R. McLeod who, in 1823-1824, travelled into the area from Fort Simpson in order to set up trading relationships with the natives there on behalf of the Hudson's Bay Company. He was soon followed by an H.B.C. clerk, J. M. McLeod, who on separate trips visited the Caribou River and a tributary of the Flat, contacted the local Indians there, and brought some back to Fort Simpson. In spite of these early efforts by the Hudson's Bay Company, there is no record that a trading outpost was ever established in the Nahanni drainage. There followed a long period of little mention of the Nahanni until 1898, when the Klondike gold rush occurred in the Yukon. At that time, a few parties are known to have attempted to reach the Yukon through the Nahanni drainage, and it is believed that one or more may have overwintered there.

In approximately 1904, Frank McLeod, William McLeod and Robert Wier went up the Nahanni to prospect for gold, apparently on Bennet Creek. When this party subsequently disappeared, the rumour got out that they had discovered substantial gold deposits. It was probably this event more than any other that has been responsible for the continued prospecting in that area over the decades, in spite of very limited success.
Between 1900 and the early 1920s, several different parties visited one area or another within the Nahanni region, although there were seldom more than one or two parties there during any one year. For the most part, these people were prospecting and trapping. It was also during this period that the first trading posts were established at Nahanni Butte, at the mouth of the South Nahanni River. Although the Addisons (1977: 7) mention that Poole Field was trading there as early as 1906, Usher (1971) indicates that the first permanent post at Nahanni Butte was established in 1915 by Jack La Flair. La Flair had also operated a temporary trading camp upriver from Nahanni Butte the previous year, and after moving downstream he remained there as an active trader until 1948. It is possible that Northern Trader's Ltd. also operated a post at Nahanni Butte between 1918 and about 1924, although there is no clear record of this (see Addison and Addison 1977; Usher 1971). With the establishment of trading at Nahanni Butte, Indian families began spending most of their time there until, ultimately, a permanent village of sorts came into being.

Beginning in the late 1920s more trappers started coming into the Nahanni region, and in the early 1930s there was a "mini rush" to the supposed gold fields of the McMillan Lake-Bennet Creek region. The major result of this was that from this time until the early 1950s there were always at least a few people in the area each year either prospecting or trapping. Approximately 50 cabin sites are documented for the South Nahanni watershed (Neily 1977) and the majority were built during this period.

Many of the non-native Nahanni residents were there for only a year or two, although some returned occasionally over a period of years. To my knowledge, notwithstanding the traders at Nahanni Butte, only two maintained what could be considered to be permanent residence within the area for any
significant period of time. There was Gus Kraus, who lived with his family primarily at Nahanni Hotsprings from the 1940s until 1971 (Addison and Bates 1977), and Albert Faille who, although he did occasionally leave the area for extended periods, was essentially a permanent resident from 1927 until at least the 1950s (Addison and Anthony 1977: 385). Faille moved around a lot, but occupied primarily the area of the Flat River and the Nahanni upstream from there.

For archaeological purposes, the primary significance of the documented historical activity within the Nahanni region is the proliferation of cabins, caches, and camp sites which may be expected to range in age from the late 1800s until the 1970s. The greatest concentration of these historical sites would appear to be along the Flat River near the McMillan Lake-Bennet Creek area and along the South Nahanni River downstream from the mouth of the Flat. There should be relatively fewer of these sites upstream from the mouth of the Flat River.

Previous Archaeological Research
South Nahanni Watershed
Prior to the 1977 site survey, archaeological research in the South Nahanni watershed has been extremely limited. In 1938 a joint University of New Mexico-American Philosophical Society expedition, under the directorship of Wesley L. Bliss (1939), surveyed for evidence of early man all along the Mackenzie River Basin, from the Sikanni River in British Columbia to the Arctic Ocean, and along the Bell and Porcupine Rivers to Fort Yukon, Alaska. Inasmuch as the published report for this massive survey is only three pages long, there are very few details as to precisely where this group looked or what they found. They did, however, examine an area around Nahanni Butte, and the published discussion of this
investigation is sufficiently brief that it may be reproduced here in toto:

A cave in a limestone escarpment near Blue Fish Lake north of the Nahanni Butte was investigated. Evidence of occupation by man was found in a test trench excavation in the second of three rooms. Ash layers overlaid a bluish clay deposited during the glaciation of that area. Nothing was excavated except the test trench because of rock fall and need for special equipment. Other caves in the area were mapped from information given by trappers and traders. Two of these are large, and according to the information given, show smoke darkened walls. It was decided to leave this area and specialize on it later during a summer season. Evidence of occupation by human beings below the blue clay, if found, would definitely prove man's existence in North America prior to the major advance of the Keewatin ice in that area. This area shows promising possibilities for future archaeological research on early man and his movements (Bliss 1939: 137).

In 1950, as part of an archaeological reconnaissance of the Liard and Mackenzie Rivers between Fort Liard and Fort Norman, Richard S. MacNeish, then of the National Museum of Canada, journeyed briefly up the South Nahanni River in search of archaeological remains (MacNeish 1953). Although MacNeish indicates that he went upriver as far as the Mary River, he does not report finding any sites, nor does he indicate how long he was in the area or precisely where he looked; however, Dick Turner (1977: pers. com.) who accompanied MacNeish, said that he was primarily interested in the caves of First Canyon, and the trip lasted only a few days.

J.F.V. Millar (1978: pers. com.) visited the South Nahanni on a number of occasions prior to 1971. He also searched for archaeological remains in the caves of the First Canyon-Lafferty Creek area, but to no avail. He did find a few stone flakes at the upstream end of the Virginia Falls portage. Although the three instances mentioned above are the only
times that the South Nahanni watershed has been investigated by professional archaeologists, on a few occasions local residents have discovered archaeological remains. In his book The Dangerous River R. M. Patterson (1966:160) describes finding cultural remains in a cave on the Tlogotcho Plateau, south of Deadmen Valley and just outside the park boundary. Patterson found, in addition to a large quantity of burned bones, a stone arrowhead which was subsequently lost. In the 1930s Bill Clark (Addison and Anthony 1977: 253-256) found a series of old ground caches and elevated caches at the major fork of Wrigley Creek, approximately 35 km north of its mouth at the South Nahanni. Clark believes these represent a camp-site of Wrigley Indians which was used in winter prior to skin boating down Wrigley Creek in the spring. A third site is well known to local residents (see Addison interviews; Neily 1977) and consists of a series of burned houses with fallen chimneys at the mouth of the South Nahanni River near Nahanni Butte. Although no one is sure of the site's origin, it most certainly predates 1914 when Jack La Flair first came into the area. Several former residents (see Addison interviews; Patterson 1966) have seen the fallen remains of one or more old tipi shaped cabins, which they believe were built during the Klondike gold rush, in Deadmen Valley between Sheaf Creek and the Meilleur River. Gus Kraus, who has resided in the Nahanni region probably longer than anyone still living, has found only one prehistoric artifact, a spearhead, in the Nahanni Hotsprings area; and he located the remains of old sheep fences near the headwaters of Prairie Creek (Addison and Bates 1977: 137-138).

Lower Liard-Upper Mackenzie Region
Although the extent of previous archaeological investigation within the South Nahanni drainage itself has been extremely
limited, there has been more intensive research in the immediately adjacent region, along the lower Liard River, than perhaps any other region in northern Canada. The bulk of this research has concentrated on the Fisherman Lake vicinity, about 80 km south of Nahanni Butte near Fort Liard. MacNeish (1953) first examined the area during his 1951 survey of the Liard and upper Mackenzie Rivers. He returned in 1952 to test several of the sites and excavate one of them and, on this basis, established the initial archaeological sequence for the area (MacNeish 1954). In the mid-1960s, J.F.V. Millar (1968, 1978: pers. com.) initiated a long-term project of site survey, testing, and excavation resulting in modifications and refinements of the sequence. Millar was later joined by Gloria Fedirchuk (1970, 1975). The result of these combined efforts has been the location of well over 100 archaeological sites, some of which contain several stratified components. The majority of these sites are concentrated at the lake's northern inlet and along an ancient shoreline a few kilometers further north.

The Fisherman Lake sites provide evidence of a nearly continuous sequence of occupation beginning possibly as early as late-Pleistocene times and extending up to the historic and modern Slave. The earliest complexes may predate 10,000 years ago and consist of a few unifacially retouched flake implements. These are followed by a series of complexes which, on typological grounds, are considered representative of the Northern Plano Tradition characterized primarily by several types of large lanceolate and projectile points. These complexes are dated on the basis of radiocarbon dates and stratigraphic relationships to the period from 7,000 to 4,000 B.C. The Northern Plano Tradition is usually associated with a subsistence strategy emphasizing the hunting of big game, normally bison, in a fairly open plains or tundra type of environment. The period from roughly 4,000 B.C.
to 1,000 B.C. is characterized by complexes belonging to what MacNeish (1964) originally termed the Northwest Microblade Tradition, more recently re-defined as the Northern Archaic Tradition (see Anderson 1968). The principal diagnostics of this tradition are a well-developed microblade technology in association with side and corner notched points, burins, and distinctive end scrapers. Emerging during this general period was a specific stone working technology which so far appears to be unique to the Fisherman Lake region and consists of flake and core tools defined by a distinctive raw material, manufacturing technology, and secondary preparation techniques (Millar 1968: 185). The tools resulting from this technology, the Julian Technology, are believed to be related to tasks involving the chopping and associated processing of wood and can therefore be seen as an adaptation to a heavily forested environment (Fedirchuk 1970, 1975). The final complexes in the sequence, occupying the temporal span since slightly before the time of Christ, can be seen as collectively forming a gradual transition to the historically documented Athapaskan pattern of the area. These complexes are typified by a variety of small triangular and leaf shaped points which may be either notched or un-notched, a fairly well developed bone technology, and a proliferation of crude boulder flake implements. Implements of European manufacture began to enter the assemblage shortly after 1800 and gradually increased in relative importance, ultimately displacing much of the aboriginal technology.

Another area where archaeological work relevant to that of the South Nahanni has been conducted begins about 80 km north of Nahanni Butte, at Sibbeston, Cli, and Little Doctor Lakes. Although archaeological research in this area has so far been limited to surface survey and limited test excavation of one site at Sibbeston Lake, it is nevertheless apparent that these lakes were important centers of occupation in
prehistoric and historic times (Millar and Fedirchuk 1975). All materials collected to date appear to fit well within the later portion of the Fisherman Lake sequence (Dice 1973; Millar 1978: pers. com.).

The results of previous archaeological research along the Liard and upper Mackenzie Rivers are significant to an assessment of the archaeological potential of Nahanni National Park in two respects. First, the work of Millar and others at Fisherman Lake has established a long period of occupation of the general area beginning at a fairly early date, and it has produced a typological framework which should apply to at least the lower portion of the South Nahanni. This may prove to be an invaluable aid to future investigations within the park. These studies have also provided valuable information on prehistoric and ethnographic subsistence and settlement patterns which are relevant to the South Nahanni. The vast majority of prehistoric and more recent aboriginal sites are located on lake shores, and show indication of heavy exploitation of fish, or at the mouths of major tributaries to the Mackenzie and Liard Rivers. Very few sites, particularly those of prehistoric age, are found in other situations (Cinq-Mars 1973; Miller and Fedirchuk 1975). Admittedly, most previous archaeological survey has been biased towards these more favourable localities, and inspection of the higher mountain valleys has been cursory to non-existent. Nevertheless, there appears to have been sufficient reconnaissance in all types of locality to suggest that the lakeshore-river mouth settlement pattern probably predominated over most of the Mackenzie Basin. This should be borne clearly in mind when assessing the archaeological potential and formulating research designs for future studies in Nahanni National Park.
Methods

Research Design

In formulating the research design for the 1977 archaeological survey of Nahanni National Park, three considerations were of paramount importance. These were the size of the study area, the inadequacy of previous research work in the park, and the limited time and man power available for conducting the fieldwork. The enormous size of the park precludes the possibility of there ever being anything approaching a total survey of the area and, combined with the other considerations, it mitigated against sampling the region in any systematic or rigorous fashion. Basically, what was required was a means of obtaining in a short period of time as much information as possible about the general nature of the park's archaeological resources and relevant environmental parameters, so that future archaeological studies in the area could be planned on a well informed basis.

To this end, a research design emphasizing extensive survey and mobility was adopted. Inasmuch as part of the research requirement involved inspection of several visitor impact areas which are fairly regularly spaced along the South Nahanni River (Fig. 1), it was decided to use these as base camps for the exploration of larger localities. Centering survey on visitor impact areas also fit in well with the general research objectives inasmuch as they tend to be in locations which provide the best campsites currently, and probably in the past as well. Transportation between base camps would be by boat, thus allowing inspection of
intermediate locations along the river; and helicopters would be used for surveying whenever possible in order to obtain information about the more remote portions of the park.

**Itinerary**

On July 15, 1977 two assistants and myself flew into Rabbitkettle Lake from Fort Simpson, following the South Nahanni River from Nahanni Butte all the way in order to gain an initial impression of the park and to take photographs. The itinerary for the subsequent field season follows:

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<tr>
<th>July</th>
<th>15-20</th>
<th>Rabbitkettle Lake</th>
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<td>20-21</td>
<td>Rabbitkettle to Sun Blood Cabin</td>
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<td>Sun Blood Cabin; Virginia Falls; Oxbow Lake</td>
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<td>27-1 August</td>
<td>P. Cowie's camp; Flat-Nahanni confluence; Lower Wrigley Creek</td>
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<td>August</td>
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<td>Cowie's camp to Deadmen Valley</td>
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<td>2-14</td>
<td>Deadmen Valley; helicopter survey of Meilleur River, Prairie Creek and Ram Creek; Tlogotcho Plateau</td>
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<td>14</td>
<td>Deadmen Valley to Nahanni Hotsprings</td>
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<td>14-19</td>
<td>Nahanni Hotsprings</td>
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<td>Nahanni Hotsprings to Nahanni Butte</td>
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<td>20-29</td>
<td>Nahanni Butte region; helicopter survey of upper Wrigley Creek, Middle Flat River and neighbouring lakes, upper Meilleur River and Yohin Lake; Netla River uplands</td>
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<td>30-1 September</td>
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<td>Blackstone River to Fort Simpson</td>
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Survey Methods
The major allotment of time during the 1977 field season was devoted to on-the-ground survey of each visitor impact area and as much of the immediately adjacent area as time would allow. The two principal objectives of this survey were to ensure that archaeological resources were not endangered by current or future visitor use or by Parks Canada development, and to sample as many diverse localities as possible. Due to the relative great size of many of the study areas, it was impossible to complete a total survey of each one in the time available. It was therefore necessary to restrict survey within these areas to smaller inspection zones. These zones were selected on the basis of current or proposed visitor use (e.g. camp sites and trails), air photo inspection and on-the-ground observation of promising topographic features, recommendations of local residents, and Neily's (1977) review of documented cultural remains.

The actual techniques employed in surveying were adjusted to fit the circumstances of each locality. Generally, this involved a sweep of the area by members of the field party spaced about 50 meters apart, with each individual searching for surface remains and digging small test pits every 15 to 30 meters. Each locale examined in this fashion was carefully located on aerial photographs or 1:50,000 series topographic sheets, and the vegetation, soils, and topographic features were described in field notebooks. In some areas considered to have high archaeological potential, more carefully controlled test trenches were excavated, and their profiles were sketched and photographed.

Upon encountering a previously unrecorded site, its precise location was undetermined and indicated on the appropriate air photo or map, and all surface features were described, measured, and photographed. In most cases test
pits were placed in the site area in order to locate any subsurface features and to obtain a soil profile and artifact sample. Artifacts and/or other cultural materials collected (e.g., faunal remains and hearth material) were labelled and saved for subsequent analysis. In all cases, intensive excavation was avoided because of the time factor and the conviction that such potentially destructive activities should be reserved for later stages of research.

All evidence of cultural activity encountered during the course of the survey was recorded, regardless of the age of the remains or whether they had been the object of previous examination. Emphasis was placed, however, on previously unrecorded sites and sites which, though recorded in published accounts or interviews, had never been examined directly; only these were assigned provisional site numbers.

Supplementary Research Methods
The bulk of the field research was devoted to examination of regions surrounding visitor impact areas through the methods described above. In order to obtain more extensive knowledge of the park's archaeological resources, cultural history, and environment, it was necessary to employ additional methods, and some of these took the field party outside of the park boundaries.

While in the Deadmen Valley region, a four day back-packing trip onto the Tlogotcho Plateau was undertaken. The objectives of this trip were to gain some familiarity with the alpine regions of the park, to survey portions of the plateau, and to search for the prehistoric cave site mentioned by R. M. Patterson (1966: 160; see also Neily 1977).

Two helicopter surveys were undertaken during the course of the field season. The first, initiated from Deadmen Valley, covered Deadmen Valley, most of the Meilleur River,
and most of Prairie Creek. The second helicopter survey was made while the field party was at Nahanni Butte at the end of the season. Its two objectives were to locate sites known to Charles Yohin, an elderly resident of Nahanni Butte, and to gain at least a superficial impression of areas too remote for intensive ground survey. The area covered on this trip included upper Wrigley Creek, portions of the Flat and Caribou Rivers—including Sea Plane and McMillan Lake, the upper Meilleur River, and Yohin Lake. It should be noted that, while helicopter survey can be extremely useful for gaining access to remote areas and covering large regions in minimal time, it imposes time pressures which preclude careful inspection of any single locality or detailed recording of those cultural features which are observed.

During the course of the fieldwork, every available opportunity was taken to question local residents concerning their knowledge of the ethnography, history, and archaeological sites of the park. Charles Yohin of Nahanni Butte was perhaps the most helpful in this respect. Not only did he share his extensive knowledge of native land use patterns during informal discussions, but he also graciously consented to accompany me on the second helicopter survey, during which he located and identified several important archaeological areas. The research also profited from brief discussions with Raymond Vitale of Nahanni Butte, Father Mary of Fort Liard, and Dick Turner of Fort Simpson, as well as all the seasonal and permanent staff of Nahanni National Park. Although not part of the field research in the strict sense, a trip to Saskatoon and Edmonton during January, 1978 provided the opportunity to obtain valuable background information on regional archaeology. While in Saskatoon, the collections from Fisherman Lake and the Sibbeston-Cli-Little Doctor areas were examined, and Dr. J.F.V. Millar
shared his personal knowledge of the Liard and Nahanni regions. In Edmonton, Dr. T.C. Losey showed me materials he recently collected at Fish Lake and other sites in the Middle Mackenzie region and provided information on the archaeology of that general area.
Survey Results

The 1977 archaeological survey of Nahanni National Park was more a survey of several separate areas than a holistic reconnaissance of the whole park. For this reason, survey results are here presented separately for each of the areas. In order to avoid possible duplication in future research as well as provide a basis for assessing survey results, the actual localities examined in each area are indicated as precisely as possible; and all cultural remains encountered, regardless of their age or estimated significance, are mentioned. The greatest attention, however, is devoted to those sites which were previously unrecorded or had never been examined directly by archaeologists.

Rabbitkettle Area
For purposes of the present study, the Rabbitkettle area may be defined as the region which includes Rabbitkettle Lake, Rabbitkettle Hotsprings, the lowermost portions of the Rabbitkettle River and Hole-in-the-Wall Creek, and all of the region in between these features, including the right bank of the South Nahanni River between the mouth of the small stream draining Rabbitkettle Lake and the mouth of the Rabbitkettle River (Fig. 2). Within this area, the following specific localities were examined: (1) the perimeter of Rabbitkettle Lake, including the ridges immediately behind the shoreline; (2) the portage trail between Rabbitkettle Lake and the South Nahanni River; (3) the portage trail
Figure 2. Rabbitkettle Lake. Hotsprings in background, South Nahanni River foreground.
between the northwestern end of Rabbitkettle Lake and the South Nahanni River; (4) the right bank of the South Nahanni River between the two portage trails; (5) the area on either side of the mouth of the Rabbitkettle River; (6) the region along the trail from the mouth of the Rabbitkettle River to Rabbitkettle Hotsprings, including the area immediately adjacent to the Hotsprings; (7) a traverse from the left side of the mouth of the Rabbitkettle River, on to the high terrace opposite Rabbitkettle Hotsprings, and across to Rabbitkettle Lake.

Two previously unrecorded sites were located.

Site 100X

Borden Grid: J1St

Location. The site is located in a small clearing on a bench, approximately 10 m above lake level, near a point at the northwestern end of Rabbitkettle Lake, 200 m south of the mouth of the small outlet creek (Fig. 3). The site is 19 m inland from a small, steep bluff at the lakeshore.

Description. The site occupies an area of approximately 20 m by 15 m and consists of the charred base log outline of a cabin measuring 4.7 m by 3.9 m. A few meters northwest of the cabin is a pile of rusted tin cans, including one which was identifiable as a "Woodland's Creamery Butter" tin, as well as several large Imperial and Ogden's tobacco tins (Fig. 4). Items found scattered around the site area included the remains of a burned wet cell battery, an aluminum pot, and a plastic comb. A metal stake at one corner of the cabin may have served as a ground for a radio antenna. No artifacts or other materials were collected from this site.

Discussion. Although this site is located within a proposed
Figure 3. Noteworthy features at Rabbitkettle Lake.
(Drawing by Dianne Milton).
Figure 4. Tin can pile at Site 100X, Rabbitkettle Lake.
campsite area (Marsh and Scotter 1976: Map 1), it has not been previously recorded in any of the Nahanni literature. Judging from the condition of the remains, it is unlikely that the site predates the 1940s, and may well be much more recent than than. On the basis of a statement by Turner (1975), my preliminary report (Amsden 1977) suggested that this was the cabin of Mulholland and Eppler which burned in the 1930s. It was subsequently learned that there is substantial documentation (Addison and Addison 1977: 23-24; various Addison interviews) quite clearly indicating that the Mulholland-Eppler cabin was in fact at Glacier (Brintnell) Lake. Therefore, the occupants of the cabin cannot be specified, although in another reference Turner (1976: 166) states that Albert Faille had trapped at Rabbitkettle Lake in the 1940s.

The burned battery and metal stake suggest that a radio was present at the cabin, and the quantity of empty tobacco tins suggests that it was occupied over an extended period. (The 1977 archaeological field party included two heavy smokers who were unable to consume nearly that quantity of tobacco in seven weeks in the park.) The Rabbitkettle Lake area was the site of a forest fire in 1949; however, it is impossible to determine whether the cabin was destroyed at that time or in a separate fire.

Recommendations. Former long-term residents of the Nahanni should be questioned about the ownership and dates of occupation of the cabin. Further archaeological research at this site is not warranted.

Site 101X
Borden Grid: J1St
Location. The site is at the crest of a ridge which extends into the northern end of Rabbitkettle Lake as a peninsula
(Fig. 3, 5). The peninsula itself is approximately 20 m south of the outlet of the lake, and the site is near the base of this peninsula at a height of approximately 3 m above lake level. The immediate vicinity is unforested although there are a few small shrubs.

Description. Site 101X consists of four small stone chips which were found in a 1 m² area on the exposed ground surface. The chips are of a coarse black chert material and probably represent debitage or retouched flakes from a single artifact. None shows any evidence of secondary retouch or wear. In spite of intensive surface examination and testing in the immediate area, no associated cultural remains could be found, although there was extensive evidence of recent use of the peninsula in the form of camp fires and litter. The chips were collected.

Discussion. It is impossible to say anything about the age or the cultural affiliation of these chert chips other than they probably date to the prehistoric period. There was no evidence to indicate that they were associated with a former campsite.

Recommendations. No further archaeological research on this site is recommended nor, indeed, possible.

Archaeological Assessment of the Area
The fact that more archaeological sites were not found at Rabbitkettle Lake is surprising for two reasons. First, the area appears to be abundant in exploitable resources and, in fact, Turner (1976: 116) has proclaimed this as "possibly the best wild game and fur region in the whole Nahanni". At the north end of the lake, in particular, moose sign was plentiful, and at least some fish are in the lake. The poor results at Rabbitkettle Lake are even more surprising when one considers that, at this area--unlike most of the
Figure 5. Peninsula at north end of Rabbitkettle Lake. Location of Site 101X is on top of peninsula near center of picture.
rest of the park, the ground surface is exposed, and any evidence of former cultural activity is unlikely to go unnoticed (witness the discovery of the four small chert chips). Therefore, as opposed to other areas surveyed, the failure to discover significant quantities of cultural materials at Rabbitkettle Lake may probably be taken as a fairly accurate indication that the area was not intensively utilized in the past. The failure to discover archaeological remains in the other portions of the general Rabbitkettle area is not surprising insofar as it is on the flood plains of the South Nahanni or Rabbitkettle Rivers and/or it possesses a heavy vegetation cover, thus presenting the same problems for archaeological survey as encountered throughout the rest of the Nahanni region.

Virginia Falls Area
For purposes of archaeological survey, the Virginia Falls area included the regions along both banks of the South Nahanni River from the modern campsite to the downstream end of the Albert Faille portage below the falls. Survey concentrated on the area around and including the modern campsite and float plane dock; the area along the Albert Faille Portage trail; the region between the upper end of the portage and the cliffs overlooking the falls on the south bank of the river; and the area along the north bank overlooking the falls (Fig. 6). Also surveyed rather intensively was the area around the small oxbow lake just north of the river, 12 km upstream from Virginia Falls (see Carbyn and Patriquin 1976; Ford 1974: 48). Here, survey concentrated on the southern shore of the lake, from approximately its mid-point to where its outlet stream enters the South Nahanni; and the area around the west side of the stream entering the lake at its north end, including the high
Figure 6. Virginia Falls area, looking west.
terrace which overlooks the lake.

The Virginia Falls area was the only area in the park where no cultural remains whatsoever were found, other than obviously recent fire hearths in the areas on either side of the river overlooking the Falls. J.F.V. Millar (1978: pers. com.) reported finding "a few flakes" several years ago near the boat landing area at the upper end of the portage. Although anyone travelling down the South Nahanni would obviously have to portage around the falls, Charles Yohin (1977: pers. com.) suggested that, in his younger days at least, any Indians travelling in the area were more likely to take an inland route, either up Irvine Creek or possibly Marengo Creek, thus avoiding the falls altogether. There is certainly no indication that the portage around the falls received any intensive use prehistorically; even in the historically documented period, it was rather uncommon, for white trappers and natives alike, to travel by water to regions above the falls.

Flat-Nahanni Confluence Area
For present purposes the Flat-Nahanni confluence area is considered as including the region along the South Nahanni River between Wrigley Creek and the mouth of the Flat River, including the lower 2 km of Wrigley Creek, the lower 2.5 km of the Flat River, and the area in between these portions of the two rivers. The localities actually surveyed during the 1977 season included most of the lowlands within this broader region (Fig. 7).

Only one previously unrecorded campsite was located in this area, although two well-known cabins and evidence of considerable activity in more recent years were observed in two separate localities.
Figure 7. Noteworthy features in Flat-Nahanni confluence area.
(Drawing by Dianne Milton).
Site 102X
Borden Grid: JjSi
Quadrangle: 95F/11, "Vera Creek"
Military Grid Reference: 10VCD726266

Location. The site is located 25 m south of the right bank of the South Nahanni River, 3.75 km upstream from the mouth of the Flat River (Fig. 7). It is on the north bank of a large dry snye, which enters the South Nahanni about 50 to 75 m downstream (Fig. 8). The site is on the flood plain of the river, at a height of approximately 3 m above river level, in a fairly open stand of tall spruce, with a thick carpet of moss covering the ground.

Description. Two features were identified on the surface. Both of these consist of piles of rotten axe-cut logs (Fig. 9). One may represent the remains of a pole cache; the other was not identifiable. These features occur within an area of approximately 60 m by 30 m. There were several cut stumps in the vicinity of these features; all appeared quite old, and some were of large diameter. Careful examination of the vicinity and intensive test pitting failed to yield any artifacts or other cultural materials.

Discussion. Site 102X was discovered in the summer of 1977 by Anna Cairns during the course of her vegetation studies of the region, and she reported this site to the archaeologists. The site is enigmatic inasmuch as the size of many of the cut stumps seem to suggest the presence of a cabin; however, no cabin remains could be located. Furthermore, the poor condition of the cut stumps and the poles in the features, compared with other cabins and features in the area, argues for an age of at least several decades for the site; however, Gus Kraus, in a letter to Anna Cairns, said that he believed that this was the location where at least three mining outfits had set up a tent camp. He does not state when these events occurred other than that it was some years prior to
Figure 8. Portion of the South Nahanni River just upstream from its confluence with the Flat; Wrigley Creek in background. Site 102X is on the bank of the snye near where it enters the river at the bottom center of the picture.
Figure 9. Cut pole feature, Site 102X.
1951 when oil companies camped in the same vicinity. It may be possible that he confused this site with another campsite located nearby.

Recommendations. Due to the nature and condition of this site, no further archaeological research is recommended. It would be useful, however, to recheck the identity of the site with Gus Kraus.

Other Cultural Remains

On the left bank of the Flat River, approximately 3 km upstream from its mouth, are two cabins (Fig. 8). The cabin nearest the river was built in recent years by Fred Sibbeston. It is in usable condition and is apparently still used on occasion (Anna Cairns 1978: pers. com.). A few meters further inland are the remains of a cabin built by Albert Faille in 1927 (Patterson 1966: 76), and repaired and utilized by Gus Kraus and Bill Clark during the winter of 1937-1938 (Kraus' letter to Anna Cairns). This cabin is now in ruins, with only 2 or 3 log layers visible. Nearby are the remains of two caches, one associated with each occupation of the cabin (Ibid.).

Approximately 650 m downstream from the cabin site are the remains of a former campsite, including what is left of three bed frames, two sawhorses, a bench, at least two small tent rings, a pole cache, and a fire hearth (Fig. 7). In his letter to Anna Cairns, Gus Kraus says that this was the camp of some oil geologists who were there for about a month sometime around 1954.

Remains of a similar campsite were found in a clearing approximately 150 m upstream from Peter Cowie's modern outfitting camp (Fig. 7). This site extends to within 3 m of the river bank and consists of a spruce pole bed frame, a large fire hearth, and the remains of what may have been
a cache. It is suspected that this may have been the precursor of Cowie's current camp.

Several fire hearths were found in the area and are most numerous along the South Nahanni from just upstream of Cowie's camp to the mouth of the Flat. These hearths all appear very recent in age and were probably made by park visitors.

Archaeological Assessment of the Area
Nothing was found in the Flat-Nahanni confluence area which would indicate prehistoric or later aboriginal occupation. Most of the region is on the flood plain and is densely vegetated, and there are numerous sybes and channels cutting through the area. It is therefore difficult to survey, and there appears to be little likelihood that further archaeological research in the area would result in the discovery of any prehistoric sites.

There is certainly considerable evidence in the area for more recent trapper-prospector-related activity dating back to perhaps the late 1920s. It seems unlikely that any further evidence of this activity has been missed during the course of archaeological, botanical, and wildlife surveys, however; and, considering the admirable job done by Anna Cairns in locating and documenting this material, further archaeological efforts in the region do not appear to be warranted.

Deadmen Valley
Deadmen Valley is the broad valley separating the First and Second canyons (Fig. 1). The valley itself is sufficiently well defined that there is no advantage to re-defining it for purposes of the 1977 archaeological survey. Due to its enormous size relative to other study areas in the park,
Figure 10. Noteworthy features in eastern section of Deadmen Valley. (Drawing by Dianne Milton).
however, archaeological reconnaissance was restricted to the eastern end of the valley, from the Prairie Creek alluvial fan eastward (Fig. 10). The specific localities examined included the area around the Prairie Creek Delta including the region of the mineral lick on its east side and the high terrace to the west; the mouth of Ram Creek, the mouth of Dry Canyon Creek, including the area around the mineral licks to the east of there; and the area along the right bank of the South Nahanni River from the current patrol cabin to a point about 15 km upstream from the mouth of Sheaf Creek (Fig. 10). In addition, a trip was taken onto the Tlogotcho Plateau and back down along the total length of Sheaf Creek.

In Deadmen Valley, one previously unreported site was discovered, as well as one which may be the same as one documented in Patterson's (1966) book and several Addison interviews. Two well known cabin sites were also examined.

Site 103X
Borden Grid: JhSc
Quadrangle: 95F/1, "Clausen Creek"
Military Grid Reference: 10VDC216910
Location. The site is located approximately 150 m upstream from the Deadmen Valley patrol cabin at a point about 75 m south of the river bank and 35 m north of a small abandoned snye (Fig. 10). The site is situated on the flood plain, about 2 m above river level, in a stand of mature spruce with a shrub understory and a carpet of moss covering the ground.
Description. The primary feature of the site is the collapsed remains of a platform cache measuring 4 m by 2.6 m (Fig. 11). The platform consists of 12 small-diameter spruce poles spread across two thicker poles. A large collapsed log and
Figure 11. Collapsed platform cache, Site 103X, Deadmen Valley.
two large standing spruce trees immediately adjacent to the platform appear to have been its supports. All of the wood is in good condition. A spruce tree, 15 cm in diameter, standing 2 m south of the feature has been blazed by removal of a strip around its circumference at a point 90 cm above the ground. There are several axe-cut stumps in an area of approximately 50 m by 75 m surrounding the cache. Also within this area are a few stumps of large spruce trees which have been cut by a saw. Test pitting and careful examination of the surface around the cache failed to yield any artifacts or other cultural remains. As was the case with Site 102X this cache appeared to be associated with a cabin, yet none was found.

Discussion. This cache has apparently not been recorded by previous researchers in the area. The fact that it is in good condition and has not been overgrown by moss suggests that it is of fairly recent age. It could possibly be associated with the occupation of one of the cabins immediately behind the patrol cabin (see below), but it is a good distance from the latter.

Recommendations. No further archaeological research is deemed necessary, although it would be useful to document the origin of the cache.

Site 104X
Borden Grid: JhSc
Quadrangle: 95F/1, "Clausen Creek"
Military Grid Reference: 10VDC202910
Location. This site is approximately 950 m along the well worn trail leading from the mouth of Sheaf (Wheatsheaf) Creek southwest toward the Meilleur River. Its northern edge is roughly 10 m south of the trail and 15 m south of a large water-filled snye which joins the South Nahanni River
approximately 100 to 150 m further north (Fig. 10). The site is on a gentle slope above the river's flood plain, approximately 10 to 12 m above water level, in a stand of mature spruce with shrub understory and a very thick moss carpet over the ground surface.

**Description.** Evidence of this site discovered during the 1977 survey consists of three features occupying an area of approximately 500 m² within a 60 m by 80 m area of axe-cut stumps (Fig. 12). Feature 1 consists of a jumbled pile of axe-cut spruce poles which may represent the remains of a platform cache. Feature 2 is a more systematic arrangement of axe-cut spruce poles which probably represents a collapsed platform cache, or possibly a lean-to (Fig. 13). Of the poles visible on the surface, the largest is 5.7 m long and 15 cm in diameter. Lying over it are 8 poles averaging 6 cm in diameter and 2.9 m in length. At least two of these poles have been notched, and there are cut stumps on either side of the cluster. Feature 3 was entirely covered by a thick layer of moss (up to 18 cm in places) and was discovered through test-pitting operations (Fig. 14). Enough of this moss carpet was removed to uncover three long spruce poles ranging in length from 3.5 m to 5.1 m and 8 cm to 11.5 cm in diameter (Fig. 13). The bark had not been removed from any of the poles although they showed evidence that branches had been trimmed off. Two of the poles, and possibly the third, had been cut with an axe at the thicker end. They all lay on an old surface consisting of a thin layer of matted organic material overlaid a fine sandy humus. It was impossible to determine from the available evidence whether this feature was a part of some structure or simply represents a pile of firewood. Intensive test pitting throughout the site area failed to uncover any artifacts or other cultural material.

**Discussion.** Site 104X is in the general vicinity where,
Figure 12. Sketch map of Site 104X, Deadmen Valley.
(Drawing by Dianne Milton)
Figure 13. Feature 2, Site 104X, Deadmen Valley.
Figure 14. Feature 3, Site 104X, Deadmen Valley.
in 1928, R. M. Patterson (1966: 173-174; Scotter and Henry 1977: 4-5) found two cabins with vertical log walls which he believed dated to the period of the Klondike gold rush. Three years later, Bill Clark (Addison and Anthony 1977: 260-261) saw one of these cabins, then in a collapsed condition. He found artifacts there, including an oak rum or whiskey keg, which he felt were "Klondike" in origin. On the basis of evidence encountered at Site 104X, it is presently impossible to determine if this site is the same as that reported by Patterson and Clark. On the one hand, features 1 and 2 are in fairly good shape and would not appear to be 80 years old. On the other hand, feature 3 might well date to the turn of the century, and intensive examination of the whole area behind the snyle revealed no other evidence of former activity. None of the three features would appear to represent cabin remains; however, the height of some of the axe-cut stumps (up to 1.5 m ) suggests a winter occupation, and quite likely a cabin site.

Recommendations. Because of the possible association of Site 104X with the Klondiker period, and because this may represent the earliest non-native occupation of Deadmen Valley, it would prove useful to any future interpretation program of the area if the site and the vicinity were intensively tested in an effort to establish its origin. Although this should probably be done in the not too distant future, considering the greater need for archaeological investigations in other parts of the park, this is not currently seen as a high priority item. The site is sufficiently isolated and difficult to locate that it does not appear to be in immediate danger of disturbance through visitor related activities.
Other Cultural Remains
In addition to the two sites discussed above, the archaeological field party also examined two clusters of cabins in Deadmen Valley. One of these occurs on the right bank of Sheaf (Wheatsheaf) Creek at its mouth on the creek's densely vegetated alluvial fan (Fig. 10). Here are located the remains of two cabins and at least two caches. Apparently, the earliest of these cabins was built in 1928 by R. M. Patterson (1966) and Gordon Matthews and its only present manifestation consists of one layer of rotting base logs. The most complete cabin and its associated cache (Fig. 15) was built and occupied by the Corona party in 1939. The third cabin, whose only visible remains are a shallow rectangular depression, may relate to this occupation as well. A map, photographs and history of this cabin cluster is provided by Scotter and Henry (1977: 5-11). No additional evidence was discovered by the archaeological field party, and it seems unlikely that further archaeological investigation of this site would provide information which could not be gathered more easily through other means.

The remains of two other cabins (Fig. 16) are located just behind the lands and forests patrol cabin on the right bank of the Nahanni River (Fig. 10). These cabins were built in 1945 by a party of Indians from Fort Simpson. Scotter and Henry (1977: 11-13) briefly relate the interesting history of this occupation and provide a map and photographs of the cabins.

The only other locality with evidence for former human activity—other than that obviously of a very recent nature—is at the easternmost edge of the valley in the vicinities of Dry Canyon and Ram Creeks. A few axe-cut stumps were discovered on the flood plain between the mouth of Ram Creek and the "Little Butte". Directly across the river, in the areas just east and north of the mineral lick, more stumps
Figure 15. Remains of cache at Sheaf Creek, Deadmen Valley.
Figure 16. Remains of cabin behind modern patrol cabin, Deadmen Valley.
as well as one cut log were found, though these could not be related to a specific feature. Recent fire hearths were most numerous on the north bank of the South Nahanni along the edges of the Prairie Creek alluvial fan.

Tlogotcho Plateau
The greater part of four days were spent on the Tlogotcho Plateau in order to reconnoiter the high alpine tundra there and to locate, if possible, the "Tlogotcho Cave" where Patterson (1966: 160-161) found prehistoric remains in 1928. The field party was taken by helicopter to a small valley on the Plateau where Patterson (in Addison 1977; see also Neily 1977) recollected the cave was located. Prior comparisons of Patterson's (1966) detailed description of the valley against maps and air photos had confirmed that this was indeed the most likely candidate.

A thorough reconnaissance of the valley, occupying most of two days, indicated that it fit Patterson's description almost perfectly. We were even able to isolate a specific locality which corresponded well with Patterson's description of the immediate vicinity of the cave site. We were unable to find any cave approaching the dimensions of that mentioned by Patterson, however; nor, indeed, were there any limestone outcrops. We did locate two rock shelters which might possibly be considered caves, but neither of these showed any sign of former human activity. It is still possible that, given more time, we might have located the cave in that valley or possibly the next one immediately to the south. For the time being, however, the "Tlogotcho Cave" remains an archaeological enigma.

The return trip by foot across the plateau covered a distance of some 15 km. Although severely restricted by weather conditions, a limited amount of archaeological
reconnaissance was possible. Nothing was found, and the virtual absence of fuel and water on the upper portions of the Plateau argues against much archaeological potential there.

Archaeological Assessment of the Area
No evidence of prehistoric occupation was found in Deadmen Valley; and considering the active bank cutting of the numerous channels of the South Nahanni River, the deep silt deposits along the flood plain, and the very dense vegetation cover over much of the valley, any such evidence would be difficult to discover, at best. For this reason, the potential for prehistoric archaeological research in Deadmen Valley is considered to be low. The greatest potential lies in the intriguing history of the valley, which in large part is manifested by actual material remains which could form an integral part of any programme of interpretation. With the exception of the "Klondiker's cabins," however, these remains would probably be most appropriately documented through historical rather than archaeological research; and archaeological research might more profitably be directed towards other areas of the park where historical resources are less adequate.

Nahanni Hotsprings
The Nahanni (Kraus') Hotsprings study area includes the region along both banks of the South Nahanni River from Lafferty Creek to the mouth of Clausen Creek (Fig. 17). Within this area, specific localities surveyed include the Hotsprings-Kraus' cabin clearing area; the hill immediately behind the hot springs; the region along the trail leading from the Kraus cabin area to Clausen creek; and the north
Figure 17. Noteworthy features in Nahanni Hot Springs area. (Drawing by Dianne Milton)
side of the South Nahanni from the mouth of Lafferty Creek to a point just opposite the Kraus clearing, including the caves in the cliff face downstream from Lafferty Creek (Fig. 16).

The clearings around Kraus' cabins and the hotsprings were examined most intensively. 32 test pits, each 50 cm by 50 cm were dug to a depth of approximately 50 cm. Nothing was found in any of these which could not be directly attributed to the Kraus occupation of the area. All pit profiles showed a homogeneous deposit of alluvial sand and silt to the maximum depth of excavation, and subsequent measurements indicated that this deposit extends to a depth of at least 1.5 m below the present surface.

The field party examined two caves in the canyon wall at the mouth of Lafferty Creek (Fig. 17). The first of these (Fig. 18) is about 40 to 50 m above the canyon floor and was difficult to reach. A deep deposit of scree covers all but the very rear of the cave, where testing yielded no evidence of cultural remains. The second cave, about 75 m above the canyon floor, was even more difficult to reach. This cave is quite narrow and wet, and no cultural material was found.

Cultural Remains
Although no previously unrecorded archaeological sites were discovered in the Nahanni Hotsprings area, the field party examined two localities containing cultural remains previously identified by Marsh and Scotter (1975). Inasmuch as we found evidence not discussed in the Marsh and Scotter report, these two localities are briefly described here.

Approximately 220 m downstream from the Kraus cabin clearing, beside a well worn trail leading from the clearing to Clausen Creek, is a small grave marked with a wooden cross
Figure 18. Cave near Lafferty Canyon.
Figure 19. Grave beside trail near Nahanni Hotsprings.
(Fig. 19). According to Marsh and Scotter (1975: 42), this grave contains the remains of an infant Indian which were originally in a box on two posts "about 10 ft. high," when Gus Kraus first saw them in 1940. The Kraus' subsequently buried the remains in 1943. Although the posts supporting the original scaffold burial are reported to have fallen (ibid.), we found near the grave a tall tree stump 2.6 m (8.5 ft.) high in which a notch had been carved at the top. This was likely one of the original scaffold supports.

Marsh and Scotter (ibid.) state that the grave at this site was at an "Indian camp". The only evidence of this in the immediate vicinity was a broad area of axe-cut stumps; however, the area along the trail for about 180 m to the east contains a variety of features indicating extensive use related to the Indian camp and/or Kraus' subsequent occupation of the area. Specific features identified in this zone included an old wooden box; a log board nailed to two trees; a stump which had been cut and whittled to a point; and, between the trail and the riverbank, the remains of a platform cache originally supported by three or four notched stumps at a height of 1.7 m.

The other area with cultural features is along the densely vegetated north bank of the South Nahanni River directly opposite the mouth of the hotsprings outlet creek (Fig. 17). Three major features were identified in this locality (Fig. 20). Feature 1 consists of a humified log outline forming three sides of a rectangle measuring 4.5 m by 5.3 m. Feature 2 is the humified log outline of a large rectangular structure measuring 10.7 m by 5.4 m, with another log bisecting the structure at roughly the midpoint of its long axis. Immediately to the north are two small pits. Feature 3 is the humified base-log outline of a 4.4 m by 3.9 m structure. A few small-diameter
Figure 20. Sketch map of Field-Lafferty cabin locality, Nahanni Hotsprings area. (Drawing by D. Milton.)
poles and sod on top of the logs may be the former roof. A rusted and flat large tin can was found inside the feature, and there are two pits immediately to the north. All of the features are in very poor condition and difficult to locate. These structures were apparently used during one or two winters in the early 1920s by a party which included Poole Field (and possibly his wife), one or two of the Lafferty brothers, and two or three others, who were prospecting in Lafferty Canyon (Addison and Addison 1977: 11; Marsh and Scotter 1975: 39-40).

Archaeological Assessment of the Area
No prehistoric archaeological remains were discovered in the Nahanni Hotsprings area during the 1977 field season and the conditions along the flood plain are such that any present would be very difficult to find. During his occupation of the area, totaling about 17 years, Gus Kraus found only one artifact, a "good spearhead", in the region (Addison and Bates 1977: 137). Mary Kraus collected some materials which she gave to J.F.V. Millar, who generously donated them to Parks Canada through me. Two of the four items were collected in the bed of the hotsprings outlet creek and two from the bed of Clausen Creek (J.F.V. Millar 1978: pers. com.). All are of a siliceous shale material and are badly rolled and water worn. Their status as artifacts is therefore extremely difficult to ascertain. One of the items from the hotsprings creek bed is a smooth flat stone measuring 115 mm by 72 mm; large flake scars occurring bifacially on two edges are worn and smooth but may have been man-made. One of the specimens from Clausen Creek is a thick natural flake with small worn flake scars—possibly of cultural origin—along one edge. The other two specimens show no evidence of human alteration.
Gus Kraus (Addison and Bates 1977: 137) opined that the Hotsprings area was an unlikely choice for aboriginal campsites due to the poor fish and game resources in the immediate vicinity. The paucity of artifacts discovered during his long tenure there would seem to verify this opinion. The inaccessibility of most of the First Canyon and Lafferty Canyon caves, combined with the fact that those that have been examined by archaeologists have yielded nothing, (but see Addison and Bates 1977: 106) suggests that they represent poor potential for further archaeological investigation.

Of the historic remains in the area, the various Kraus structures are certainly the most conspicuous, though these can hardly be considered archaeological features. The various features along the trail to Clausen Creek, though probably postdating the 1930s, do provide interesting manifestations of native-trapper activity in the region. The grave, because of its recency and history (see Marsh and Scotter 1975: 42), may perhaps prove too sensitive for much interpretation. The Field-Lafferty cabin site on the north side of the river appears to represent the oldest and, from the archaeological standpoint, the most interesting remains in the area. Further archaeological work there might prove useful for interpretive purposes but is presently considered of low priority.

Nahanni Hotsprings to Nahanni Butte

During the boat trip from Nahanni Hotsprings to Nahanni Butte, the field party made a cursory examination of several localities suggested by Father Mary (1977: pers. com.) as being worthy of inspection. Evidence was found at two of these which is worth mentioning briefly here.
The Twisted Mountain
On a low bench at the base of the Twisted Mountain where it approaches the left bank of the South Nahanni, several axe-cut stumps were noticed. Although a 4.5 m log with a notch near its thick end was found, it could not be clearly identified as part of a major feature, as all other logs in the immediate vicinity were completely rotten. Nothing was discovered in any of the several test pits. Insofar as the general area at the base of the Twisted Mountain looks promising, and Neily (1977) indicates one of Faille's caches there, more careful examination of the general area might prove useful as an adjunct to any future research in the plains area of the park.

Mouth of Jackfish River
On the right bank of the Jackfish River at its mouth is a small cleared area surrounded by very dense vegetation. Evidence found in the clearing suggested that it has been used as a campsite, not only very recently, but also as early as a few decades ago. An old-looking but recently cleared trail extends an unknown distance to the south. We also located another trail which extends from the clearing downstream along the right bank of the South Nahanni River. This trail is obviously fairly old, and is overgrown to such an extent that it is very difficult to follow. The general area about the mouth of the Jackfish would seem to be worthy of further investigation should further archaeological work be undertaken in the lower regions of the park.

Nahanni Butte Area
Although the Nahanni Butte area is outside the borders of
Nahanni National Park, it is the location of the park's Operation Centre as well as one of three proposed sites along the Liard River for a possible Visitor Service Centre. For this reason the area was specified as one of those to be included in the 1977 archaeological survey. The archaeological reconnaissance was confined to a narrow corridor along the north bank of the South Nahanni from just west of the tip of Nahanni Butte to its confluence with the Liard 5 km downstream (Fig. 21). Sites recorded included two which were previously unrecorded and one which is well known to local residents but had never been the object of any systematic investigation.

Site 105X
Borden Grid: JgRu
Quadrangle: 95G/3
Military Grid Reference: 10VDC806680
Location. Site 105X is located at the Nahanni National Park Operations Centre adjacent to the southeast corner of a modern log cabin structure which is currently used by Parks Canada staff as a bunkhouse; it was formerly Dick Turner's generator house (Fig. 22). Although most of the immediate area has been cleared, it is within a zone of poplar and alder on a flood plain terrace approximately 8 m to 10 m above the level of the river, about 50 m to the southeast.
Description. This site is identified solely on the basis of a single artifact, a chert biface which was found in the backdirt of a backhoe excavation by a construction worker in the summer of 1977. At my request, the artifact was saved by Chief Warden Lou Comin for later inspection. Due to the nature of the find, the precise context and depth of deposition are unknown. The archaeological field crew excavated a 5 m by 0.5 m test trench to a depth of
Figure 21. Noteworthy features in Nahanni Butte area.
(Drawing by Dianne Milton).
Figure 22. Location of Site 105X, Parks Operation Centre, Nahanni Butte area, looking southeast.
0.6 m in the area including, and immediately adjacent to, the original excavation. Although the profile of this trench revealed a rather complex natural stratigraphy, no material of a cultural origin was found, nor was cultural material discovered in any of the several smaller test pits in the vicinity.

The biface itself (Fig. 23, a) is fashioned from a type of grey-black banded chert which occurs in several outcrops in the general region (J.F.V. Millar 1978: pers. com.). The biface is ovate to leaf shaped in form and is 98.9 mm long by 43.6 by 11.1 mm thick. There are broad, shallow flake scars covering both faces, and a marginal retouch is discontinuous but nearly complete on both faces.

**Discussion.** Assuming that the biface was not "planted", there are three possible explanations of its depositional history. The first is that it was an isolated artifact dropped or left behind at some point in time, then covered, in situ, by subsequent silt deposition and soil development. A second possibility is that it represents a secondary deposit, being transported by flooding waters from its original provenience in a site nearby. This seems rather unlikely, however, considering the size of the artifact and the lack of any evidence of the type of transport damage that would be expected to occur under these circumstances. A final possibility is that the artifact was deposited in the context of a campsite, which we failed to locate in our test excavations. In order to decide between the first and third possibilities, further intensive excavations would be necessary.

Considering the lack of context and the fact that bifaces of this general type are notoriously undiagnostic of age or cultural affiliation, little can be said about the 105X biface other than it almost certainly dates to the
Figure 23. Artifacts collected in the Nahanni Butte area:
   a, chert biface, Site 105X;
b, moose metapodial flesher, Site 106X;
c, sandstone chi-tho, Site 107X.
prehistoric period. J.F.V. Millar (1978: pers. com.) observed
that it falls well within the range of variation of bifaces
occurring in several prehistoric complexes at Fisherman
Lake.

Recommendations. Although there is no guarantee that further
cultural material associated with the 105X biface will be
found, additional testing at the Operations Centre seems
warranted should further archaeological research be conducted
in the Nahanni Butte area. In any event, Parks personnel
should be advised to be on the lookout for archaeological
materials in the course of any future development of the
wardens' compound.

Site 106X
Borden Grid: JgRt
Quadrangle: 95G/3, "Nahanni Butte"
Military Grid Reference: 10VDC828692
Location. Site 106X is on a small truncated terrace on
the left bank of the Liard River approximately 500 m
downstream from Chimney Point, the exact point of confluence
of the Nahanni and Liard Rivers (Figs. 21, 24). The site
is on the second narrow terrace, 29 m northwest of the
river bank, in an area of thick poplar, alder and shrub
vegetation. A small creek enters the Liard 46 m upstream
from the site.

Description. This site, which has no remains visible on
the surface, was discovered through routine test pitting
operations. One test pit revealed part of a hearth
containing ash, charred wood, and burned bone fragments.
The hearth was situated just below the modern sod surface
at a depth of 16 cm to 22 cm. At a point 2 m northeast of
the fire hearth, in a second test pit, a moose bone flesher
was found in association with two complete moose bones (see
Figure 24. Confluence of Nahanni and Liard Rivers, looking north. Site 107X is at centre of picture, Site 106X at extreme right.
Appendix A). These were just under the modern sod and moss layer, in the bottom of an old root channel, at a depth of 29 cm below the surface. A third test pit, 2 m west of the hearth, was devoid of cultural material. On the basis of the test pits, the site would appear to extend over a 10 m\(^2\) to 20 m\(^2\) area.

The single artifact recovered is a fleshing tool made from a metapodial bone of a moose (Fig. 23, b). Its total length is 334 mm, and the diameter at the mid-point of the carved shaft is 29 mm. The distal end of the shaft has been beveled, rounded, and notched to form a comb. Near the proximal end of the implement is a drilled hole measuring 6.85 mm (\(\frac{1}{4}\) in.) in diameter. This hole is very regular and was probably made with a metal drill bit. Fleshing tools of this general type are common throughout the North, and in Nahanni Butte they are still being made and used to process hides.

Discussion. Site 106X appears to be small, and probably represents a single, short-term occupation. The fact that the fleshing tool was apparently drilled with a metal bit indicates that it was made sometime after the introduction of trade goods into the region. Thus, the site could have been occupied anytime after the early 1800s. The relative depth of the cultural deposits and the absence of commercially manufactured artifacts, which are usually abundant in the more recent sites, suggests that this site was occupied in the earlier portion of the post-contact period.

Recommendations. Considering the apparent relatively small size of this site, no further research there seems necessary; however, intensive survey and testing in the general vicinity of this site is warranted inasmuch as the whole system of terraces along the north bank of the river in this region appears to have been a major settlement area in the past.
Site 107X

Borden Grid: JgRt
Quadrangle: 95G/3, "Nahanni Butte"
Military Grid Reference: 10VDC824688

Location. Site 107X is located on a point, known locally as Chimney Point, on the north bank of the Nahanni River right at its confluence with the Liard (Figs. 21, 24). The site is one of the few level areas of the first flood plain terrace of the river, about 8 m to 10 m above water level when we were there. A small creek enters the river a few meters west of the site, as does another several meters to the east. The vegetation of the immediate vicinity consists of a mature stand of poplar and a very dense growth of shrubs, principally alder and rosebush. The ground surface is exposed except for a layer of leaf litter covering much of the area.

Description. Several features and scattered modern surface debris were found to be concentrated within an area measuring roughly 80 m by 35 m behind the bank of the river. A total of 12 features were located and these were mapped by means of a Brunton compass and measuring tape (Fig. 25).

Feature 1, in a small clearing adjacent to the river bank, is a recent campsite, with a fire hearth, the remains of a shelter made from poles and plastic sheeting, a makeshift tin can teapot, and scattered tin cans and other litter. The other features fall into three categories. There are five roughly rectanguloid pits, ranging in size from 70 cm to 190 cm along the maximum dimension and up to 50 cm in depth. There are an additional three pits with associated rubble mounds. These range in size from 110 cm to 290 cm along the maximum dimension, with depths of 40 cm to 50 cm. The maximum dimensions of the mounds ranged from from 220 cm to 320 cm and from 30 cm to 65 cm in height.
Figure 25. Sketch map of Site 107X, Nahanni Butte area. (Drawing by Dianne Milton).
Features 7, 8 and 13 are concentrations of river boulders of varying size which protrude through the ground surface. Although these have been tentatively identified as cultural features, it is possible that all or some of them may be the result of natural processes.

Three 0.5 m by 1.5 m test trenches were excavated at Site 107X (Fig. 25). Test pit 1, located on an exposed surface adjacent to the river bank, yielded no cultural evidence. In test pit 2, adjacent to feature 2, a level containing wood fragments, bone, and clay (all burned) was encountered at 10 cm to 20 cm below the modern surface. This was overlaid by 5 cm of silt and sand to 5 cm of modern humus.

Test pit 3, near a pit and rubble mound (feature 10) at the western edge of the site, was the most productive in terms of the cultural materials recovered. The upper 5 cm to 8 cm consisted of a rather thickly matted layer of sod and humus. Embedded in this layer, but not protruding onto the surface, was abundant evidence of a relatively recent occupation of the site. This evidence included 18 fragments of a phonograph record (78 r.p.m.?), a concentration of 8 glass mirror fragments, a concentration of 435 small plastic beads, 4 iron nails, 2 lumps of wax, and 23 identifiable bones, most of which belong to a single small hare (see Appendix A). In addition, a large cut, forked stick protruded from one wall of the excavation, and a dense concentration of spruce needles and twigs was found at one end of the test pit.

Below the sod, at a depth of 5 cm to 20 cm below the modern surface was a layer consisting of humified sand and silt. The base of this level consisted of a thin, compacted layer of wood chips, charred wood, and organic material. A portion of a large charred log protruded into the northwest corner of the pit; immediately above this was a very thin
layer of ash overlaid by a reddish, burned silt. Throughout this humified silt and sand layer were many bone fragments as well as 8 identifiable bones. Two artifacts, a .45-70 caliber cartridge case and a small drilled steel or iron strip, were recovered from the compacted layer at the base of this level. The deposit below this layer consisted of sterile silt, sand, and gravels beginning at a depth of approximately 20 cm below the modern surface.

In addition to the collections made from the test pits, a number of artifacts were found on the surface of the site. A large cast iron ornamental stove part with the inscription "The Gurney Tilden Co." was found lying atop the rubble heap of feature 11. Several artifacts, probably washed out of the bank, were found on the river beach below the site. These included a coarse sandstone cobble scraping implement, known throughout the North as a "chi-tho" (Fig. 23, c); the base of a glass bottle which appears to have been retouched (perhaps through natural forces); two .38-55 caliber cartridge cases; one .44-40 caliber cartridge case; a metal button with the inscription "Ring Edge"; and two lumps of an unidentified fused silicate material.

Discussion. The site at Chimney Point has long been known to local residents (Addison and Anthony 1977: 303; Addison and Bates 1977: 149-150). In fact, the point where the site is located got its name from the fact that there were at least three chimneys there until well into this century. The buildings associated with these chimneys had apparently burned long ago, and the chimneys themselves have since fallen. It is likely the original structures are probably represented by the pit and rubble mound features described above. This interpretation is supported by the burned log and compacted "floor" and associated detritus discovered in test pit 3 adjacent to one of these features.

Although many people are familiar with the "old houses"
at Chimney Point, no one seems to know their origin; and nothing has yet been found in the historical literature which provides a clue. Clark (Addison and Anthony 1977: 303) believes they were built by "old, old Indians". This seems highly unlikely, however, considering the nature of the features and artifacts recovered during the course of the summer's field work and the fact that several copper kettles were found there in the 1930s (Addison and Bates 1977: 150).

Jack La Flair arrived in the area in 1914, and later had a cabin and trading post very near this site; the structures had already burned by the time he arrived. Thus, this occupation of the site must predate 1914—probably by several years, if not decades. A maximum age for this occupation of the site is indicated by the four cartridge cases found at the site, one of which (the .45-70 caliber) was found in situ in a level which almost certainly is associated with the occupation of the structures. Both the .45-70 and .44-40 caliber cartridges were first introduced in 1873, and the .38-55 first appeared in 1884 (Barnes 1972: 60-63). It is unlikely, therefore, that the chimneyed structures predate 1874 or, more likely, a few years after that.

In any event there is less than a 40 year time frame during which the structures at Chimney Point could have been built. All of the evidence encountered to date strongly suggests that the builders of these structures were not natives; however, the buildings might very well have served as a trading post or similar institution closely associated with a resident native population. This would explain the presence of the chi-tho on the beach. This type of implement is common in northern Athapaskan sites of the later prehistoric and early historic periods. It is also possible, of course, that the chi-tho represents a
still earlier occupation of the Chimney Point site.

Although most of the discussion to this point has been devoted to the structures at Chimney Point, it should be noted that site 107X is clearly a multicomponent site. It is currently used by the modern residents of Nahanni Butte, and the material in the sod level of test pit 3 indicates that this has been the practice for probably several decades and—considering the chi-tho—perhaps even centuries. Inasmuch as the location of the Chimney Point site is one of the more favourable ones on the north bank of the Nahanni-Liard confluence area, it would not be surprising if several separate cultural components, dating well into the prehistoric period, were found there.

Recommendations. Site 107X is probably the most important archaeological site examined during the 1977 field season. It likely represents the earliest non-native occupation of the Nahanni area, and there is a good possibility that it may also represent a long succession of occupations by the aboriginal inhabitants of the area. It therefore shows considerable potential as a major feature for interpretation. Furthermore, the fact that it is still being utilized by local residents suggests that it is in danger of continued disturbance. Even though the site is outside the boundaries of Nahanni National Park, it is located near the present Parks Operation Centre and within a zone specified for possible future Parks Canada development. For these reasons, it is recommended that high priority be given to a programme of intensive testing of the site, with the primary objectives being to determine the nature and more precise dates of occupation of the former structures and to more clearly define the site's archaeological sequence of occupation.
Other Cultural Remains
Because the field party was occupied during most of the period spent in the Nahanni Butte area with the sites discussed above, it was impossible to devote any attention to more recent cabin sites in the region. This should not be taken as an indication that such sites are not common there. Throughout this century at least, the Nahanni Butte area has always served as the major centre of operation for those travelling up the South Nahanni River, including Indians, trappers and prospectors and, more recently, Parks Canada personnel. This activity, of course, has resulted in the construction of several clusters of cabins between Bluefish Creek and Chimney Point. Although many of these have long since fallen into the river (Addison and Bates 1977: 152-153), several still remain, and at least a few of these are probably worthy of investigation.

Archaeological Assessment of the Area
Of the several different areas investigated during the 1977 field season, the Nahanni Butte region clearly shows the most potential for future archaeological research. Given the environmental, ethnographic, historical, and archaeological background presented above, this is probably to be expected. This area has probably witnessed the greatest concentration of Indian occupation in the entire South Nahanni watershed. This would appear to have certainly been the case during the historic period, and probably during prehistoric times as well. It also appears to possess the longest and most accessible record of non-native utilization of the region. While it is true that the area suffers from the same obstacles to archaeological research (e.g., very dense vegetation cover, frequent silt deposition) affecting other areas,
archaeological remains are apparently sufficiently dense that they can be discovered through intensive testing techniques. It seems likely that most of the information to be gained on the prehistory of the general Nahanni region will have to come from this area. For this reason the Nahanni Butte area is recommended as a prime candidate for any future Parks Canada sponsored archaeological research.

The Netla River Uplands Area

The Netla uplands area is located adjacent to the right bank of the Liard River, approximately 7 km upstream from the mouth of the Netla River (Fig. 1). The region occupies an area of approximately 65 km² in which a series of low, but prominent, hills rise to an elevation of up to 180 m above the surrounding plain. Virtually the entire area has been designated as a possible site for a future Visitor Service Centre and was therefore included within the terms of reference for the 1977 survey. Due to the size of the area and the time constraints, archaeological investigations were limited to a 4 km stretch along the bank of the Liard River and two 2.5 km transects from the river to a summit of the hills.

No cultural remains more than a few decades old were discovered along the riverbank section, and virtually nothing at all (apart from the occasional axe-cut stump) was found in the hilly portion surveyed. There was, however, considerable evidence of recent activity along the 2.5 km of the lower flood plain terrace of the Liard River immediately adjacent to the hillside. This evidence consists of numerous cut stumps, peeled birch and spruce trees, and campsite areas. The latter are recognized by scattered fire hearths and lean-to or tent frames (Fig. 26). Although an explanation for the many peeled birch trees
Figure 26. Recent campsites on Liard River bank, Netla Uplands. Note stripped spruce tree in background.
was provided by a small decorated birchbark basket (similar to those sold as curios), it is not clear what use was made of the spruce bark.

That portion of the Netla uplands area which is adjacent to the Liard River is obviously heavily used currently by local natives on a seasonal basis, and it appears to have been so used for at least the last decade or two. On the basis of the limited investigations of 1977, the area appears to have little potential for the discovery of older archaeological remains; however, a definite proposal for development within the area should probably be preceded by intensive survey of the specific localities to be affected.

Blackstone River Area

The Blackstone River enters the Liard 33 km downstream from the mouth of the Nahanni. The Blackstone River study area corresponds to a region designated for a possible Visitor Service Centre consisting of a broad zone on either side of the lower 6 km of the Blackstone River. During the 1977 field season, archaeological survey concentrated on the bank of the Liard River from the mouth of the Blackstone (behind an island) to a point 3 km downstream and 2 km upstream, the lower 2 km of the Blackstone River, and a transect from the Blackstone mouth to the right-of-way of the proposed Liard Highway.

No cultural remains more than a few decades in age were found in the Blackstone area. As with the Netla uplands region, however, there was abundant evidence of more recent activity in the form of cut stumps, fire hearths, and lean-to and pole features (Fig. 27). Inasmuch as the home of a trapper and his family (formerly Edwin Lindberg, Sr., currently his son Edwin, Jr., and partner Ernie Leith) has
Figure 27. Lean-to feature near mouth of Blackstone River.
been located just down the Liard since the 1920s or 1930s, many of the features are undoubtedly the result of trapping associated activities. Others may probably be attributed to natives of the Nahanni Butte area, who currently exploit the region occasionally in winter (Ernie Leith 1977: pers. com.). In general, the evidence encountered during the 1977 field season indicates a low archaeological potential for the area. Further research there seems unnecessary unless there are definite plans to develop in the area.

Areas Surveyed by Helicopter

During late August, a helicopter survey was made of the lower portion of the park (below Virginia Falls) and vicinity. I was accompanied on the trip by Charles Yohin and Lena Marcelais (interpreter) of Nahanni Butte and Park Warden Art Cochrane. The purposes of this survey were to gain an initial impression of more remote areas and to examine sites known to Charles Yohin. Although it was impossible to examine any single locality to an extent allowing meaningful assessment, several archaeologically interesting features were observed. They are very briefly described here.

Upper Wrigley Creek

Three localities were examined in the immediate vicinity of the main fork of Wrigley Creek, 35 km (by air) upstream from its mouth. The first of these is on the left (east) bank of the east branch just above the fork. This is the area estimated by Neily (1977) to be where a large Wrigley Indian cache site had been reported. A brief ground inspection and several passes of the helicopter failed to reveal any evidence of former activity there. The second
locality examined is on the right (west) bank of the western branch, right at the fork. This is where Charles Yohin remembered camping briefly approximately 40 years ago. A few old axe-cut stumps were found, but there was no evidence of the precise location of his former campsite. The final locality contained an extensive area of cultural remains. These are described as completely as is currently possible below.

Site 108X
Borden Grid: J1Si
Quadrangle: 95F/14, "Wrigley Creek"
Military Grid Reference: 10VCD772622
Location. Site 108X is located on the high second bench on the east side of the point formed by the two converging branches of Wrigley Creek (i.e., on the west bank of the eastern branch, just at the point of convergence with the western branch). This area is on high ground well above the flood plain, and the vegetation consists primarily of mature spruce, shrubs, and a ground cover of moss and lichens (Fig. 28). In addition, scatters of bone fragments and cut sticks were found just below the first bench at the back of the flood plain, right at the point of junction of the two creek branches. This area may or may not be associated with the main part of Site 108X on the bench above.
Description. From the air, an area of cut tree stumps measuring perhaps several hundred square meters was located on the second bench. During a brief ground inspection of the vicinity, it was possible to identify only two features in close proximity to one another. One was simply a pile of long spruce poles which had been cut. The other consisted of 11 logs, each approximately 1.25 m long, arranged in a closely spaced row (Fig. 29). Also in the general vicinity were several individual long poles, some of which had been
Figure 28. The main fork of upper Wrigley Creek, looking southwest. Site 108X occupies most of the area in the centre of the picture.
Figure 29. Cache feature at Site 108X, upper Wrigley Creek.
cut. Undoubtedly, given more time for inspection, other features would be found in the general area of the cut stumps. As mentioned above, a concentration of bone fragments and wood chips was found on the flood plain below the bench, and it is possible that these remains are associated with the main site.

Discussion. Site 108X is probably the same site visited by Kraus and Clark in the 1930s and described by Clark (Addison and Anthony 1977: 253-256) in some detail. Clark found several ground caches made "like little cabins" and platform caches. He states that the site was used in winter by Indians from the Wrigley and Fort Norman areas who entered the area across a pass from the North Nahanni River. This is where they made their skin boats in which they journeyed down Wrigley Creek, the South Nahanni, and ultimately back to Wrigley and Fort Norman. Although it is not clearly stated, it would appear from Clark's description of the caches that they were still standing when he saw them. It is therefore likely that the caches that Clark saw are not very old and probably do not predate this century. It is possible, however, that the site may have been a traditional camping area and may have remains of some antiquity.

Recommendations. Site 108X appears to be a large and very interesting one; however, it is in a relatively inaccessible location and is well outside the boundaries of the park. For these reasons, no further archaeological research at the site is recommended for the immediate future.

Sea Plane Lake
At Sea Plane Lake, near the Flat River just outside the park boundary, a cabin was seen (Fig. 30). The cabin is located on a small island in the lake, and Charles Yohin believed that this was one of Faille's. Kraus (Addison and Bates
Figure 30. Cabin remains on island at Sea Plane Lake.
1977: 156, 158) states that he built a cabin on an island at Sea Plane Lake in the 1930s and Albert Faille had never been there.

Wild Mint Springs
A small cabin is located in a clearing adjacent to Wild Mint Springs, just within the park boundary near the Flat River (Fig. 31). This cabin is structurally unique insofar as it is built within an excavation approximately 1 m deep, and its roof and the above-surface portion of its walls are covered with sod. The cabin is in relatively good condition, and its origin appears to be unknown.

Yohin Lake
A brief stop was made at Yohin Lake, during which a portion of the northern shore was investigated. The whole region along this shore is littered with evidence of intensive current use and, on a narrow strip of land separating Yohin Lake from the small lake to the north, there are several modern campsites. Charles Yohin says these are used by Nahanni Butte residents for fishing and trapping during the winter.

According to Charles Yohin, when he was a young boy (about 70 years ago) a man named LAKONKOLI (approximate phonetic transcription) lived in an old tipi-style cabin in the same area where the modern camps are now located. This man, as did other local Indians, used to camp here to fish during the fall. The remains of this cabin were apparently burned in a forest fire and could not be precisely located.

A well worn trail leads from Yohin Lake northward to the South Nahanni River. Although this trail is currently used by snowmobiles, Charles Yohin stated that it was also
Figure 31. Semi-subterranean cabin at Wild Mint Springs.
used traditionally.

Time did not allow any archaeological testing at Yohin Lake; however, sufficient evidence was seen which, combined with the statements of Charles Yohin and additional information obtained subsequently, indicates that the area had been used intensively for decades, and probably centuries. The area therefore appears to possess considerable archaeological potential and should be a high priority for further research.
Conclusions and Recommendations

The discussion of the 1977 archaeological survey has given separate treatment to each area examined with respect to survey results, evaluation of archaeological resources, and specific recommendations. The task remains to present an integrated perspective on the archaeological resources of Nahanni National Park as a whole. Considering that the 1977 survey was the initial effort towards a basic reconnaissance of a very large area, it should be realized that any assessment at the present time must be a preliminary one. The discussion which follows, therefore, should not be considered as a conclusive statement on the archaeological resources of Nahanni National Park. It does, however, provide a firm basis for the recommendations for further archaeological research which follow.

An Overview of Archaeological Resources in Nahanni National Park

Any assessment of the archaeological resources of Nahanni National Park must be based on two primary considerations: the extent to which the region was utilized and material remains were deposited in the past, and the probability that these remains have been preserved and can be discovered through archaeological investigations to the extent that meaningful statements about the past can be made. Theoretically, these two factors are of equal importance. Intensive and concentrated former occupation of an area means
little to the archaeologist if material evidence of this occupation is scanty, or if this evidence is subsequently destroyed by natural processes or hidden in such a way that its discovery is unlikely. On the other hand, ideal conditions for the preservation and discovery of material remains in an area are useless to the archaeologist if nobody ever lived there. In practice, however, the discoverability of archaeological remains is normally a more or less direct function of the intensity of former occupation.

With these considerations in mind, the currently available evidence suggests that the potential for archaeological research in most of the area within the park is relatively low. This applies particularly to the region along the South Nahanni River upstream from the mouth of First Canyon. In comparison to the lower portion of the park and neighbouring regions, the food resources of this area are inadequate to support a human population of any significant size, suggesting that any aboriginal utilization of the area was probably of a seasonal and limited nature. This is supported by the ethnographic information which, though confusing, tends to indicate that the area along the South Nahanni River was used relatively little—primarily as a route of travel between other localities in more remote regions of the park or outside its boundaries. The results of the 1977 archaeological survey would appear to support this interpretation. In this entire section of the park, only one site was found which might possibly be considered to represent an aboriginal occupation during historic or prehistoric times; and this site was limited to four small stone chips.

It is significant that this site was found on the shores of Rabbitkettle Lake, the only area of the several investigated with conditions favouring discovery of
archaeological remains. With respect to resource availability, this area appears to have as much potential for settlement as any other—more, in fact than most areas, yet only four chips and one recent cabin were discovered there. This offers compelling evidence that the failure to locate aboriginal archaeological sites along the South Nahanni River upstream from First Canyon is due primarily to very limited utilization of the area in the past. Undoubtedly, some remains of former activity must have been deposited in the area. But, when one considers the active bank cutting, silt deposition, and dense vegetation cover characterizing most of the area—all of which destroy or obscure the archaeological record—it becomes obvious that even this limited evidence is likely to go undiscovered. For these reasons, the archaeological resources relating to prehistoric and early historic aboriginal occupation of this portion of the park are considered to be minimal. Very intensive testing in specific localities might produce results, but the information obtained through such methods would probably not justify the time and expense required.

The archaeological resources relevant to the 20th century trapper-prospector activity along the upper South Nahanni is more abundant, and certainly more discoverable, than those associated with the earlier aboriginal occupations. Nevertheless, concentrations of these resources, principally cabins and caches, are restricted primarily to two areas: Deadmen Valley and the Flat-Nahanni confluence region. On the basis of documented sources, these two areas would not appear to be as productive of prospector-trapper sites as the regions along the lower South Nahanni and middle Flat Rivers.

The region along the Flat River, other than its lowermost 2 km, is the only area in the park which was not reconnoitered during the 1977 survey. In order to ensure
comparable coverage of all major portions of the park, this section should be surveyed at least as intensively as was the upper Nahanni area. On the basis of documented evidence and the very brief helicopter inspection of the area, such a survey will likely prove relatively productive for two reasons. First, this general area was the primary focus of non-native prospecting and trapping activity during this century. A second prospect is that at least some localities in the area appear to be potentially productive of evidence relating to aboriginal activity during the prehistoric and early historic periods. The area around the mouth of Irvine Creek, for example, was apparently on a major travel route (Charles Yohin 1977: pers. com.), and Bill Clark reported seeing caches similar to those on upper Wrigley Creek in this vicinity (Addison and Anthony 1977: 255).

Most of the known and potential archaeological resources of the South Nahanni River, particularly those of native origin, are concentrated in the area below First Canyon. Although archaeological remains are scattered throughout this zone, there is a major concentration of sites near the mouth of the South Nahanni and probably another at Yohin Lake. All lines of currently available evidence converge to indicate that these two localities possess the greatest potential for further archaeological research. Yohin Lake, in particular, appears to be the most productive area in the park from a subsistence viewpoint. The area possesses an adequate moose population and, apparently, the only significant population of waterfowl in the park. Of primary significance, however, is the fact that Yohin Lake appears to be the only lake in the park with a fish population of adequate size to serve as a significant resource base. With respect to ethnographic evidence, the region below First Canyon--the Nahanni Butte area and Yohin Lake in particular--is the only portion of the entire South Nahanni watershed
for which a continuous aboriginal occupation since early historic times is clearly documented. The region, especially Nahanni Butte, was also the center of non-native activity during the historic period. It is the only area in the whole watershed where there has ever been a trading post or permanent village; and the evidence at the Chimney Point site suggests that the first non-native structures were located in the vicinity. Finally, all archaeological research to date in the lower Liard and Middle Mackenzie regions clearly indicates a prehistoric settlement pattern emphasizing intensive occupation of lakes and river mouths. These are precisely the situations represented by the Nahanni Butte and Yohin Lake localities. In this regard, Yohin Lake should be especially productive of prehistoric sites inasmuch as every major lake so far examined in the broader region has yielded prehistoric remains, and this lake is only 90 km from Fisherman Lake, which has proven to be the most productive archaeological locality in the entire Mackenzie Basin. All of these various lines of evidence taken in combination support the conclusion that the Yohin Lake and Nahanni Butte localities have probably always witnessed the greatest concentration of human occupation of any area in the South Nahanni watershed; therefore, the archaeological resources should be the richest there.

Although these two areas are relatively rich in archaeological resources, they are not exempt from the various hindrances to discoverability of these resources which plague most of the rest of the South Nahanni region. Nevertheless, the results of the 1977 survey indicate that, at Nahanni Butte at least, archaeological remains are sufficiently concentrated that they can be discovered through intensive testing methods. Both the Nahanni Butte and Yohin Lake areas are small enough that they can be
tested with the expectation of obtaining a significant sample allowing reliable statements to be made about the past utilization of the area. For purposes of interpretation and archaeological resource management, therefore, these localities appear to be the ones most worthy of further, more intensive, investigations.

**Recommendations:**

1. That portion of Nahanni National Park which includes the area along the South Nahanni River upstream from the mouth of First Canyon appears to be relatively poor in archaeological resources; therefore, no further research is recommended for that area in the short-term future. Parks Canada personnel and visitors should be advised to report any archaeological finds in the area, however. Currently, the possibility of damage to archaeological resources through Parks Canada development or visitor activity in any of the major visitor impact areas is considered minimal; however, any development activities in these areas should be monitored to ensure that archaeological resources are not destroyed.

2. The Netla River and Blackstone River areas are considered to be relatively poor in archaeological resources, and no further research seems necessary there; however, any potentially destructive development in either of these areas should be preceded by intensive examination of the precise areas to be affected to ensure that archaeological resources are not destroyed.

3. The area along the Flat River within the boundaries of Nahanni National Park should be the object of an archaeological survey similar to that conducted along the
South Nahanni River in 1977. This survey should have the specific objectives of locating and assessing cabin sites associated with trapper-prospector activity of the 20th century, and attempting to locate any material remains of prehistoric and early historic native activity in the region. In this respect the area around the mouth of Irvine Creek should be intensively examined.

4. Site 107X at Chimney Point, in the Nahanni Butte area, should be the object of further intensive archaeological investigation. This investigation should include precise mapping of all features at the site for which there is surface evidence, and the excavation of carefully controlled test trenches. The specific objectives of further investigations of Site 107X should be the acquisition of information relating to the occupation of the former large structures there, and a more precise definition of the archaeological sequence of occupations of the site. These investigations should precede any development or construction operations in the vicinity of the site.

5. The Nahanni Butte area, especially the region along the north bank of the South Nahanni River between the Nahanni Butte and the Nahanni-Liard confluence, should be the object of intensive archaeological survey and testing directed at obtaining further evidence relevant to the prehistoric and early historic (both native and non-native) occupations of the area. This investigation should precede any development operations there.

6. The area immediately surrounding Yohin Lake should be the object of intensive archaeological survey and testing in order to obtain evidence relevant to the utilization of the area during the prehistoric and early historic periods.
This investigation should precede any development or the initiation of any interpretation programme planned for the area.
Appendix A. Identification and Observations of the Faunal Remains from the Nahanni Butte Area, by Linda Fraser

Totals Based on Bone Counts

<table>
<thead>
<tr>
<th>Taxonomic Identification</th>
<th>Site 106X</th>
<th>Site 107X</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lagomorpha</td>
<td></td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>Erethizon dorsatum</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Alces alces</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Large Bovidae</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Large Mammal</td>
<td>21</td>
<td>3</td>
<td>24</td>
</tr>
<tr>
<td>Medium-Large Mammal</td>
<td>39</td>
<td>19</td>
<td>58</td>
</tr>
<tr>
<td>Small-Medium Mammal</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Avies</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Small Mammal or Avies</td>
<td>11</td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>Class uncertain</td>
<td>29</td>
<td></td>
<td>29</td>
</tr>
<tr>
<td>Site Total</td>
<td>91</td>
<td>54</td>
<td>145</td>
</tr>
</tbody>
</table>
Abbreviations Used in Identifications

ant.     anterior
art.     articular
cal.     calcined
carn.    carnivore
ch.      charred
comp.    complete
diap.    diaphysis
dist.    distal
ex. sh.  extremity shaft
f.       fragment
inc.     incomplete
juv.     juvenile
L.       left
M.-L.    medium-large
Mam.     mammal
med.     medial
NVEL     no visible epiphyseal line
post.    posterior
prox.    proximal
R.       right
recon. (#) reconstructed from # pieces
S.-M.    small-medium
SVEL     slight visible epiphyseal line
VEL      visible epiphyseal line
vert.    vertebra
### Identification of Bones Collected *

<table>
<thead>
<tr>
<th>Site/Provenience</th>
<th>No./Taxonomy</th>
<th>Skeletal Part</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>106X Test pit 1</td>
<td>21 large mammal</td>
<td>20 ex. sh., 1 f.</td>
<td>1 not cal.; 13 ch. &amp; slightly cal.; 6 cal., of these 2 with articular surfaces.</td>
</tr>
<tr>
<td>hearth material</td>
<td></td>
<td></td>
<td>Note: 1 ch. &amp; cal. with rodent chewing on ext. surface.</td>
</tr>
<tr>
<td></td>
<td>39 M.-L. mammal</td>
<td>39 f.</td>
<td>2 not cal.; 34 ch. &amp; cal.; 3 discolored but not likely cal.; White/brown cancellous bone.</td>
</tr>
<tr>
<td></td>
<td>29 class uncertain</td>
<td>29 tiny f.</td>
<td>ch. &amp; cal.</td>
</tr>
<tr>
<td>106X Test pit 2</td>
<td>1 Alces alces</td>
<td>L.T.C. &amp; 4</td>
<td>Complete; cut marks.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Note: 2 thin slashes of the prox. and ant. surface.</td>
</tr>
<tr>
<td></td>
<td>1 Alces alces</td>
<td>L.T. 2 &amp; 3</td>
<td>Complete; cut marks.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Note: natural damage of art. surface between T.C. &amp; 4 and T. 2 &amp; 3. These two bones fit together. Butchering slashes thin.</td>
</tr>
<tr>
<td>107X Test pit 2</td>
<td>1 large Bovidae</td>
<td>lumbar vert.</td>
<td>Chewed by carn., R. post. art. fact.</td>
</tr>
<tr>
<td>-10 cm. to -19 cm.</td>
<td></td>
<td></td>
<td>Note: larger than large bison in reference collection, therefore, larger than domestic cow. Oxen?</td>
</tr>
</tbody>
</table>

* See key to abbreviations, page 128
<table>
<thead>
<tr>
<th>Site/Provenience</th>
<th>No./Taxonomy</th>
<th>Skeletal Part</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>107X Test pit 2</td>
<td>1 M.-L. mammal</td>
<td>f.</td>
<td>Possibly regurgitated; pitted and worn.</td>
</tr>
<tr>
<td>-10 cm. to -19 cm.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(cont.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 Lagomorpha</td>
<td>L. scapula</td>
<td>Post. border</td>
</tr>
<tr>
<td></td>
<td>1 M.-L. mammal</td>
<td>f.</td>
<td>Slight brown spotting.</td>
</tr>
<tr>
<td></td>
<td>5 M.-L. mammal</td>
<td>5 f.</td>
<td>1 recon. (2); 3 cal.; 2 ch.</td>
</tr>
<tr>
<td>107X Test pit 2</td>
<td>1 M.-L. mammal</td>
<td>f.</td>
<td>Likely either rib, ulna or vert. process.</td>
</tr>
<tr>
<td>-22 cm to -25 cm.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>107X Test pit 3</td>
<td>1 Lagomorpha</td>
<td>R. scapula</td>
<td>Mid-body; inc. laterally &amp; med; young</td>
</tr>
<tr>
<td>sod zone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>R. humerus</td>
<td>Dist. 7/8.; VEL prox., SVEL dist.; juv. cortex.</td>
</tr>
<tr>
<td></td>
<td>&quot;</td>
<td>L. humerus</td>
<td>Dist. 2/3.; juv. cortex.; VEL dist.; Recon. (2); Epip. present.</td>
</tr>
<tr>
<td>Site/Provenience</td>
<td>No./Taxonomy</td>
<td>Skeletal Part</td>
<td>Remarks</td>
</tr>
<tr>
<td>-----------------------</td>
<td>----------------------</td>
<td>---------------</td>
<td>----------------------------------------------</td>
</tr>
<tr>
<td>Site 107X Test pit 3</td>
<td>Lagomorpha</td>
<td>R. Ulna</td>
<td>Comp. diap.; juv. cortex.; VEL.; Recon. (4).</td>
</tr>
<tr>
<td>sod zone (cont.)</td>
<td></td>
<td>R. Radius</td>
<td>Comp. diap.; juv. cortex.; VEL.; Recon. (2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R. Ilium</td>
<td>Juv. cortex.; VEL. at acetabulum.</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>2 R. ribs</td>
<td>1 mid-body ant. rib; 1 middle, dorsal 3/4.</td>
</tr>
<tr>
<td>1 Erethizon dorsatum</td>
<td></td>
<td>R. fibula</td>
<td>comp.; diap.; VEL prox. and dist.; juv. cortex.</td>
</tr>
<tr>
<td>2 small mammal/Avies</td>
<td></td>
<td>2 ribs</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>6 f.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>1 vert.</td>
<td>Juv. cortex</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>Ex. sh.</td>
<td>Femur f.; juv. cortex.</td>
</tr>
</tbody>
</table>

Note: from this catalogued section it appears that there is one juvenile rabbit and one juvenile porcupine.
<table>
<thead>
<tr>
<th>Site/Provenience</th>
<th>No./Taxonomy</th>
<th>Skeletal Part</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>107X Test pit 3</td>
<td>1 M.-L. mammal</td>
<td>f.</td>
<td>&quot;trowel trauma&quot;</td>
</tr>
<tr>
<td>sand &amp; silt zone</td>
<td>1 Alces alces</td>
<td>L. femur</td>
<td>Very pitted as if chewed by carn.; dist. medial epip. VEL.</td>
</tr>
<tr>
<td></td>
<td>1 Lagomorpha</td>
<td>R. Mandible</td>
<td>Ant. 1/2; includes M₁ alveolus for P₄ and M₂ &amp; 1.</td>
</tr>
</tbody>
</table>

Note: Wear present on occlusal surface.

|                  | 1 Lagomorpha  | R. Calcaneus  | Very eroded; Epip.; NVEL. |
|                  | "            | R. Talus      | Comp. |
|                  | "            | Phalanx       | Comp.; NVEL |
|                  | "            | R. Tibia      | Mid-shaft 1/2. at junction of fibula. |
|                  | "            | R. Humerus    | Mid-shaft 3/4. |

Note: These rabbit identifications are likely from an "adult" in that there is no juvenile cortex and the size of the shafts is "normal". Therefore, at the site there are at least 2 rabbits present.

<p>|                  | 3 large mammal | 3 ex. sh.     | 1 Recon. (6); 1 ch. &amp; cal. Recon. (2); 1 f. |
|                  | 7 M.-L. mammal | 7 f.          | 1 ex. sh.; 3 juv. cortex. |</p>
<table>
<thead>
<tr>
<th>Site/Provenience</th>
<th>No./Taxonomy</th>
<th>Skeletal Part</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>107X</td>
<td>1 small mammal/Avies</td>
<td>1 f.</td>
<td>Possibly innominate</td>
</tr>
<tr>
<td>Test pit 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sand &amp; silt zone</td>
<td>1 Avies</td>
<td>1 skull f.?</td>
<td>Likely mandibular area.</td>
</tr>
<tr>
<td>(cont.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Note:</td>
<td></td>
<td>Not any of the larger birds in reference</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>collection (i.e., not loon, eagle, goose,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>heron, sandhill, pelican, turkey); no swan</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>available.</td>
</tr>
<tr>
<td></td>
<td>2 M.-L. mammal</td>
<td>2 f.</td>
<td>1 Recon. (2) rib or vert. f.</td>
</tr>
<tr>
<td></td>
<td>Note:</td>
<td></td>
<td>Broken in a peculiar jag; however, no</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>evidence to consider it artifactual.</td>
</tr>
<tr>
<td></td>
<td>1 S.-M. mammal</td>
<td>1 ex. sh.</td>
<td>Possibly either radius or fibula.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>107X</td>
<td>1 M.-L. mammal</td>
<td>f.</td>
<td>Blackening due to either charring or</td>
</tr>
<tr>
<td>Beach surface</td>
<td></td>
<td></td>
<td>mineralization.</td>
</tr>
</tbody>
</table>
Observations

Estimates of minimum numbers of individuals indicates that at least two hares were present from 107X. These were likely both snowshoe hare (*Lepus americanus*) as suggested by range. One hare, represented by 10 elements, was young, as indicated by one incompletely fused proximal humerus. Hale (1949: 221) states that "open epiphyses were found in the humeri of all cottontails less than nine months of age in the groups of 19 rabbits". As cottontails are genus *Sylvilagus*, how closely this information could be applied to the genus *Lepus* is unclear. Attempting to determine the seasonality of the kill is also vague. With the earliest-born snowshoe hares born in April and the latest born in August (Burt and Grossenheider 1964: 214), the month of kill - if the hare was 9 months of age - would be between December and April, with the months of January to March being more likely. There were no discernible butchering marks on the bones of the juvenile hare.

The second hare was not a juvenile and was "average" sized for an adult. It was represented by 6 bones and could not be aged more exactly because of the lack of the epiphysis on the extremity shafts. The long bones demonstrated terminations like that of spiral fracturing and were likely broken while the bone was fresh.

There was one porcupine (*Erethizon dorsatum*) present in 107X. It was represented by one leg bone with juvenile cortex.

There was also one moose (*Alces alces*) present in each of the sites 106X and 107X, as indicated by the presence of two hind foot bones which articulate with one another and the distal portion of a left femur. The two foot bones had very fine and superficial cut marks from the butchering process, likely from the removing of tendons. The epiphysis of the distal femur was unfused. I know of no aging by epiphyseal closure for moose, but if the information for black-tailed deer can be considered (Lewall and Cowan 1963),
then all that can be determined is that the individual was less than approximately 3 or 4 years old. It should also be noted that the epiphysis from the femur was pitted, as if chewed by a carnivore.

One identification to large Bovidae from 107X remains a slight puzzle. The portion of the lumbar vertebra is much larger than that of the domestic cow and the largest bison in the reference collection. It is possible that this element might be from a domestic ox, but until a skeleton is available as a reference, no conclusion can be drawn.

There were 6 bones from 107X and 82 bones from 106X that were definitely charred or calcined or both. From the shape of the fractures of these bones it is apparent that they were not broken into very small pieces before being charred, but that the breakage was due to the effect of burning. In other words, it is not likely that the bone was finely broken in preparation for boiling and then burned.
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