

Faunal Findings from Three Longhouses of the McKeown Site (BeFv-1), A St. Lawrence Iroquoian Village.

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The 4,536 faunal specimens excavated from three houses of the McKeown Site, a St. Lawrence Iroquoian village near Maynard, Ontario were studied to determine the subsistence pattern of the people living there around 1500 A.D.

From the remains from seven classes of animals, the seasonal exploitation pattern of the villagers was reconstructed. Of significance to faunal analyses in general was the variation in the faunal refuse among the three houses. Of specific interest to Iroquoian studies was the scarcity of dog remains and the relatively high number of black bear elements.

Introduction

The McKeown Site (BeFv-1), located on Lot 11, Concession 2, Augusta Township, Grenville County, is south of Ottawa and just north of the St. Lawrence River (Fig. 1). Although this prehistoric St. Lawrence Iroquoian village site has been known to archaeologists since the 1930s (Wintemberg 1972:121 cited in Pendergast 1988) it did not receive much attention until the summer of 1987 when it was excavated by Dr. James Pendergast as project director with Dawn M. Wright as field director (Fig. 2). A preliminary report on the site has been published (Pendergast 1988:1-13) as has a short paper on the faunal remains (Stewart 1989) and a news item on an awl (Wright and Wright 1990). Jamieson has completed a study of the artifacts made from skeletal elements and shells (Jamieson n.d.). Two unpublished research reports on the faunal remains (Ostéothèque de Montreal Inc. n.d. and Stewart n.d.) provide the data for this article.

The main purposes in studying the faunal sample were to determine subsistence and to establish, as far as possible, the inhabitants' seasonal activities related to animal exploitation. In addition the faunal

sub-samples from the individual houses were kept separate to allow a comparison of animal usage between the houses. Related to this was the testing of the hypothesis that foodstuffs might have varied over time. Unusual occurrences in the material were noted and explanations were offered for the faunal findings, with comparisons to other Iroquoian sites.

This paper begins with brief descriptions of the techniques of excavation, the site and its environment, and the methods of faunal analysis. After the presentation of the faunal data the results are discussed. The faunal details are ordered from most to least frequently identified remains. The paper ends with a few concluding remarks.

Excavation of exploratory trenches revealed the village's palisades and associated ditches and removal of the plough zone with bulldozers and shovels uncovered twenty-three longhouses. Trowels were used to excavate these houses. Screening through a 1/4 inch mesh and flotation were begun in the field but due to time constraints the latter had to be discontinued. (See Wright and Wright 1990 for information on the sorting of about twenty-seven tons of matrix from the house features.) The faunal samples originating in the features of three houses were selected for study; material from the plough zone was excluded and the floated material has not yet been analyzed.

Pendergast has made some preliminary interpretations concerning the site. Analysis of the settlement data led him to conclude that "the core village population was augmented in two phases" with the second influx of population being the larger one (Pendergast 1988:4). From an examination of the artifact assemblage, particularly the ceramics, Pendergast concluded that this 1.6 hectare site was a St. Lawrence Iroquoian village dating to around A.D. 1500. The finding of an European iron awl may indicate a slightly more

recent date but because there were no other trade goods, the site should still be considered as dating to "sometime in the first half of the 16th century" (Wright and Wright 1990:4).

It was assumed that the McKeown Site was occupied year round in all three construction phases although the population likely fluctuated with the seasons.

"By far the majority of the pits excavated were located in the longhouses. Indeed, the areas between the houses are relatively undisturbed. This pattern is attributed, in part at least, to a village life style in which the greater part of the village activity occurred during the winter months when the weather confined villagers to their longhouses. With the arrival of spring the people left the village for their spring fishing stations on the St. Lawrence River and the farm lands to prepare them for planting. Over the summer months they occupied a variety of locations, some remote from the village, each of which contributed to the seasonal food supply.

As a result the village remained

sparsely inhabited until after the fall harvest and hunt were complete." (Pendergast 1988:5)

In addition to farming villages like the McKeown Site, the St. Lawrence Iroquois also had marsh/swamp habitations and fishing stations (Pendergast 1984:58) for the exploitation of specific animals or groups of animals. The Steward Site, for example, was a prehistoric St. Lawrence Iroquoian fishing station specializing in the exploitation of the American eel (*Anguilla rostrata*) in the fall (Junker-Andersen 1988). Likely, however, most of the animals procured at such special collecting camps were transported back to the main village, at least in part if not as entire carcasses, to be consumed there. Consequently, their remains would be added to the village refuse. More significantly, it is important to remember that most of the food consumed by these people was obtained from their crops, primarily corn and beans (see Heidenreich 1971:159). Although the necessary protein could have been supplied by the beans-corn combination it is apparent from the faunal refuse that meat and fish were important

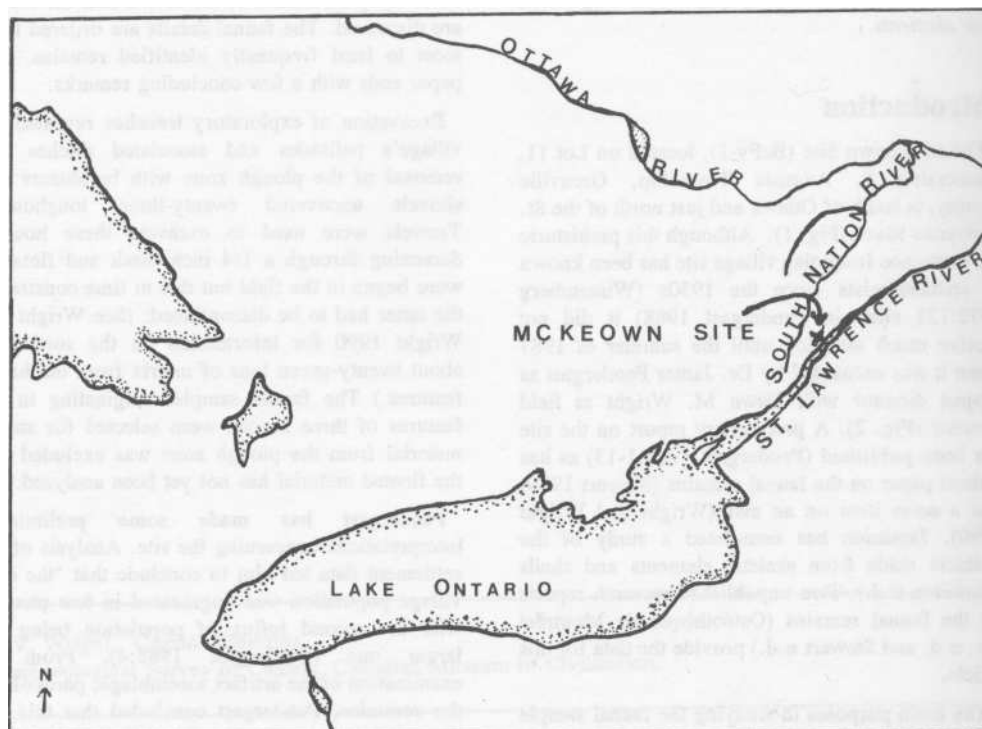


Figure 1. A sketch map showing the location of the McKeown Site and the major river systems.

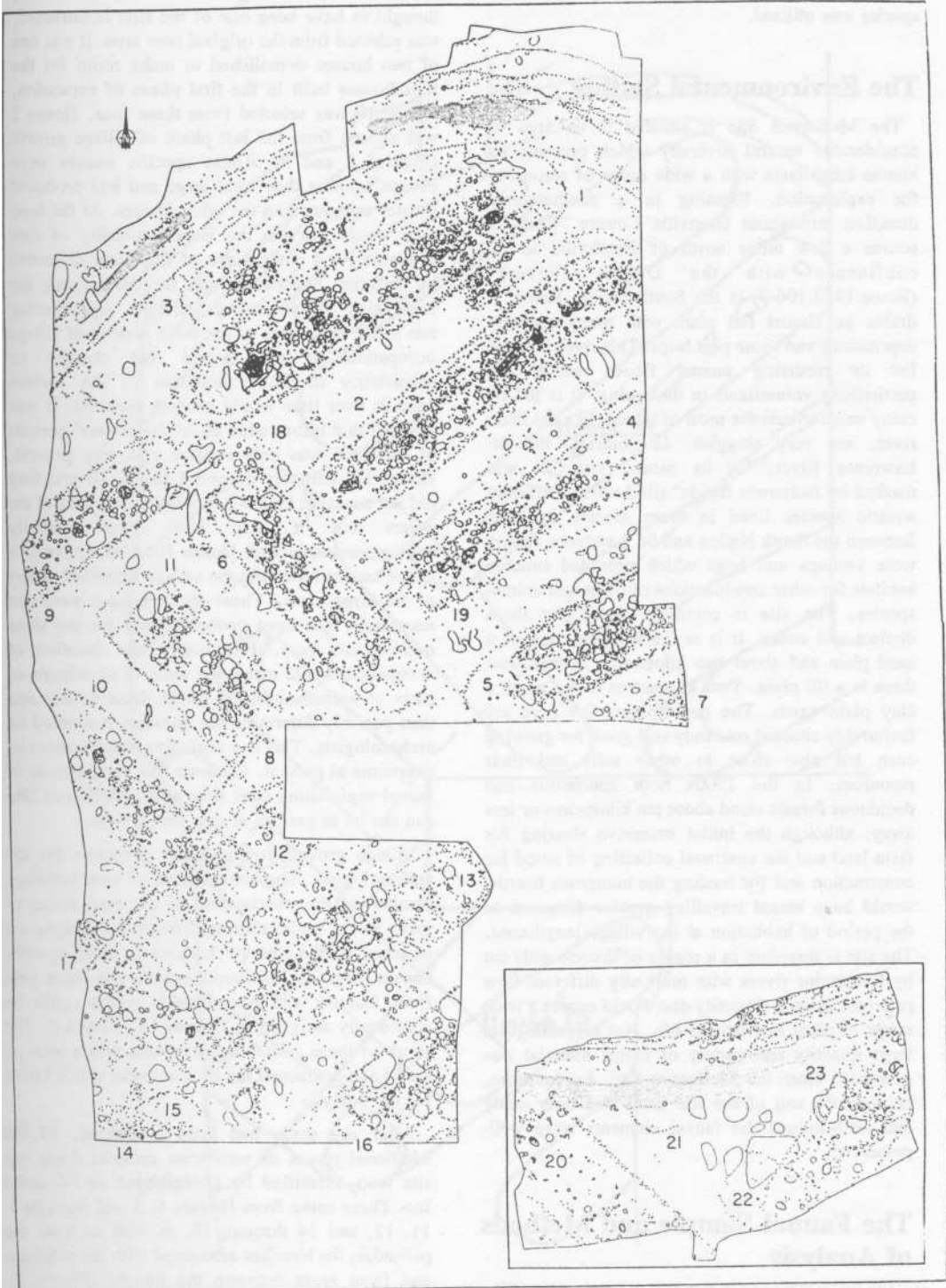


Figure 2. Pendergast's Map of the McKeown Site.

sources too and that a wide variety of animal species was utilized.

The Environmental Setting

The McKeown Site is situated in an area of considerable natural diversity which presents its human inhabitants with a wide range of resources for exploitation. Running in a northeasterly direction throughout Grenville County "from its source a few miles north of Brockville to its confluence with the Ottawa (River)" (Rowe:1959:106-7) is the South Nation River. It drains an almost flat plain with many swampy depressions and some peat bogs. This river is noted for its recurring annual floods which are particularly voluminous in the spring. It is fed by many small tributaries most of which, like the main river, are very sluggish. In contrast, the St. Lawrence River, "in its natural state ... was marked by numerous rapids" (ibid.:201). Different aquatic species lived in these diverse habitats. Between the South Nation and St. Lawrence Rivers were swamps and bogs which provided suitable habitats for other combinations of plant and animal species. The site is centrally placed for three distinct soil zones. It is at the western edge of a sand plain and about two kilometres further west there is a till plain. Two kilometres to the north a clay plain exists. The people who live here are favourably situated on sandy soil good for growing corn but also close to other soils and their resources. In the 1500s both coniferous and deciduous forests stood about ten kilometres or less away, although the initial extensive clearing for farm land and the continual collecting of wood for construction and for feeding the numerous hearths would have meant travelling greater distances as the period of habitation at the village lengthened. The site is therefore in a region of diverse soils cut by two major rivers with markedly different flow patterns. In such diversity one would expect a wide range of plant and animal life. Not surprisingly a large quantity and variety of faunal material was excavated from the McKeown Site. Furthermore, because the soil of the site itself was both sandy and well-drained the faunal elements were well-preserved.

The Faunal Sample and Methods of Analysis

The analysis of the faunal remains from the site was undertaken in two research projects. Initially I was contracted to analyze the remains from three houses, one from each of the three phases of the

site's construction (Figures 2 and 3). House 13, thought to have been one of the first constructed, was selected from the original core area. It was one of two houses demolished to make room for the four houses built in the first phase of expansion. House 10 was selected from these four. House 2 was chosen from the last phase of village growth (Figures 2 and 3). These specific houses were chosen because they were large and had produced greater samples than the other houses. At the least they would provide the largest quantity of data available for a comparison of the fauna discarded by different households and for determining the seasonality of subsistence activities. By selecting one house from each of the three periods of village occupation, it was hoped that changes or consistency in the exploitation of the various animals over time would become apparent. It was realized that information about the houses' periods of existence was only relative and very general: House 13 definitely preceded House 10 and they did not co-exist; House 2 was built after both of the others but it may have been partially contemporaneous with House 10. Unfortunately it is not known how long the village remained at any of its three sizes. These three houses were not necessarily nor even probably used for the same number of years. Presumably the duration of occupation would affect the number of animals or parts of animals brought inside these houses and thus possibly determine the numbers recovered by archaeologists. This is a limitation which cannot be overcome at present. It means that comparisons of faunal exploitation over time at the McKeown Site can not be as precise as one would wish.

Village growth created other problems for the archaeologists. The construction of new buildings resulted in the overlapping of the post stains of many house walls, making difficult the assignment of some of the interior features to their specific houses (Fig. 2). The faunal sample was taken only from features and post moulds which could be confidently assigned to Houses 13, 10 and 2. The result of these selection procedures was a total of 4,536 non-artifactual faunal specimens which I used for my analysis.

After my study had been completed, 27,499 additional pieces of vertebrate material from this site were identified by Osteothèque de Montreal Inc. These came from Houses 1, 3 and through 8, 11, 12, and 14 through 18, as well as from the palisades, the trenches associated with the palisades and from areas between the houses (Figure 2). Their results, which consistently confirmed mine, will be referred to where appropriate but in this paper the emphasis will be on the skeletal remains

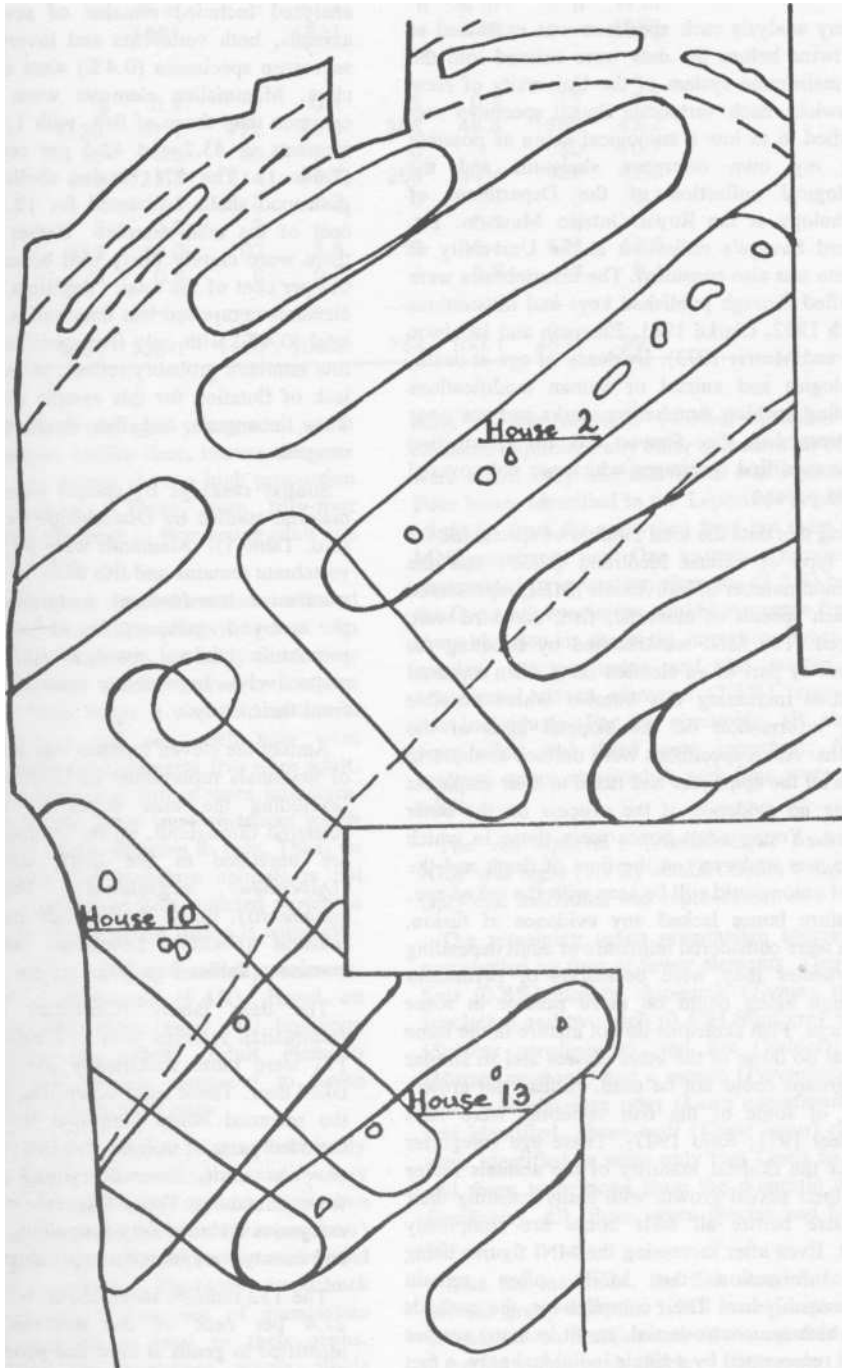


Figure 3. A sketch map of a section of the McKeown Site showing the three houses discussed in this paper and their central hearths.

from Houses 13, 10 and 2. Details of my results will be presented before summaries of those from the Osteotheque de Montreal Inc.

In my analysis each specimen was examined at least twice before the data were entered into the IBM mainframe system of the University of New Brunswick. Each vertebrate faunal specimen was identified to as low a zoological taxon as possible using my own reference skeletons and the osteological collection of the Department of Ornithology at the Royal Ontario Museum. Dr. Howard Savage's collection at the University of Toronto was also consulted. The invertebrates were identified through published keys and illustrations (Burch 1962, Clarke 1981, Emerson and Jacobson 1976 and Morris 1973). Evidence of age at death, pathologies and animal or human modifications including burning, butchering marks and use wear were recorded. (See Stewart n.d. for information on the modified specimens which are not covered by this paper.)

Using this data the total number of specimens for each type of animal identified (NISP) and the minimum number of individuals (MNI) represented for each species of mammal, fish, and bird were deduced. The MNI was reached by selecting the element or part of an element most often repeated and then increasing this number where possible using information on the skeletal ages of the remains. Adult specimens were defined as those in which all the epiphyses had fused to their diaphysis leaving no evidence of the process on the outer surface. Young adult bones were those in which fusion was underway at the time of death and the line of union could still be seen with the naked eye. Immature bones lacked any evidence of fusion. Teeth were considered immature or adult depending on whether they were deciduous or permanent although aging could be more precise in some instances. Fish skeletons do not mature in the same way as do those of the other classes and so similar age groups could not be used. Instead the growth rings of some of the fish vertebrae were read (Casteel 1971; Rojo 1987). These age categories reflect the skeletal maturity of the animals rather than their sexual growth with many reaching their full size before all their bones are completely fused. Even after increasing the MNI figures using age information the MNIs often remain unreasonably low. Their compilations, the methods for which are controversial, result in many species being represented by a single individual only, a fact already evident from the species' inclusions in the faunal list. Thus, MNIs are included in this paper for broad comparisons only.

The Faunal Remains

The McKeown Site faunal material that I analyzed included remains of seven classes of animals, both vertebrate and invertebrate. Only seventeen specimens (0.4%) were not assigned to class. Mammalian elements were slightly more common than those of fish, with 1,960 and 1,929 elements or 43.2 and 42.5 per cent respectively (Table 1). The 571 bivalve shells and nineteen gastropod shells accounted for 12.6 and 0.4 per cent of the total sample. Rather unexpectedly, there were merely thirty bird bones, representing 0.7 per cent of the total. Reptilian and amphibian elements comprised less than half a per cent of the total (0.4%) with only five specimens each. Their low numbers probably reflect, at least in part, the lack of flotation for this sample (Stewart 1991a). Thus, mammals and fish dominated the faunal sample.

Similar rankings by classes were found in the material studied by Osteotheque de Montreal Inc. (n.d. Table 1). Mammals were 57 per cent of the vertebrate remains and fish were 36 per cent. Birds were much less frequent, accounting for only one per cent and again, reptiles and amphibians were present in minimal numbers (0.5% and 0.25% respectively). Invertebrate remains were excluded from their study.

Among the eleven families and seventeen species of mammals represented in Houses 13, 10 and 2 (excluding the nine bones of *Homo sapiens* scattered throughout, on the assumption that these are unrelated to the diet), white-tailed deer (*Odocoileus virginianus*), beaver (*Castor canadensis*), black bear (*Ursus americanus*) and muskrat (*Ondatra zibethicus*) were the most common (Tables 2 and 3).

The deer family (Cervidae) dominated the mammalian remains with 235 elements of which 171 were more specifically identified as white-tailed deer. These latter comprised 35.6 per cent of the mammal bones identified beyond class and included parts of at least five individuals of which one was adult, two were young adults and two were immature. Those elements assigned to age categories included fifty-four adult, six young adult and twenty-four immature specimens.

The 132 remains identified as beaver constituted 27.4 per cent of the mammalian specimens identified to genus at least and produced a MNI of five. The beaver sample included sixteen unmodified incisor teeth some of which may have been "curated", considering their value as tools. However, the MNI for beaver was confirmed by two adult frontal and parietal bones and three

Table 1: Faunal Remains by Classes from Three Houses of the McKeown Site.

Class	House 2		House 10		House 13		Totals	
	n	% of 1961	n	% of 1821	n	% of 745	n	% of 4536
Indeterminate	8	0.4	4	0.2	5	0.7	17	0.4
Mammal	1120	57.1	472	25.9	368	48.8	1960	43.2
Bird	10	0.5	20	1.1	0		30	0.7
Fish	456	23.3	1214	66.7	259	34.4	1929	42.5
Amphibian	2	0.1	3	0.2	0		5	0.1
Reptile	3	0.2	0		2	0.3	5	0.1
Pelecypod	353	18.0	102	5.6	116	15.4	571	12.6
Gastropod	9	0.5	6	0.3	4	0.5	19	0.4
TOTALS	1961	100.1	1821	100.0	754	100.1	4536	99.9

humeri, one of which was aged young adult while two were immature. Unlike deer, beaver elements sorted to their age groups show a high proportion of immature animals. There were fifty-four immature skeletal elements to four young adult and thirty-two adult bones.

The thirty-four black bear elements constituted 7.1 per cent of those identified to genus. An additional Ursidae bone was probably black bear since that is the only species native to southern Ontario. Using limb bones it was evident that at least one immature and one adult bear were represented. Of the aged elements five were adult, one was young adult and fifteen were immature. However eight of the latter were vertebrae which are the last parts of the skeleton to fuse. Thus, an apparent selection for immature animals is not substantiated; a live bear with unfused vertebrae may be as big as one in which fusion is complete.

There were almost as many muskrat specimens, with a total of thirty-one (6.4%). Based on tibiofibula elements, there were two immature individuals and one adult. Adult elements predominated with fifteen compared to seven immature and no young adult ones.

Five medium-sized species were moderately common. In order of decreasing frequency they were: woodchuck (*Marmota monax*), snowshoe hare (*Lepus americanus*), raccoon (*Procyon lotor*) and finally, porcupine (*Erethizon dorsatum*) and marten (*Manes americana*). The twenty woodchuck remains made up 4.2 per cent of mammalian specimens recognized at least to their genus. Identification of an immature whole fibula diaphysis and a young adult fibula proximal end indicated that at least two woodchucks were part of the refuse. Nine of the aged specimens were adult, one was young adult and two were immature. Since

none of the nineteen (4.0%) snowshoe hare elements duplicated any other and since all of these were adult, only one individual was represented. Four bones identified to the Leporidae family only might be from the snowshoe hare but even so the MNI remains at one. One immature raccoon was represented by seventeen elements (3.5%) because the five adult specimens could have come from the same skeleton as the eight immature bones. Two species, the porcupine and the marten, each contributed eleven elements (2.3%) representing two individuals. For the porcupine, six elements were adult and three were immature; for the marten, seven were adult and four were young adult.

The red squirrel's (*Tamiasciurus hudsonicus*) NISP was eight (1.7%) with six bones being adult. Only one individual was represented.

The remaining seven mammalian species were represented by four or fewer elements. There were four (0.8%) eastern chipmunk (*Tamias striatus*) specimens and two each (0.4%) from grey squirrel (*Sciurus carolinensis*), red fox (*Vulpes*), fisher (*Manes pennants*) and a mouse (*Peromyscus sp.*). Only a single river otter (*Lutra canadensis*) bone was identified. Three wolf (*Canis lupus*) elements were identified as were only two *Canis sp.* bones and there were none from the domestic dog (*C. familiaris*). All these seven species had MNIs of one.

Like the mammals, the fish remains formed a diverse group with the 1,929 bones originating in at least eleven families and sixteen species (Tables 2 and 4). Although Table 4 lists only fourteen species, two more at least must be represented by the gar and sucker family remains (Table 2). The single gar element could not be identified beyond the family level. The numerous sucker specimens

Table 2: Faunal Remains by Families from Three Houses of the McKeown Site.

Families	House 2		House 10		House 13		Totals	
	n	% of 858	n	% of 613	n	% of 321	n	% of 4536
MAMMALS								
Humans (Hominidae)	9	1.0					9	0.2
Rabbits (Leporidae)	18	2.1	3	0.5	2	0.6	23	0.5
Squirrels (Sciuridae)	19	2.2			15	4.7	34	0.7
Beaver (Castoridae)	49	5.7	66	10.8	17	5.3	132	2.9
Mice/Muskrat (Cricetidae)	19	2.2	9	1.5	7	2.2	35	0.8
Porcupine (Erithizontidae)	7	0.8			4	1.2	11	0.2
Wolf/Covote/Doq (Canidae)	6	0.7			1	0.3	7	0.2
Bears (Ursidae)	9	1.0	20	3.3	6	1.9	35	0.8
Raccoon (Procyonidae)	12	1.4	5	0.8			17	0.4
Weasels (Mustelidae)	10	1.2	1	0.2	3	0.9	14	0.3
Deer (Cervidae)	140	16.3	51	8.3	44	13.7	235	5.2
BIRDS								
Loons (Gaviidae)	1	0.1					1	0.0
Ducks/Geese (Anatidae)	2	0.2	6	1.0			8	0.2
Grouse (Phasianidae)	3	0.3	1	0.2			4	0.1
Pigeons/Doves (Columbidae)			8	1.3			6	0.2
Woodpeckers (Picidae)			1	0.2			1	0.0
FISH								
Gars (Lepisosteidae)			1	0.2			1	0.0
Bowfins (Amiidae)	5	0.6					5	0.1
Trout (Salmonidae)	9	1.0	7	1.1	5	1.6	21	0.5
Pike (Esocidae)	38	4.4	43	7.0	31	9.7	112	2.5
Minnnows/Carp (Cyprinidae)			3	0.5			3	0.1
Suckers (Catostomidae)	46	5.4	100	16.3	11	3.4	157	3.5
Catfish (Ictaluridae)	22	2.6	47	7.7	7	2.2	76	1.7
Eels (Anguillidae)	10	1.2	11	1.8	3	0.9	24	0.5
Sunfish (Centrarchidae)	14	1.6	41	6.7	29	9.0	84	1.9
Perch (Percidae)	53	6.2	78	12.7	16	5.0	147	3.2
Drum (Sciaenidae)			2	0.3			2	0.1
REPTILES								
Turtles (Emydidae)	3	0.3					3	0.1
AMPHIBIANS								
Frog/Toad (Anura)	2	0.2	3	0.5			5	0.1
INVERTEBRATES								
Mussels (Unionidae)	350	40.8	100	16.3	116	36.1	566	12.5
Clam (Sphaeriidae)			2	0.3			2	0.0
Snail (Endodontidae)	2	0.2	1	0.2	3	0.9	6	0.1
Snail (Zonitidae)			1	0.2			1	0.0
Snail (Polygyridae)			1	0.2	1	0.3	2	0.1
Snail (Sigmurethra)			1	0.2			1	0.0
TOTALS	858	99.7	613	100.3	321	99.9	1792	39.5

Table 3: Mammal Remains by Species from Three Houses of the McKeown Site.

Species	House 2		House 10		House 13		n	Totals % of 4536
	n	% of 246	n	% of 145	n	% of 90		
<i>Homo sapiens</i>	9	3.7					9	0.2
<i>Lepus americanus</i>	15	6.1	2	1.4	2	2.2	19	0.4
<i>Tamias striatus</i>	2	0.8			2	2.2	4	0.1
<i>Marmota monax</i>	7	2.9			13	14.4	20	0.4
<i>Sciurus carolinensis</i>	2	0.8					2	0.1
<i>Tamiasciurus hudsonicus</i>	8	3.3					8	0.2
<i>Castor canadensis</i>	49	19.9	66	45.5	17	18.9	132	2.9
<i>Peromyscus sp.</i>			2	1.4			2	0.1
<i>Ondatra zibethicus</i>	17	6.9	7	4.8	7	7.8	31	0.7
<i>Erethizon dorsatum</i>	7	2.9			4	4.4	11	0.2
<i>Canis lupus</i>	2	0.8			1	1.1	3	0.1
<i>Canis sp.</i>	2	0.8					2	0.1
<i>Vulpes</i>	2	0.8					2	0.1
<i>Ursus americans</i>	9	3.7	20	13.8	5	5.6	34	0.7
<i>Procyon lotor</i>	12	4.9	5	3.5			17	0.4
<i>Martes americana</i>	9	3.7	1	0.7	1	1.1	11	0.2
<i>Martes pennanti</i>					2	2.2	2	0.1
<i>Lutra canadensis</i>	1	0.4					1	0.0
<i>Odocoileus virginianus</i>	93	37.8	42	29.0	36	40.0	171	3.8
TOTALS	246		145		90		481	

Table 4: Fish Remains by Species from Three Houses of the McKeown Site.

Species	House 2		House 10		House 13		n	Totals % of 4536
	n	% of 108	n	% of 148	n	% of 66		
<i>Amia ca/va</i>	5	4.6					5	0.1
<i>Salvelinus sp.</i>			3	2.1	1	1.5	4	0.1
<i>Coregonus sp.</i>	2	1.9			3	4.5	5	0.1
<i>Esox /ucius</i>	15	13.9	10	6.8	20	30.3	45	1.0
<i>Semot/us atromaculatus</i>			3	2.0			3	0.1
<i>Ictalurus nebulosus</i>	8	7.4	15	10.1	5	7.6	28	0.6
<i>Ictalurus punctatus</i>	11	10.2	5	3.4	2	3.0	18	0.4
<i>Amb/op//tes rupestris</i>	1	0.9	1	0.7			2	0.1
<i>Micropterus sp.</i>	8	7.4	17	11.5	16	24.2	41	0.9
<i>Perca f/avescens</i>	6	5.6	7	4.7	6	9.1	19	0.4
<i>Stizostedion sp.</i>	42	38.9	71	48.0	10	15.2	123	2.7
<i>Ap/odnotus grunniens</i>			2	1.2			2	0.1
<i>Morone sp.</i>			3	2.0			3	0.1
<i>Anguilla rostrata</i>	10	9.3	11	7.4	3	4.5	24	0.5
TOTALS	108		148		66		322	

could not be sorted to genus and species because reference skeletons for all the fish in this family were unavailable. It is large, with ten genera and about sixty-five species, most of which are North American (Scott and Crossman 1973:532). However, most of the archaeological specimens were very similar to reference skeletons of the genus *Catostomus* and considering which species are indigenous to southern Ontario, it is probable that these bones were from either the longnose (*Catostomus catostomus*) or white sucker (*C. commersoni*). The majority of the sucker species are redhorses belonging to the genus *Moxostoma* so some of the archaeological specimens may be from this genus for which reference skeletons were lacking.

The sucker (Catostomidae) and perch (Percidae) families accounted for most of the fish remains (Table 2). The 157 sucker specimens formed 8.1 per cent of the fish remains; the 147 perch constituted 7.6 per cent. Of the latter, 123 specimens (34.3% of all the fish remains identified at least to genus) were walleyes or saugers (*Stizostedion* sp.) and nineteen (5.3%) were yellow perch (*Perca flavescens*). The MNI for this perch was four based on four right operculi. Seven *Stizostedion* sp. individuals were represented by vertebrae ranging in age from three to nine years.

The pike family was the third most common with 112 elements (17.7% of those identified to family). Forty-five of these were recognized as northern pike (*Esox lucius*) and these made up 12.5 per cent of those fish identified to genus or species. Using vertebral ring counts, the MNI was four fish, aged four, six, seven and eight years.

Basses were the next most common fish with eighty-four elements, or 13.3 per cent of the fish remains identified to family. Basses come from two families. From the Centrarchidae family, there were forty-one elements (11.4% of the fish bones identified to genus) identified to the genus *Micropterus*; seventeen (4.7%) were pumpkinseed (*Lepomis gibbosus*) and two (0.6%) were rock bass (*Ambloplites rupestris*). The Percichthyidae family was represented by three (0.8%) perch-like fish of the *Morone* genus. The MNI for *Micropterus* was four based on vertebrae; two left operculi gave the pumpkinseed a MNI of two. There was a single rock bass represented and the *Morone* MNI was also one.

The catfish family, Ictaluridae, was represented by seventy-six bones which made up 12 per cent of the fish elements identified to family. Most were from two species: the brown bullhead (*Ictalurus nebulosus*) with forty-eight specimens or 13.4 per

cent of those fish identified to species and the channel catfish (*I. punctatus*) with eighteen specimens or 5.0 per cent of the species identifications. The MNI for the brown bullhead was four whereas the MNI for the channel catfish was two; both estimates were based on skull bones.

All of the twenty-four Anguillidae elements were from the American eel (*Anguilla rostrata*). These constituted 3.8 per cent of those recognized to family and 6.7 per cent of those identified to genus. The MNI was four based on the right dentary.

The salmon, trout, whitefish and char family, Salmonidae, had only twenty-one remains or 3.3 per cent of those identified to family. Four of these were trout or char (*Salvelinus*), four were probably whitefish (*Coregonus*) and another may have been a cisco (*Coregonus*). All their MNIs were one.

Poorly represented fish included bowfin (*Amia calva*) of the family Amiidae with only five skull bones, chubs (possibly *Semotilus atromaculatus*) with three elements and the freshwater drum (*Aplodinotus grunniens*) with three bones. All had MNIs of one.

The remaining vertebrate classes were very weakly represented. Of the six bird species, only the passenger pigeon (*Ectopistes migratorius*), the common goldeneye duck (*Bucephala clangula*) and the ruffed grouse (*Bonasa umbellus*) were represented by more than a single element (Table 5). The eight pigeon bones made up 38.1 per cent of those identified to species and included two left scapula for a MNI of two. A MNI of two goldeneyes was established from six bones (28.6%) because there were two identical wing phalanges. The four (19.0%) grouse bones represented only one individual. Single elements of the common loon (*Gavia immer*), the Canada goose (*Branta canadensis*) and the common merganser (*Mergus merganser*) completed the bird total.

Five amphibian bones were not identified further and the only reptile recognized to genus and species was the painted turtle (*Chrysemys picta*). All three of the turtle shell pieces were from House 2 (Table 2). Two medium-sized snake vertebrae came from House 13.

The invertebrates were surprisingly common with 571 pelecypod shells and nineteen shells of gastropods for a total of at least 590 specimens (Table 1). Thus, pelecypods accounted for 96.8 per cent of the invertebrates and 12.6 per cent of all the faunal remains whereas gastropods were 3.2 and 0.4 per cent respectively. Nearly all (98.3%) of the identifiable pelecypods were from two very similar mussels of the genus *Elliptio* (Table 6).

Table 5: Bird Remains by Species from Three Houses of the McKeown Site.

Species	House 2		House 10		House 13	Totals	
	n	% of 6	n	% of 15		n	% of 4536
<i>Gavia immer</i>	1	16.7				1	0.0
<i>Branta canadensis</i>	1	16.7				1	0.0
<i>Bucephala clangula</i>			6	40.0		6	0.1
<i>Mergus merganser</i>	1	16.7				1	0.0
<i>Bonasa umbel/us</i>	3	50.0	1	6.7		4	0.1
<i>Ectopistes migratorius</i>			8	53.3		8	0.2
TOTALS	6		15		0	21	

Two small clams (*Sphaerium*) were also identified. The gastropods were (*Anguispira alternata*, *Mesomphix friabilis*, *Tridopsis tridentata* and *T. albolabris*) and these are all forest snails.

The study by Osteotheque de Montreal Inc. complimented my findings (n.d.:3 and Table 3). They found white-tailed deer, beaver and black bear to be the most abundant mammalian specimens and suckers and redhorses to be the dominant fish. In their bird sample only the Canada goose, the ruffed grouse and the passenger pigeon had more than ten elements but at least fourteen bird species were represented (ibid.:Table 4). In addition to painted turtle, they identified some pieces of shell as snapping (*Chelydra serpentina*) and Blanding's (*Emydoidea blandingi*) turtle. For amphibians, they recognized toad (*Bufo americanus*), northern leopard frog (*Rana pipiens*) and bullfrog (*Rana catesbeiana*).

Discussion

Diet

The figures presented in the previous section show that mammals and fish provided most of the meat in the diet of the McKeown Site people. The number of individual specimens (NISP) for each class and the knowledge that most mammals and fish yield greater quantities of edible meat than most birds, reptiles, amphibians and invertebrates indicate that the former were the greatest contributors to the diet with variety added by a few birds, reptiles and amphibians. Shells were numerous and would produce the greatest MNIs of all the species because clams are bivalves and snails have single shells but invertebrates would have contributed only minimally to the diet. (See Parmalee and Klippel 1974.)

Of the mammals deer, bear and beaver were the most significant contributors to the diet. The usable meat per individual deer has been estimated at 38.6 kgs. (Cleland 1971) and so almost 200 kgs. of meat are indicated by the deer remains from Houses 13, 10 and 2. A larger contribution was made by fewer bears. Bears weigh from 115 to 270 kgs. (Banfield 1974:305). Using White's (1953) estimate of 70% being edible, each adult yields from 80 to 189 kgs. of meat. Thus, taking an average of 134 kgs., the two bears represented on the site, one of which was immature and so likely smaller, may have provided about 250 kgs. of meat. Each adult beaver contributes about 14.3 kgs. of meat (Cleland 1971) and so two adults plus one young adult would have produced about 42.9 kgs. with the immature individual providing somewhat less than 14 kgs. for a total of about 50 to 55 kgs.

Those mammals represented by less than thirty-one elements and less than four individuals were mostly medium-sized creatures. The three muskrats, weighing between 810 and 1,580 grams (Peterson 1966:169) would have provided about one kilogram of usable meat per individual. Woodchucks average 2.58 kgs. as adults but they can increase to 3.5 kgs. in the fall (Banfield 1974:107). The two represented in my sample were not adults and so may have yielded only about 1.5 kgs. each. The single hare would contribute about one kilogram of meat since its weight would be about 1.5 kgs. (ibid.:81) but the single immature raccoon would have provided considerably more. Average raccoon adult weights are 8.6 kgs. for males and 7.5 kgs. for females (ibid.:314). Thus, each individual might yield 5.6 kgs. of meat on average. Porcupines would also be good catches. Adults weigh from 3.3 to 9.5 kgs. and average 6.4 kgs. (ibid.:233) and there were parts of two porcupines represented at the site. Thus, about 9 kgs. of useable porcupine meat is indicated. The

Table 6: Invertebrate Remains by Species from Three Houses of the McKeown Site.

Species	House 2		House 10		House 13		Totals	
	n	% of 85	n	% of 20	n	% of 18	n	% of 4536
<i>Elliptio complanata</i>	27	31.8	1	5.0	1	5.5	29	0.6
<i>Elliptio dilatata</i>	11	12.9	7	35.0	4	22.2	22	0.5
<i>Elliptio</i> sp.	45	52.9	7	35.0	9	50.0	61	1.3
<i>Sphaerium simile</i>			1	5.0			1	0.0
<i>Sphaerium</i> sp.			1	5.0			1	0.0
<i>Anguispira alternata</i>	2	2.4	1	5.0	3	16.7	6	0.1
<i>Mesomphix friabilis</i>			1	5.0			1	0.0
<i>Triodopsis tridentata</i>			1	5.0			1	0.0
<i>Triodopsis albolabris</i>					1	5.5	1	0.0
TOTALS	85		20		18		123	

much smaller marten, also represented twice, weighs between 600 and 775 grams with an average of 661 grams (ibid.:316) and so yields about 463 grams of meat. The red squirrel, weighing between 140 to 250 grams (Peterson 1966:115), would contribute only about 137 grams. Most of the remaining poorly represented species would contribute similar small amounts. Exceptions are the fisher which weighs about 2.1 kgs. (Banfield 1974:318), the red fox which weighs between 3.6 and 6.8 kgs. (ibid.:299), the river otter which weighs about 7.2 kgs. (ibid.:341), and the wolf which weighs between 26 and 79 kgs (ibid. :290).

By multiplying the average weight for each mammal by its MNI and by White's 70 per cent and then adding the results, a gross figure for the amount of meat represented by the mammalian remains can be obtained. Thus, a total of approximately 586 kilograms of mammalian meat are indicated for the three houses.

The most common fish species from the site were medium sized. The white sucker is usually from 305 to 508 mm. long while the longnose is slightly smaller ranging from 305 to 356 mm. long (Scott and Crossman 1973:538 and 531). Their average weights are 2.2 to 4.4 kgs. (MacKay 1963:164) and they yield about 0.8 kgs. of useable meat (D'Andrea et al. 1984:234). The redhorses are only slightly larger with most of them being 356 to 457 mm. long (Scott and Crossman 1973:563-586).

In the perch family, there may have been some selection of the slightly larger sauger/walleyes over the yellow perch. Yellow perch are from 102 to 254 mm. long, weigh less than a 2.2 kilograms (ibid.:755 and 759), and yield only 0.1 kg. of useable meat (D'Andrea et al. 1984:234). Saugers

are between 254 and 406 mm., with weights just under 4.4 kgs. Walleyes are 330 to 508 mm. long and usually weigh less than 7 kgs. although much larger catches have been reported (Scott and Crossman 1973:767 and 772). Thus, the estimate of 2.5 kgs. per individual walleye may be too low (D'Andrea et al. 1984:234). Both the bass and the pumpkinseed are moderately sized with most individuals weighing under 2.2 kgs. (Scott and Crossman 1973:728, 734 and 713).

The northern pike is a larger fish reaching lengths of from 457 to 762 mm. (ibid.: 1973:356) and weights of more than 88 kgs. in Ontario (MacKay 1963:196). However, most of the archaeological pike bones were only slightly larger than my 9.4 kgs. reference skeleton. Other large bones were those of the channel catfish which was poorly represented in this collection. These catfish can weigh 66 kgs. (ibid.:182). Most of the catfish specimens were from bullheads which weigh less than 2.2 kgs. (ibid.:188). For American eels, the large females may be 762 to 1016 mm. long and weigh 5.5 to 7.7 kgs. while "the males seldom exceed 610 mm in length" (Scott and Crossman 1973:627).

The most infrequently represented archaeological species were some of the largest. Salmon, lake trout, freshwater drum and bowfin are all relatively large fish but since their representation in the faunal refuse was scant, their contribution to the diet was small.

Because the MNIs for members of the important sucker family are unavailable, it is impossible to arrive at a total fish meat contribution figure. However, minus the suckers, only about 50 kgs. of edible fish is indicated. This suggests that fish were not nearly as important to the meat diet as

mammals.

This basic mammalian and fish diet was supplemented with meat from other poorly represented animals. Each passenger pigeon and ruffed grouse may have provided 0.4 and 0.5 kgs. of meat respectively (D'Andrea et al.1984:209). The Canada goose would account for most of the avian meat despite its fewer archaeological bones because each goose yields about 2.5 kgs. of useable flesh (ibid.:208). The ducks and loons, being medium to large birds, would have added about 1 to 1.5 kgs. each. In total then, the bird remains from Houses 13, 10 and 2 represent approximately 9 kgs. of meat.

The few turtle shell pieces, the two snake vertebrae and the five amphibian bones may represent food refuse even though they lacked evidence of butchering or burning. Waugh (1916:135-136) reported that these animals, as well as turtle eggs, were eaten by the Six Nations Iroquois in historic times. The occurrence of numerous invertebrate shells, some of which had been heated, suggests that they also contributed to diet. They were consumed in the historic period (ibid.:140). These poorly represented species may have had greater significance than their numbers indicate due to their seasonal availability (birds migrating in spring for example) or their easy capture (the invertebrates for example) when stored food became depleted.

Seasonality and Habitat Exploitation

Knowing the species represented, their habitats and their natural histories, it is possible to reconstruct some of the seasonal rounds of the McKeown villagers and the environments they exploited. Most of the mammal species, including the three most important, inhabit swamps and marshes. Those second in importance are found in hardwood and mixed forests (Table 7). The majority of the identified fish prefer cool, swift rivers; so most fishing was probably done in the St. Lawrence River and its tributaries (Table 8). However, some of the represented fish species prefer warmer, sluggish rivers or lakes and ponds and so it appears that the South Nation River system was exploited too, although less frequently. Articulating their hunting and fishing practices with their agricultural schedules, the McKeown people probably hunted mammals in the fall and winter primarily, whereas they fished mainly spring spawners with much less emphasis on the fall spawners. The most common bird in this faunal sample, the extinct passenger pigeon was only available in the area from late March (Bent

1963:401) to late October (ibid.:402) and hunting it may have been prohibited in the spring (ibid.:395-60). The waterfowl are most numerous during migrations and most do not winter over in the region. Thus, bird hunting was mainly a warm weather activity, perhaps most frequent in the summer and fall. Reptiles and amphibians are active only in the warm weather when they were collected in very limited amounts.

Considering the general availability of most of the mammals, their procurement would have depended primarily of the desires of the Indians and the schedules imposed by their crops. Preparation of the land and seeding in the spring, weeding in summer and harvesting in the fall, as well as the gathering of wild fruits and nuts throughout the summer and fall, would have restricted their hunting and fishing efforts. In the historic period men were able to hunt throughout the year because women did most of the agricultural work (Tooker 1964:58) although men helped prepare the fields in the spring. "Hunting took place in the late fall and early winter" (ibid.:65) when most mammals reach their maximum seasonal weights, when their furs are in prime condition, when some congregate in large numbers and when the crops had been harvested.

As for the procurement of fish, fourteen of the species represented at the McKeown Site are spring spawners which suggests that this was the major season for fishing. Exceptions include the small numbers (nine elements) of trout and whitefish, the American eel (twenty-four bones) which would be easiest to catch during its fall run to the sea or from the mud bottom in winter, the freshwater drum (two elements) which spawns in the summer and perhaps the northern pike. Although the latter spawns in the spring, it may be easiest to hook in the fall (MacKay 1963:195); there were forty-five northern pike bones identified. Assuming that the most frequently represented species were fished when they were easiest to capture, catfish and perch would have been taken slightly earlier than the suckers which in turn would precede walleye, sauger, possibly northern pike and the basses. The other species with fewer specimens were most readily caught in the summer or fall.

Two of the bird species from the McKeown Site, the woodpecker and common merganser, are year round inhabitants of the St. Lawrence Valley. Common loons mainly migrate and breed in southern Ontario but a few winter over (Godfrey 1986:22). Some common goldeneyes remain on the Great Lakes throughout the year too, but most breed further north and winter on the coast

Table 7: The Preferred Habitats of Mammals Found on the McKeown Site.

Climax Coniferous	Climax Hardwood	Mixed Forest	Open Areas	Swamps & Marshes
Black Bear	Bear	some Deer	some Bear Deer	some Bear Deer Beaver Muskrat Otter
Snowshoe Hare Porcupine	some Porcupine	some Hare some Porcupine	Woodchuck	
some Red Squirrel	Raccoon some Red Squirrel Eastern Chipmunk Grey Squirrel	some Raccoon Red Squirrel Grey Squirrel	some Raccoon	Raccoon
Marten Fisher Red Fox	some Fisher Red Fox	some Fisher Timber Wolf	some E. Chipmunk some Grey Squirrel Timber Wolf Mouse	

Table 8: The Preferred Habitats of Fish Found on the McKeown Site.

Cold, Clear Lakes and Streams	Cool, Swift Rivers and Streams	Warm, Slow Streams, Lakes, Ponds, Marshes
Lake Whitefish Channel Catfish Yellow Perch	Channel Catfish Yellow Perch Northern Pike	Brown Bullhead
Freshwater Drum	Suckers	Northern Pike Bowfin Suckers
Pumpkinseed Largemouth Bass Smallmouth Bass	Pumpkinseed Largemouth Bass Smallmouth Bass Rock Bass American Eel	Pumpkinseed Largemouth Bass Sunfish
Walleye and Sauger Cisco Trout	Walleye and Sauger Trout	American Eel

(Bellrose 1976:430-434). Similarly, the Canada goose was traditionally most common during its spring and fall migrations with only a few remaining in Ontario over the winter (Godfrey 1986:80-81). Passenger pigeons were warm weather residents only (ibid.:302). Since these last three species contributed most of the bird bones (71.43%), it is reasonable to conclude that the hunting of birds was mainly a spring to fall activity.

Comparisons of the Remains in the Three Houses

To this point the faunal remains collected from Houses 13, 10 and 2 of the McKeown Site have been considered as a single unit. Similarities in the faunal remains from the houses were anticipated because they were from the same village and because two (numbers 10 and 2) were believed to be partially contemporaneous. However, the houses yielded both different quantities and different kinds of faunal remains and these will be considered in

this section. Some of what is known about the houses relative to their fauna is summarized in Table 9.

The most obvious differences lie in the faunal quantities. Houses 10 and 2 had similar numbers but House 13 yielded fewer than half as many faunal elements. One explanation for this diversity might be the relative sizes of the houses. House 13, the smallest of the three, had the fewest faunal remains whereas the largest house yielded the greatest quantity of faunal refuse. Thus there appears to be a positive correlation between house length and quantities of faunal remains.

Related to length is the number hearths in a house. House 13 had three hearths with a possible fourth one in the area of overlap with House 10 which had five hearths; House 2 had seven hearths. Thus, the number of hearths in a house is also positively correlated with the number of faunal remains. Assuming two families used each hearth, then there is a logical reason for this correlation. More families eat more food and discard more refuse. House 13 probably sheltered six families and it produced the lowest number of faunal specimens. House 10 had five hearths but two, which were very close together, may have been used by the same two families, making a total of eight or ten families in this structure. House 2 had fourteen families and the most refuse. Thus, a correlation exists here but a closer examination of the proportion of families to the number of faunal pieces shows it is not a simple one. Houses 13 and 2 follow the pattern with the former having less than half the number of families compared to the latter and fewer than half as many faunal specimens. However the number of families in House 10 was either closer to the six in House 13 or midway between the other two houses while its faunal total was more than twice as great as House 13's and quite close to House 2's. Thus while greater numbers of hearths and thus of families in a house coexist with greater numbers of faunal remains, the relationship is not a perfect one.

Another important variable may be the length of time during which each house was used. One might assume that the longer a house was occupied the more refuse it would collect. Unfortunately the duration of occupation these three houses is not known. However since House 13 was demolished to make room for the first expansion houses, it is possible that it was occupied for fewer years than either Houses 10 or 2. If this is true, then its fewer faunal remains may reflect this time factor. House 2 was built in the last expansion phase and since it was not necessary to demolish House 10 at that time, presumably both these houses were occupied

until the whole village was abandoned. If this scenario is correct then House 10 was used longer than House 2 and so should have yielded more material. But the opposite is true. House 2 had more faunal remains than House 10. This indicates that longevity of use is not a determining factor in the number of faunal remains that will be excavated from a structure. An explanation for this may be that refuse was removed from the houses and thus the period since the last cleaning is the most significant factor in the amount of faunal debris excavated from a structure. Middens contain many more faunal elements than do houses on Iroquoian sites, a fact which attests to the purposeful disposal of animal matter away from the living areas. At the McKeown Site, the faunal totals for the three houses are unacceptably low as representative of the refuse from all the animals consumed by a minimum of twenty-eight families over many years.

Longevity and/or intensity of house use may be reflected in the density of the features on its floor. House 2 had both the greatest number of features and the most bones while Houses 10 and 2, despite numerous overlapping of house walls, had fewer features and smaller faunal totals (Figure 2). In sum size and number of features, including hearths, are related to faunal quantities within a house but other factors also affect the faunal totals.

The differences among the houses were not limited to their faunal quantities. Although Houses 10 and 2 yielded similar amounts of bone, the proportions of the classes were different (Table 1). House 10 was unlike the others in that two-thirds (66.67%) of its faunal material was fish. Remains from House 2 were more than half mammalian (57.11%) and nearly half (48.81%) of the House 13 material was mammalian as well. In House 13, fish accounted for 34.35 per cent of the fauna, considerably less than in House 10 but more than in House 2 (23.25%). In order to compare these differences using a single figure, coefficients of similarity were calculated on the percentages of the faunal specimens by classes in each of the houses (see Stewart 1974:109-110 for an explanation of this method). The results showed Houses 2 and 13 to be the most similar with a coefficient of 176.7 whereas Houses 2 and 10 were the least similar with a figure of 111.7. Houses 10 and 13 had a coefficient of 132.7. These do not indicate a gradual change over time; rather they suggest that the inhabitants of House 10 had a markedly different pattern of animal exploitation and diet from those of the earlier house, House 13, and even from those in the probably contemporaneous or possibly later House 2.

Table 9.

House number	13	10	2
Building Phase	first	middle	last
Size	shortest	medium	longest
# of Hearths	3	5	7
# of Families	6	8-10	14
NISP	754	1821	1961

House 13's high fish count may relate to its being one of the initial group of houses in the village. The village would have been constructed during the warm weather months and when the main activity was constructing the village, the hunting effort was probably minimal. At the same time, fishing would have been in its peak season. This argument of easiest accessibility cannot be extended to the invertebrates, however. Fish consumption appears to vary inversely with mussels in these houses (Table 1); pelecypod shells reached their highest proportions in Houses 2 and 13 and were least common in House 10.

An examination of the species found in each house indicates which ones were important in creating the different frequencies by classes. The greatest variety of mammals was found in House 2 with four species being unique to that house as compared to only a single unique mammalian species for each of the other two houses (Table 3). Only House 2 had remains of grey squirrel, red squirrel, red fox and otter. A mouse of the genus *Peromyscus* was unique to House 10 as was the fisher to House 13. These are all either small or medium sized mammals so their contributions to the diet would have been limited.

Across the houses, most of the mammalian species were proportionately equally represented. An important exception to this, however, was white-tailed deer. The percentage of deer remains in House 10 (2.31% of all the faunal remains from this house) was less than half that for the other two houses. For House 13 the deer elements constituted 4.77 per cent of the total and for House 2, the comparative figure was 4.74 per cent. Since male deer average 200 to 300 pounds and females' 125 to 180 pounds (Peterson 1966:323), they are important meat providers. The fact that this species was significant in reversing the mammal:fish ratio means that the amount of difference in these houses is even greater in terms of meat poundage than it would appear to be from the class figures (Table 1).

Among the fish remains, pike bones were much more common in House 13 than in either of the other two houses; sucker and perch remains were considerably more frequent in House 10 (Table 4).

The people of House 10 appear to have had a diet with less animal protein in it than those in the other two houses whereas the people in House 2 seem to have enjoyed the most meat and fish from the widest variety of sources.

Few Dogs: Many Bears ?

An unexpected finding of the McKeown Site faunal sample was the scarcity of domestic dog (*Canis familiaris*) remains. There were none from the three houses considered here and very few identified to the genus *Canis*. Only three grey wolf (*Canis lupus*) and two *Canis* sp. elements were identified. Researchers at Osteotheque de Montreal Inc. concurred that "few dog remains [were] scattered throughout the site in very small quantities" (n.d.:41). They identified only ten wolf elements, fifteen dog remains and two additional specimens identified to the genus *Canis* in a total of 7,686 mammalian elements (ibid.:Table 3). This poor representation is unique among St. Lawrence Iroquoian sites. Dogs were very common at the Glenbrook Site (Rick 1981:45), moderately frequent at the Beckstead Site (D'Andrea et al. 1984:212) and are listed third in frequency for the Roebuck Site (Wintemberg 1972:13). Furthermore, dogs are common on most Iroquoian sites across Ontario and they are mentioned often in ethnographies as important animals to these people (Tooker 1964, Trigger 1969, Waugh 1973). Their poor representation at the McKeown Site was totally unexpected and I cannot explain it.

A second and possibly related surprise was the relatively high frequency of black bear remains. From the three houses, there were thirty-four elements identified as black bear (*Ursus americanus*) representing 7.1 per cent of all the mammals identified to genus and species. One specimen identified to the class Ursidae only was likely from a black bear since that is the only species native to southern Ontario. Thus, bear elements were the third most commonly identified and with a MNI of two individuals, black bear was the greatest meat providing species.

Bear remains were also in third place in the sample studied by Osteothe-que de Montreal Inc.

In their sample of 7,686 mammalian specimens, 455 were black bear, accounting for "8% of the identified mammals" (n.d.:41). Furthermore, they reported the burial of a nearly complete skeleton of a young bear which had been killed in the fall or early winter (ibid.:19 and 41). My examination of the bear bones from Houses 13, 10 and 2 revealed no selection by age in that all of immature, young adult and adult specimens were recovered in proportions that suggested non-selective hunting.

There are several possible explanations for the high incidence of bear bones on this site. Since bears weigh the most of all the represented species, with males being "200-600 (average 300) lb., females averaging about ten per cent smaller than males" (Peterson 1966:221), bears would have been significant prey for meat. Their coats would have been very valuable, too. At the McKeown Site (Jamieson n.d.) as well as at other sites, bear elements, particularly the large canine teeth, are often made into artifacts. (Roebuck for example; Wintemberg 1972:51-2). Finally, since it is safest to kill bears when they are hibernating and because their coats are thickest then too, the procurement of this valuable animal probably would occur in winter.

This emphasis on black bears may be a St. Lawrence Iroquoian trait. Bear remains are not so common on most proto-Huron or Huron sites although they do occur in limited numbers (Stewart 1974; 1991b). At St. Lawrence Iroquoian sites, however, bear remains are more common. The black bear apparently provided most of the meat at the Beckstead Site (D'Andrea et al. 1984:212) and it is well-represented at Glenbrook (Rick 1981:Table 1 p.45) and Roebuck (Wintemberg 1972:13).

The environment around the McKeown Site could have supported a large bear population. They can be found in either coniferous or deciduous forests with thickets or swamps. They are carnivores but not very selective, including carrion, live animals and vegetation in their diet. They may even have been found in the Indians' corn fields (Banfield 1974:306).

Did the bears in some way compensate for the missing dogs at the McKeown Site? The possible occurrence of a bear burial at the Beckstead Site (D'Andrea et al. 1984:212) and the young bear buried at the McKeown Site are evidence of a special regard for bears by these St. Lawrence Iroquoians. Dog burials occur on many Huron sites, including Fournier (skeleton in the Dr. Howard Savage Faunal Reference Collection), Draper (shown in the movie "To Know the

Hurons"), Nodwell (Stewart 1974) and Keffer (Stewart 1991). Thus, the treatment of bears at the McKeown Site is similar to that of dogs at other Iroquoian villages. In addition to the one excavated burial, bear bones collected from the McKeown Site were scattered in a variety of features. (More bear burials may have been left in the ground, if they were mistaken for humans since one of the conditions for digging this site was to recover immediately any human or possibly human bones that were exposed during excavation.) This scattering of elements is true of dog elements on most Iroquoian sites where they only occasionally show evidence of human modifications (Nodwell and Keffer, for examples). None of the McKeown bear bones from the three houses was burnt, cut or chewed but the scattered remains were from all parts of the skeleton. Thus, whole carcasses were present on the site, likely because meat from all body parts is edible. Possibly, like later Iroquoians, the people at this site fattened captive bears for consumption (Tooker 1964:66) or for other purposes.

Conclusions

In general, the inhabitants of the McKeown Site shared much in their diet with other Iroquoians. They both exploited animals from all five vertebrate classes but these St. Lawrence Iroquoians may have been greater "broad spectrum" foragers. Junker-Andersen (1988:115) has reached this same conclusion. The inhabitants of the McKeown Site collected animals from two different river systems and from a variety of forest covers as well as from open areas that they themselves often created. Mammals, particularly deer and bear, were the greatest contributors to the diet followed by fish, particularly members of the sucker and perch families. According to both historic accounts (Champlain 1922-1936; Trigger 1969) and other faunal studies, such as that of the Keffer Site (Stewart 1991b), the Huron exploited especially deer and whitefish. While both groups relied on deer and beaver as well as suckers and bass, whitefish is not common on St. Lawrence Iroquoian sites. Among the birds, passenger pigeons, various sorts of ducks, and grouse were taken by both people but the St. Lawrence Iroquoians appear to have made much less use of the wild turkey than did the Hurons, although in neither culture were birds large contributors to the diet. More intensive collecting of invertebrates may also be a minor St. Lawrence Iroquoian trait. Two sorts of freshwater mussel shells dominate the invertebrate sample at the McKeown Site but other shells were

represented as well.

This study of the faunal remains from the McKeown Site has allowed a reconstruction of the diet and of some of the seasonal scheduling of the people. Apparently, they availed themselves of a wide variety of wild animal species despite their being agriculturalists. They fished from various waters, primarily in the spring and they hunted from swampy and forested areas, primarily in the fall and winter. Their foraging practices seem broader than those of the Hurons but what really sets these St. Lawrence Iroquoians apart is their greater use of bears. What makes this particular site unique is the paucity of dog remains.

This study has also raised some interesting methodological issues. It is further evidence that one cannot assume that any longhouse is typical for a village. Rather, diversity should be expected. It has become obvious that some way of estimating the lengths of occupation of houses needs to be devised. Since so many Iroquois villages either expanded or contracted over time, this is a problem which should receive further study. More controversial is the practice of leaving burials unexcavated. While this policy is meant to respect human interments, it creates the possibility that bones of other mammals, especially those of bear which can easily be confused with those of humans, will be left in the ground. Field crews should include someone who can recognize the differences when human burials are not going to be excavated. Finally, as more faunal studies become available, differences in animal exploitation among different cultures can be established. In this paper, I have suggested some possible St. Lawrence Iroquois traits, related to faunal exploitation, which future studies will either confirm or refute.

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