

Figure 3. The Willow Lake residential camp in 1975, looking eastward.

## Vernacular Architecture at a Contemporary Dene Hunting Camp<sup>1</sup>

by Robert R. Janes

### Introduction

This study was prompted by my participation in two archaeological surveys of the Mackenzie Basin, Northwest Territories, in the early 1970's. (Fig. 1). Survey work was undertaken in anticipation of the proposed Mackenzie Valley pipeline, and involved locating prehistoric and historic archaeological sites in this region.<sup>2</sup> Field parties had the opportunity to meet Dene living along the Mackenzie River and on one occasion, to work with two elderly Dene who served as informants in our attempt to identify a birch bark artifact recovered in a test excavation.<sup>3</sup> Observing the serious and lengthy deliberations resulting from their evaluation of the object, I was stuck by the potential immensity of the gap which could and does develop between the results of field archaeology and the richness of a living culture.

Archaeological remains in the boreal forest, the homeland of the Mackenzie Basin Dene, are notoriously sparse. There are several explanations for this paucity, including the materially unencumbered cultures of mobile hunters, the perishable nature of skin, bone and wood technologies and the rapid deterioration of archaeological remains caused by acidic subarctic soils. The need to enhance the interpretive potential of the archaeological record in this region is of obvious importance, and the deliberate observation of contemporary hunting peoples with specific archaeological concerns in mind is one way of doing this. Anthropologists and archaeologists call this kind of research ethnoarchaeology, and the architectural information reported in this paper was collected as part of an ethnoarchaeological study among a group of Dene hunters and trappers in the Mackenzie River Valley.

### Methodology

This field study was undertaken from March 2 to June 5, 1974, and from April 12 to June 19, 1975. On both occasions I was accompanied by my wife, who also was actively engaged in data collection. The 1974 field work is best seen as an orientation period, in that we spent the first seven weeks in Fort Norman getting to know the people we would accompany to the bush later that spring and in 1975. (Fig. 1).

The data were obtained primarily through participatory observations, in conjunction with interviewing. The latter included both directed interviews and open-ended conversations. My participatory observation was based on consciously adopting the simultaneous roles of novice, apprentice, and helper. In this way, I eventually participated in many aspects of group life from cabin building and quarrying to hunting and meat processing. My wife, adopting identical roles among the women, was similarly exposed to a wide variety of relevant activities.

### The Willow Lake Dene

The focus of this study is a group of Slavey Dene who call themselves the Willow Lakers. Their name is taken from a lake situated north-northeast of Fort Norman, NWT, where they reside for four to six months a year hunting, trapping, and fishing. (Fig. 1). The use of a geographic location to differentiate one group of people from another is a practice which is assumed to have great time depth in this region.

When the bulk of the ethnoarchaeological observations were made in 1975, the Willow Lake group consisted of six families, including seven



Figure 1. Map of Northwest Territories and Canada.

adult males, eight adult females, eight male children, and five female children. Another family, consisting of two adults and one male child, joined the group after sping break-up. These individuals ranged in age from one month to about 78 years. Although these people collectively are known as the Willow Lakers, individual and family histories are traceable to various regions in the Mackenzie Basin, such as Great Bear Lake, the Fort Wrigley area, and the Mackenzie Mountains west of Fort Norman. These seven families are the core group of Willow Lakers, although family patterns vary considerably in terms of the scheduling and duration of their annual cycles. Flexibility and mobility are characteristic, with no family necessarily spending the same amount of time each year at Willow Lake.

Social organization among the Willow Lake Dene retains the characteristics of the aboriginal system. It is based on bilateral, primary

(either siblings and/or parents) kin ties linking one conjugal pair in the group to another, as analyzed by Helm.<sup>4</sup> Kin connection, affinal or consanguineal, with an existing member is considered to be sufficient justification for group membership. This model accounts for relationships among four of the seven core families at Willow Lake. Kinship data concerning the other three families are insufficient at this time.

The Willow Lake Dene are not directly comparable to their hunting and gathering forefathers, and as yet there is no unbroken historic link between their present cultural adaptation and the prehistoric record of the area. Nevertheless, they engage in activities which can be considered transitional, if not traditional, within the context of the twentieth century. Many of these activities, such as hunting, meat processing, land travel, hide processing, cooking, water travel, shelter construction, and gathering represent forms of adaptive behaviour that appear to have been altered only superficially since Euro-Canadian contact.

However, the Willow Lakers make extensive use of such things as high-powered rifles, snowmobiles, outboard motors and nylon gill nets, integrating them with an indigenous material culture which includes snowshoes, moccasins and a well-developed wood technology. Meat and fish obtained in the forests, lakes and rivers constitute the bulk of their diet in the bush.

## Structures - Use and Variation

The community of Willow Lake is a cluster of separate households situated on a spit of land, largely surrounded by Loche River and Willow Lake. (Fig. 2). It is linked to Fort Norman by both water and overland trail. The community at Willow Lake can be described as a residential camp, with hunters ranging out from this location in search of meat and furs on a regular basis, returning after absences of one to several days. The seven household complexes at Willow Lake consist of varying combinations of tipis, log cabins, warehouses and stages, all of which are described below. (Fig. 3).

## Tipis

People are often surprised to learn that tipis are still in use among the Dene in the late twentieth century. Tipis remain an important part of the domestic architecture at Willow Lake, even though some of the Dene are clearly aware of how their form and use have changed through time. An elderly male described the "old-time" tipi as requiring 75 to 80 caribou skins and being large enough to house up to four families,

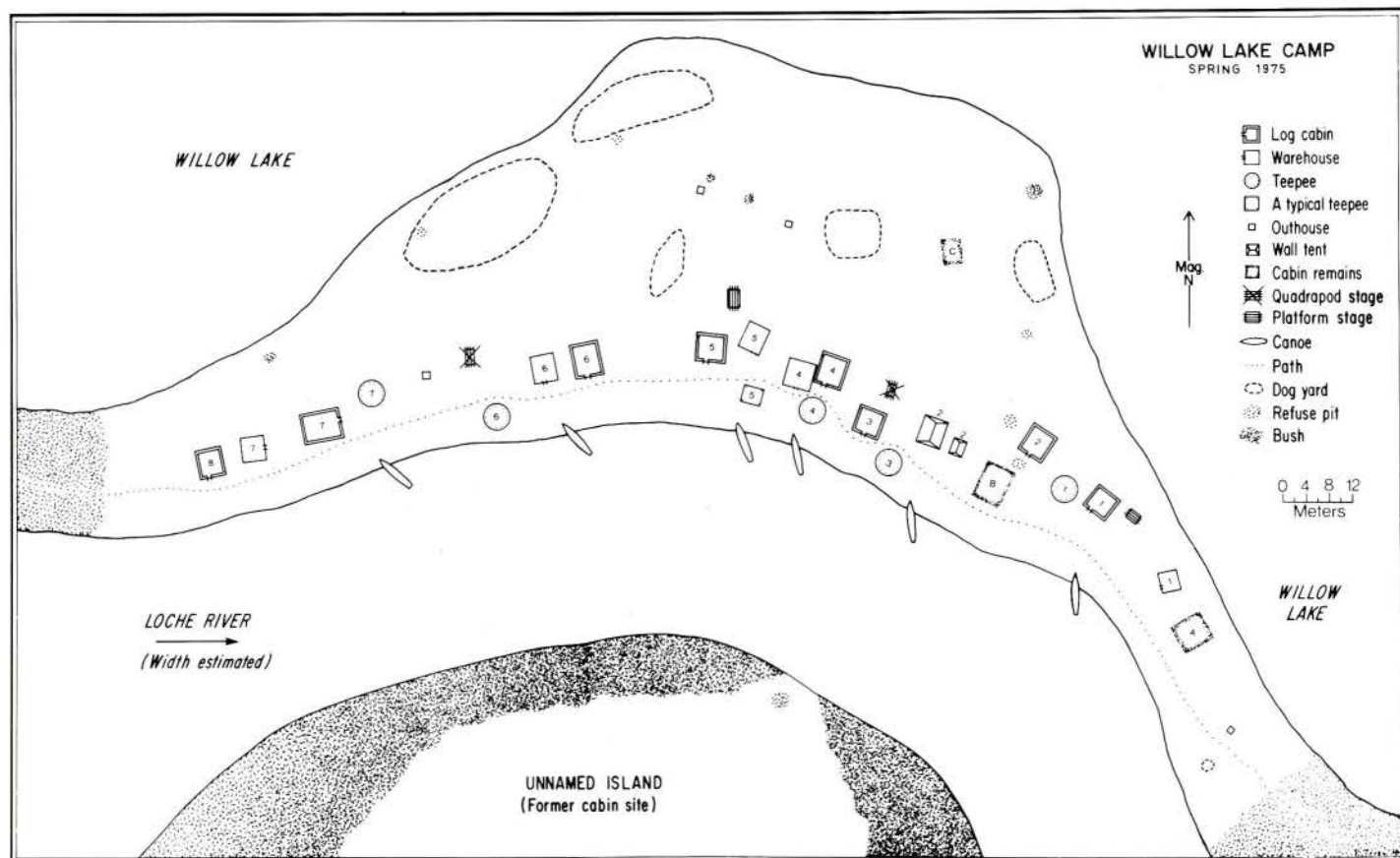


Figure 2. Plan of the Willow Lake residential camp as it appeared in spring, 1975.

with each family occupying a specific area within the structure. Tipis of this size may, in fact, have belonged to chiefs.<sup>5</sup> Other individuals commonly emphasized how much more squat in profile and larger in diameter the old tipis were compared to the ones used now.

The average diameter of the tipis in use in 1975 was 4.48 m. Although structurally they were essentially the same, they exhibited great variety in terms of their covering, use and internal arrangement. The pole framework of each tipi remains standing throughout the year, but the type of cover is determined by household economics and season of use. Temperature and wind conditions appear to be important considerations. When we arrived at the camp in April of 1975, the tipi belonging to household 6 was completely covered, as the family had been using it in early winter. All the rest of the tipis were partially covered or uncovered, as they had not been used that winter and the families were waiting for warmer weather before preparing them for regular use. Coverings include canvas, polyethylene plastic, sheet cardboard, burlap, spruce boughs, and birch branches, in any combination. The last two materials are also used to build windbreaks a meter or so in height at the bases of the tipis. Such windbreaks provide the occupants protection without the need for a more elaborate cover, as well as offering a modicum of privacy. (Fig. 4).

Because a tipi is elegantly simple in design and therefore very flexible, its appearance is as changeable as the weather. When the wind was up, the temperature was down, or it was raining, more covering was added and held in place by vertical poles laid against the superstructure. (Fig. 5 see back cover). Figures 4 and 5 illustrate this, as they show the same structure on a warm day and a cool day, respectively. This variability true of the location of tipi doors. Observations at Willow Lake suggest that door locations often vary as a result of wind direction, and undoubtedly also for other reasons. Some tipis had permanent doors, although their locations differed depending upon the family. In addition, some tipis had more than one door; multiple doors were sometimes used simultaneously and sometimes not. Tipi coverings can easily be rearranged to allow such flexibility.



Figure 4. A tipi, belonging to household 3, with its covering pulled down during warm weather. It is equipped with a spruce-bough windbreak at its base.

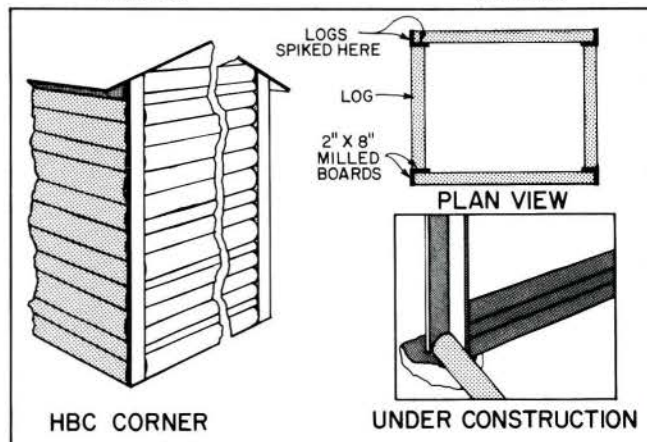
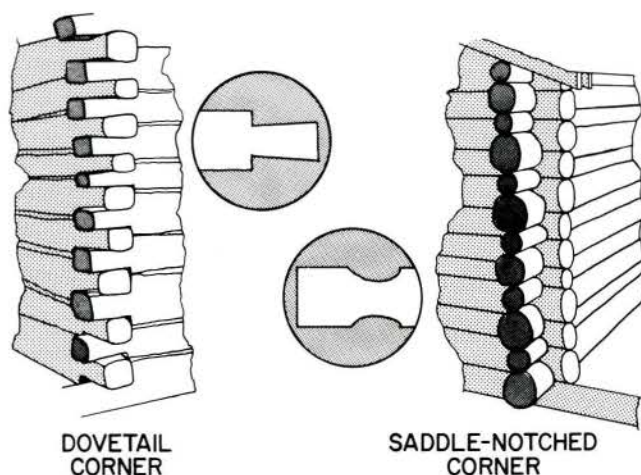


Figure 6. Three of the cabin corner styles in use at Willow Lake in 1975. The dovetail corner is the most demanding in terms of time and skill.

Tipis are a multifunctional form among the Willow Lake Dene, and should not be thought of solely as dwellings. A tipi frame at Willow Lake was used as a canoe stage before it was prepared for human use in the spring. Tipi frames covered with brush, which may be spruce boughs or the branches of deciduous trees such as birch or poplar, are also used as outhouses and doghouses and for making dryfish. That the brush tipi has retained its adaptive value as a shelter in the twentieth century is clearly illustrated in the following account given by a middle-aged Willow Lake man. He was travelling in the Great Bear Lake area, (Fig. 1), in the early spring, with three dogs carrying dog packs, when the dogs ran after a moose. Two of the dogs, one carrying the man's bedroll, did not return. He spent the next 20 days without his bedroll, living in a spruce-bough brush tipi heated by a fire. He slept during the day as that was the warmest time. Apparently brush tipis are most effective in winter and summer, as he said that when the spring thaw began he was always getting wet inside the shelter. On the twentieth day he found the dog pack containing his bedroll lying on the trail.

## Log Cabins

Although the term "log cabin" is used throughout this study, this is not meant to imply that these structures are roughly built. As the photographs and the following discussion testify, the cabins at Willow Lake exhibit a level of workmanship that does much to explain their longevity.

Log cabins in the Mackenzie Basin are the result of Euro-Canadian contact, having been introduced by fur traders in the late eighteenth and nineteenth centuries. Although an architectural history of the log cabin in the western Canadian Subarctic has yet to be written, the Willow Lakers' oral history indicates that the first log cabin was built there sometime between 1906 and 1915.

The years 1974 and 1975 saw the construction of five new cabins at Willow Lake, which fortuitously happened to coincide with this field study. Recognizing that cabins there are replaced only after very long intervals of use, I made every effort to observe and participate in these activities. Cabin construction is primarily a household affair, although every household head engaged in building was assisted at one time or another by at least one other adult male from the camp. Quite often this individual was the only unmarried adult male at Willow Lake. A visitor

from Fort Norman also assisted one household. On another occasion, several adult males gathered to assist household no. 2 with wall construction. The pooling of labor to this extent among household occurred only once, as individual household performed the bulk of the work on their own.

Although commercial building materials such as nails, plywood, roofing paper, and some framing lumber for doors and windows were brought in as part of a government program, all the logs were obtained in the surrounding bush by the individual households. We participated in one of these cutting expeditions, and I offer the following summary for the insight it provides into the subtleties of dwelling construction in the boreal forest, aspects that the archaeological record will never reveal.

We accompanied household no. 2, which on this particular trip comprised a married couple, two of their sons (ages 13 and 5), two of their daughters (ages 10 and 7), and the husband's father. We travelled several kilometers by freight canoe up the river that drains into the Locke River from Mahony Lake. The destination was the scene of a forest fire three years earlier, the ideal source of dead and dry standing timber. Not only are these trees free from rot and easy to peel, but they do not need to be seasoned before use as all cabin logs should be. The riverbanks were surveyed from the canoe and an area was selected for the cutting.

While the women made a fire and cut a spruce-bough mat, the two men began selecting spruce trees on the basis of their width, length, and straightness. Pre-cut wooden poles were used in lieu of measuring tapes. The grandfather provided a considerable amount of advice with respect to which logs should be cut, as he had built at least four log cabins in the Willow Lake drainage area. The trees were felled with a chain saw, and their branches stripped with axes by myself and the oldest boy.

Thirty-two trees were cut and stripped, hauled to the river's edge, tied up in the form of a raft and rolled into the river. Once in the water, the raft was further secured with two crosspieces spiked into the logs. Another layer of logs was than placed on top of these crosspieces, and the raft was set afloat down the Mahony River. After a meal of ducks and fish, we travelled down the river to cut eight more logs, for a total of 40. These logs were lashed together and towed behind the freight canoe until we intercepted the raft we had set afloat earlier. The eight logs were transferred to this raft which was then towed a short distance to the confluence with the Loche River. It was set free again to float down this river, where many hours later it was intercepted and dragged ashore as it passed by the residential camp. This seemingly casual use of the river system to transport tons of building materials in nothing short of brilliant in its simplicity and execution. The material expression of this adaptive wisdom, the log cabin itself, remains forever silent with respect to these procurement activities.

Although many aspects of cabin construction were observed and recorded, I will confine this discussion to several salient details. To begin with, all cabins at Willow Lake, with the exception of household 7, have their front doors facing the river because of the onshore winds from the lake. Neither cabins nor tents are situated directly facing the lake, including household 7, whose cabin faces east. (Fig. 3).

One structural feature common to all the new cabins is the placement of large, flat stones under the corners of the foundation, one stone to a corner. This is done apparently to minimize the settling of the sills. The stones are obtained specifically for this purpose from a limestone outcropping located on the north shore of Willow Lake. If they are not removed after abandonment and broken up for net fish sinkers, these stones may be a dependable way of delineating these structures once they have become archaeological.

The various methods of corner construction among the old and new cabins at Willow Lake are a source of interesting variability. At least three different corner styles were noted. (Fig. 6). The HBC corner, as it is called by the Willow Lake Dene, presumably originated with the Hudson's Bay Company. The HBC corner is considered by the Willow Lakers to be generally inferior to saddle-notching and dovetailing, as the spikes can loosen causing the building to lean. Nonetheless, two household (nos. 2 and 6) used this technique in 1975 because it is easy, very fast, and requires no special axe work. Both families were anxious to finish their cabins as soon as possible.

This architectural variation is theoretically interesting. In most archaeological writing, cultures consist of things that are found in excavation.<sup>6</sup> The smallest of these units are artifacts, which are things that have been altered or constructed by man, including houses. Should the artifacts be different from those found in other excavations, an archaeologist may decide to let them stand for a culture and give it a name. The point is that the artifactual differences, in the form of different architectural styles at Willow Lake, exist within a group of people who occupy a common territory, share a common material culture and speak the same language. If architecture is defined as the method or style of building, then there is not a common architecture at Willow Lake.

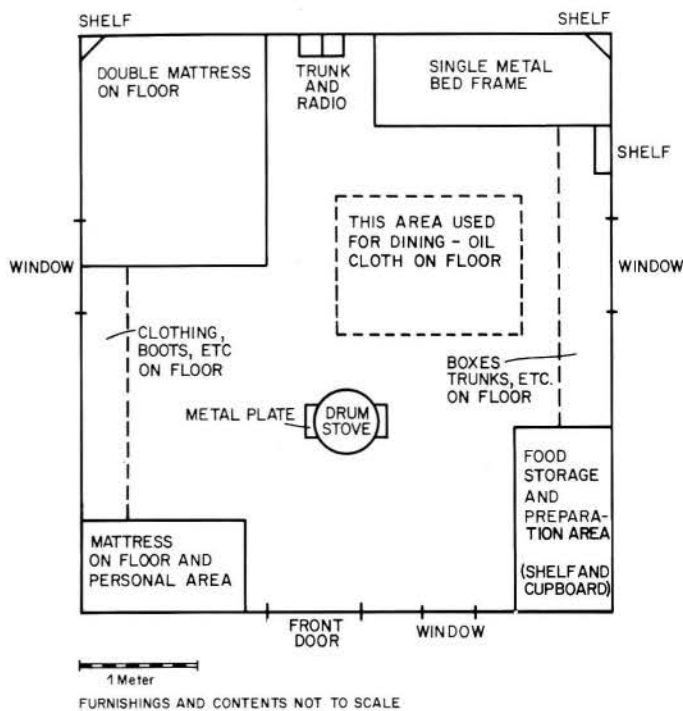


Figure 7. Cabin floor plan of household 6, recorded on 27 April, 1975. Eight people were occupying the cabin.

This is of more than passing interest, as well-preserved architectural remains dating to the early nineteenth century were uncovered at Fort Alexander in the boreal forest.<sup>7</sup> Numerous details of corner and wall construction were readily observable there. If this intra-group variability at Willow Lake were to be observed in a future archaeological excavation, what explanations might be offered to account for it? For example, it might be postulated that the different styles are a result of individuals or families from different cultural or ethnic groups living together. Reasonable but simplistic, as observations in 1975 revealed that when a Mountain Dene who had married into a Willow Lake family built

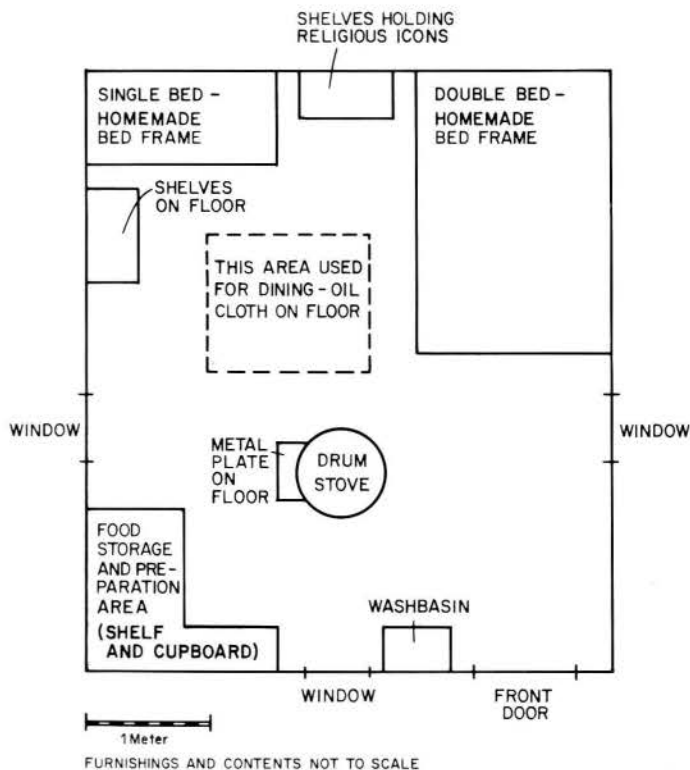


Figure 8. Cabin floor plan of household 5, recorded on 29 April, 1975. Three people were occupying the cabin.

a cabin, he did not bring with him any particular building style but simply adopted the saddle-notched technique which was already in use at the camp.<sup>8</sup>

One might also propose that the different architectural styles have functional significance. Again, the facts do not bear this out, as all the buildings are either habitation structures or warehouses and no corner style is used exclusively for either type of building. Finally, the chronological meaning of the different corner types could be investigated. It could be proposed that the various styles followed each other in a linear sequence. The HBC corner, structurally the simplest, is represented by two of the new cabins at Willow Lake. Dovetailed corners, undeniably the most complex of the styles observed because of the skilled axmanship required (the saddle notches were rough-cut with a chain saw), are to be seen on one of the oldest cabins at the camp. It seems that these ethnographic facts are contrary to notions about the direction of technological development through time from the simple to the complex. Furthermore, all the structures exhibiting the various corner styles were in use contemporaneously, regardless of when or how the corners were made.

The architectural variability noted here apparently has no ethnic, functional or chronological significance which is useful to the archaeologist. In an effort to account for the variability in this particular case, the Dene builders themselves were questioned regarding why they selected one style over another. It was learned that the time required, the relative ease of executing one style as compared to another, a concern for the permanence of the structure, and the skill and experience (or lack of them) of the builder were all considerations. These are explanations rooted in human behaviour which seldom find expression in archaeological abstractions about time and form.

Floor construction in two of the new cabins also differed enough to merit attention. After the walls and roof had been erected, the head of household no. 5 placed a layer of polyethylene sheet plastic on the surface of the ground, on top of which the floor was to be built. Over this, unmodified logs were placed at regular intervals to serve as joists. One-by-six-inch milled boards were then nailed perpendicularly to these log joists, forming a tight grid. The final step was to nail plywood sheets on top of the grid of logs and boards. All agreed that it was a very solid floor and would last for a long time. An additional feature of this floor is the moisture barrier provided by the plastic ground sheet, a recent innovation.

This floor was notably different from the one built by household no. 6. Upon the completion of walls and roof, the dirt floor was levelled with a rake and shovels. Shallow trenches were then dug at two-foot intervals from east to west, to hold the joists in place. The joists were peeled spruce poles, roughly five inches in diameter. They were free-floating, in that after being placed in the channels they were not secured at either end to the wall logs. The joists on the north and south sides of the cabin abutted the foundation logs, however. A considerable amount of time was spent laying and levelling the joists. Sheets of plywood were finally nailed directly to these pole joists, abutting each other at eight-foot intervals.

In contrast to the floor of household no. 5, this floor lacked both an insulating ground sheet and the stability provided by the intervening grid of milled lumber. This was the first cabin that the head of household no. 6 had ever built, and though he indicated to me that he often felt he did not know what he was doing, he did not overtly seek assistance from more experienced builders in the camp, nor did they volunteer their expertise.

Archaeologists explicitly and implicitly base their interpretations on certain beliefs about culture. One of these beliefs is that behaviour is patterned because people tend to do things in predictable ways to ensure the correct outcome. More specifically, "in activities involving more than one person, achievement of the desired outcome is facilitated through accurate communication, which in turn is enhanced by repetition of sequences of behaviour; hence, the patterning."<sup>9</sup> Logically satisfactory as this may be, it offers little insight into the reasons for this inter-household variability, other than perhaps that "accurate communication" has been thwarted somewhere along the line.

## Cabin Interiors

The reader is referred to Figures 7, 8, 9, 10 and 11 for plans showing the internal arrangement of furnishings in four of the households at Willow Lake. The only variant was household 2, which was living in a canvas wall-tent at the time, awaiting completion of their cabin. As circumstances did not allow similar observations to be made of households 1, 4 and 7, it should be noted that the following discussion is not representative of all households at the residential camp.

The cabins and the tents are the main foci of domestic activities, along with the tipis. As can be seen from the plans, each cabin has only one door, and the number of windows and their general location are also the same in all cabins. Another feature characteristic of each dwell-

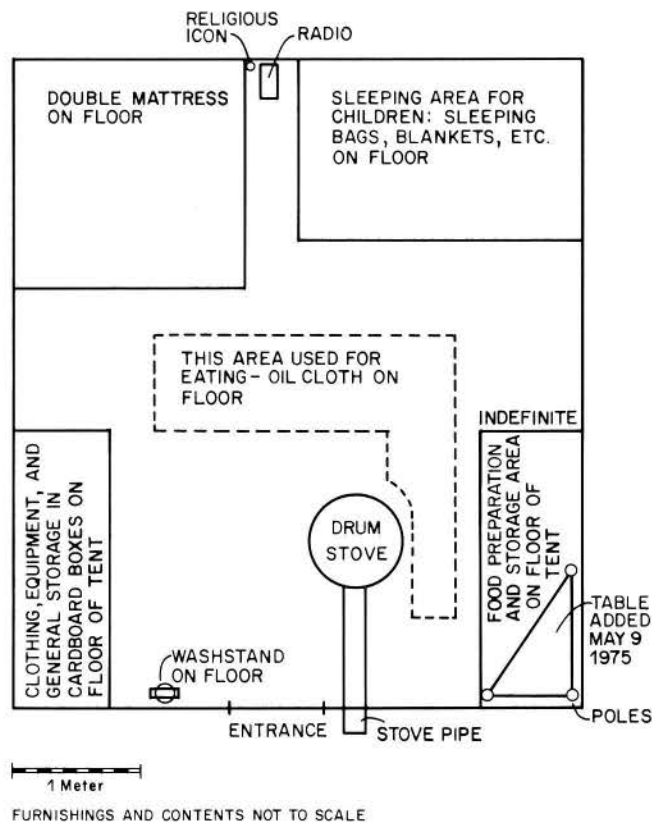


Figure 9. Wall-tent floor plan of household 2, recorded on 3 May, 1975. Eight people, including one visitor, were occupying the tent.

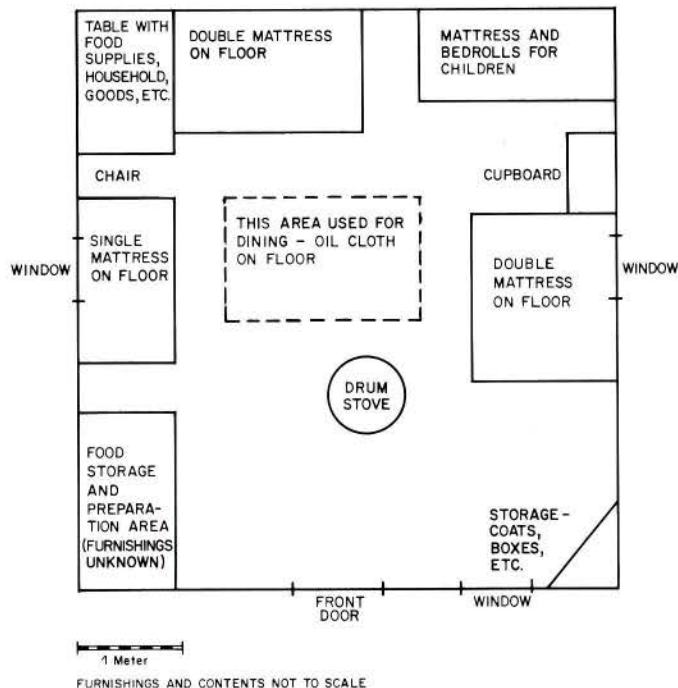


Figure 10. Cabin floor plan of household 3, recorded on 28 April, 1975. Twelve people were occupying the cabin.

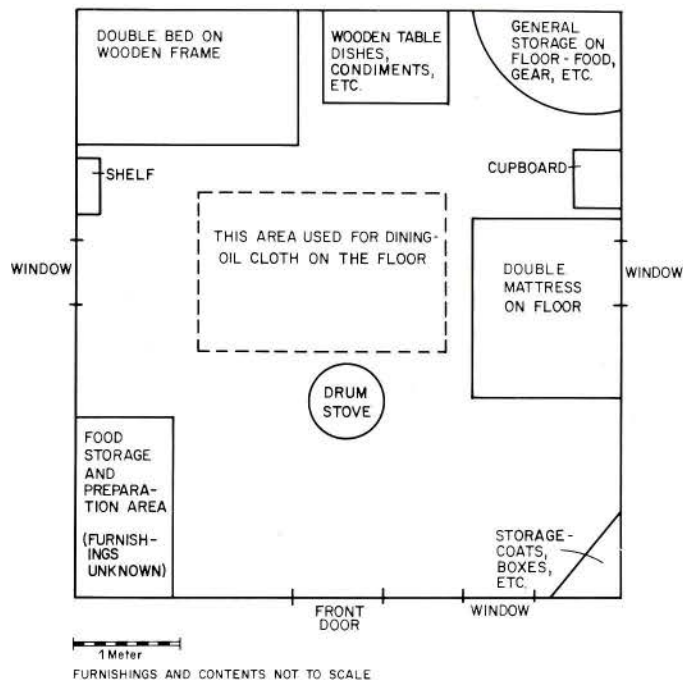


Figure 11. Cabin floor plan of household 3, recorded on 9 May, 1975. Five people were occupying the cabin. Note the minimal internal changes which accompanied a 58% reduction in household size.

ing is the drum stove made from a sectioned or unsectioned 45-gallon oil drum.<sup>10</sup> The stoves rest on logs or metal plates attached to the cabin floors, for reasons of fire safety. The location of each stove is generally the same within each household, centrally placed in the southern portion of the structure, nearer to the front door than to the back wall. This is apparently because the amount of heat these stoves generate makes sleeping in close proximity to them quite uncomfortable. The floor plans indicate that each household commonly sleeps in the back portion of their dwelling.

Because of their capacity to overheat the cabins, the drum stoves are not permanent features in at least two of the households. They are replaced in late spring with smaller, commercially made airtight stoves which do not make the cabins insufferably hot as the weather warms up. The airtight stoves also have small ovens which are considered very useful by the women. A variation of this seasonal stove substitution at Willow Lake involves the use, for cooking, of an airtight stove immediately outside of the cabin. The drum stoves remain in the cabins but are not used. This substitution of heating equipment reflects a seasonal flexibility in the use of cabins and tents which is only apparent to one observing the passage of seasons at the camp.

Flexibility is also the fundamental characteristic of the way in which these four households use their dwellings. There are no walls or other architectural impediments within the cabins or the tents which regiment the use of interior space. In this sense, the structures allow each household almost complete freedom (the location of the stove and the door are constraints) to arrange the activities of daily life as they choose. These activities include food processing, cooking, eating, sleeping, hide and fur processing, tool and equipment repair and manufacture, relaxation, sewing, and religious ceremonies, to mention several of the more important ones.

The plans reveal that food storage and preparation areas are spatially separate and distinct in all of the households, and are characterized by a variable combination of cupboards, shelves, and in one case, a table. Cooking is done on the drum or airtight stoves. Eating areas, too, are constant in their location, but lack any distinctive material expression. An oilcloth is simply spread on the floor at mealtime and removed afterward. Sleeping areas can be either structurally defined or featureless. With respect to the former, definition is in the form of homemade wooden bed frames, usually fastened to the cabin wall, or a metal bed frame in the case of household 6. Out of 12 sleeping areas, (Fig. 7 - 11), however, eight simply consisted of mattresses, sleeping bags, and blankets, in various combinations, spread out on the floors of the dwellings. Where mattresses were not used, the bedding was often rolled up during the

day to create additional floor space. Sleeping areas are also the focus of many other activities, such as sewing, relaxation, and equipment repair. There are no areas within the dwellings specifically designated for hide and fur processing. This work is apparently done under or near a window, where the light is markedly better than in the interior of the cabin. Each dwelling also has certain unique furnishings, in addition to the common features discussed. Household 5, for example, has a shelf on the rear wall of the cabin which holds numerous religious icons, (Fig. 8), while household 3 uses a movable wooden table to store food supplies and household goods. (Fig. 10 and 11).

As mentioned earlier, the most noteworthy characteristic of the interior living space is its lack of definition. There are few built-in items to assist the uninitiated in determining how the space is used. To infer, on the basis of a double-bed frame and a single-bed frame, that three people occupied cabin 5 would be correct. (Fig. 8). Similar reasoning with respect to household 6 would account for less than half its occupants. (Fig. 7). The wall-tent belonging to household 2 had no structurally defined sleeping areas at all. (Fig. 9).

The invisibility of household composition is due in large part to the portability of the associated material culture. This is demonstrated by comparing Figures 10 and 11. Figure 10 depicts the floor plan of the cabin in late April of 1975 when households 2 and 3 were living together, comprising 12 people. By May, household 2 had moved to their own tent, reducing the number of people living in household 3 to five. Figure 11 depicts this arrangement. The only structural change resulting from this dramatic change in the number of occupants is the addition of a wooden bed frame. The children's sleeping area became a general storage area after the departure of household 2. Their bedding was simply packed up and moved, requiring no visible modification to the structure. The same is true of the eating area. It consists of an oilcloth on the floor and therefore can accommodate a greater or lesser number of occupants with no enduring delineation.

Although eating areas may be spatially obscure, there is an apparent relationship between the lack of furniture and other built-in devices and the height of the windows. In three of the cabins (nos. 3, 5 and 6) and windows are placed low enough in the walls so that they are usable while sitting or kneeling on the floor. This is an apparent accommodation to a lack of furniture, and an intriguing example of the retention of an indigenous cultural pattern within an alien architectural form. It is not universal at Willow Lake, however, as there are both old and new cabins with tables or chairs or both. The placement of windows in these dwellings is noticeably higher to permit the use of this furniture. Helm offers another consideration which may be relevant to window height.<sup>11</sup> At Lynx Point in the upper Mackenzie Valley she observed that one cabin had a special small door for the use of menstruating women, while at another cabin menstruating females entered and left through a window.

## Warehouses

The log warehouses are an indirect result of new cabin construction at the camp. Households 1, 4, 5 and 6 obtained some building supplies through a government program, as their cabins were either too small or in poor condition as a result of age. All the households except no. 1 already had cabins at the camp. When these households built new cabins, all of which were completed by 1975, their old cabins were left standing but their function changed. They became warehouses for the storage of equipment and supplies. (Fig. 12). These cabins are now undergoing secondary use as storage facilities, as well as being inadvertently conserved. Their continued existence adds further complexity to the architectural record of the camp which in no way reflects the social composition of the inhabitants. It should also be noted that outhouses and dog yards are individually owned and used by some households, and are shared among other households.

## Stages

Stages are raised platforms used to store household goods and equipment off the ground and away from the destructive activities of predators and dogs. Four such stages were in use at Willow Lake in 1975, representing three different structural types. Households 3 and 6 had the same type, consisting of a log-pole quadrupod fastened together at the apex and bisected by a horizontal platform of cut poles which served as the storage area. (Fig. 13). Canvas and plastic were used to protect the cached materials. The stage of household 5 was made of four vertical logs driven into the ground in roughly the shape of a square. These logs were spanned along the north and south ends by single horizontal logs which rested on top of the vertical members. A platform of cut poles rested upon this supporting structure and served as the storage surface. (Fig. 14). The stage belonging to household 1 represents a slight variant of those described. It, too, consisted of four sunken log posts in roughly the shape of a square, but, oddly, it lacked a storage platform and was open on top. The posts were joined on three sides by single, milled boards, nailed to the posts at a height of about 1.5 m above the ground. Drying muskrat

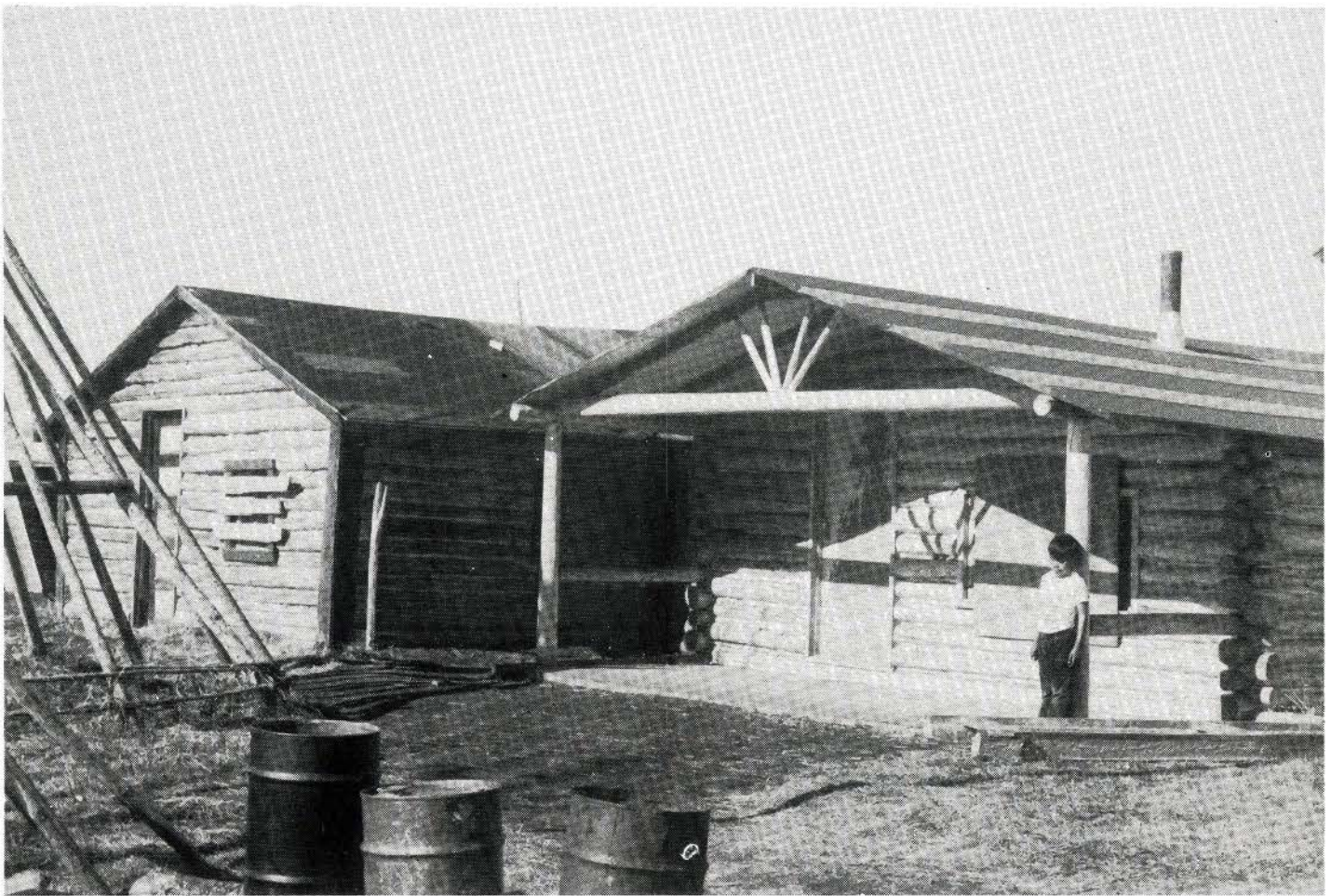


Figure 12. The two cabins belonging to household 4. The cabin on the left was the original dwelling, and became a warehouse upon completion of the new cabin.

skins were hung from the horizontal members of this structure. The unusual configuration of this stage might be explained by the fact that it was under construction at the time it was observed.

The structural differences in these stages cannot be explained functionally. All are used to store a wide variety of items, including food staples, washtubs and basins, dog harnesses, guns, extra canvas, hunting canoes, traps, snowshoes, hides, meat, fish, and so forth. Sharp notes with respect to the Chipewyan that "the symbolic division between male and female extends beyond food to the tools used in their respective tasks," and that whenever possible male bush gear is kept outside of the dwelling in separate storage areas.<sup>12</sup> Observations from Willow Lake bear this out, as most of the hunting and trapping tools are stored on the stages described above or in log or tent warehouses. It should also be noted that a stage can be shared by households, as was the case with household 2 and 3.

For want of any other explanation, I hazard the guess that the style of stage one chooses to build is largely a matter of individual choice, and is not constrained by functional considerations, other than perhaps the volume of equipment and supplies that needs to be stored. An additional consideration is the fact that the quadrupod is much less susceptible to leaning, because of its inherent stability, than is the vertical-post stage. (Fig. 14).

Stages at Willow Lake area also foci of outdoor activities, most notably hide processing. The stag itself serves as a structural support for pole racks used in tanning caribou and moose hides. (Fig. 15). The reader should note the sharpened pole which runs nearly perpendicular to the oblique leg of the stage, that is visible in the lower left corner of Figure 15. The sharpened pole is used to anchor one end of the hide while it is stretched, pulled, and wrung out during the tanning process. These devices range from straight poles to roughly y-shaped ones and are also found fastened to interior and exterior cabin walls, (see also Figure 12).

## Observations on Dene House Forms

Tipis have been retained for ideological, aesthetic, and functional reasons, and have been integrated with more modern forms. This is il-

lustrated in Figure 16, which can be described as an evolutionary capsule of Dene house forms. The tipi, the historically transitional canvas wall-tent, and the log cabin were all in use at the same time, each for essentially the same purposes.

According to Willow Lake Dene, tipis are "part of the old days" and are valued for that reason. It was also repeatedly stated that it was preferable to be in the fresh air of a tipi than in a stuffy log cabin. Tipis are required for drying the meat and fish upon which the Willow Lake Dene depend. The constant supply of smoke, necessary to prevent flies from contaminating the meat and fish with their eggs, makes cabins singularly inappropriate for this activity. Tipis are also used for skinning, butchering, hide processing, and the making of drymeat and dryfish, activities which are messy despite an individual's meticulousness. The tipi is well suited to this dirty work, with its good ventilation and replaceable spruce-bough floor. On the other hand, log cabins are easier to keep clean, and daily sweeping and periodic scrubbing of floors were common at Willow Lake. Although spruce-bough floors are regularly replaced, the effort required is not insignificant. The right kind of boughs must be located in the bush, collected, and transported to the camp. The actual placement of boughs is also time-consuming. Log cabins demand less maintenance in this and other respects; for example, tipi coverings require constant adjusting and repair. One might also argue that log cabins are more easily maintained at a comfortable temperature in winter and spring, as evidenced by the fact that most Willow Lakers sleep in their cabins during these seasons. The canvas wall-tent offers advantages and disadvantages of both the tipi and the log cabin.

This discussion indicates that different types of structures are valued for different reasons at Willow Lake. These values, in turn, represent cumulative adaptive experience, rather than the simple rejection of the old in favour of the new. As David so succinctly observed, "societies do not have a norm for structures, but a graded series appropriate for corresponding social and functional configurations."<sup>13</sup> The future may see the replacement of the tipi by the log cabin, especially if reliance on the resources of the bush diminishes. It is these broad sequential changes which are the most perceivable to the archaeologist. We must, however, remain alert to the fact that such changes result from the complex interplay of individual choice and cultural experience. To assume that people everywhere are inexorably engulfed in the tide of

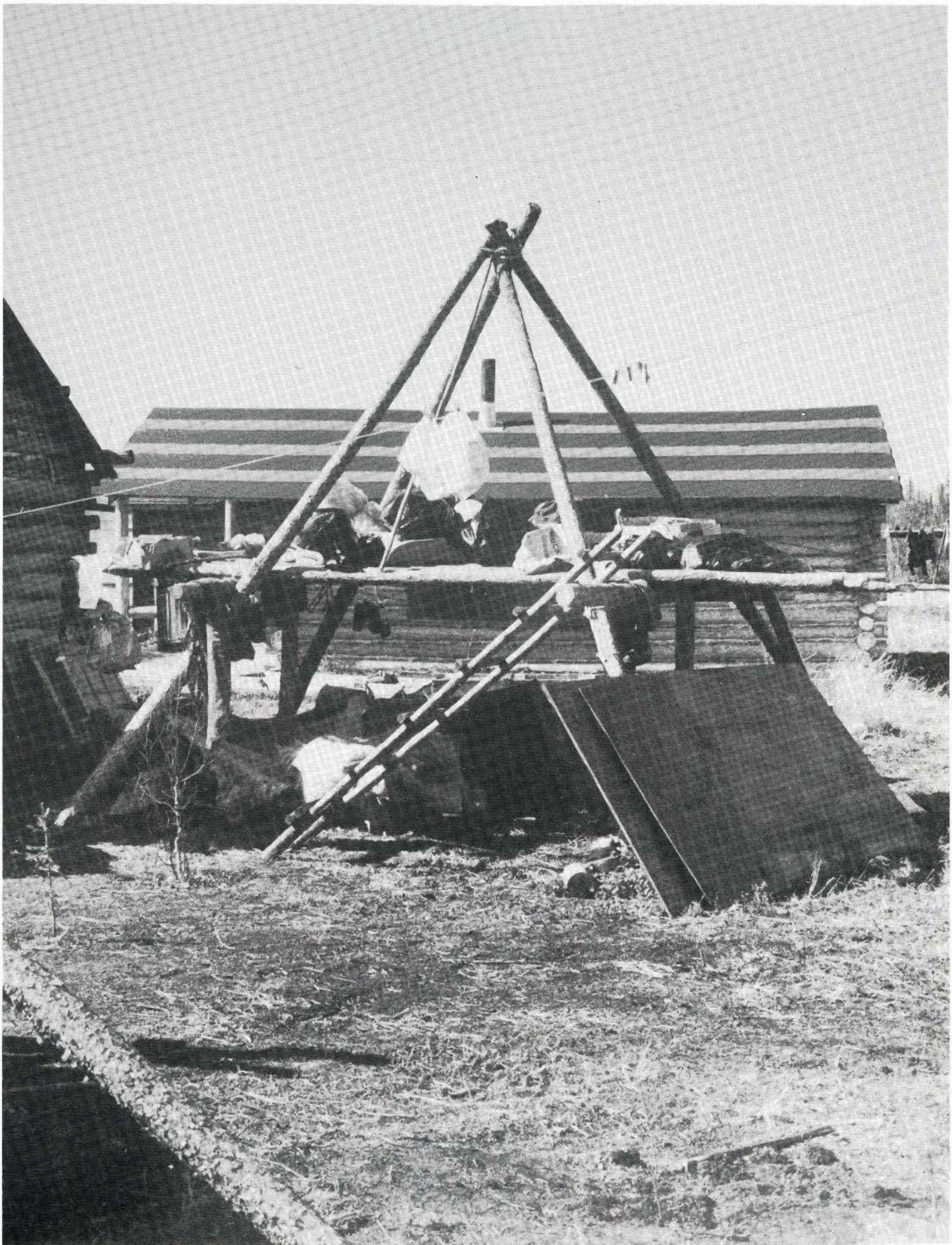


Figure 13. Quadrupod storage stage behind household 3. Note the ladder used for access.



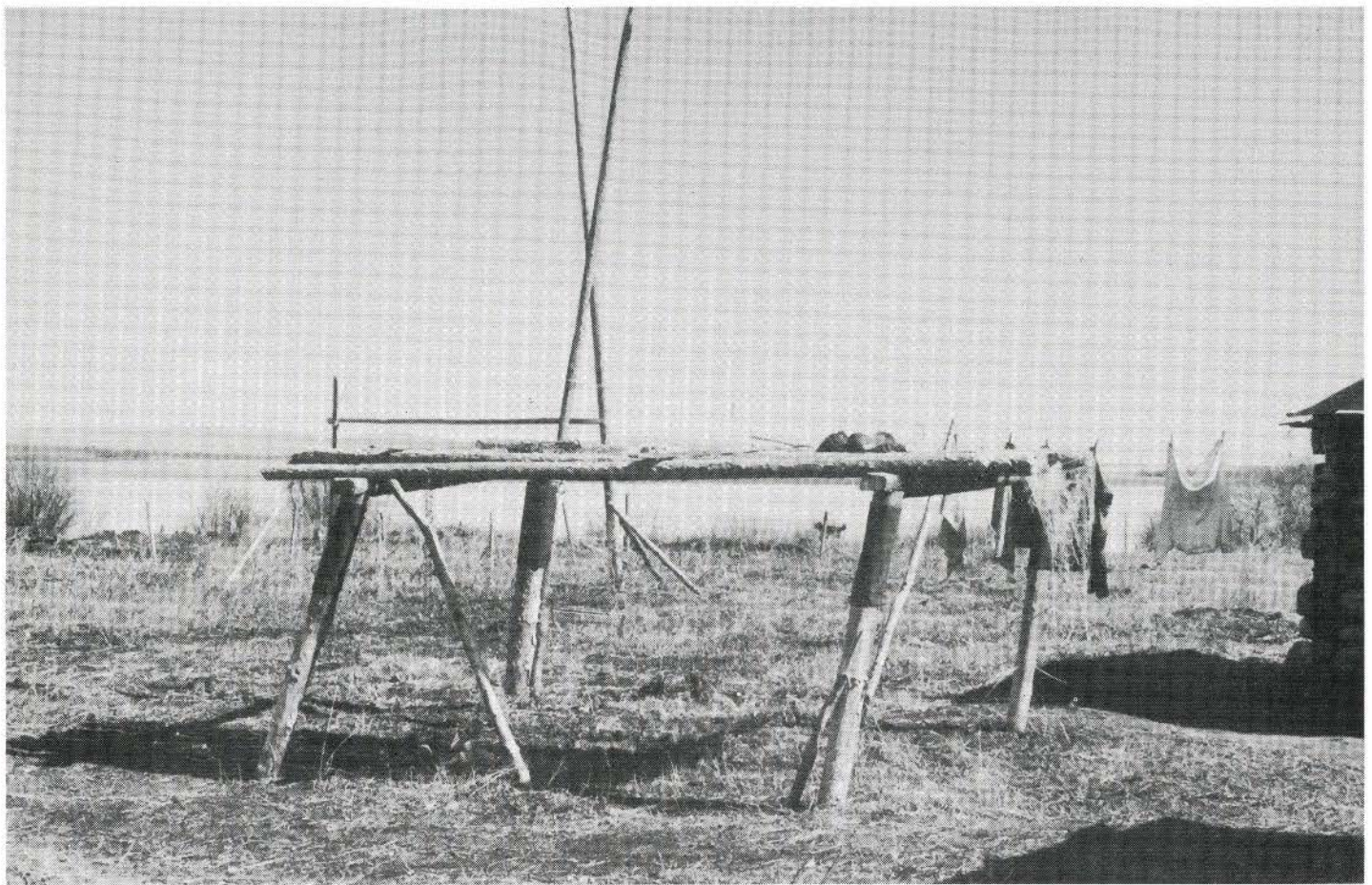


Figure 14. Platform storage stage behind household 5. The metal sheathing on the uprights is to discourage small predators and rodents.



Figure 15. A Willow Lake woman softening a hide on a rack attached to her household stage.



Figure 16. An evolutionary capsule of Dene house forms, including the traditional tipi, the transitional wall-tent, and the modern log cabin.

technological adaptation to external change has demonstrated heuristic value, but must be examined whenever possible in terms of actual behaviour. □

## Acknowledgements

I am greatly indebted to the Dene of Willow Lake for the opportunity of living and working with them on their home ground. I am also grateful to the people of Fort Norman for their support and generosity. The field work was funded by the Doctoral Fellowship Program of the Canada Council and the author. I would like to acknowledge the Prince of Wales Northern Heritage Centre, and the Executive Council of the Government of the Northwest Territories for allowing me to assume a Post-Doctoral Fellowship at the Arctic Institute of North America in 1981/82 in order to prepare this work for publication. Special thanks are due to Peter Schlederemann and the Institute staff for their many services and invaluable support. I also want to thank the Arctic Institute for permission to use portions of Technical Paper No. 28 in this article and to reproduce all the figures which appear here.

My thanks go to June Helm, Donald Clark, Nicholas David and Christopher Hanks for their cogent comments and advice. The photographs were taken by the author, and Priscilla Bickel Janes. Claudette Reed Upton has advised me on numerous editorial matters. I also want to thank the Science Institute of the N.W.T. for generously supporting the preparation of this article, and Don Lovell, for his interest and encouragement.

## Notes

1. This paper is taken from a previously published monograph by Robert R. Janes entitled **Archaeological Ethnography Among Mackenzie Basin Dene, Canada**, The Arctic Institute of North American Technical Paper No. 28, Calgary, 1983. Parts of this

monograph have been reprinted with the permission of the Arctic Institute of North America.

2. J. Cinq-Mars, **Preliminary Archaeological Study, Mackenzie Corridor** (final report 1975). Department of Indian Affairs and Northern Development, Ottawa, 1976.
3. Those who speak the various dialects of the Athapaskan language are called Athapaskans or Dene (den 'ay). Dene is an Athapaskan word meaning "man" or "person". The Athapaskans of the N.W.T. have recently indicated a preference for the use of Dene, and this is the term that is used throughout this paper.
4. J. Helm, "Bilaterality in the Socio-Territorial Organization of the Arctic Drainage Dene", **Ethnology** 4, 1965, pp. 361-385.
5. J. Helm, personal communication, 1982.
6. F. Hole and R.F. Heizer, **An Introduction to Prehistoric Archaeology** (second edition), Holt, Rinehart and Winston, Inc., New York, 1969, p. 43.
7. R.R. Janes, **The Archaeology of Fort Alexander, Report of Investigations of the 1974 Mackenzie River Archaeological Project**, Environmental-Social Committee, Northern Pipelines, Task Force on Northern Oil Development, No. 74-34, Ottawa, 1974, pp. 1-108.
8. For further information on the Mountain Dene see B. Gillespie, "Mountain Indians." In: Helm, J. (ed.), **Handbook of North American Indians**, Vol VI, Subarctic Smithsonian Institution, Washington, D.C., 1981, pp. 326-337.
9. F. Hole and R.F. Heizer, **An Introduction to Prehistoric Archaeology** (second edition), Holt, Rinehart and Winston, Inc., New York, 1969, p. 362.
10. By 1984, at least two of the households had replaced their drum stoves with factory-made wood stoves.
11. J. Helm, personal communication, 1982.
12. H.S. Sharp, "The Null Case: the Chipewyan." In: Dahlberg, F. (ed.), **Woman the Gatherer**, Yale University Press, New Haven, p. 230.
13. N. David, "The Fulani Compound and the Archaeologist," **World Archaeology**, 3(2), 1971, p. 111.