Inukshuk: Caribou Drive Lanes on Southern Victoria Island, Nunavut, Canada

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Abstract. Caribou drive systems made of stone lines and cairns [*inuksuit*] are a common feature of the far north but have been little studied by archaeologists. Two communal caribou kill sites from southern Victoria Island, Nunavut, Canada are discussed and illustrated. The Eggington site is a single-line drive where herds of caribou were directed through a saddle between two hills and killed from shooting pits. The POD site is a V-shaped funnel with two prominent lines of cairns and stone walls ending with opposing shooting pits. The sites, of uncertain age, are similar to those described by Jenness for the historic Caribou Inuit. Critical aspects of landscape and caribou behavior/biology that were manipulated to achieve the kills include the nature of the terrain, sense of smell and eyesight, wind, and the reaction of caribou to motion. Caribou drives, though often devoid of artifacts, have the power to reveal the sophisticated systems of knowledge that enabled successful communal kills.

Introduction

The importance of caribou (*Rangifer tarandus*) to many Aboriginal groups of the far north can hardly be overstated. Birket-Smith (1929:47) referred to caribou as the "axis on which everything turns in the existence of the Barren Ground Eskimo." For the Caribou Inuit of the central Arctic, Steenhoven (1962:25) said, "it is fair to say that these Eskimos wake up and go to sleep with the word *tuktoo* [caribou] on their minds . . . [it is] the very pulse of their lives . . . *tuktoo* to them is not just game, but it is the focus of their cultural existence." In addition, Burch (1972:339) stated that caribou might be the species of single greatest importance in the anthropological literature of hunting societies. Caribou provided many of the basic necessities of life, providing food, clothing, shelter, materials for tools, and was the source of much spiritual belief and ceremony (Arima 1984; Spiess 1979). It is not surprising that northern peoples developed a wide array of ingenious and sophisticated methods to hunt the great herds of caribou. Perhaps the most compelling of these methods are the communal drives that included elaborate construction of stone structures built on the landscape.

Some researchers have argued that communal hunting of caribou was more productive than solitary hunting (Blehr 1990:321–322), which was considered successful if a single animal was killed (Balikci 1970:41). As Rasmussen (1927:73) noted when discussing communal caribou hunts, the use of "ingenious methods . . . give so rich a yield as to cover also the dead seasons when no game was to be had. . . ." The critical challenge in the vast, open tundra regions of the Arctic and Subarctic is to know where caribou will be located, and to be able to predict and control their flight path when approached by human hunters (Blehr 1990:310). In the treeless Arctic, lines of stone structures were the solution to this problem, as their purpose was to make caribou flight predictable. Given the extraordinary environmental constraints of the far north, and the need to understand and manipulate

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essential aspects of caribou biology and behavior, it is not surprising that such solutions were remarkably uniform across the Arctic.

Caribou drive systems built of stone structures are known from across the Canadian Arctic, Alaska, and Greenland (Arima 1975; Balikci 1970; Birket-Smith 1929; Boas 1964; Fitzhugh 1981; Gordon 1990; Gubser 1965; Jenness 1922; Morrison 1981; see Spiess 1979 for an overview). Birket-Smith (1929:11) reports that these features "are spread all over the whole country, wherefore a record of them all is impossible." Despite their ubiquity, archaeological study of these simple-looking yet complexly designed structures has been lacking. Most archaeologists have done little more than note their presence (Fitzhugh 1981; Grønnow et al. 1983; Morrison 1981; and Taylor 1972 being notable exceptions). The reasons for this paucity of study have been stated by Fitzhugh (1981:188) and include: caribou drive sites are difficult to find, hard or impossible to date, and difficult to interpret; the sites are of indeterminate cultural origin; and archaeologists have failed to consult with Native elders and to spend a significant amount of time in the regions where these sites are found. To this can be added that caribou drive sites generally lack any significant amount of cultural material. As a result, elaborate caribou drive structures have been repeatedly noted in the archaeological literature for the north but have seldom been the target of specific investigation. This paper describes two caribou drive structures of southern Victoria Island, Nunavut, Canada, and examines how Aboriginal knowledge of caribou allowed for the manipulation and harvesting of large numbers of animals.

Background and Setting

Victoria Island is a large island in the west-central Canadian Arctic (Fig. 1). The eastern half of the island lies in the territory of Nunavut. The southern shore of the island—of concern here—is separated from the mainland of Nunavut by Dolphin and Union Strait in the southwest, Coronation Gulf to the south, and Dease Strait and Victoria Strait to the southeast. The environment of the region is one of open, treeless arctic tundra; permafrost country

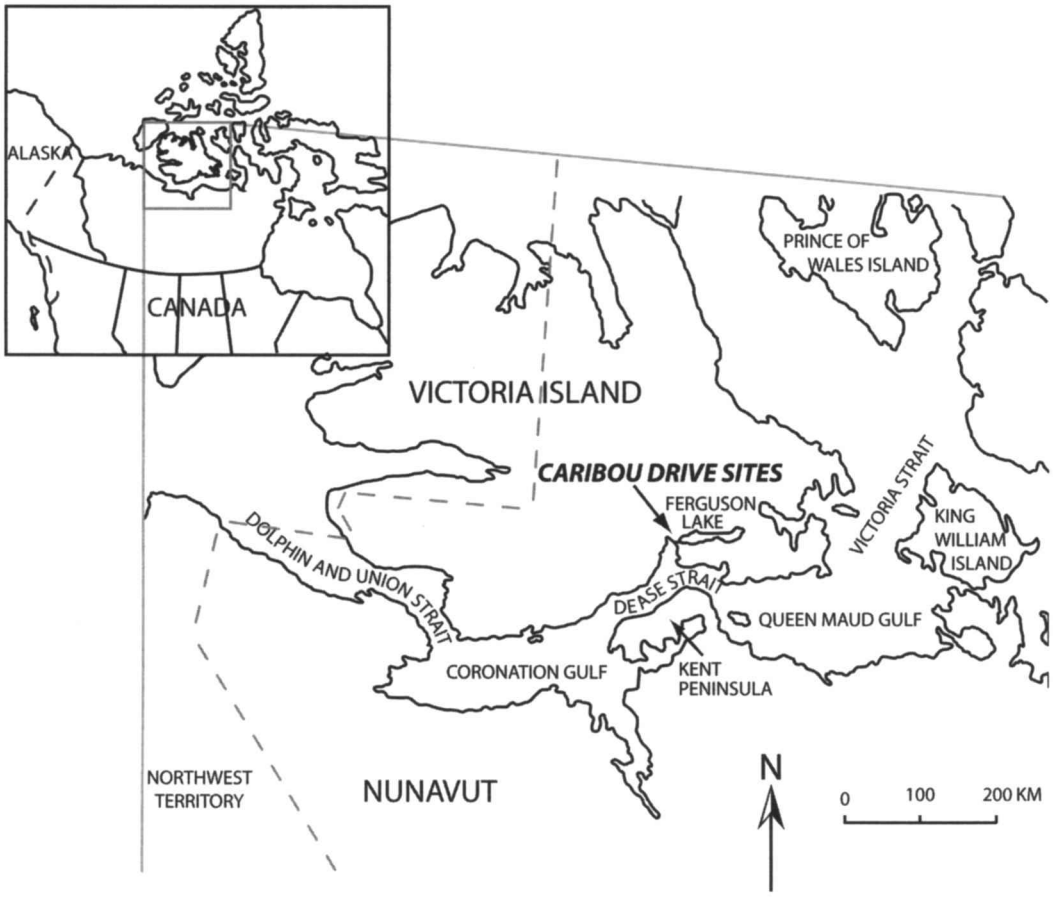

Figure 1. Location of Victoria Island in the central Canadian arctic.

dotted with countless small ponds, rivers, and many lakes (Jenness 1922:13–27). Damas (1972:7), perhaps a little too harshly, described much of Victoria Island as a "virtual wasteland;" but it is true to say that the central Arctic is one of the most challenging inhabited places on earth. Oceans, lakes, and rivers are frozen for eight to nine months of the year. Whales, the mainstay of many Inuit cultures, are absent from the seas of Coronation Gulf and Dease Strait (Taylor 1965:12). Only the small ringed seal is found in abundance in the seas, while caribou, and to a much lesser extent musk ox, are the primary large land mammals (Morrison 1992:15). Fish are abundant, but can only be taken in significant numbers during the short open water season (Damas 1984a). Vegetation is limited to reindeer moss and various Arctic flowers and grasses.

Caribou have become rare on Victoria Island during the past half-century (Banfield 1954 Pt. 1:68–69) but the island was once the summer home to vast herds of caribou (Banfield 1954 Pt. 2:10–11; Stefansson 1914:39). Bathurst Inlet, just south of Victoria Island, was a major calving ground (Kelsall 1968:110). Herds came north from the Coronation Gulf region, crossing Dease Strait and Dolphin and Union Strait in late spring before the ice melted (Kelsall 1968:16). After summering on Victoria Island they regrouped on the southern shore until freeze-up, and then crossed back to the mainland (Jenness 1922:125; Stefansson 1914:41). In 1910 and 1911 Stefansson (1951:224) reports traveling with huge herds of caribou on Victoria Island, and that hundreds of thousands, possibly millions, were seen headed south from this island across frozen Dease Strait. A few years later Hoare (cited in Banfield 1954 Pt. 1:10) observed these same herds and estimated their numbers in the millions.

In historic times these vast herds were systematically hunted by the known residents of southern Victoria Island, the Copper Inuit, whose territory extended onto the adjacent portions of the mainland in the vicinity of Coronation Gulf (Damas 1984a). The Copper Inuit are the westernmost group of the Central Inuit, an Arctic adapted people who subsisted almost exclusively on foods obtained from land and sea mammal hunting, fish, fowl, and small mammals (Damas 1984b). How long these people and their ancestors have occupied the region is unclear, but McGhee (1972) argues that the Copper Inuit are direct descendents of the earlier Thule culture, which would place them in the region for at least the past 800 years. Owing to their central Arctic location, distant from both eastern and western entrances to the northern oceans, the Copper Inuit were among the last northern people to sustain frequent and prolonged contact with European culture (Damas 1984a). Indeed, so poorly known were the Copper Inuit that in 1888 Boas completely omitted them from his listing of Central Inuit groups (Damas 1984b). As a result, they continued to live a relatively traditional lifestyle into the early portions of the twentieth century. Fortunately, excellent ethnographic data exist for the Copper Inuit, primarily through the work of Diamond Jenness, who lived among them for two years (1914–1916) and whose account of their life (1922) is widely regarded as the finest and most comprehensive ethnography of any Arctic people (Collins 1984; Damas 1984a).

The sites discussed here lie to the north side of the western end of Ferguson Lake; a long, thin, inland lake which trends some 75 km east to west on southern Victoria Island, about 50 km north of the community of Cambridge Bay, Nunavut (Fig. 1). The west end of Ferguson Lake ends about 2 km from the coast and is drained by the Ekalluk River; a short, fast river that empties into Wellington Bay on the north side of Dease Strait. Importantly, two hills lie just north of the end of the lake and the beginning of the Ekalluk River (Fig. 2). These hills play an important role in the configuration of the two caribou drive sites. The tops and sides of the hills are rocky and barren, and are composed of a series of downward cascading terraces, or beach ridges, created through wave action as the land has continuously risen through isostatic rebound since the time of deglaciation (Fyles 1963). The lowlands surrounding the hills, and the saddle between them, are vegetated with moss and grass, and are often wet just below the surface. Numerous small ponds occupy the lowlands.

Previous Research

The first archaeological work in the Ferguson Lake region of Victoria Island was conducted in 1963 and 1965 by William Taylor (1967, 1972) who recorded and tested sites on the north and south sides of the west end of Ferguson Lake and along the Ekalluk River. Pre-Dorset, Dorset, and Thule components were identified. Two sites identified by Taylor on the north side of the Ekalluk River included extensive caribou game drive complexes (Fig. 2). One, NiNg-17, was situated on generally level terrain near the coast of Wellington Bay and consisted of a series of simple stone cairns, often in multiple rows, extending in roughly a straight line for a distance of about 1.6 km. The other drive complex, NiNg-4, lies about 2 km to the southeast of the first, and consists of a crescent-shaped arrangement of stone cairns that conform to the contour of an elevated gravel ridge. This second drive is said to be about 1.2 km long[1] and is situated to the south side of the southernmost of the two hills, with a low, wet area dotted with small ponds lying between the south side of the hill and the elevated ridge on which the stone structures occur (Taylor 1972:72–73). This is much like the setting of the

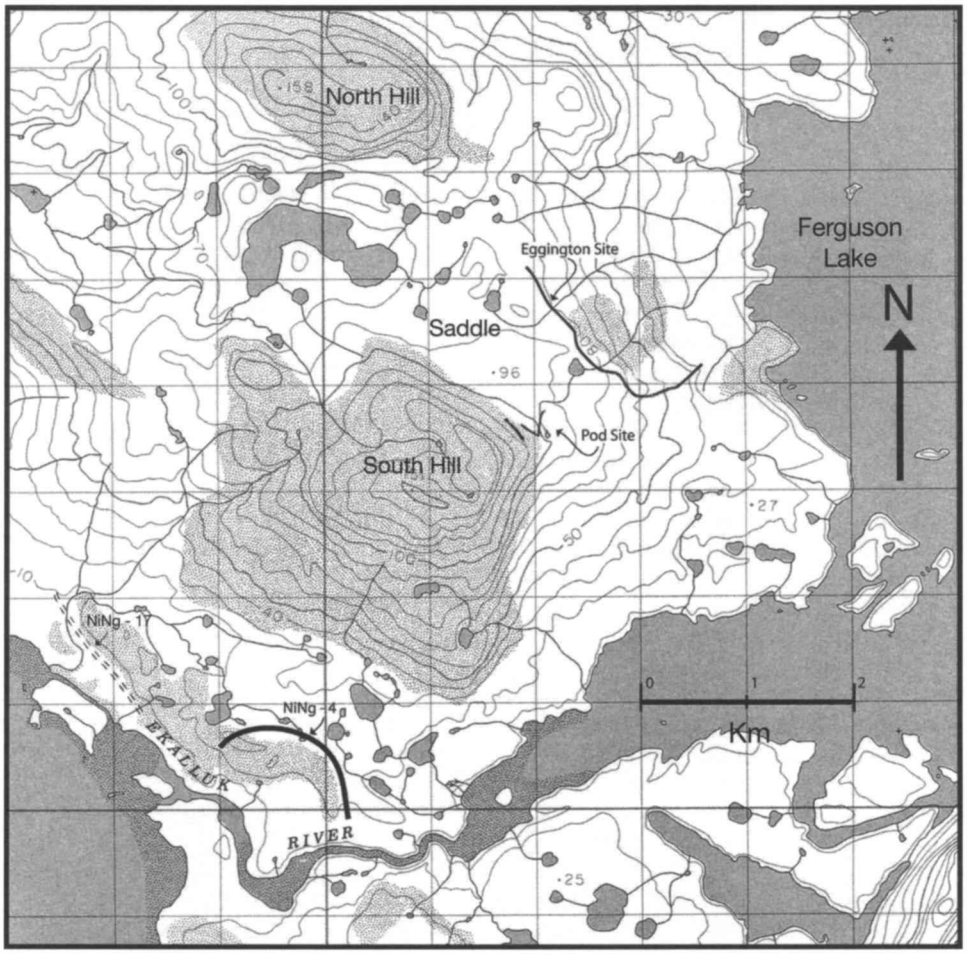

Figure 2. Topographic map of the Ferguson Lake region showing the two hills to the north side of the Ekalluk River, and the saddle between.

two sites discussed here, which are situated just to the northeast side of the same hill, some 4 km to the northeast of the sites described by Taylor. The archaeological richness of the Ekalluk River region led Taylor to return in the summer of 1988. Indeed, Taylor was first inspired to examine this area of Victoria Island by Jenness, who indicated to him that the Ekalluk River region should be a promising area for archaeological sites (Taylor 1972:53).

McGhee (1971, 1972) also carried out archaeological survey and excavation on western Victoria Island and recorded sites attributed to the Pre-Dorset, Dorset, Thule, and Historic periods. At the Kunana site in Prince Albert Sound, some 300 km northwest of Ferguson Lake, McGhee (1972:71) reports a complex series of caribou drive lanes on raised beach ridges north and west of a historic period habitation site. That 96% of the more than 3,000 identifiable faunal remains from the Kunana site were caribou suggests the primary purpose of the site was for hunting and butchering migrating herds of caribou (McGhee 1972:71). McGhee (1972:100) believes that the Kunana site was occupied primarily during the nineteenth century, probably by the historic Copper Inuit.

Taylor (1965:17) also tested a site on western Victoria Island, at Lady Franklin Point, where 82% of the nearly 6,000 bones recovered were caribou. Taylor (1965:17) concluded that the local Inuit cultures had successfully adapted to life without the typical Thule dependence on hunting of large sea mammals. Thus, caribou hunting using stone structures on southern Victoria Island can be traced from ethnographic times (Jenness 1922), through the historic period (McGhee 1972), back to at least the Thule culture (Taylor 1965). It may, of course, extend much further in time, as game drive structures built in a productive location may be used over a great time span by a succession of different cultures.

West Ferguson 1, the Eggington Site

The term "*inukshuk*" (plural "*inuksuit*"—both spelled in a variety of ways) is an Inuit word that translates as "acting like a man" or "acting like a person" (Hallendy 1994); the implication being that these structures were intended to resemble, and perhaps take the place of, human beings. The basic type of *inukshuk* stone structure is generally similar in size, shape, and method of construction for both sites reported in this paper and consists of three to four rocks stacked on top of each other to form a small cairn some 30 to 40 cm high (Fig. 3). Basal stones are often the largest in the cairn, with both large (20–30 cm) and small (5–10 cm) rocks added to the top. Often, rocks intentionally overhang the edge of the basal stone and are held in place with the weight of additional stones on top. This overhang gives the structure an appearance of having wings or arms. Note in Figure 3 how stones of specific size and shape were carefully selected to balance on the top of the *inukshuk*. While this describes a "classic" *inukshuk*, most structures are simply piles of a few rocks, or consist of nothing more than a single boulder propped up on its long axis. Sometimes it could be determined that upper stones had fallen from the basal rock; other times it appeared that no upper rocks had ever been added. *Inuksuit* at the two sites discussed here were also built using high points of local bedrock as the basal stone to which one or two rocks were added.

The Eggington site was the first site with stone features discovered, lying between the two hills on the north side of the west end of Ferguson Lake. This is a complex network of many lanes of stone and *inuksuit*, rock walls, and shooting pits. While it seems likely that this structure represents a single caribou hunting system, as opposed to multiple, independent hunting components, this cannot be proven with the evidence at hand.

Figure 3. Example of classic form of *inukshuk* with large basal stone, overhanging upper rocks weighted down and balanced stone on top. From the Eggington site.

Location

Between the two hills to the northwest side of Ferguson Lake, at an elevation of about 80 m ASL, is a saddle containing one large lake and many small ponds (Fig. 2). It is the north and east facing sides of the southernmost hill, and the saddle between the hills, that are of concern to the sites reported here. The Eggington site is situated in the saddle between the two hills to the east side of the large lake and small ponds. It begins at an elevation of about 80 m ASL and ends about 300 m from the northwestern shore of Ferguson Lake at an elevation of about 30 m ASL (Figs. 2, 4). The total length of the stone lines of the Eggington drive is about 2,400 m, although undiscovered portions may exist at either the east or west ends.

The beach ridge gravels of the southern hill cascade downslope towards the northeast. As the steep slope of the hillside eases into the saddle, the ground covers become more mosaic; an interfingering of ridge gravels, vegetation consisting of Arctic grasses and moss, and exposed bedrock. Noteworthy is the fact that the stone lanes mostly follow areas of exposed bedrock and beach ridge gravels, seldom crossing vegetated areas. The west end of the lane begins on an outcrop of ridge gravels in the central part of the saddle, and the east end terminates near the lakeshore where grasses again appear. The general orientation of the entire lane system is WNW to ESE, though there are divergences from this trend. Likewise, most of the Eggington lane system precedes downslope towards Ferguson Lake, though some sections angle upslope and others cross over level ground following the contour of beach ridges. Designating the upslope portion of the lane as the beginning assumes a downslope direction to caribou drives that cannot be proven. However, as discussed below, there are aspects of wind direction and caribou biology and behavior that would tend to make downhill drives more likely to succeed.

The Eggington Drive System

Mapping and recording of the site was complicated by the convoluted nature of the drive system. A line of *inuksuit* splits into many lanes, parallel lanes rejoin, some lanes taper out while others cross each other, and sections of the stone walls are interspersed with individual cairns. Walking what appeared to be the main lane of *inuksuit* frequently resulted in spotting additional lanes located both upslope and downslope, leading to uncertainty as to which, if any, could be considered the primary

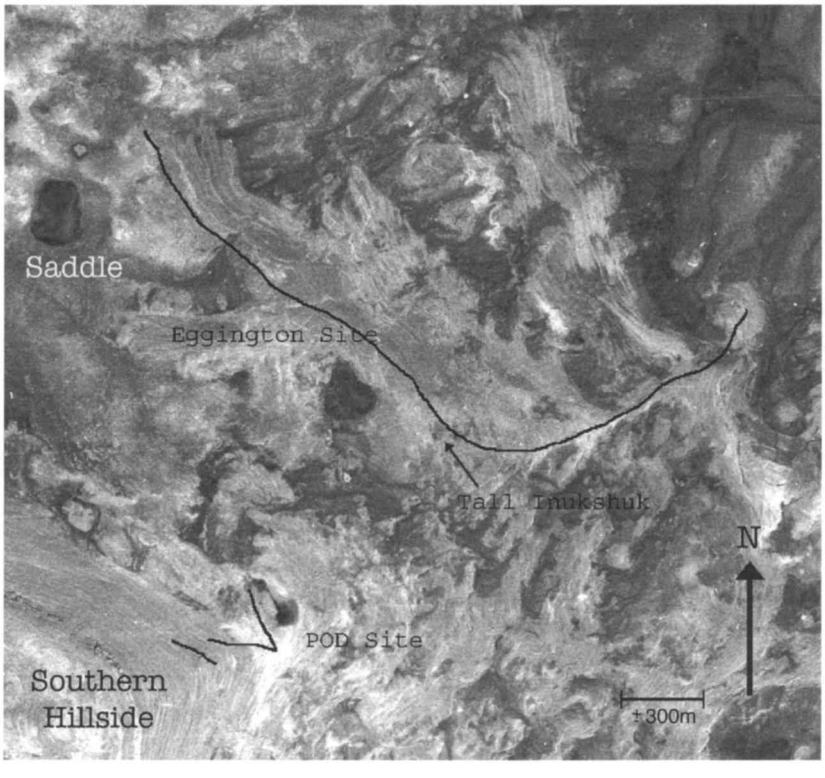

Figure 4. Air photograph of the Eggington and POD caribou drive sites illustrating the location of the drives in the saddle situated between two hills on the north side of Ferguson Lake.

lane. Undoubtedly some stone features went unrecorded. Tape measures, compass, and pacing were used to record the Eggington site; therefore, all site maps must be regarded as approximate.

The long, complex stone alignment is conveniently described in western and eastern sections. Most of the western half of the Eggington site trends northwest to southeast and follows distinct, parallel beach ridges that are oriented roughly perpendicular to the lakeshore. Thus, the western portion of the lane traverses mostly level ground. The first evidence of stone features was found in the central part of the saddle between the two hills, to the east of a large pond where vegetation is rich. The system begins with three parallel lanes that traverse two ridges of beach gravels exposed near the bottom of the saddle (Fig. 5). Rock cairns in these lanes were generally small, seldom consisting of more that two or three stacked rocks. Occasionally, small rocks were placed on in situ larger rocks to produce a higher cairn. The three lanes converged to one but soon split again into three or possibly four separate lines of *inuksuit* leading to a cluster of small shooting pits. Five to seven pits were noted, an exact count being hampered by the shallowness of the pits. These pits were typically 1.5 m in diameter, and formed by a slight scooping out of beach ridge gravels and the construction of a small berm around the lip of the pit. The berm was often no more than a single line of stones and the total depth of the pits was little more than 15 to 20 cm. No pattern could be detected to the positioning of the shooting pits; they were placed inside and outside of the parallel lanes.

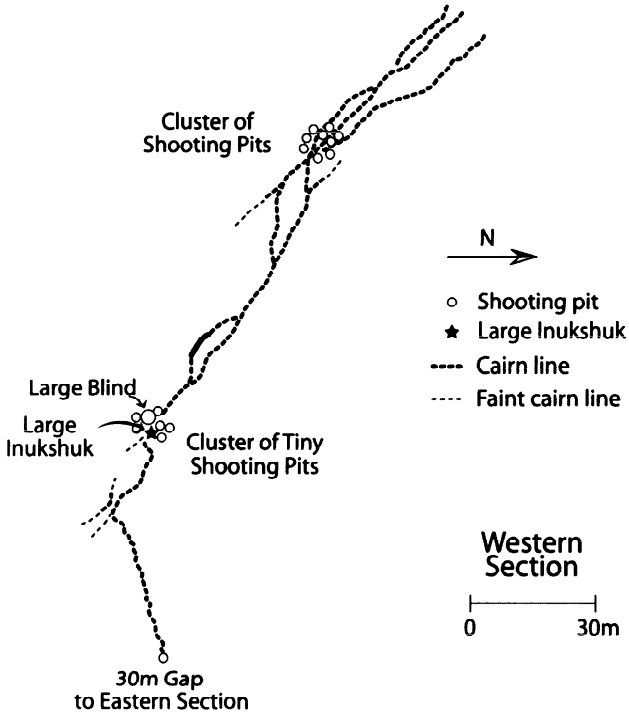

Figure 5. Sketch map of the western portion of the Eggington game drive site.

Past the cluster of shooting pits the southeast-trending line, with numerous splits and side branches, continues several hundred meters along roughly parallel beach ridges. In places this portion of the lane becomes sinuous and crosses up or down to adjacent parallel beach ridges (Fig. 6). The lane then rises up a slight slope crossing an elevated area of rugged gravels. This portion of the lane is considered a critical part in the game drive system. Visibility is excellent in all directions. Stone features found here include one extraordinary *inukshuk*, one very large blind structure, a cluster of at least seven tiny pits and the single lane of small *inukshuk* cairns (Fig. 5). The single extraordinary *inukshuk* (Fig. 7) consists of one large, rectangular rock standing on end with a smaller, sub-rounded boulder placed on top. Together, these two rocks reach a height of 1.5 m and form a very human-like appearance. While use of naturally upright stones to construct *inuksuit* was a common occurrence in the west Ferguson Lake region, the huge bottom boulder used in this single *inukshuk* has clearly been purposely erected into this position and the capstone placed on top of it. Whether or not the massive bottom boulder had been moved to this location for this purpose is unknown. Nothing remotely similar to this single *inukshuk* was observed anywhere in the west Ferguson Lake area.

Located some 5 m from the large *inukshuk* was an exceptionally large stone feature interpreted as a hunting blind (Fig. 7). This feature differed from shooting pit features in that it had only a negligible amount of excavation onto the basal gravels, but rather was constructed through placement of large boulders to form a crescent-shaped enclosure. In places the walls of this feature reached nearly 1 m in height, with the outside diameter being about 2 m. The closed, high part of the wall faced towards the northwest, away from Ferguson Lake and overlooking the saddle between the two hills. The open end of the crescent faced to the southeast. The rocks used in construction of this feature were exceptionally large for the area, much larger than those used in typical *inukshuk* construction. Rocks of this size were observed in the area on a sporadic basis; the concentration of large rocks used in this feature suggests transport from the surrounding region.

A final discovery at this seemingly significant point in the drive was a cluster of at least seven tiny shooting pits. Exact counting of these pits was hindered by their extreme shallowness and hence minimal intrusion on the landscape. These pits

Figure 6. Sinuous portion of the Eggington drive lane, following and crosscutting beach ridges in the upper, western section of the drive.

Figure 7. Large shooting pit or hunting blind and single tall inukshuk along the western portion of the Eggington site.

were all crescent-shaped, with no more than 1/3 to 1/2 of a circle represented by the outer berm or rock. Unlike other pits noted in the region, these were conspicuous by their minimal construction. Each pit was 1.0 to 1.5 m in diameter and was formed by a very slight scooping out of beach ridge gravels combined with construction of a tiny berm at the lip of each pit. These berms consisted of no more than one or two small rocks placed around the edges of the depressions, forming a total depth to the pits of no more than 10 to 15 cm. These tiny pits were scattered within a 15 m radius of the tall *inukshuk* and large blind feature. The pits would have done little to hide a waiting hunter.

The single lane of cairns that passes through the position of the tall *inukshuk* and pit cluster continues on a WNW-ESE orientation for several hundred meters before making a distinct turn to an easterly direction. This eastern portion of the Eggington site (Fig. 8) is characterized by lanes of rock cairns that crosscut (rather than parallel) beach ridges, and that run primarily downslope (rather than horizontal). The *inukshuk* lane that

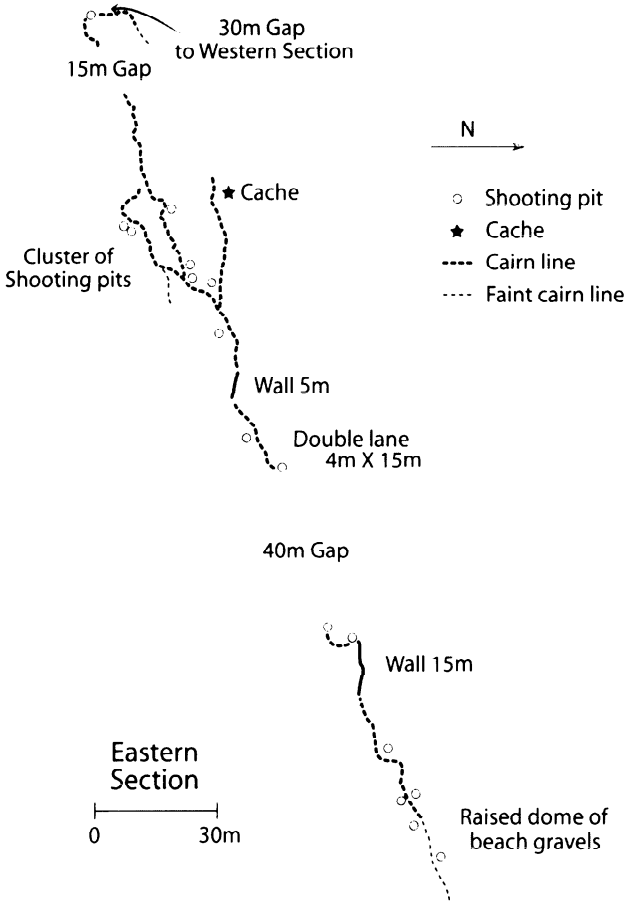

Figure 8. Sketch map of the eastern portion of the Eggington site.

turns east and runs downslope consists primarily of a single line of cairns, but with a number of conspicuous variations. As with the western section, lanes appear, merge, and disappear; double lanes appear and then end, as do gaps and short sections of rock walls.

Following the turn to the east the lane crosses an area of exposed bedrock (Fig. 9). The surface here is so rocky that it is hard to imagine caribou running through this area. Instead it seems that the *inuksuit* must have been intended to direct caribou downslope onto the finer gravels of the beach ridges. After about 200 m there is a 30 m gap in the lane with shooting pits at both ends of the gap. It seems likely that the gap formed part of the original design and served as one of many killing stations. The lane then becomes a double line of cairns, followed by a short 15 m gap, and then a single line for hundreds of meters. The lane exits from the bedrock and crosses diagonally down across beach ridge gravels.

As the lane traversed the beach gravels a V-shaped funnel of lanes was noted, split to the north and south sides of the main lane, which continues through the center of the funnel (Fig. 8). A cluster of at least six shooting pits was located near the apex of this funnel, and a few more along the wings of the funnel. At the end of the northern wing of the V was a large, deep, rock-walled structure believed to be a cache pit. It seems likely that these wing-like attachments to the main *inukshuk* lane were intended to direct caribou movement in much the same fashion as at the POD site discussed below.

Downslope from the funnel the lane continued as one prominent row of *inuksuit* essentially until its end. Noteworthy features observed over this distance include two solid rock walls, one 5 m long the second 15 m long (Fig. 8). Both walls were about 40 cm high and were made of relatively small rocks piled three to four high. Why walls appeared in these two sections of the lane is unknown, but they may indicate greater need to contain or control caribou. Inuksuit adjacent to the walls tended to be very close together, often no more than 0.5 m to 1 m apart. It may be that walls are formed slowly over time by gradually filling in the voids between very closely spaced cairns.

Between the two walls a distinct double row of *inuksuit*, 15 m long and 4 m wide, was recorded. This double lane was constructed of small rocks spaced so closely as to resemble low walls rather than individual *inukshuk*. A shooting pit was noted on the south side of the beginning of the double line and another on the north side at the end of the two low walls. The function of this double lane with pits is unknown. It would seem unrealistic to expect fleeing caribou to confine their run to this space. Immediately following this double line

Figure 9. Eastern section of the Eggington lane where cairns are constructed on exposed bedrock. Note shooting pit in foreground and cairns silhouetted against sky in background.

there is a gap of some 40 m before the main lane picks up again, with shooting pits located at each end of the gap. The gap and the shooting pits suggest another killing station.

The final portion of the Eggington lane crosses bedrock and beach ridge materials heading towards the shore of Ferguson Lake. Several shooting pits were noted near the terminus of the drive. Eventually, some 300 m from the shore of the lake, stone cairns become sporadic until none could be detected. The end of the drive appears uneventful; the lane climbs a slight rise caused by a circular dome of exposed bedrock (Figs. 4, 8). The final cairns of the Eggington site are found along the slope of this low dome and then end. No cairns were observed linking the Eggington drive system to the lake shore.

Consideration of the Eggington site configuration suggests the following. Inuksuit begin in the center of the saddle between the two hills, effectively deflecting herds in the saddle region to the southeast. This western portion of the lane roughly parallels the 80 m contour line that represents a notable break between the level area of the plain between the two hills and a steeper drop downslope towards the lake (Fig. 2). By paralleling this contour a channel is created between the steep hillside to the southwest and the *inuksuit* of the Eggington drive to the northeast. This channel opens directly into the center of the saddle; that is, to the northwest, into the prevailing winds (see below). Herds grazing in the low, vegetated areas of the saddle could be moved to the southeast, opposite the prevailing winds, with the hillside forming a barrier on one side and the line of *inuksuit* following the 80 m contour line on the other. Shooting pits are located at many places along the lane and at the end, suggesting that killing was planned for many locations not just at the terminus, as seems to be the case at the POD site.

West Ferguson 2, the POD Site

The POD site is a wonderfully preserved example of a caribou kill site that is based on the goal of driving the animals through an increasingly constricted space to a final killing location. It consists of a funnel-shaped alignment of two

converging sets of stone cairns and low walls that terminate at a narrow opening with shooting pits placed on each side.

Location and Setting

The POD site lies on the east-facing side of the southernmost of the two hills that rise at the northwest end of Ferguson Lake (Figs. 2, 4). The funnel sits at the base of a northeast-projecting spur of the hill, with the wide end of the funnel opening to the northwest, facing into the same saddle between the hills as the Eggington site. Thus, the west wing of the funnel angles up the slope of the hill crossing beach ridge gravels, while the opposite (eastern) arm of the funnel angles into the saddle across more level terrain. The entire area of the funnel is rocky and void of most vegetation save lichen and moss. Although the funnel does not point towards the lake, it was constructed in an area where the land dips downslope from the wide end to the narrow point of the funnel. The main part of the structure is some 2.5 km from Ferguson Lake and at an elevation of about 350 m ASL. All rock used in *inukshuk* construction is consistent with the size and lithology of the local sandstone beach ridge rocks (Thorsteinsson and Tozer 1962).

The Caribou Funnel

The primary rock features of the POD site are two converging lines of *inuksuit* and shooting pits located at the end and along the length of the funnel (Fig. 10). The wings of the funnel are essentially symmetrical forming a clear V-shape, although the lines are not entirely straight. The north line of the funnel is about 250 m long, and the primary west lane (the one that terminates at the narrow end of the funnel) is about 200 m long. However, there is a second line of *inuksuit* outside of the primary west lane that runs roughly parallel to the west lane about 50 m further to the west (upslope) (Fig. 4). This outside lane, about 100 m long, may have been an early version of the game drive system, reflecting revisions over time, or this uphill lane may be connected with attempts to bring animals located further upslope into the funnel system. The distance between the farthest ends of the two primary lanes that form the funnel is about 365 m.

A conspicuous feature of the caribou drive structure is at the narrow end where individual *inukshuk* have merged to form solid rock walls (Figs. 11, 12). The north (downslope) wing has a wall of rock over the final 17 m of its course, and

Figure 10. Aerial view of POD site, with arrows indicating position of inukshuk lanes.

Figure 11. Terminus of the north wing of caribou funnel with shooting pit (foreground), 17 m wall of rock, followed by individual inukshuk.

the west wing has a 42 m long rock wall. The considerably longer wall on the uphill side of the funnel may have been in response to a greater concern for animals escaping in this direction or for harvesting animals off the side of the hill. This may also explain the outer lane of *inuksuit* to the west. The transition from solid wall to individual *inukshuk* is abrupt at 17 m from the terminus of the north wing, but gradual in the west wing. That is, at a distance of 42 m from the end of the west wing there are single *inukshuk*, interspersed with short sections of wall, followed by more *inuksuit*. This may reflect an evolution of the building of the west wing, where separate cairns were, over time, linked with others to form a longer wall. Both walls range between 30 to 40 cm in height and are constructed of dry-piled contiguous rocks.

The north lane of the funnel (Fig. 13) was arbitrarily selected for more detailed study. Data collected included the distance between rock cairns, the height of cairns, and the number of rocks used in cairn construction. A sample of 39 cairns was studied, split between the wide and narrow ends of the funnel. Data recording was complicated by uncertainty over the integrity of individual *inuksuit*. It was not always clear whether rock cairns collapsed over time or were still at their original size. While impossible to determine absolutely, searching the surrounding area sometimes revealed rocks that had apparently once been part of the cairns. It appeared that more of the rock piles at the narrow end of the funnel had collapsed than at the wider end. It may be that this area suffered greater stress (human and animal interaction) than the far end of the wing. Alternatively, the difference in the condition of the cairns may reflect the desire of the hunters to maintain the condition of the more distant elements of the wing.

Table 1 presents data for *inuksuit* at the beginning (just past the 17 m wall) and end of the north wing. Cairns that were presumed to have collapsed have not been used in the computation of averages. Noteworthy is that *inuksuit* built near the terminus of the drive are very closely spaced, averaging just 1 m apart. At the farthest end, cairns are 4.5 m apart. Almost certainly this relates to a greater need for control of the animals near the final portion of the drive. Generally, cairns at the wider end are higher and built with more rocks than those at the narrow end. This may reflect the fact that it was more important for cairns at the wide end of the funnel to be seen and recognized from a greater distance, so as to direct the herds towards the final kill

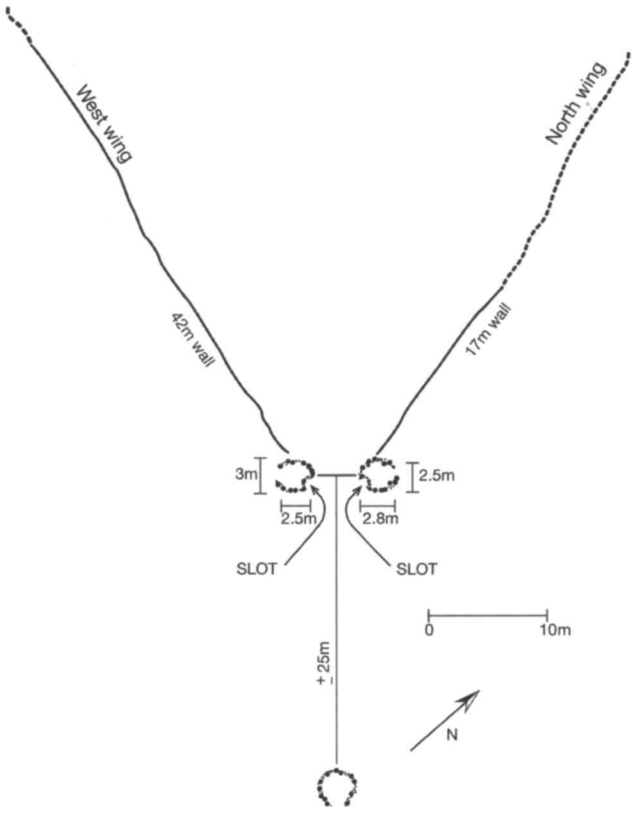

Figure 12. Sketch map of final portion of the caribou funnel with rock walls and shooting pits.

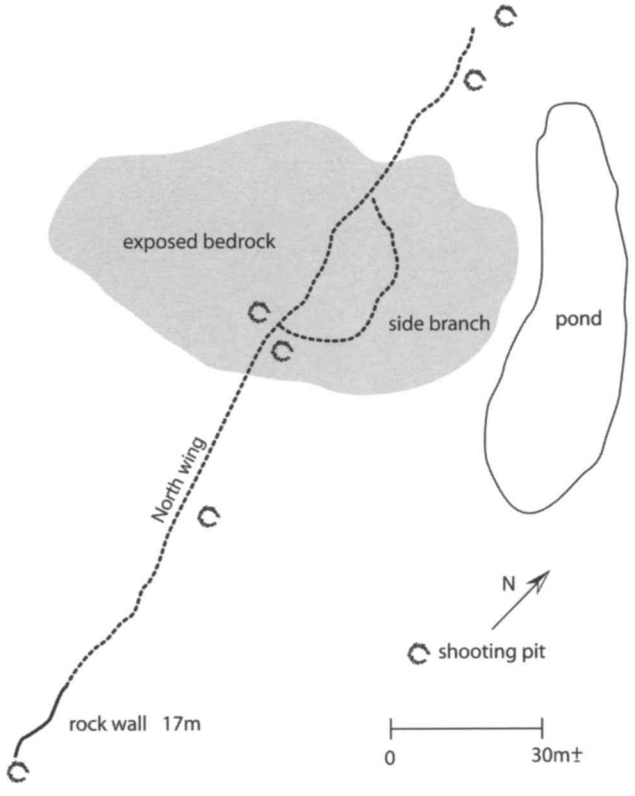

Figure 13. Sketch map of north wing of POD site.

Table 1. Data for *inuksuit* at the narrow and wide ends of north wing of POD site. Numbers in bold represent averages.

Wide End of Funnel			Narrow End of Funnel		
Distance (m)	**No. Rocks**	**Height (cm)**	**Distance (m)**	**No. Rocks**	**Height (cm)**
1.5			0.7	3	10*
5	3	35	0.7	2	20*
6	3	27	0.9	2	18*
6.5	2	42	0.9	2	20*
5.5	1	37	0.5	4	15*
3.5	3	30	1.5	1	10*
2	3	37	1.2	1	10*
4.5	9	45	1.3	1	10*
6	7	30	0.5	1	20
			1.3	4	20
4.50	**3.88**	**35.38**	0.9	1	35
			1.2	2	10*
			1.6	3	20*
			0.9	3	35*
			1.5	2	30
			1.04	**2.13**	**26.25**

* Indicates data presumed to be incomplete due to cairn collapse, and not used in calculating averages.

location. However, given that most of the cairns at the narrow end were interpreted as having collapsed, it is difficult to know if these data would be consistent with the condition of the *inuksuit* during the time they were in use.

The north wing of the funnel is essentially continuous, with no gaps greater than about 6 m. It is also essentially straight with a few minor bends but no significant turns. Beyond the 17 m long wall *inuksuit* traverse fairly level beach ridge rock, and then cross a stretch of exposed bedrock where high points appear to have been incorporated into cairn construction. While crossing the bedrock the lane bifurcates into two side branches, the functions of which are unknown, but which may reflect an early phase of construction (Fig. 13). The final portion of the north wing crosses beach ridge gravels and consists of cairns more widely spaced and more sinuous than at the narrow end of the funnel. A pond is located just to the east of the end portions of the north lane.

The Shooting Pits

Shallow indentations, interpreted as shooting pits, were a common feature of the caribou funnel. All such pits are roughly circular in plan view and range in diameter from about 2 to 3 m. Pits were constructed by scooping out beach ridge rocks and gravel to form a depression, and using the fill to form a berm around the outer edge of the pit. Generally the berm is highest at the side of the pit facing towards the funnel, and may be absent entirely from the opposite side. Shooting pits are located primarily along both wings of the funnel, although a few were noted inside of the two lanes. Most pits are found near the wide end of the funnel.

The two most substantial and conspicuous shooting pits are at the terminus of the funnel where the opposing rock walls at the end of the drive curve around forming a 3/4 circle (Figs. 11, 12). Thus, these are not separate shooting pits but rather a continuation of the two rock walls. The pits are about 2.5 cm in diameter and 45 cm deep. Both crescent-shaped pits are open to the direction facing away from the funnel and most highly bermed at the edge facing into the funnel. Both have a narrow slot in the berm wall that faces into the end of the funnel (Fig. 12). These are presumably for the positioning of a weapon, either bow and arrow or spear, allowing the hunters to remain in a lying position and thus completely hidden. The slots are not at right angles to the end of the funnel, but rather face slightly downslope past the end of the funnel, eliminating the possibility that the hunters could accidentally injure each other with loosed arrows. These are the only two shooting pits where these slots were observed, suggesting that concealment was most important at the termination of the drive. Clearly these two pits were precisely built to function as places from which to shoot or spear the stampeding caribou as they ran through the narrowest confines of the trap.

Some 25 m downslope from the end of the funnel lies a third shooting pit (Fig. 12). This pit was situated directly in the middle of the path leading out of the funnel, equidistant from the upper two pits. It is of similar size and shape as the other two except that it lacks a slot for placement of a weapon. This distant pit is also a semi-circle with the open end facing downslope away from the funnel. The function of the pit seems clear—to allow killing of animals that had escaped the confines of the funnel. Placement of the pit was probably critical: too close to the end of the funnel and it would become a visual and physical obstacle to the final drive down the funnel, too distant and it would permit a wider area for the surviving animals to disperse.

Many other shooting pits were noted in the area of the funnel and it was not possible to count and record them all. Research attention was again directed to pits placed along the north wing where a total of five additional shooting pits were recorded (Fig. 13). Measuring from the narrow end of the funnel, pits were recorded at distances of 100, 150, 157, 230, and 265 m, the latter being beyond, but in line with, the end of the *inuksuit*. Pits ranged from 40 to 60 cm in depth and were placed just outside or just inside the *inukshuk* line. Shooting pits placed along the lanes of the funnel may have functioned as either places for hunters to contain the stampeding caribou and keep them on the proper path, to kill those that came too close to the *inuksuit* and threatened to escape, or both. However, it is interesting that all additional shooting pits along the north wing are 100 m and further from the terminus of the funnel. If the main purpose of the pits was to kill animals caught in the drive then it seems that more pits should have been located closer to the end of the funnel. Placement of the pits a considerable distance from the end of the drive suggests that their primary purpose may have been as strategic positions from which the hunters could direct the course of the stampede. The two pits located at the very end of the funnel, and the one some 25 m beyond the funnel, are those presumed to be most directly associated with killing of caribou.

Consideration of the POD site configuration suggests the following. It is possible that the Eggington and POD sites may have been used in concert—the POD funnel helping to trap animals that tried an uphill escape from the Eggington drive, and the latter acting as a barrier to animals that may have avoided the POD funnel after being driven off the hillside. However, the need to station

people at one or the other kill site, and the presumably small population of available hunters, suggests that only one site would be the focus of a particular hunting event. Nestled against the base of the hill, this trap was constructed to take advantage of caribou herds from two sources: those moving southeast along the gravel ridges of the hill, and herds moving southeast out of the saddle. Note that the wide end of the funnel opens roughly parallel to the trend of a series of higher contour lines representing elevated ridges (Fig. 4). These ridges continue for some 1500 m on a northwest-southeast trend—ideally suited for a downwind drive across the excellent running terrain of the ridge gravels. Herds may have frequented these ridges seeking insect relief or to cool down on warm days. Hunters or beaters, coming from above or behind, could intercept herds moving along the elevated ridges, driving them downslope towards the wide end of the funnel. The run to the funnel was again downslope, adding to the instability and vulnerability of the caribou. Some animals may have been killed as they passed shooting pits distant from the narrow end, but most were probably shot by archers lying in wait in the final two opposing pits and by those stationed beyond the end of the funnel.

A Second Funnel?

Helicopter scheduling placed limits on the time available to examine the area surrounding the POD site. Just prior to departure we observed what appeared to be a second complete caribou funnel located downslope from the first; that is, to the southeast, past the narrow end of the POD funnel. We had no opportunity to examine this apparent feature and were not able to obtain a map reference. However, cursory inspection suggested that this was a very similar structure consisting of two converging lanes of cairns ending at a narrow opening. If correct, this combination of traps suggests an even more complex process of caribou hunting, with the second trap possibly intended to capture animals that escaped the POD trap. Additional field research is needed to verify the existence of the second funnel and to assess its role in caribou hunting on the north side of Ferguson Lake.

Discussion of the Eggington and POD Sites

Cultural Materials and Dating

No faunal remains or definite artifacts were observed at either of the West Ferguson Lake sites. A few small, short, thin pieces of wood were noted. As wood is not locally available, these may have been portions of arrow shafts, several of which were found by Taylor (1968) at the nearby NiNg-4 site. Small lithic artifacts, typical of the caribou hunting assemblages of many Paleo-Eskimo cultures (McGhee 1978, 1996), would have been elusive among the bedrock and beach ridge gravels without a dedicated search, which time did not permit. Faunal remains should have a higher degree of visibility yet none were observed. This is not unusual. Taylor (1965, 1972) commented on the absence of any caribou bone at the two *inuksuit* drives recorded a few kilometers east of the West Ferguson sites. At the Mantic caribou drive site on the upper Thelon River, Northwest Territories, Morrison (1981) noted the absence of any faunal remains and found only a single stone artifact. Fitzhugh (1981) did not report any faunal materials and only a few stone artifacts associated with the Williams Harbor caribou drive in Labrador. Surface inspection of a number of extant wood fence caribou drives in the northern Yukon also revealed no obvious faunal remains (R. Le Blanc, personal communication 2003). Carcasses may have been removed from the kills and taken to nearby camps. Major camp sites would not be expected in the immediate vicinity of a drive complex owing to the disruption a camp would cause to the efforts to drive game. Furthermore, among the Caribou Inuit, caribou kill sites employing water crossings were regarded as sacred places (Steenhoven 1962:27), a fact that might also explain the general paucity of cultural materials.

In the absence of faunal remains, artifacts, or other temporally diagnostic material it is not possible to assign any age to the caribou drive complexes on West Ferguson Lake. Based on the assumption that people generally lived near the sea, isostatic rebound and the consequent formation of beach ridges has proven a useful tool for relative dating of archaeological sites in south-west Victoria Island (Savelle and Dyke 2002). Placement of the drive lanes, however, was determined by requirements for gathering and directing the movement of caribou. As such, drive structures invariably crosscut slopes and ancient beach ridges, and thus could not be dated using the chronologies established for the emergence of beach ridges over time. Within a few kilometers of the West Ferguson Lake sites Taylor (1967, 1972) has recorded sites of Pre-Dorset, Dorset, and Thule age. Any or all of these archaeological cultures could have built and used the game drive systems. Taylor's (1965:16) report of a Thule style antler arrowhead associated with the nearby NiNg-4 caribou drive suggests that the West Ferguson sites were also used in Thule times, as the sites appear to form one large game-trapping network. Judging from lichen cover observed on the up-facing surfaces of stones used

in *inukshuk* construction it would appear that the features are of considerable antiquity. As noted above, once built the structures could have been used and modified by a number of successive cultures.

Season of Use

The probable season of use of the two West Ferguson sites can be posited. Historically, limited numbers of caribou did occasionally over-winter on Victoria Island (Banfield 1954 Pt. 1:15, 68–69), but the numbers were very low and not dependable. The great migration of herds across the frozen straits separating Victoria Island from the mainland occurred in the spring and consisted primarily of cow/calf herds, with bulls preferring to remain throughout the summer in the barren grounds (Banfield 1952 Pt. 2:21). The cow/calf herds returned to the mainland in autumn. In historic times, the Copper Inuit of Victoria Island turned almost exclusively to sealing for the winter, typically living on the sea ice for up to six months at a time (Damas 1984a:398; Jenness 1922:111). Thus, the West Ferguson sites could, realistically, only have operated in the summer and fall seasons.

This time limit can be further refined. Since cow/calf groups made up the majority of the population, studies have shown that cows nursing calves in the spring are severely depleted in muscle and especially fat tissue (Adamczewski et al. 1987; Dauphiné 1976). Cow condition improves over summer and is prime in the early fall (Reimers and Ringberg 1983; Ringberg et al. 1981). Also, spring and summer hides are rendered almost useless to humans owing to holes caused by emerging fly larvae (Balikci 1970:42; Damas 1972:13; Stefansson 1951:334). By late summer these holes have healed and hides are prime. Caribou hides, essential winter clothing of the Central Inuit, were as much the objective of the hunts as was food (Blehr 1990:320; Stefansson 1951:337). It can be suggested that the primary, though not necessarily only, use of the West Ferguson caribou kills would have been in the late summer and fall seasons. This is consistent with ethnographic records that document a strong tendency for communal kills in autumn, especially for the purpose of acquiring hides and surplus meat for winter (Arima 1984:449; Balikci 1964:12, 1970:43; Birket-Smith 1929:110; Blehr 1990:309; Damas 1972:13; Gordon 1990:289; Jenness 1922:102; Steenhoven 1962:25; Stefansson 1951:337).

Comparisons

The Eggington Site

Single lines of *inuksuit* like the Eggington site are found all over the Arctic and Subarctic world (see Anell 1969; Blehr 1990; Gordon 1990; Spiess 1979 for reviews). Boas (1964:93), who sailed into Davis Strait in 1883 to do research among the Central Inuit, commented: "Such monuments are found all over the country, most of them having the appearance of being very old." Single stone lines are said to be more common than funnel-shaped arrangements (Arima 1975:148; Birket-Smith 1929:111). Typically, single lines of cairns led to water crossings where swimming caribou were easily killed (Birket-Smith 1929:106; Boas 1964:93; Jenness 1922:124, 149; Morrison 1981:176). Less commonly, lanes of stone cairns were designed, like the Eggington site, to capture caribou on land by shooting or spearing them over the course of the drive (Balikci 1970:41; Boas 1964:100; Hearne 1971:320–321; Jenness 1922:148–149). In fact Gordon (1990:285) notes that single lanes of rock cairns were used by the Caribou Inuit to *prevent* animals from entering water in areas where kayaks were not used or not suitable. Jenness (1922:149) states that, at least in historic times, the Copper Inuit of Victoria Island seldom used kayaks in killing caribou and that drives using stone lines ending in shooting pits were the norm. The fact that other *inukshuk* drive complexes recorded for Victoria Island (McGhee 1971, 1972; Taylor 1972) are likewise land-based (though near the coast) supports Jenness' statement.

Taylor's (1972) record of a major *inukshuk* system, NiNg-4, just a few kilometers east of the Eggington site may well be the most comparable example to the Eggington site. It employs the same configuration of landscape, utilizing beach ridges in the hill and valley country north of the Ekalluk River, is primarily a single line of cairns, and contains generally similar stone structures in the form of *inuksuit* and shooting pits. The NiNg-4 *inukshuk* system is a 1.2 km long crescent-shaped series of stone cairns and shooting pits that hugs the top of a beach ridge situated between the Ekalluk River and the south-eastern flank of the same hill that figures into the operation of the Eggington and POD sites (Fig. 2). Taylor (1972:73–75) proposes that caribou were rounded up from the southern, vegetated, low-lying, end of the crescent near the Ekalluk River, then driven though the inner curve of the crescent to a series of gaps in the *inukshuk* line where most of the shooting pits are located. Taylor's interpretation has the animals running south to north, into rather than with the prevailing wind, and the drive may have gone in the other direction. Also, it's possible that the parabola functioned the other way, designed to channel the migrating herds between the *outer* curve of the crescent and the southeast side of the adjacent hill. Unlike the Eggington site, NiNg-4 appears to have been constructed with continuous *inuksuit* at both ends of the drive, with gaps for escape in the

middle. The Eggington drive is more complex, with many gaps, walls, parallel lines, and shooting pits spread over a greater distance. If shooting pits are associated with killing locations (as opposed to herd control), then the Eggington site has a number of kill stations, while NiNg-4 apparently has a single, central one. The presence of many caribou drives on the north side of Ferguson Lake suggests that all these features were built by the same people, possibly at the same time, the location of the herds determining which drive system was used at any one time.

Jenness provides a reminiscent description of a Copper Inuit caribou drive on Victoria Island where a single line of *inuksuit* end short of a nearby lake:

> These drives call for a considerable amount of strategy and the careful utilization of topographical features. The caribou may be grazing at the end of a plain a quarter of a mile wide, bounded by a low ridge on one side and a lake on the other. The hunters will set up their turf-capped stones at intervals of thirty or forty yards along the top of the ridge, and probably swing the line across the plain to within a hundred yards of the water's edge. (Jenness 1922:149)

Except for his more distant spacing of the cairns, Jenness' description applies exceedingly well to the Eggington site. A description equally reminiscent of the Eggington drive is provided by Balikci for the Netsilik Inuit:

> A somewhat more complicated and productive method of hunting caribou with bow and arrow involved the co-operation of "beaters" and "archers." Stone cairns designed to frighten the caribou were erected in a row on top of a ridge leading to a lake. At the end of the line of cairns and near the lake the archers lay in ambush, concealed behind low piles of stones. The beaters, using wolf cries, drove the caribou down the line of cairns towards the concealed archers, who then attacked the caribou with a barrage of arrows. Several caribou could be killed in this manner. (Balikci 1970:41)

The single stone line caribou drive at the Aasivissuit site in West Greenland is strikingly similar to the Eggington site and is one of the few other instances where details of stone *inuksuit* have been reported. Some 100 cairns are found over a 4 km distance along a mountainside, giving an average spacing of every 39 m (Grønnow et al. 1983). The majority of the cairns are composite, made up of 6 to 10 stones, while a minority are single stones raised in prominent places (Grønnow et al. 1983:41). As at the Eggington site, many cairns at Aasivissuit are built on bedrock outcrops, and others consist of single rocks propped up on a fortuitously placed in situ rock (Grønnow et al. 1983:41). Average cairn height is about 50 cm, though some have clearly collapsed. This *inuksuit* line leads towards a lakeshore where the row of cairns changes to what the authors describe as a "fence." This clearly represents an area of greater reinforcement, equivalent to the stone walls documented along certain portions of the Eggington drive and at the end of the POD funnel. The fence is described as being 70 m long, made of stone blocks ranging in height from 20 to 60 cm (Grønnow et al. 1983:41). The final fence continues downslope towards the lakeshore; however, placement of some 35 shooting blinds along the drive complex suggests, as at Eggington, that the primary killing of the game occurred on land, not in the water.

One of the most thoroughly studied single-line stone cairn caribou drives comes not from the Arctic, but from Morrison's (1981) description of the Mantic River drive complex in the Subarctic. Most Subarctic caribou drives, located where wood was accessible, employed wooden posts rather than stone structures (see Spiess 1979:106–118). The Mantic River stone drive site, a type almost always associated with Inuit culture in northern Canada, is located in the homeland of historic Chipewyan people, and Morrison (1981:172) believes they, not Inuit, built and used the drive. The site, situated on the upper Thelon River, Northwest Territories, consists of some 3.3 km of stone lines and cairns complete with 36 shooting pits (Morrison 1981:180). Reminiscent of the Eggington site, Morrison (1981) proposes a number of killing locations staggered along the course of the lines based on the presence of shooting pits and gaps in the rock lines. Many individual lines are single rows of stone, but some parallel avenues are noted as is one long V-shaped convergence of two lines that ends, not with shooting pits as at the POD site, but a single rock line leading to the river. However, most lane construction and all shooting pits are situated away from the water edge, suggesting that killing of caribou was intended to be conducted inland rather than while the animals were crossing the river.

The POD Site

In contrast to the common single stone lines of the north, V-shaped funnels of stone roughly similar to that of the POD site are rarely reported in the literature. Similar forms of V-shaped funnels were observed by Vorren (1965:516–517) in the 1930s on Norway's Varanger Peninsula. Many converging stone lines were reported, which, like the POD site, were often located on ridges of loose stones that rise up from the valleys (Vorren 1965:516). Stone cairns were likewise of minimal construction, averaging 30 to 70 cm in height. Vorren (1965:517–518) notes that as the wings of the funnel radiate out

from the end of the trap, the stone cairns "nearest the enclosure form solid walls, but which soon take the form of small heaps of stones or sharp upright stones at a distance of 3–4 m from one another." The switch from rock walls to individual cairns and the close spacing of the cairns are strikingly similar to the POD site. Some of the Norwegian drives led to actual stone enclosures. These seem rare in the Canadian Arctic, although Savelle (1987, plate 7b) illustrates what may be a stone corral-like structure used for trapping caribou on the Adelaide Peninsula, Nunavut.

For the Canadian Arctic, there are a number of references in the historic and ethnographic literature to converging stone lines (Anell 1969:11; Arima 1975:148; Birket-Smith 1929:110, 111; Rasmussen 1927:74; Steenhoven 1962:27; Stefansson 1914:58). Steenhoven (1962:27) describes Caribou Inuit using two long, converging rows of stone cairns with chunks of sod on top, spaced as much as 90 m apart, leading to water crossings. In what seems generally similar to the set up and presumed operation of the POD funnel, Stefansson describes a V-shaped drive he observed while with the Central Eskimo of the Coronation Gulf region:

> When a band [of caribou] is discovered feeding, a V-shaped "fence" is constructed somewhere beyond their line of vision, generally to leeward. The "fence" consists of straight lines of stones or pieces of sod raised on end and set twenty to forty yards apart . . . These stones, sod or blocks of snow are often not over eighteen inches high and no particular pain need be taken as to their shape or appearance, though a dab of earth is usually put on a block of snow or light colored stone so as to make sure that animals will see it . . . When the fence is completed, a half dozen men make one a mile long in an hour, the men conceal themselves in the angle of the V, the women and children with the dogs, go to windward of the deer to drive them . . . If they attempt to pass outside the wings of the V, someone is there to turn them, and usually the band moving in single file along side the V-shaped fence, much like horses along a barbed-wire fence, arrives at a walk or slow trot to the point where the angle of the fence becomes so narrow, about one hundred yards, that they begin to notice the fence on the other side and to see there is no opening. Then they bunch up irresolutely and give the hunters good opportunity to shoot. (Stefansson 1914:58)

Stefansson (1914:58) witnessed eleven caribou killed in such a trap by a group of four male hunters and six women plus children. This was regarded as a relatively poor catch for a drive operation.

Consistent with the POD site, Arima (1975:148) makes the observation that converging lines of stones tended to lead to archers hidden near the narrow end rather than to water crossings. Of the more detailed reports, Balikci provides the following account of caribou hunting by the Netsilik:

> Most interesting was the one associated with the *taalun*, stone constructions to conceal the archers . . . At Talurkuarq [the big hiding place], now Spence Bay settlement . . . there existed a remarkable structure consisting of two slightly-curved stone walls over 70 feet long leading to a narrow passage only 5 or 6 feet wide. At their opposite end the continuous walls were prolonged by some stone cairns. A small lake was to be found in front of the system. A single man armed with a heavy spear . . . waited at the upper ends of the walls. Qipingajuk, an old Pelly Bay Eskimo who witnessed a hunt at that place after the turn of the century, informed me that a large number of beaters were necessary for this hunt, usually up to fifteen individuals, who would drive the herd around the lake towards the large opening of the stone walls. At the end of the taalun the caribou were easily speared . . . This taalun was believed to have been built by the Tunit. (Balikci 1964:13)

The term "Tunit" embraces a number of concepts in Inuit culture, one of which is the name given by modern Inuit to the unrelated group of Arctic people who came before them; that is, people of the Dorset culture (McGhee 1996:136). McGhee (1996:135) cites a Netsilingmuit elder as saying that the Tunit people made the Arctic habitable by leaving them such things as stone drives for killing caribou. This reinforces the point that drive lane structures, if built at locations that possessed the essential requirements for gathering, directing, and killing caribou, may have been used for many generations by successive cultural groups.

Certainly the best-documented and most similar site to the POD site in the archaeological literature is that of Williams Harbour in northern Labrador (Fitzhugh 1981). It consists of two converging lanes of rock walls and *inuksuit* situated on a broad plain that is bounded by a harbor on one side and a high hill on the other (Fitzhugh 1981:193). Caribou moving south on the peninsula would have to pass between the edge of the harbor and the side of the hill, and an old caribou trail was observed traversing the center of the funnel. Like the POD site, the narrow end of the funnel consists of solid rock walls rather than single cairns. The two walls are 40 m and 50 m long, with individual *inuksuit* extending this distance, in the one reported case, approximately another 100 m (Fitzhugh 1981:196). A number of crescent-shaped shooting pits, excavated into the gravel, are scattered along the Williams Harbour drive system; some along the two walls, others inside, still others extending well beyond the ends of the walls. The narrow end of the funnel, about 7 m wide, lacks the

two opposing shooting pits of the POD site. Rather, it terminates next to a huge, naturally placed boulder on one side that would have acted as an impressive barrier. Several shooting pits are located near the boulder. No bone was observed, but two diagnostic artifacts suggest use of the trap during middle and late Dorset times, some 800 to 1,600 years ago (Fitzhugh 1981:202).

Shooting Pits and Large Blind Structure

It would be expected that the shooting pits recorded by Taylor (1965, 1972) at the NiNg-4 site on the north side of the Ekalluk River would be most similar to those at the West Ferguson sites just a few kilometers to the east. Yet those recorded by Taylor appear to be considerably more substantial. Taylor counted 24 pits over the 1.2 km distance of the crescent-shaped line of *inuksuit*. Pits are described as gouged out of gravel and often faced with a low balustrade of stones (Taylor 1965:16), as are the West Ferguson pits. However, Taylor reports pits up to 3.7 m across (12 feet) and 0.61 m (2 feet) deep. None equal to this size, and hardly any half this size, were noted at the Eggington or POD sites. Taylor (1965:16) reports that even the smallest pit would hold two archers. Very few features observed at the two West Ferguson sites would have concealed two archers; the large blind structure at Eggington and the three final shooting pits at the POD site being the exceptions. Why shooting pits are substantially larger at NiNg-4 is unknown.

Probably the most detailed and relevant description of the making of shooting pits comes from Jenness during his time among the Copper Inuit:

> Between the end of the barricade and the lake each hunter digs a shallow pit, using for his adze a sharpened antler. He stabs this into the turf, pulls the clod up with his hands and lays it around the edge. In a few minutes he has made a saucer-shaped depression faced with turf and stones or snow to make it as inconspicuous as possible. Here he lies, face downwards, with his bow and arrows by his side, waiting for the deer to be driven within range. (Jenness 1922:149)

Jenness (1922:148) further notes that most caribou are shot within 20 paces of the shooting pits, as this is about the effective range of the Inuit bow and arrow. Most of the shooting pits observed at the West Ferguson sites were of the type described by Jenness, only excavated into gravel rather than turf.

Pits, or shooting blinds, at the Williams Harbor site in northern Labrador are crescent-shaped, scooped out of gravel, average some 50 to 75 cm in depth, and each is presumed to have held one hunter (Fitzhugh 1981:198, 201). Except for the greater depth, these are quite similar to those found at the West Ferguson sites. Balikci (1964:14) reports that shooting pits among the Netsilik were simple semi-circular stone walls behind which one or two archers lay in ambush. Some 35 shooting coverts or "hides" are reported over the 4 km distance of the *inukshuk* system reported at the Aasivissuit site in West Greenland (Grønnow et al. 1983:45). These appear to be more of a low stone wall construction for concealment rather than an excavated pit. They range in height from 13 to 45 cm, with an average distance across of 1.5 m. The authors make the interesting observation that these blinds are not constructed as to the size of a person, but rather with regard to concealment of a bow held horizontally (Grønnow et al. 1983:29).

The seven tiny shooting pits recorded near the tall *inukshuk* and large blind/pit feature (Fig. 7) are unusual in the West Ferguson region and seem to add to the apparent significance of this point along the Eggington drive complex. The pits, consisting of an almost imperceptible scooping of gravel and placement of a lip of single small stones, seem too small to have been of any practical use as either shooting pits or blinds. Perhaps the tiny pits were more symbolic than practical, built with the intent of making the area resemble a hunting or killing location. The imposing presence of the single tall *inukshuk* certainly lends an unusual atmosphere to the location. However, another possibility is derived from a journal entry by Jenness (1922:138) for August 15, 1915. Summering with the Copper Inuit on Victoria Island he records that while men practiced their archery, the children imitated them and shot at imaginary deer "from miniature pits." The tiny pits at the location of the tall *inukshuk* and large 3/4 circle structure may well have been used by children while adults watched for caribou.

The relatively massive, semi-circular stone blind structure also found at this location is unlike any others recorded in the West Ferguson region. Balikci (1964:11) reports that Netsilik caribou hunters, located to the southeast of the Copper Inuit, concealed themselves behind large, one-meter high semi-circular stone walls situated on hill tops for the purpose of observing game. The location of the large Eggington stone structure, on an upslope beach ridge with a commanding view of the region, and its size and shape suggest that it may have served a similar purpose. Indeed, Jenness, while hunting caribou with the Copper Inuit on Victoria Island, describes an identical sounding feature: "During the first days of our stay Ikpakhuak made a semi-circular stone shelter on top of a ridge near the camp which commanded a wide view of the surrounding country; every day one or other of us would spend several hours there watching for caribou" (Jenness 1922:141).

How the West Ferguson Caribou Drives Functioned

If there is a key to understanding how the *inukshuk* and caribou drives of West Ferguson Lake operated it must surely be found in an understanding of caribou behavior and biology. The placement of each site in the environment, and the specific layout of each component of the drive must somehow be referable to aboriginal knowledge of where and how caribou herds would collect, graze, move, and flee when panicked. Only through this knowledge was it possible to manicure and manipulate aspects of the environment—hills, valleys, type of ground cover, downhill runs, and so on—to bring about a successful kill. In the following discussion historic and ethnographic information from the Arctic are combined with caribou data to posit a method of operation for the West Ferguson caribou drives.

Trails and Terrain

Game drives must be constructed in an area known to attract large numbers of caribou. In the past huge herds of caribou migrated in the spring to Victoria Island. Some herds, returning to the southern shore of the island in autumn, would have moved along the west coast, bringing them into contact with the east-west trending 75 km long Ferguson Lake. Herds deflected to the west side of the lake would have found an optimal crossing place at the narrow Ekalluk River, placing them directly among the low hills and coastline where the present sites are situated, and where Taylor (1972) recorded additional *inukshuk* features. Every year large herds of caribou could be predicted, with fair confidence, to cross the Ekalluk going north in early summer and coming back in the fall. In crossing the Ekalluk, herds could follow one of two routes; they could move to the west side of the southern hill, along the coast, placing them within the confines of the two drives described by Taylor, or they could circle to the east side of the hill placing them in the saddle that is straddled by the Eggington and POD sites. Vegetation would be relatively plentiful along the river valley, tempting the caribou to linger in this area for the better graze.

A conspicuous sign that an area is rich with caribou is an abundance of trails. A true migratory animal, caribou are habitual users of their own previous trails (Burch 1972; Gordon 1990; Kelsall 1968; Le Resche and Linderman 1975; Spiess 1979). As a result, trails were favorite locations for the interception and killing of caribou (Boas 1964:94; Hearne 1971:78). Many caribou drive sites are situated directly along known trails (Banfield 1954, Pt. 2:53; Fitzhugh 1981; Gordon 1990; McFee 1981; Morrison 1981, 1997), and efforts to corral caribou sometimes failed when the herds did not keep to their regular trails (Hearne 1971:86). Contemporary efforts in Sweden to move reindeer through newly built fences failed initially because the animals were being driven through unfamiliar terrain (Klein 1971). Although caribou trails are now difficult to observe in the Ferguson Lake area, it seems likely that trails once crossed through the hills and saddle region to the north side of the Ekalluk River, and that placement of the traps was made with clear recognition of preferential trail use. That caribou trails tend to run parallel along ridges rather than crosscutting them, but are also found throughout valley regions (Le Resche and Linderman 1975), endorses the prospect that trails once followed along the beach ridges of the saddle.

Of course, trails and terrain are closely related. Perhaps the most commonly reported attribute of historic stone caribou drives is the use of natural features to create a funneling or constriction of the herds. Natural barriers tend to cause scattered caribou to coalesce into larger groups (Renewable Resources Consulting Services 1971:67). Caribou also clump into larger groups when threatened by predators including human hunters (Cumming 1975; Skogland 1989:28). Balikci (1970:41), Jenness (1922:148), and Morrison (1981:175) note the use of valleys, gaps, gulches, and other natural constrictions for the purpose of collecting and moving caribou. In addition, employing suitable topography is essential for helping to conceal the stalking hunters. Balikci (1970:41) and Birket-Smith (1929:111) both note the use of ridges at caribou drives as essential parts of the concealment and herd management process. Boas (1964:100) comments on the difficulty of driving caribou in open country lacking in topographic features. The convoluted network of hills and vegetated valleys in the West Ferguson region afforded numerous natural constrictions and hence opportunities to funnel animals in the direction of the caribou drives.

Caribou drives of single stone lines were commonly constructed on sloping hillsides leading to water sources, where the animals were eventually killed by hunters waiting in kayaks (Anell 1969:7; Balikci 1970:43; Banfield 1954 Pt. 2, 54; Birket Smith 1929:108–109; Gordon 1990:282; Jenness 1922:124). While the Eggington site complex has much in common with these accounts, it differs in that there is no evidence that the drive lane terminated at the shore of Ferguson Lake. Rather, it ends on a low rise up a dome of exposed bedrock, with shooting pits placed along the course of the drive. Jenness (1922:149) reports that the natives of Victoria Island seldom used kayaks and that caribou drives typically terminated at shooting pits located along the *inukshuk* lanes. This observation applies equally well to the shooting pits on opposite sides of the caribou funnel at the POD site. Nevertheless,

the fact that Ferguson Lake would have been visible in the distance from both the Eggington and POD sites may have figured into the design and success of the kills. Caribou have exceptionally large, splayed hooves and are excellent swimmers (Kelsall 1968:34, 42). Caribou will run towards the open water of a lake, or ice of a frozen lake, when harassed by wolves (Banfield 1954:50), and the same defense was used against Inuit predation (Arima 1975:182; Gubser 1965:308). Even on ice, where footing is poor for all animals, their splayed hooves afford caribou greater traction than other animals. The presence of the lakeshore downslope of both the Eggington and POD sites may well have served as a stimulus to the caribou, encouraging their forward progress through the channel between the two hills and along the drives as they sensed possible escape in the distance.

The predominantly downhill run to both West Ferguson Lake sites appears contrived to assist with the success of the kill. It takes advantage of the reduced ability of animals to turn or stop when running downhill, especially those with front-heavy anatomy such as caribou with antlers. Female caribou shed their antlers in spring and thus have considerable regrowth by autumn, creating a disproportionate front-heavy status. As noted above, female caribou were the likely target of the West Ferguson kills as they were the overwhelming majority of the available population. Balikci (1970:41) has noted downhill runs at other Arctic caribou drives. In addition, Kelsall (1957:45) has observed that caribou have great difficulty changing direction when at full gallop, and will frequently run right past an observer rather than swing away. A downhill run to a drive would likely enhance this response.

Ancient Arctic hunters clearly possessed the requisite knowledge about how to use natural constrictions and features so as to maximize killing opportunities:

> With his knowledge of the habits of the animal, combined with an ability, based on years of experience, to judge the weather, the topography of the land, and the grazing possibilities, the Eskimo can often with astonishing certainty decide how he will approach the herd. (Birket-Smith 1929:107)

The importance of this knowledge is recognized in studies of modern reindeer herders in Europe. Uninformed attempts to corral semi-wild reindeer in Sweden failed for years until an experienced herdsman was employed to place corrals in positions that took account of reindeer behavior (Skuncke 1969:64). For the same region, Klein (1971:397) notes that reindeer fences only operate successfully when ". . . they are built with a clear understanding of the relation between features of the terrain and reindeer movements and behavior." Moreover, Müller-Wille states that modern efforts to drive reindeer in Finland depend on ". . . proper placement of the funnel shaped fences leading into the corral. They must take advantage of the hills and valleys that the deer follow naturally . . ." (Müller-Wille 1975:123).

Armed with the requisite knowledge and surrounded by the appropriate topography northern hunters could begin to build the traps. The minimal size and lack of substantial construction of many cairns and *inuksuit* suggests that the size and shape of most cairns is not of great importance. Rather, placement in the landscape seems critical. The Eggington site occupies a valley with a wide variety of terrain, from saturated mossy ground to elevated bedrock outcrops and extensive beach ridges. Throughout this valley the stone piles, lines, and *inuksuit* are almost always situated on the homogenous beach ridge gravels and occasionally on flat bedrock outcrops, skirting wet or moss-covered ground and the more rugged terrain. Caribou are exceptionally sure-footed (Kelsall 1968:34, 42) and run comfortably over rocky terrain. If the animals strayed too far from the stone structures they would venture into less suitable escape terrain of soft or rubble-filled ground. It is impossible to know exactly how close to the stone lines the animals were intended to run, but behavioral evidence suggests that movement in close proximity to the structures (avoiding the less suitable adjacent terrain) would have been perceived by the caribou as the best defense. Stone lines at the Williams Harbor caribou funnel are situated on homogenous gravels, skirting the more boulder-strewn terrain on each side (Fitzhugh 1981:197), presumably also capitalizing on the preference of caribou to avoid rough, rocky areas when fleeing predation.

Curiosity

Although most cairns and *inuksuit* are notably inconspicuous, some seem built and placed so as to be especially conspicuous. These structures may take advantage of the notorious curious nature of caribou (Banfield 1954, Pt. 2:16; Kelsall 1957:16; 1968:45). Birket-Smith (1929:106–107) specifically notes that the curiosity of caribou causes it to approach strange objects, including humans, and that several hunting methods are based on *attracting* the animals (see also Balikci 1970:41; Kelsall 1957:45; Stefansson 1951:277). There are many accounts of caribou hunting in Arctic and Subarctic regions where humans imitated grazing caribou, and revealed themselves in highly select locations, thus drawing in the curious animals (Banfield 1954, Pt. 2:57; Birket-Smith 1929:107; Boas 1964:100–101; Jenness 1922:107, 146; Spiess 1979:103–124).

The same curiosity instinct may attract caribou to stone cairns (Gordon 1990:281; Morrison 1981:177). This would especially be true of taller structures, clearly visible for some distance, such as those built on higher ground. This may explain certain more substantial individual cairns (Fig. 3) and the single, tall *inukshuk* (Fig. 7). The latter feature is located about mid-way through the Eggington drive complex on the elevated 80 m contour beach ridge just near the "elbow" where the *inuksuit* make a turn downhill (Fig. 4). As such the tall *inukshuk* sits at the very end of the channel formed by the hillside to the southwest and the *inuksuit* that parallel the 80 m contour line on the northeast. This tall cairn would have been clearly visible to herds located in the saddle region or entering into the channel. The very human-like appearance of this tall cairn seems unmistakable. It is suggested that this structure may have been intended to attract caribou to this specific location. Animals grazing unmolested in the richly vegetated valley, or escaping insects on the windy hill, might be attracted to this human-like cairn and thus drawn into the final downhill run of the drive.

Sight, Smell, Wind, and Motion

Placement of *inuksuit* must have been made with careful consideration of caribou response to sight and smell. While caribou have a keen sense of smell, capable of detecting predators at a distance of 1.6 km (Kelsall 1968:44), they are relatively poor of sight (Birket-Smith 1929:106; Kelsall 1968:45; Stefansson 1951:164). They can apparently see for a considerable distance (Kelsall 1957:46), but seem unable to recognize details, and do not sense danger from sight as they do from smell (Kelsall 1968:45). On the contrary, the sighting of a motionless object seems to enhance their curiosity and frequently causes them to investigate further (Birket-Smith 1929:106; Kelsall 1968:45). The relatively poor eyesight of caribou, combined with their curious nature, likely aided the function of the stone cairns in confusing and directing the movement of the animals.

Caribou rely heavily on their sense of smell to warn them of danger and typically walk into the prevailing wind so as to catch the scent of a waiting predator (Birket-Smith 1929:106; Hearne 1971:196). Arctic hunters manipulated the known sensitivity of caribou to human scent by designing communal kills so that the drives proceed from an upwind to downwind direction. There are a number of ways that this orientation worked in the hunters' favor. First, hunters employed wind to assist in moving the herd into proper position. Jenness (1922:149) reports that, at the inception of a caribou drive, women and children moved to a position upwind of the herd, allowing the animals to catch their scent, causing the herd to turn and move in the opposite, downwind, direction. These people, called "beaters," were known to imitate wolf calls to drive the animals forward (Balikci 1964:12, 1970:41; Birket-Smith 1929:111; Fitzhugh 1981:203; Jenness 1922:137, 149; Rasmussen 1927:74).

Second, wind was also used to keep human scent from reaching the herds. Hunters stationed along the drive lanes, waiting to kill and direct the herds, would have to be downwind of the region from which the animals were gathered (Balikci 1964:12; Hearne 1971:321; Stefansson 1951:164). In both summer and autumn winds in the Ferguson Lake region prevail from the west-northwest (Environment Canada, personal communication 2003). This is ideally suited for the collection of animals from the top and side of the southernmost low hill and from the saddle between the two hills, and for the subsequent movement along the *inuksuit*, which trend from northwest to southeast at both West Ferguson sites. These prevailing winds would conceal the scent of the hunters waiting along the stone lines, and yet would enable others to move upwind and drive the herds to the intended kill locations.

Finally, wind plays a pivotal role in how *inuksuit* functioned by adding an element of motion to the stone cairns. Open tundra is windy country. Today the stone cairns of the Arctic are mute and static. This was not always the case. There are many historic and ethnographic accounts of some sort of addition to stone and wood cairns that imparted a sense of movement (Spiess 1979:106, 110, 112, 123). Birket-Smith (1929:111) refers to the placement of sticks between the stone cairns to which the skins of sea gulls were tied so as to flutter in the wind.[2] Pertaining to the use of wooden sticks on the barren grounds, Hearne noted, ". . . each of the sticks has a small flag, or more properly a pendant, fastened to it, which is easily waved to and fro by the wind, and a lump of moss stuck on each of their tops . . ." (Hearne 1971:321). Strips of clothing, hide, and human hair are also mentioned as being tied to the posts of caribou drives (Damas 1972:13; Spencer 1959:152). Jenness observed the Inuit of Victoria Island setting up stone cairns capped with clumps of turf, and noted that when the ground was low and cairns were not highly visible, ". . . walking sticks are driven into the soil, and coats, or laths of wood shaped like a bull-roarer, only broader are fastened to their ends. The fluttering of the coats in the wind deters the caribou from breaking through the line . . ." (Jenness 1922:149). In reference to drives into water, Balikci (1964:12) reports that women and children ". . . waving pieces of clothing in their hands and shouting, would run around the lake trying to push the caribou back into the water. . . ." Moreover, Birket-Smith (1929:111)

notes that women and children among the Caribou Inuit waved coats as a means of moving the herds into position for the kill.

In a related way, many accounts refer to the capping of stone cairns (and wood posts for Subarctic corrals) with clumps of sod or turf. Most of these accounts report the dirt side placed up and grass or moss side down. This suggests that the intent was not related to the desire to add a sense of movement to the cairns, as might be achieved with fluttering of tall vegetation, but rather to imitate the appearance of human beings, with the dark upper side looking like the top of a human head or the hood of a parka (Banfield 1954 Pt. 2:53; Birket-Smith 1929:110–111; Blanchet 1964:37; Hearne 1971:79; Jenness 1922:136; Rasmussen 1927:74). However, clumps of tall vegetation placed on a cairn top may have served both purposes. Stefansson (1914:385) reports that a caribou corral in Alaska had poles on the drive line with caps of earth or moss, ". . . that would flutter in the wind." Similar arguments have been made regarding the addition of organic materials to stone cairns used in the operation of bison drives on the Great Plains (Brink and Rollans 1990; Brink, Wright-Fedyniak, and Wetzel 2003). Sod-capped *inuksuit* apparently had a persuasive human-like appearance; Birket-Smith (1929:111) says that a row of cairns erected on a ridge are "surprisingly like human beings," and Arima (1975:148) notes that stone cairns "simulate men extraordinarily well at a distance." Blehr (1990:310) takes the view that sod-capped *inuksuit* may also have been intended to resemble wolves, and supports this by noting that wolf calls were often used to drive the game into the traps. This seems unlikely, especially given the translation of the Inuit word "*inukshuk*" meaning to act like a person. Inuksuit seem designed to resemble—and take the place of—human beings, reducing the number of people needed to contain the herds and freeing up hunters to position themselves at critical control and kill locations.

Cairns that incorporate a sense of movement would capitalize on the extreme sensitivity of caribou to motion and would also be more human-like and hence effective. Caribou can detect motion at great distances (Spiess 1979:36) and it creates a sense of unease in the herds. As Kelsall (1968:45) notes, "if the animals are insensitive to color and form, they are sometimes remarkably observant of movement." Blehr (1990:313) agrees that motionless objects will be tolerated by caribou but, "When scared, any movement—as from fluttering pieces of skin—is bound to make them even more fearful and suspicious of danger." Sensitivity to motion seems to be a key factor in the design and ultimate success of communal kills. Jenness (1922:149) states that caribou will not cross the lanes, "on account of the barricade of stones and streamers." Hearne (1971:321) notes the same principle for drives on the barren grounds using sticks with pendants attached, ". . . the poor timorous deer, probably taking them for ranks of people, generally run straight forward between the two ranges of sticks." Blehr (1990:313) refers to the "paramount importance" of attaching something that moves to the sticks or cairns of caribou drives. Why caribou respond to fluttering motion along drive lanes is not known; however, this tendency was clearly understood and manipulated by northern hunters. These same principles can be observed today. Fluttering strips of jute are used in Scandinavia to help keep reindeer off train tracks (Klein 1971:394). In addition, the author observed Saami reindeer herders in Norway using strips of black plastic tied to trees and fence posts as a means to direct the herds during roundup. Most *inuksuit* known today lack any evidence that elements were added to provide a sense of motion, although in 1949 Banfield (1954:Pt. 2, 54) observed sod caps on stone *inuksuit* in the District of Mackenzie. Presumably much of this evidence, being organic, has disappeared with time.

An additional way that wind may assist a caribou drive is through the inclusion of sound provided by objects slapping against the sides of the cairn. Recall the previous reference to Jenness' (1922:149) account of broad, flat boards attached to cairns. Some accounts mention the hanging of caribou scapula bones from rock projections of *inuksuit*. Referring to stone cairns used in caribou drives by the Caribou Inuit, Arima reports:

> The converging rows, said to be miles long of small cairns capped with a sod, black soil side up to simulate the head, appear, however, to have been used mainly to drive a herd to hunters concealed with bow and arrows behind low stone ramparts . . . Light colored flapping things, *aulaqut* or *aulaqatyikhat*, of gull skins, wings, or caribou scapulae, were fastened to sticks stuck in the ground, the caribou taking them for wolves.[2] According to Kanayuq even a single scapula flapping on a cairn sufficed to direct a caribou away from an undesirable stretch of water. (Arima 1975:148)

Clearly, broad, thin scapula bones and wooden boards were chosen for their ability to catch the wind, adding a sense of motion through their flapping. The flapping of bones and wood against the *inuksuit* would, however, also add a clattering sound to the drive system. This sound also seems to have aided the hazing of caribou, and would have served to help keep the animals from challenging or crossing through the stone structures. Figure 14 is part of an historic Inuit drawing of a caribou drive from northern Quebec. Inspection of the *inuksuit* shows caribou scapulae hanging from the cairns. It can be imagined that the incessant winds of the open Arctic produced not

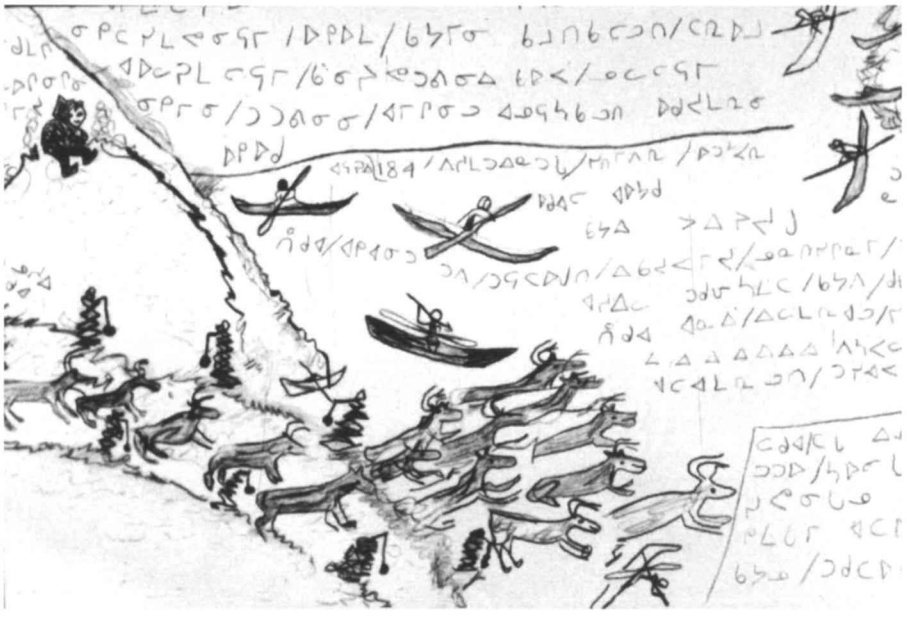

Figure 14. Reproduction of a sketch by Québec Inuit artist Juu Talirurnilik of caribou drive into lake showing scapulae hanging from inuksuit (from Saladin d'Anglure and Vézinet 1977). Used with permission of Etudes/Inuit/Studies.

just a sense of motion but also a considerable amount of sound to add to the desired effect. Unusual sounds may have also been used to attract game. Gordon (1990:281) mentions the clicking of quartzite rocks to draw nearby caribou into the drive complex.

Combining aspects of terrain, trails, wind, eyesight, herd behavior, smell, and motion the intent of the final configuration of turf-capped stones and waving flags was to create a line that caribou would not cross. Why caribou respect the presence of such seemingly inconspicuous trails of low rock piles and lines is still a mystery. Caribou, apparently for instinctive reasons, simply seem to follow fences (sometimes no more than a simple line of rocks) in their environment (Klein 1971:397; Stefansson 1914:386). We may be left with no more definitive explanation than Morrison's (1981:177) observation that caribou follow along and do not cross fences for reasons "buried somewhere in the caribou psyche."

Conclusion

Benedict (1996) has made an eloquent case for the significance of communal game drive structures. He points out that at one time much of North America would have furnished evidence of communal driving of a wide variety of animals, but that most has been removed by settlement, agriculture, development, and decay of perishable materials (Benedict 1996:2–4). The remote, rugged, and largely uninhabited Arctic region is a notable exception. As such the importance of caribou drives is magnified. Not because they are unique—communal drives were once ubiquitous—but because the Arctic is one of the few places left in the world where these impressive features are preserved and can still be studied (Benedict 1996:2–4). This fact lends urgency to the need to record these structures. Despite the remoteness of Arctic regions, development is a threat to *inukshuk* and other ancient stone structures (Heyes 2002). It is unlikely that these sites will provide rich returns of artifacts, but they have the power to reveal evidence of the complex relationships between environment, hunting techniques, and knowledge of animal behavior; information that cannot be garnered from any other type of archaeological site. Such structures are thus ideally suited to build bridges between contemporary Aboriginal elders, who still possess knowledge of the construction and operation of these structures, and archaeologists who seek to understand them. Such work has recently been conducted by Friesen (2002) in the Ekalluk River region. Most importantly, these stone features are a testimony to a skillful adaptation that not only eased the course of life, but perhaps permitted it, in one of the most difficult and demanding environments in which humans have lived.

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End Notes

1. I have used Taylor's (1972) text information for the length of the two caribou drives recorded in 1963. Mapped data (Taylor 1972:74) indicate much greater lengths to both drives. According to the map, the multiple rows of *inuksuit* along the coast of Wellington Bay extend for some 7 km, while the crescent-shaped inland drive would be about 6 km long.

2. Birket-Smith (1929:111), in reference to Stefansson's assertion that the fluttering of gull wings tied to wooden sticks caused caribou to take them for wolves, makes the parenthetical comment "(*Sic!*)." His exclamation suggests his surprise and perhaps disagreement with the interpretation that wolves were being imitated, and I agree. The flapping of gull wings could hardly produce sounds like those wolves make. Arima's (1975:148) report that the motion of wings, skins, and scapulae was intended to imitate wolf calls was also probably influenced by Stefansson's comment, although it is possible that scapulae slapping against a stone cairn could produce a sound like those made by wolves (a position argued by Blehr [1990:310–311]). Northern peoples were known to imitate wolf calls to drive the herds towards the trap (Jenness 1922:137, 148). The purpose of adding fluttering attachments to wooden poles and stone cairns seems clearly to be directed at the sensitivity of caribou to objects exhibiting motion. Indeed, Arima (1975:149) cites wildlife biologists Kelsall's (1968:45) assertion of caribou sensitivity to motion as an explanation for the effectiveness of adding fluttering objects "*aulaqut*" to stone cairns.

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