

A REGIONAL APPROACH TO THE STUDY OF DIET
DURING THE FIRST CENTURY OF THE HUDSON'S
BAY COMPANY FUR TRADE IN RUPERT'S LAND

by

Rebecca J. Balcom

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ABSTRACT

This thesis presents techniques for examining diet during the first century of the Hudson's Bay Company fur trade in Rupert's Land. The techniques that have been developed from the regional historical documents in order to study diet in this new environment are a food chronology, two food classification schemes, and a flow diagram which illustrates the flow of food through the Hudson's Bay Company subsistence system. These analytic techniques are then applied at the site-specific level to the historical and archaeological data from New Severn (1685-1690).

This research illustrates the usefulness of a regional approach. Due to the gaps in the historical record for this time period, particularly at the site-specific level, a broader understanding of diet at individual posts is possible by utilising documents pertaining to the entire Bayside region. Furthermore, this study illustrates the utility of combining historical and archaeological data bases in order to obtain a more detailed inventory of foods available for consumption. The archaeological data base lacks information pertaining to imported foods and the historical

data base lacks information pertaining to local resource utilisation. By integrating these two data bases in the manner suggested by the previously mentioned techniques, it is concluded that, barring calamity, the diet of the Hudson's Bay Company fur traders at New Severn was nutritionally adequate providing there was sufficient intake of the available foods.

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CHAPTER ONE

INTRODUCTION

Objectives

The purpose of this thesis is to develop techniques of investigating the diet of the Hudson's Bay Company fur traders during the first century of Bayside trade. In order to accomplish this aim, both historical and archaeological data are utilized. Techniques are developed from the historical data in order to study the regional diet during this time period and, more specifically, diet at New Severn which was occupied from 1685-1690 (Rich 1958:228). The term "diet" in this thesis refers to foods available versus "dietary status" which refers to nutritional adequacy.

The first technique proposed for the study of diet is a regional chronology of imported foods which specifies the year of the initial appearance of each food into the subsistence system up until 1770. This regional chronology is valuable because it documents food additions through time and can be used to supplement the archaeological and historical records for a specific site within the Hudson's Bay Company region. The next two techniques are food classifications which organize the foods into categories based on those

similar or different attributes deemed relevant to the researcher. The classification techniques employed here enable investigation into the source of foods within the subsistence system as well as the division of foods into groups which are meaningful in the light of current nutritional knowledge. The final technique presented on the basis of historical data is a flow diagram of the complex regional subsistence system which indicates the variables affecting diet at this time period. These techniques are applied to the archaeological and historical data from New Severn in order to assess diet at that site. An evaluation is then made of the historical and archaeological records as they relate to diet.

Rationale

House (1977:243) states that "the most appropriate research universe for investigating a past society,, is not a single site but a region, the geographical area occupied by a past cultural system, society, or community." The term "region" is used in this thesis in reference to those posts operated by the Hudson's Bay Company during the first century of Bayside trade (Figure 1). This time period coincides with the Company's move inland in 1774 with the establishment of Cumberland House (Rich 1967:151). The techniques discussed in this

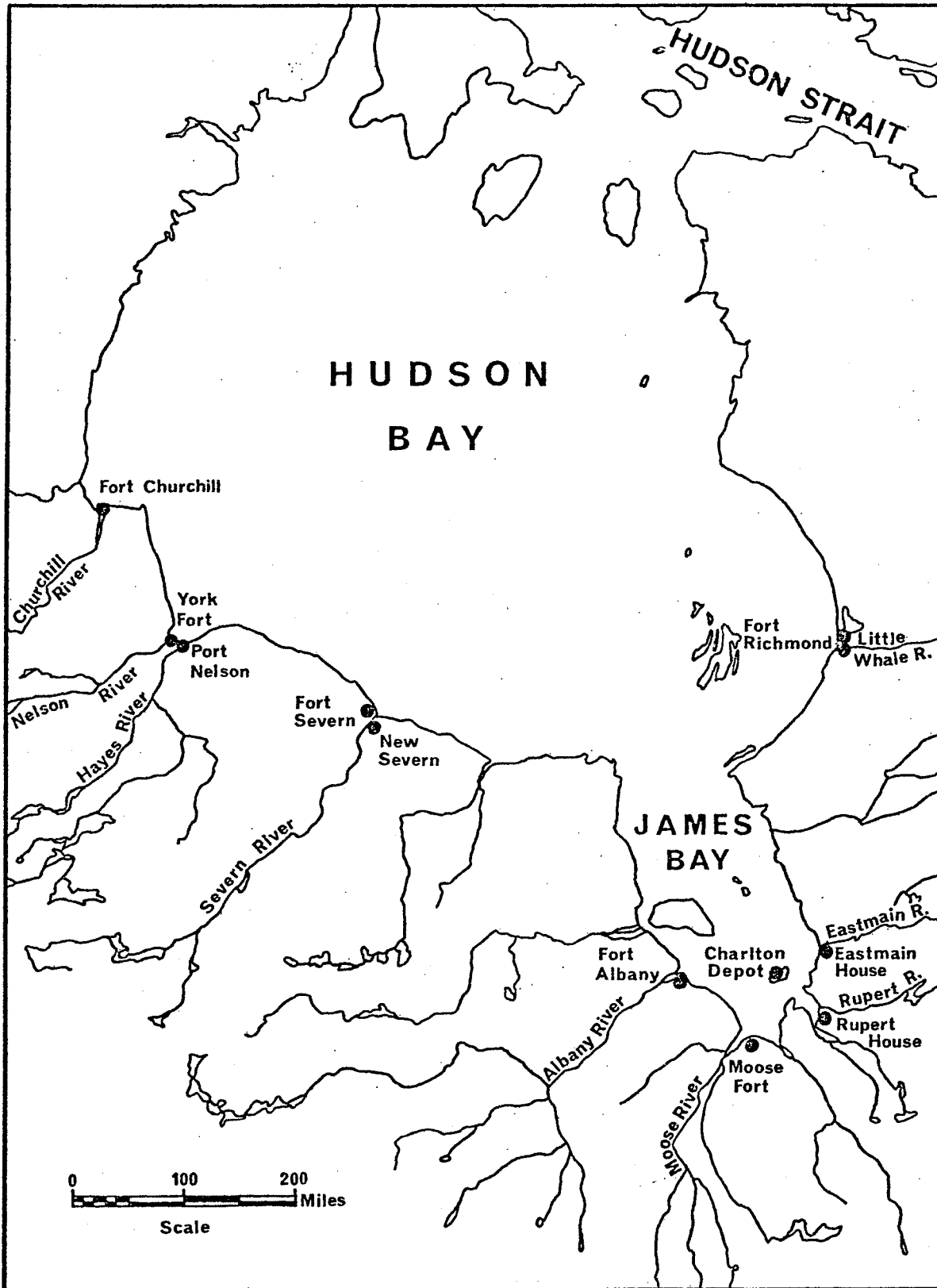


Figure 1. Hudson's Bay Company Posts to 1770

thesis are not intended to be applicable to Cumberland House and other inland posts which are not part of the coastal environment.

This thesis is based on the fact that the British posts along the Hudson and James Bay coasts were part of a larger system, that being the Hudson's Bay Company. Diet can be studied for the entire region because the posts were subsystems of a larger system. As such, all men received food from the same sources and were subject to the same rationing measures (Rich 1958:179, 603). Although the governors or chief factors might receive some provisions beyond those allotted to the rest of the men (particularly liquor), the food availability for all individuals would have been nearly identical since private trading was strictly guarded against, thereby negating any opportunity to trade on an individual basis with the Indians for food, e.g., meat.

This thesis is important because it deals with the issue of diet during the time of contact. The well-being of the men in Rupert's Land (the area governed by the Hudson's Bay Company) would ultimately determine the success of the Company, and it is important to understand the form of adaptation made by the Hudson's Bay Company men in a foreign environment. The regional approach covers a large geographical area which is becoming the

subject of increased attention from a number of scholars in various disciplines. Due to the paucity of archaeological remains indicating diet at many sites, diet is often a neglected subject in analyses. The techniques presented here provide methods of utilizing a combination of historical and archaeological data in order to gain a maximum of subsistence information.

Historical Background

The arrival in 1668 of Groseillers and his men aboard the Nonsuch and the subsequent establishment of Charles Fort at the mouth of the Rupert River signified the commencement of English trade on Hudson Bay. On May 2, 1670 a charter granted to the Hudson's Bay Company based in London all

those Seas Streights Bayes Lakes Creekes and Soundes in whatsoever Latitude they shall bee that lye within the entrance of the Streights commonly called Hudson's Streights together with all the Landes and Territoryes upon the Countryes Coastes and confynes of the Seas Bayes Lakes Rivers Creekes and Soundes aforesaid that are not exactly possessed by or granted to any of our Subjectes or possessed by the Subjectes of any other Christain Prince or State (Rich 1967:30).

At the time, the extent of the land granted by the charter was not known, but the territory so granted was called

Rupert's Land. The Hudson's Bay Company wished initially not to form colonies but to make settlements (or factories) such that the Indians would know that there would always be English goods available and that there would be a year round market for their furs.

During the time period under study, there were several fur trading posts established along the coast of Hudson Bay. These posts formed two districts with Port Nelson or York Factory the main post on Hudson Bay itself, and Charlton Island being the central depot at the Bottom of the Bay (as it was referred to by the Company). The governing body at the Bay was composed of a governor, a deputy governor, and a chief factor. This governing system allowed for better communication between the posts, as well as for the transfer of provisions and supplies.

During the time period from 1686-1713, the English suffered much loss as they fought to maintain Bayside control and monopolize the fur trade rather than succumb to the French. Only when the Treaty of Utrecht was signed in 1713 were the British again secure in Hudson's Bay.

Subsistence Base

Although the Hudson's Bay Company advocated a policy of self-sufficiency, the posts were not expected

to be totally without imported provisions. There was no statement in the Charter which forced the men at the posts to be reliant on the country produce, however fruitful it might be. There were frequent reminders that local resources should be utilized as best they could in order to keep the cost of provisioning as low as possible. Guns, shot, fish nets and hooks were sent out in order that the men might exploit the resources at hand. It was the Indians who did much of the hunting and each post had "homeguard" Indians who were hired by the Company to stay around the posts on a yearly basis to ensure exploitation of the game resources. The Indians had greater expertise regarding such matters, especially in the hunting of the great quantities of geese and ptarmigan. In addition, the Company experimented with agriculture and animal husbandry right from the start of trade on Hudson Bay. In fact, until the late 1730's, the Company had hoped that agriculture would be a replacement for, rather than a supplement to, European provisions at the Bayside posts (Moodie 1972:360).

In addition to the foods provided by local plant and animal resources and the domesticated foodstuffs (to the extent that these measures were successful at each individual post), provisions were sent from England almost yearly. These provisions were standard in nature

and differed little from post to post except in quantity. The provisions grew in terms of variety as time progressed. This tendency was mainly a reflection of the advances in worldwide sea and land transport, but it was also a reflection of the Company's realization that the Bayside environment would probably never allow for total self-sufficiency to the exclusion of outside food resources. The price of providing at least some of the foods for the traders sustenance had to be paid in order for trade to be carried on at the Bay.

In order to study diet in the Hudson's Bay Company region, this thesis has been organized in the following manner. Chapter Two contains the techniques which have been developed from the regional historical records for the first century of trade. Chapter Three deals with that portion of the archaeological record from New Severn which applies to diet. In Chapter Four, the techniques proposed for dietary study are applied to the historical and archaeological data from New Severn in order to assess their applicability as well as to assess diet at that site. The final chapter is a concluding discussion on the techniques and their applicability. Final remarks concerning dietary adaptation by the British fur traders during the first century of trade on Hudson Bay and diet at New Severn are also presented.

CHAPTER TWO

TECHNIQUES PROPOSED FOR DIETARY STUDY

In this chapter techniques are presented which organize data from regional historical sources in such a manner that they can be applied to archaeological data. Four techniques are presented, a food chronology, two food classifications, and a food flow diagram.

Food Chronology

The purpose of the food chronology is to detail the range of foods imported from England to the Bayside posts from 1668-1770 as delineated by historical documents. Foods are listed in the chronology in the order that they were introduced into the diet of the Hudson's Bay Company employees in Rupert's Land (Table 1). The chronology is more reliable after 1684 when primary documents are available for every year. From 1756-1770 no new imported foods were added to the diet. The majority of the data presented in this chronology are from the invoices of shipments outward (i.e., from Britain) and from lists of provisions and stores at the Company posts. Within these documents, all foods sent to the Bayside posts are listed. However, there is no differentiation between foods which were kept for mess use and

Table 1. Food Chronolgy

First Recorded	Food	Source
1668	strong beer	Rich 1969:62
	malt	"
1670	peas	Moodie 1972:18
	mustard seed	"
	hens	"
	hogs	"
1672	goats	Moodie 1972:20
1674	wheat	Rich 1942:101
	rye	"
	barley	"
	oats	"
	onions	"
	garden seeds	"
	vinegar	"
	butter	"
	lime juice	"
	cheese	"
	bread	"
	flour	"
	beef	"
	pork	"
	currants	"
	'other fruit'	"
1681	liquor	Rich 1946:239-299
	sugar	"
1682	turnip seeds	Rich 1946:239-299
	radish seeds	"
	lettuce seeds	"
	spinach seeds	"
	colewort seeds	"
	stockfish	"
	harberdine	"
	molasses	"
1684	salt	Invoice books of
	oil	Shipments to
	prunes	Hudson's Bay
	raisins	A 24/1, fol.1-14
	cinnamon	"
	cloves	"

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(continued)

TABLE 1. Food Chronology

First Recorded	Food	Source
1684	mace	A 24/1 fol.1-14
	nutmegs	"
	ginger	"
	pepper	"
	Virginia wheat	"
	suet	"
	lard	"
1685	nuts	A 24/1 fol.13-29
1686	rice	A 24/1 fol.30-44
	Indian corn	"
1687	white starch	A 24/1 fol.45-57
1688	horse beans	A 24/1 fol.58-65
	garden beans	"
1690	pimento	A 24/1 fol.72-79
	hopps	"
1691	figs	A 24/1 fol.79-85
1692	bacon	A 24/1 fol.86-98
1693	carrots	Moodie 1972:56
1698	sheep	Moodie 1972:72
1702	sorrell	A 24/2 fol.5-7
	chervill	"
	cress	"
1705	lemon juice	A 24/2 fol.8-11
	pickles	"
1713	anchovies	A 24/2 fol.30-33
	capers	"
1715	chocolate	A 24/2 fol.49-62
	coffee	"
	tea	"
1723	gammon	A 24/3 fol.55-72
	ham	"
1740	bran	A 24/5 fol.106-131
1744	confectionary	A 24/6 fol.49-103
1747	cattle	Moodie 1972:
1752	honey	A 24/7 fol.197-270
1756	sassafras	A 24/8 fol.154-227
	mustard flour	"

foods which were (at least in part) for trading purposes. The application of this regional chronology on a site-specific level would verify the foods available during a particular time period but, the daily journals kept at each post would have to be consulted for information regarding actual distribution of foods among the Company employees as well as to delineate the foods which were traded with the Indians. The first of these daily journals to survive is for Fort Albany in 1705-1706 (Hudson's Bay Company - henceforth HBC; HBC B 3/d/15).

Using the chronology, the appearance of a specific food in a given year signifies the date after which the food may appear in the archaeological context. If a food has not been found in the archaeological context, or is not likely to be preserved there, then its presence within the subsistence system may be inferred if the date of site occupancy is known. This means that diet of a given post can be estimated. For this time period, containers are not likely to be diagnostic of their contents with the exception of a basic difference in the size, colour, and shape between liquor and condiment bottles. On the other hand, the lead foil which was used to line tea chests or to wrap loose tea could be diagnostic (Sharon Keen, personal communication).

Chronologies have been used in archaeology to date

artifacts, thereby allowing inferences to be made as to the time period during which a site was occupied. For example, although now being thought to be unreliable by some, clay tobacco pipe chronologies based on bore sizes have been formulated (Binford 1962; Harrington 1954; Walker 1977). Noel Hume has formulated and utilised a ceramic chronology based on typological variation (1970). The food chronology introduced here is based on the first recorded appearance of a particular food into the Hudson's Bay Company subsistence system. This chronology would not take precedence over formal chronologies for dating purposes because many of the foods, or indicators thereof, would not be preserved. The food chronology is significant because it illustrates the range of foods available within the region in a given time period and because it documents food additions through time. New foods were introduced into the diet as the Company became convinced that it was not feasible for the men to be self-sufficient. Also, new foods were sent as they became available because of increased trade between Britain and other countries, and as the Company became more established and could afford more variety. Few foods were deleted through time as is evident in the chart listing provisions sent to the region every two years from the first available record in 1674 (Appendix A). A glossary of food terms used in

the chronology and in the primary documents has been compiled (Appendix B).

Food Classification

Two techniques for classifying foods into groups are presented as approaches to the study of diet during the fur trade. As with the food chronology, these techniques organize data from within the historical context. Foods can be classified in numerous ways, but for any classification to be of value there must be a problem orientation. In this thesis, there are two problems to be addressed through classification. The source of foods within the diet is a concern. They may be plant or animal which, for example, would affect representation in the archaeological context, or local or imported in nature which would affect the ability of the men to survive if cut off from European provisions. The second problem involves classifying the foods into groupings based on current nutritional information.

Table 2 illustrates the regional classification of foods based on whether they are plant or animal, and whether they are of local indigenous, local introduced, or imported origin. Local introduced foods refer to those plants and animals which were brought from Europe in an attempt to cultivate crops and domesticate animals

TABLE 2. Food Classification Showing Plants and Animals
by Source, Hudson's Bay Company Diet, 1668-1770

Local Indigenous	<u>Plant</u>	
	Local Introduced	Imported
dandelions	peas*	peas
nettles	beans	beans
juniper	parsley	mustard seed
cranberries	colewort	oats
spruce	turnip	barley
Labrador tea	carrot	wheat
	wheat	rye
	rye	lime juice
	barley	lemon juice
	oats	vinegar
	mustard	bread
	onions	oatmeal
	lettuce	flour
	radish	molasses
	spinach	beer
	sorrell	liquor
	chervill	salt
	cross	oil
		prunes
		raisins
		currants
		spices
		Virginia wheat
		nuts
		rice
		Indian corn
		white starch
		pimento
		hopps
		mustard flour
		figs
		honey
		bran
		chocolate
		coffee
		tea
		pickles
		confectionery

*some foods are in two categories because posts received them for planting as well as for immediate consumption.

TABLE 2. (continued)

Local Indigenous	<u>Animal</u>	
	Local Introduced	Imported
trout	sheep	beef*
pike	cattle	pork**
perch	goats	lard
salmon	pigs	suet
whitefish	hens	butter
caribou		cheese
deer		harberdine
moose		stockfish
rabbit		
beaver		
ptarmigan		
grouse		
goose		
swan		
plover		
duck		

* beef and pork refer to the dried meat sent from abroad while cattle and pig refer to the live animals that were shipped

**different cuts of the same meat have been grouped together, in this case, gammon, ham, and bacon as pork

in the region. The local indigenous category of food may well be elaborated upon at the site-specific level with knowledge of the area, excavations within the site, and from daily journals. The classification was formulated using data from the food chronology in addition to local resources known to have been utilised during this time period (Innes 1962; Moodie 1972; Rich 1976; HBC B 198/a/4,5). Local resources are included here but not in the food chronology because the utilisation of these resources cannot be dated as the imported foods are. This classification is significant in the study of diet because it indicates the place of origin of the foods within the subsistence system of the traders.

Another technique of food classification presented here is based on food groups currently being used by Health and Welfare Canada (1977). In addition to providing an organizational framework for discussing available foods, these four food groups are useful at the regional level because they allow for speculation as to the overall availability of nutrients as well as possible nutritional shortages. At the site-specific level this classification serves a similar purpose except where there are daily journals and mess books available. The mess books detail the amount of food given to the groups of men (usually four) each week. Although not all food

intake was listed (e.g., sugar and liquor which were individually purchased; locally available berries that were probably consumed), this type of information would allow for a more specific estimate of individual or group consumption. Foods known to have been consumed in Britain during the time period of investigation were initially classified in this manner in order to ascertain whether the foods at this time could in fact be categorized as they are by Health and Welfare Canada (Table 3). The classification of the foods in Britain enables comparison with the foods in the Hudson's Bay Company region. All of the categories were represented by foods of the time period in Britain so the system was then used to classify the food of the fur traders who actually comprised a subculture of British society (Table 4).

Food Flow

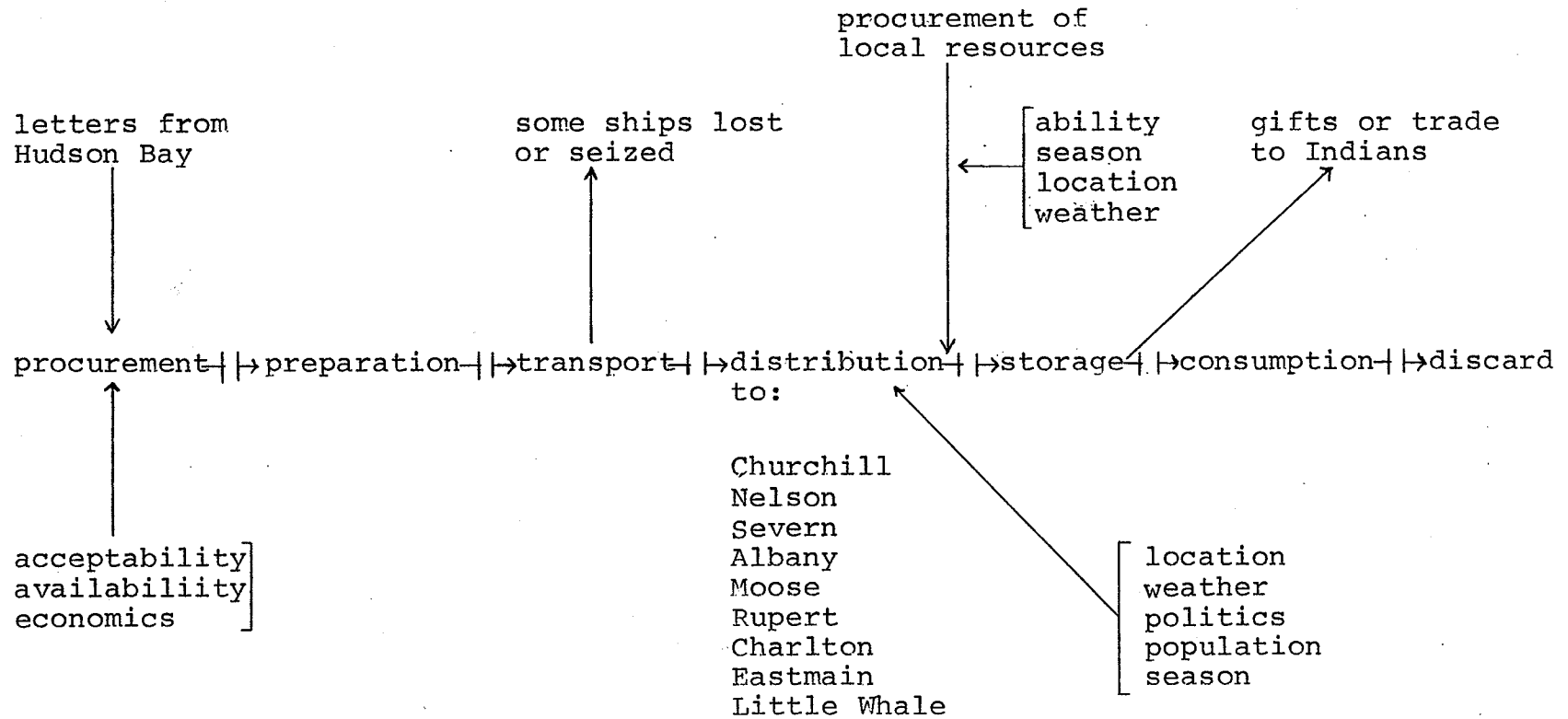
The final technique illustrates how food flows through the regional subsistence system. This was composed by utilising the data in the preceding chronology and classifications and tracing these foods through the system (Figure 2). The flow chart presented here is an adaptation of Schiffer's model which shows the flow of consumable elements through the systemic context and how they form the archaeological record (1972:159).

TABLE 3. Food Classification of Health and Welfare
 Canada Applied to British Foods of 1670-
 1770 (compiled from Drummond & Wilbraham 1939)

<u>Milk and Milk Products</u>	milk cheese		
<u>Breads and Cereals</u>	flour rice oatmeal wheat bread	rye bread bran bread corn bread	
<u>Meat and Alternates</u>	beef pork chicken mutton veal lamb cheese nuts deer pigeon	rabbit goose duck anchovies oysters cockles prawns crab lobster	trout salmon mackerel cod sturgeon turbot herring pike carp
<u>Fruits and Vegetables</u>	raisins strawberries gooseberries plums cherries apricots apples nectarines oranges	lemons peaches bananas artichokes turnips potatoes carrots pickles cabbage	parsnip peas beans asparagus sprouts leeks onions lettuce
<u>Miscellaneous</u>	suet butter tea coffee liquor beer	malt vinegar sugar honey molasses	confectionery marrow herbs spices salt

TABLE 4. Food Classification Applied to the Hudson's Bay Company, 1668-1770

<u>Milk and Milk Products</u>	milk cheese		
<u>Breads and Cereals</u>	flour oatmeal biscuit bread	rice bran rye Indian corn	wheat barley oats
<u>Meats and Alternates</u>	beef pork stockfish harberdine cheese goats cattle sheep	hens rabbit caribou deer moose beaver salmon whitefish	trout goose grouse ptarmigan crane duck nuts
<u>Fruits and Vegetables</u>	prunes raisins figs currants peas beans pickles onions	turnips radish spinach colewort carrots dandelion berries nettles	lemon juice lime juice
<u>Miscellaneous</u>	lard suet butter oil tea coffee chocolate liquor	malt hopps vinegar sugar honey spruce needles Labrador tea confectionery	beer salt spices molasses



—|— indicates that additional processes could take place

FIGURE 2. Flow of Food Through the Hudson's Bay Company Subsistence System, Systemic Context

Consumable elements have been defined as those elements whose consumption results in the liberation of energy such as food or fuels (Schiffer 1972:157). Schiffer refers to the systemic context as the condition of an element which is participating in a behavioral system while the archaeological context refers to elements which are no longer participating in a behavioral system but are objects of investigation by archaeologists (1972:157). The processes through which a consumable element passes have been defined by Schiffer as procurement, preparation, consumption, discard, and sometimes storage and transport (1972:158). The processes through which the consumable elements (foods) pass in the Hudson's Bay Company subsistence system are the same as those identified by Schiffer except in the case of imported foods when transport always takes place. The flow chart as developed by Schiffer and modified for these data is useful because it illustrates the life history of both the imported and local foods within the subsistence system. The weak points of the subsistence system can be identified which, if broken, could ultimately lead to starvation. The flow chart is also useful because it illustrates the various factors influencing the availability of foods within the Hudson's Bay Company region.

Dietary Implications

The aim in this thesis is to suggest methods of utilizing the historical documentation of the entire region under consideration in order to gain a more thorough understanding of diet at the site-specific level than would be possible by utilizing only archaeological information and/or historical documents relevant to a particular site. However, some generalizations can be made about the regional diet and the factors affecting nutritional status.

As indicated in the food chronology, all of the staple foods were introduced early in the history of the Company (Table 1). In 1685 the rations per person had been set by the governors in London at five pounds of meat per week, five pounds of flour per week, and forty gallons of malt per year (Rich 1958:177). Beyond these staples, it is evident from the mess books for later years that peas and oatmeal were consumed almost daily (e.g., HBC B 198/a/4,5,6). The low quantities of fruits and vegetables being shipped indicates that these were not being regularly consumed (HBC A 24/1-8). As time progressed, many of the foods that were introduced into the diet were those which would only be consumed occasionally. Only very small amounts of foods such as nuts, pimento, figs, anchovies, capers, confectionery, chocolate, coffee,

and tea were sent from abroad (HBC A 24/1-8). Whether these foods were shared among the men, bought by the men, or reserved for the higher ranking employees is not known. Throughout the fur trade, extra liquor was allotted to the senior men. It is interesting to note that honey was the only item in the food chronology that was being exclusively and consistently sent to one post, that post being the small post on the Little Whale River. One can only speculate as to the reason for this, perhaps to soothe a factor.

Most of the plant foods within the regional subsistence system were of imported origin (Table 2). This was necessary since the climate and environment at Hudson Bay were not conducive to reaping inordinate amounts of either local indigenous or local introduced plant foods (Moodie 1972:327). Although the amounts of foods contained within these latter two categories may not have been exceedingly high in terms of the number of men at the posts, they were important in that they were fresh, a significant factor in psychological appeasement. Fresh plant foods were also important nutritionally in supplying vitamin C which was not otherwise plentiful in the diet.

Of the animal resources, the local indigenous game was of major importance in the diet, not only as a source of fresh meat, but also as a food which could be preserved

for later use. Caribou were an important source of subsistence at the posts. They were hunted by both the Hudson's Bay Company employees and the home guard Indians who were hired for that purpose. Vast quantities of fowl were often preserved each year by salting them. Andrew Graham, factor at the Hudson's Bay Company post at Severn River writes of the hardships encountered as a result of the late arrival of the sloop in 1762. They had run out of salt and had no means of preserving the geese (apparently they were not drying or smoking the geese at this time). By the time the salt arrived, the goose season was over (HBC B 198/a/4). The livestock kept at some posts played a lesser role than did the wild game. The types of livestock in the country during this time period were sheep, cattle, goats, pigs, and hens. Although these animals were never great in numbers, tending livestock was actually a method of assuring a constant supply of fresh meat in case of want (Moodie 1972:77). Throughout the period under study, salted beef and pork were sent from England to supplement local resources. As is evident in Appendix A, the exception to this was a period of approximately thirty years duration ending in 1730, during which very little pork and beef were sent. The French war years partially affected this trend. Also, it was during this time that the Com-

pany was encouraging the posts to be self-sufficient, not realizing that the bleak environment was not highly conducive to either cultivation or domestication (Moodie 1972).

When the food groups of the British people are compared to those of the fur traders, they are very similar (Tables 3 & 4). Although there are differences within the meat and meat products category, this shows primarily a difference in type rather than in numbers of foods available. Wild game was utilized in both Rupert's Land and abroad. The major difference in the two diets appears to be in the fruits and vegetables category. Although there were a number of these foods available in Britain, they were not standard fare, especially during the 17th century. Fruits and vegetables were mainly foods of the elite when it was accepted that they were not "windy" (flatulent) foods (Drummond and Wilbraham 1939). The lack of fruits and vegetables in the fur traders diet would not have seemed unusual since they would not have been accustomed to consuming large quantities at home. However, this lack of fruits and vegetables in the diet could have led to a deficiency of vitamin C. Foods high in ascorbic acid such as local berries and imported lemon and lime juices were available throughout the region but little is known regarding the actual consumption of these

foods.

The fact that the food categories in the two diets are very similar despite the different geographical locations is very important since it is widely held that populations are not as quick to adapt psychologically to dietary changes as they are physiologically (Harrison, Weiner, Tanner, and Barnicot 1964:416). Of the four food groups, the change in the variety of foods from which to choose was probably more evident in meats than in other categories. Although the meat consumed in Britain by the lower and middle classes was often salted as it was on the Bay, different types of game were utilized. This would not alter the nutritional adequacy of the diet in the region. Although many factors such as religion, social status, economics, and personal preference can influence the choice of certain foods, the majority of the Hudson's Bay Company employees would have had little say in the food that they consumed. Rather, their choice would be limited to whether they chose to eat or not. This was because many of the foods available in Hudson's Bay were chosen in England by the Company officials and were then rationed out by the Bayside governors. There was little leeway for personal preference except perhaps for the addition of spices which were doled out at Christmas. At least sugar could be purchased from the

men's pay. This lack of day-to-day choice of food staples may have affected the psychological well-being of the men at the Bayside posts.

The flow of foods within the Hudson's Bay Company regional subsistence system was complex because of the fact that foods, some of which were staples, were being imported once a year from Britain. A number of factors and processes affected the actual foods available for consumption at each post (Figure 2).

The post employees actually had very little to say concerning the foods sent from abroad. The governors might make suggestions regarding the provisioning of the posts in their yearly letters to the Committee in London, but these were more apt to be in regard to the quantity and quality of provisions rather than the variety (e.g., Governor John Nixon's letter from Charlton Island in 1682, Rich 1945:239-299).

An interrelated set of factors governed the variety of foods chosen in London to be shipped to the Bayside posts (Figure 2). Only foods that would withstand the elements of a long sea voyage were candidates. Cost was also a crucial factor. One of the food groups affected by price fluctuations during this time period was cereal grains. For example, the good harvests of 1685-1691 allowed grain prices to stay low, but a drought from

1693 to the end of the century caused a widespread scarcity that did not improve until good harvests opened the 18th century (Drummond and Wilbraham 1939:100). The affect of these dry years is reflected in the provisioning of the Bayside posts by the lack of grains and produce. Other factors which affected food availability and hence food choice were the advances made in sea and land transport. For example, the canals built in England during the 18th century brought a wider selection of "local" cheeses to the London markets (Drummond and Wilbraham 1939:195). By 1730 both Cheshire and Gloucester cheeses were regularly sent to the posts (HBC A 24/4). A further factor affecting the supply of provisions to the Bayside was the opening up of trade with the East. Although chocolate, coffee and tea were available in Britain by the mid 1600's, it was not until the latter half of the 1700's that these products were imported to Britain in sufficient quantities to keep the prices low enough for widespread usage. This situation is reflected in the food shipments to the Bayside posts. Chocolate, coffee and tea were introduced in 1715 and sent again in 1716, but, they were not shipped regularly until 1744 (Table 1; Appendix A). From then until the end of the time period under study, only very small quantities were shipped which suggests that consumption may have been

limited to governors and factors. Increasing trade in the East also caused a drop in the prices of sugar and sugar products, as well as in spices (Drummond and Wilbraham 1939:112).

Although the above factors did affect choice and supply of foods to the Bayside posts, it was when the laden ships were lost or seized that there was a real threat of starvation. A particularly trying time was during the period of French rivalry from 1685-1713. The Company tried to prevent ill health during this time by always having two years provisions in the country. Throughout the time period under study, the committee repeatedly stated their concern for good health at the Bayside posts.

CHAPTER THREE

NEW SEVERN DATA

New Severn was established by the Hudson's Bay Company near the mouth of the Severn River in 1685 (Rich 1958:228). This habitation functioned as a minor fur trading post and is located approximately five kilometers upriver from the present Cree village of Fort Severn (Figure 3). At this location, the post was in operation until 1690 when it was burnt by the English to prevent its capture by the French (Rich 1958:290).

New Severn was initially surveyed by John Pollock and Donald MacLeod in 1975. (Pollock and MacLeod 1977). During the summer of 1978 excavations were carried out at the site under the auspices of an Ontario Heritage Foundation grant to David Christianson of McMaster University. Mr. Christianson's M.A. thesis is concerned with the ethnic identification of the site and the artifact analysis. The faunal and floral identification was done by this writer.

Field Methods

The area of the site which is enclosed by the palisade is approximately 320 square meters of which 119 square meters were excavated. Outside of the confines

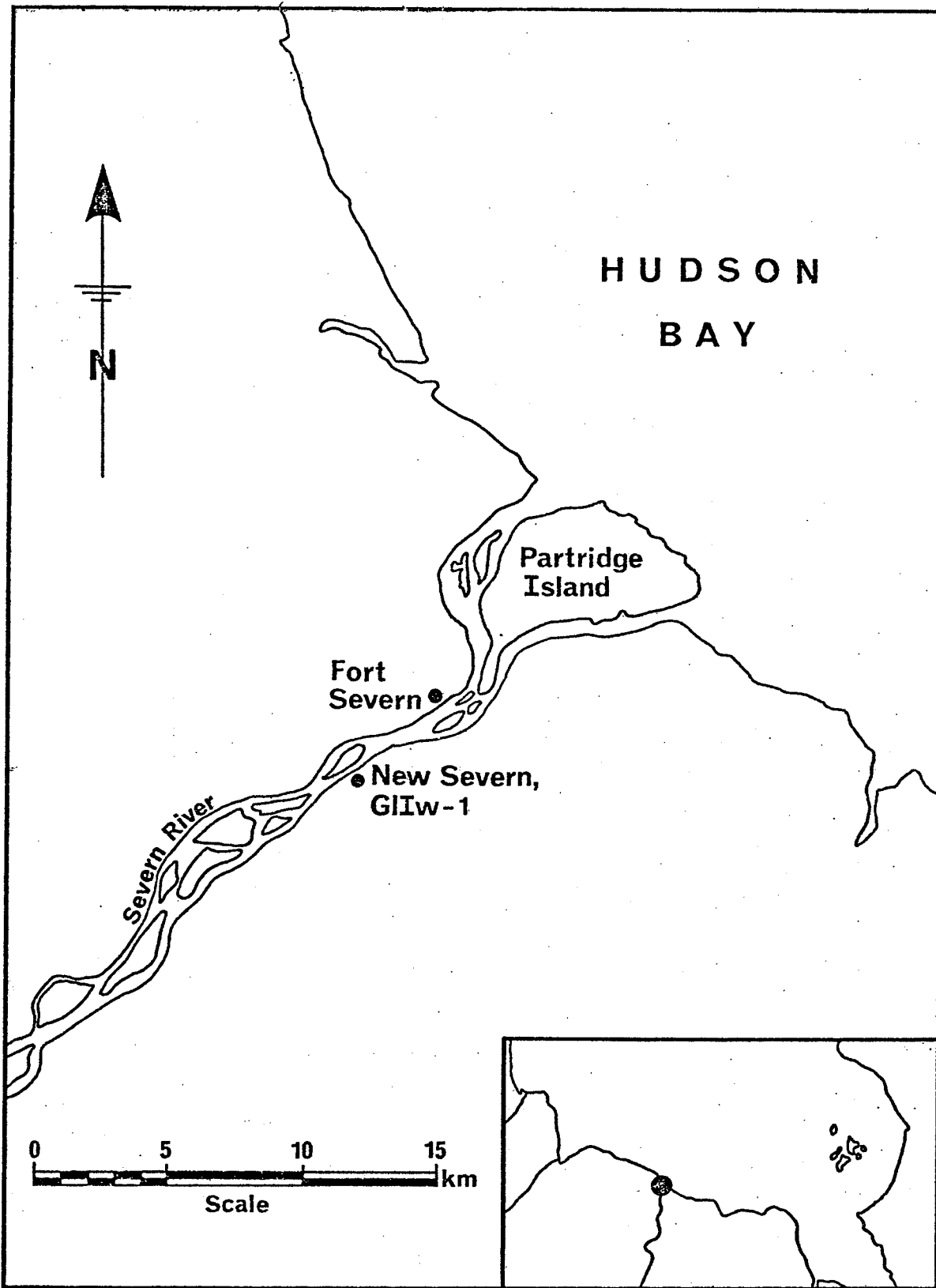


Figure 3. New Severn

of the palisade, 8 square meters were excavated (Christianson 1980:34). In order to satisfy the aims of Mr. Christianson's research, the cultural features apparent on the surface of the site were sampled. The site had initially been gridded in 5m x 5m units. Within each unit, twenty five 1m x 1m subunits were graphed and each assigned a number from 1-25. Using a table of random numbers, one test pit from each 5m x 5m grid was chosen and excavated. This process was applied only to those grids where excavation had not already taken place because of time constraints. Figure 4 illustrates the excavation units bounded by a solid line, palisade posts indicated by dots, and the apex of an earthwork prepared for the palisade indicated by a dashed line (Christianson 1980:34).

Trowels were used throughout the excavation because of the high concentration of artifacts, the fragile nature of the wooden architectural features, and the occasional permafrost conditions. The initial north-south exploratory trench was excavated in 5 cm levels, and in the remainder of the units, one half of them were excavated in levels. The rest of the units were trowelled until sterile soil was reached. There was no evidence for more than one European occupation (Christianson 1980:37). Soil was screened unless it was too wet to do so because of the melting permafrost. Approximately one half of all

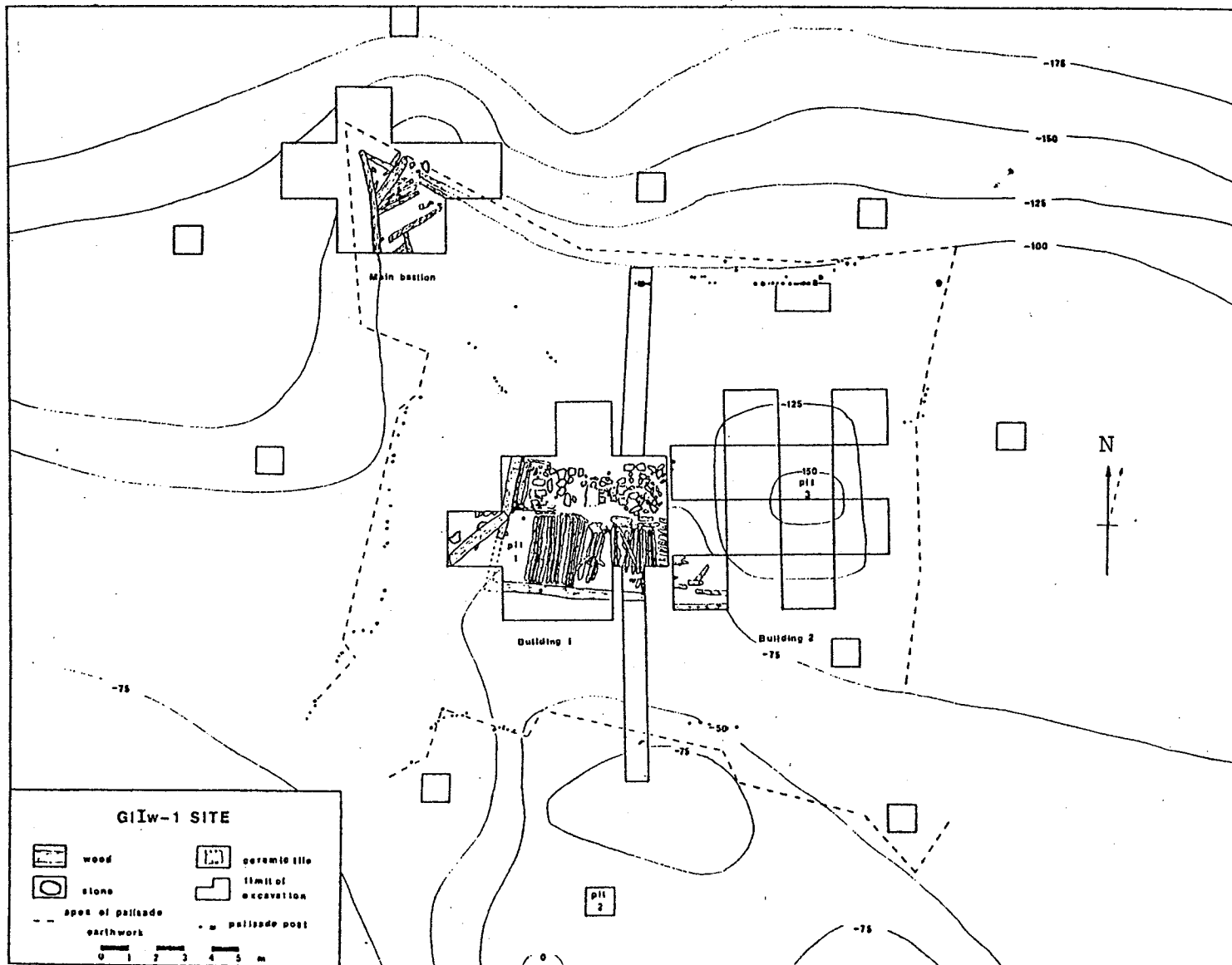


FIGURE 4. Site map of New Severn showing surface contours, location of excavation units, and cultural features (Christainson 1980:36). Solid line indicates 25cm contour interval, dashed line indicates earthwork for palisade, and dots indicate palisade posts.

soil was screened through $\frac{1}{4}$ inch wire mesh. Christianson has stated that there was not any significant difference in frequencies or types of artifacts recovered in the two areas subjected to different procedures (1980:38). Graduated seiving screens had been taken to the site to be used in areas where there might have been seeds or other small items. These screens were only used when lead shot or glass seed beads were located in order that all soil in the surrounding area could be screened. A ten percent sample was extracted from the corner baulks of most units for floatation. The results of this procedure were poor because of the size of the mesh that was used (window screening was all that was available), and also because of the predominance of moss and roots which floated, while any artifacts present sank and were thus washed through the screen.

Figure 5 is a generalized soil profile from the initial test trench and is representative of the undisturbed areas of the site. Further soil profiles and more detailed information on site excavation are available in Mr. Christianson's thesis.

Features

Christianson has defined the features which will be used here to discuss floral and faunal remains

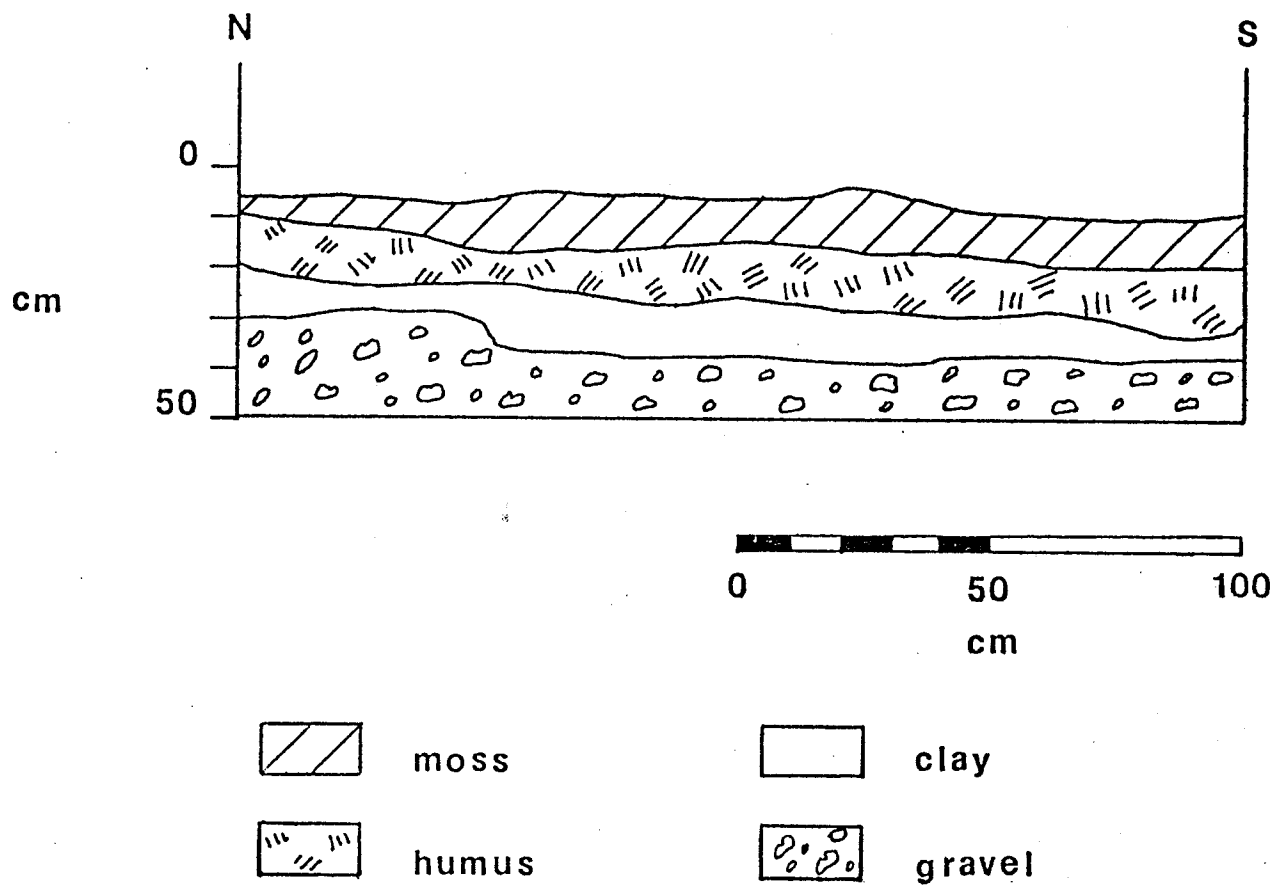


FIGURE 5. Generalized Soil Profile, G1Iw-1

(1980:40-66). These features have all been indicated on the site map (Figure 4).

The palisade which enclosed the post on four sides was built in the form of a single row of vertical posts. Bastions were at the corners of the palisade walls. Many of the palisade posts were visible on the surface of the site and are indicated on the site map. A portion of the palisade wall was excavated (2m x 1m) to a depth of approximately 100 cm. Few artifacts were located in this palisade trench.

The northwest bastion appeared to be the largest of the four corner bastions at the fur trade post. The south wall, which faced away from the Severn River, had the smallest of all the bastions. The northwest bastion was excavated in order to obtain architectural features as well as artifactual information pertaining to its use. Artifacts associated with this structure are lead shot, musket balls, numerous brass kettle fragments, and unidentifiable brass fragments.

Building 1, of which 41 square meters were exposed, was the most complex architectural feature. The squared wooden foundation sills bear evidence of the destruction of the post in 1690. This building probably served as a sleeping and eating area because kitchen artifacts were predominant items. There were lesser amounts of archi-

tectural artifacts, clothing artifacts and clay pipe fragments. There was also a fireplace in the building which had been subjected to considerable human disturbance over time. A storage pit (Pit 1 on the site map) was located in the southwestern corner of the building. The majority of items in this pit were floral and faunal remains. There were lesser amounts of clay pipe fragments, lead shot, fireflints, beads, and European ceramics. In the floral and faunal analyses, the debris within the storage pit and the remainder of the building are analysed together because they were not excavated separately. This matter will be discussed in more detail later.

Evidence of a second structure, called Building 2, is obvious from a large cellar (approximately 7m x 8m). Pit 3 refers to a storage pit dug into the floor of this cellar. The bottom of the pit was 1.7 meters below surface. The exact function of this building is questionable. Christianson has suggested that there may have been some sort of simple covering and it could have functioned as a storage area or even as living quarters. There is no evidence of a wooden floor and there are few architectural artifacts in this cellar area. Any wood that was present in Building 2 was charred. The majority of the remains here were faunal with lesser amounts of nails,

waste lead, European ceramic sherds, and aboriginal artifacts.

Pit 2, a refuse pit, was encountered during the excavation of a randomly selected unit located 7 meters south of the palisaded portion of the site. This feature was not located until the last week of excavations and was not thoroughly excavated. Due to the permafrost zone, this Pit was not excavated beyond 70 cm below surface. The majority of the material recovered from this refuse pit was of local faunal origin.

Faunal Analysis

All faunal remains excavated during the 1978 field season were identified. Permission was granted by Jack Dubois, mammologist at the Manitoba Museum of Man and Nature, to use the reference collection at the museum to aid in the bone identification. Four fish vertebrae were sent to Dr. Howard Savage at the University of Toronto to be identified.

The faunal remains were initially divided into identifiable and unidentifiable groups. The identifiable fauna was then classified into the lowest possible taxonomic category. Element, portion, side, and where possible, degree of maturity at death were noted. Unidentifiable fauna were those bones, or fragments thereof,

which could not be placed in a taxonomic category lower than order. These bones were recorded within categories of small, medium or large mammal, bird, or fish. Notes were made where applicable concerning the presence of butchering marks and the degree of burning. All bone was well preserved with the exception of the more severely burnt fragments. It is assumed that all bone dates from the 1685-1690 occupation of New Severn.

Twelve taxonomic categories of mammals were recovered from the excavations at New Severn (Table 5). Bovidae is the only taxon of European origin, and is represented by one rib. Ribs of that family are unique in that they are very broad and flat. This is likely domestic cow (Bos) rather than bison (Bison bison) and is probably derived from the sides of beef that were imported from England. There is no evidence to suggest that live-stock was being sent to the post at this time. The remaining fauna are of local origin.

Birds representing ten taxonomic categories have been identified (Table 6). These include representatives from five species, three subfamilies, one family and one order. The identification was hampered by two problems common when dealing with bird remains - lack of an adequate skeletal reference collection and the frequency of only minor osteological differences between species.

Table 5. Generic and Common Names of Mammals Identified from New Severn

Artiodactyla	
Cervidae	
<u>Alces alces</u>	moose
<u>Rangifer tarandus</u>	caribou
Bovidae	
	cattle
Rodentia	
Castoridae	
<u>Castor canadensis</u>	beaver
Carnivora	
Ursidae	
<u>Ursus maritimensis</u>	polar bear
Canidae	
<u>Vulpes vulpes</u>	red fox
<u>Alopex lagopus</u>	arctic fox
<u>Canis lupus</u>	wolf
Mustelidae	
<u>Martes americana</u>	marten
<u>Mustela vison</u>	mink
Cricetidae	
<u>Ondatra zibethicus</u>	muskrat
Pinnipedia	
	seal, walrus

TABLE 6. Generic and Common Names of Birds Identified
from New Severn

Anseriformes

Anserinae

Branta canadensis

Canada goose

Chen hyperborea

snow goose

Anatinae

surface feeding ducks

Aythinae

Melanitta deglandi

white winged scoter

Aythya marila

greater scaup

Galliformes

Tetroanidae

grouse & ptarmigan

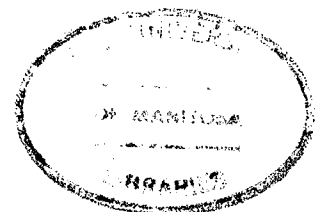
Phasianidae

Gruiformes

Gruidae

Grus canadensis

sandhill crane



Even the species level can seem general when one considers that Canada goose (Branta canadensis) alone has at least ten different subspecies (Belrose 1942:141; Robbins, Bruun and Zim 1966:40). However, it was impossible to positively identify the bird remains to lower taxonomic categories than are indicated. Grouse and ptarmigan have been classified together (Tetraonidae) rather than separately as two distinct species. This was initially due to the scanty reference collection and partially due to the frequent impossibility of distinguishing between the two species. Many fragments and elements are so similar that they are impossible to differentiate between and size in itself is not diagnostic (Rick 1979: 3). Grouse and ptarmigan coexist in the area of the site so the location of New Severn does not serve as a distinguishing factor. Another problem encountered in the identification of the bird bones was with two humeri identified as belonging to the Phasianidae subfamily (quail, partridge, pheasant). This subfamily was not introduced to North America until the 1900's. That these were imported is unlikely. In order to be positive about these identifications, a more complete reference collection would have to be consulted.

The problems inherent in identifying the bird remains from New Severn do not detract from the interpre-

tation of the faunal identifications. If a particular researcher deemed it necessary to know, for example, whether grouse or ptarmigan were being utilized at a particular post, then the relevant historical documents might be consulted. The daily journals kept by the governors of each post often contain records of the kinds and quantities of game being caught.

The final category of bone identified from New Severn was fish. This category is represented by one individual only, that being Esox lucius (pike).

Quantification

The calculation of abundances of faunal remains from archaeological sites is a basic aspect of most analyses. The ways of calculating taxonomic abundances and the methods of presenting them have varied considerably among archaeologists. The various methods outlined in Grayson's comprehensive article will be used here (1979). The data should then be in such a format that they can be used for comparison by future researchers.

The faunal remains have been divided according to the features within the site. Bone which was not found in one of these five features has been referred to as being from either outside or inside the palisade. These are valid categories since little excavation was done

outside the defined features and also since the bone found other than in these five features was minimal. The site represents a continuous five year habitation period, therefore the faunal remains have not been separated according to vertical distribution. Table 7 shows the number of identified elements by cultural area. There have been 394 bones from 24 taxonomic categories identified. One mammalian order has been included in this table, that being Pinnipedia (seals and walrus), so that the order would be stated in the calculations. A vertebrae which is probably from the same order was located in Building 2 but is not included because its identification is even less certain. The 100 bones that have been identified to the family Cervidae are included in Table 7 in order to show the spatial distribution of the elements. These have not been included in the remainder of the calculations because the bones are primarily rib and vertebral portions, as well as some tooth fragments unidentifiable at the species level. These faunal remains do not lend themselves to abundance calculations, particularly at the minimum numbers level.

The minimum number of each species was established by separating elements into age classes, left and right components of element, portion of element, and then using the greatest number to define the abundance of a given

TABLE 7. Numbers of Identified Elements Per Taxon by Feature

Taxon	Palisade	Bastion	Building #1	Building #2	Refuse Pit	Inside Palisade	Outside Palisade	Total
<u>Rangifer tarandus</u>	3	5	21	86	13	10	4	142
<u>Tetroanidae</u>		4	21		46	2	1,9*	83
<u>Anserinae</u>		4	5			1		10
<u>Alopex lagopus</u>			7					7
<u>Branta canadensis</u>			2		3	1		6
<u>Martes americana</u>			1	3	1		1	6
<u>Aythya marila</u>		1	2		2			5
<u>Esox lucius</u>	4							4
<u>Castor canadensis</u>			2	1				3
<u>Chen hyperborea</u>			2		1			3
<u>Vulpes vulpes</u>			1	1				2
<u>Phasianidae</u>			2					2
<u>Anseriformae</u>					1	1		2
<u>Anatinae</u>		1						1
<u>Alces alces</u>			1					1
<u>Ursus maritimensis</u>							1	1
<u>Ondatra zibethicus</u>			1					1
<u>Canis lupus</u>			1					1
<u>Mustela vison</u>			1					1
<u>Bovidae</u>			1					1
<u>Pinnipedeae</u>					1			1
<u>Grus canadensis</u>			1					1
<u>Melanita deglandi</u>			1					1
<u>Cervidae</u>		2	13	77	4	5	8	109
*9 - refers to elements with no provenience								394

taxa. Grayson emphasizes a problem inherent in the calculation of minimum numbers,

the values of minimum numbers of individuals that result from this process vary with the way in which the faunal material is divided into smaller aggregates, which in turn forms the basis of minimum number determination ...and....the changes in minimum number value across taxa that occur when different aggregation approaches are employed differentially affect the calculated minimum number abundances of different taxa (1979:203-204).

Minimum number abundances from New Severn have been calculated using two different aggregation methods that are applicable to this site, by feature and for the total site (Table 8). The two different aggregation methods do cause variation within the absolute taxonomic abundances as well as variation in the ratios of one taxon to another. Generally, the minimum numbers calculated by the intra-site features yield a higher number of individuals when summed for the whole site than when calculated for the entire site as a single unit. The grouse and ptarmigan group (Tetraonidae) changed only slightly by using the two different methods. This is because the most abundant element (sternum keel) was identified for almost all of the features.

The largest possible minimum number values are calculated by tabulating the number of identified speci-

Table 8. Total Minimum Number of Individuals by the Aggregation Method

Taxon	MNI - feature	MNI - site
<u>Rangifer tarandus</u>	12	6
Tetroanidae	33	31
Anserinae	3	1
<u>Alopex lagopus</u>	1	1
<u>Branta canadensis</u>	4	2
<u>Martes americana</u>	4	2
<u>Aythya marila</u>	4	1
<u>Esox lucius</u>	1	1
<u>Castor canadensis</u>	2	1
<u>Chen hyperborea</u>	2	2
<u>Vulpes vulpes</u>	2	1
Phasianidae	1	1
Anseriformae	2	1
Anatinae	1	1
<u>Alces alces</u>	1	1
<u>Ursus maritimensis</u>	1	1
<u>Ondatra zibethicus</u>	1	1
<u>Canis lupus</u>	1	1
<u>Mustela vison</u>	1	1
Bovidae	1	1
Pinnipedeae	1	1
<u>Grus canadensis</u>	1	1
<u>Melanita deglandi</u>	1	1

mens per taxonomic category. Using this method, each identified element represents one individual. By subtracting the lowest possible minimum number of individuals (that is the number obtained when the entire site is treated as an aggregate), from the largest possible minimum number of individuals, the maximum possible difference for minimum number values can be obtained. The resultant numbers actually represent the range of values that the minimum number of individuals for each taxon may have. The actual value will depend on how the faunal material was grouped prior to analysis (Grayson 1979:211). The figures in Table 9 verify Grayson's argument that "the distribution of most abundant elements will almost always be such as to cause different aggregation methods to differentially alter the absolute abundances of taxa as measured by minimum numbers (Grayson 1979:212). This phenomenon is more noticeable the more bones that are present.

Because of the problems evident when using minimum numbers as indicators of absolute abundance of taxa, Grayson states that the value of such a procedure is rather to provide ordinal level data on taxonomic abundances. If taxa are widely separated in abundances, then rank orders of abundance should not be affected by different aggregation methods. Therefore, comparing rank orders

TABLE 9. Maximum Possible Difference in Minimum Number Values

Taxon	MNI-site	NISP*	Maximum possible MNI difference
<u>Rangifer tarandus</u>	6	142	136
Tetroanidae	31	83	52
Anserinae	1	10	9
<u>Alopex lagopus</u>	1	7	6
<u>Branta canadensis</u>	2	6	4
<u>Martes americana</u>	2	6	4
<u>Aythya marila</u>	1	5	4
<u>Esox lucius</u>	1	4	3
<u>Castor canadensis</u>	1	3	2
<u>Chen hyperborea</u>	2	3	1
<u>Vulpes vulpes</u>	1	2	1
Phasiänidae	1	2	1
Anseriformae	1	2	1
Anatinae	1	1	0
<u>Alces alces</u>	1	1	0
<u>Ursus maritimensis</u>	1	1	0
<u>Ondatra zibethicus</u>	1	1	0
<u>Canis lupus</u>	1	1	0
<u>Mustela vison</u>	1	1	0
Bovidae	1	1	0
Pinnipedeae	1	1	0
<u>Grus canadensis</u>	1	1	0
<u>Melanitta deglandi</u>	1	1	0

*NISP - number of identified specimens per taxon

among aggregation methods and noting consistency in ranks indicates the most realistic relative abundance of species. Table 10 indicates the rank orders of abundance for the New Severn remains. This table indicates that the largest number of individuals are the grouse/ptarmigan group (Tetraonidae) and the caribou (Rangifer tarandus). Because they are such high ranking taxa, they are considered to have been important. The accuracy of ranking does not necessarily equal economic importance however. For example, Bovidae ranks very low because few bones were shipped with the meat but beef was an important subsistence source. Although the rank orders change for the NISP value, as previously mentioned, this is due to the prevalence of sternum keels over any other element. Since one keel represents one individual, fewer bones represent a greater number of individuals than when using paired elements to calculate minimum numbers.

In summarizing the quantification data, it is important to stress the fact that New Severn was not excavated for the purpose of gathering subsistence information. Although this was a concern, it was not the major orientation of the excavations. Therefore, areas where extensive bone deposits might be expected, such as the palisade openings, were not principal concerns

TABLE 10. Rank Orders of Abundance from all Abundance Measures

Taxon	MNI - feature	MNI - site	NISP
<u>Rangifer tarandus</u>	2	2	1
Tetroanidae	1	1	2
Anserinae	6	14.5	3
<u>Alopex lagopus</u>	17	14.5	4
<u>Branta canadensis</u>	4	4	5.5
<u>Martes americana</u>	4	4	5.5
<u>Aythya marila</u>	4	14.5	7
<u>Esox lucius</u>	17	14.5	8
<u>Castor canadensis</u>	8.5	14.5	9.5
<u>Chen hyperborea</u>	8.5	4	9.5
<u>Vulpes vulpes</u>	8.5	14.5	12
Phasianidae	17	14.5	12
Anseriformae	8.5	14.5	12
Anatinae	17	14.5	18.5
<u>Alces alces</u>	17	14.5	18.5
<u>Ursus maritimus</u>	17	14.5	18.5
<u>Ondatra zibethicus</u>	17	14.5	18.5
<u>Canis lupus</u>	17	14.5	18.5
<u>Mustela vison</u>	17	14.5	18.5
Bovidae	17	14.5	18.5
Pinnipedeae	17	14.5	18.5
<u>Grus canadensis</u>	17	14.5	18.5
<u>Melanitta deglandi</u>	17	14.5	18.5

in the sampling design. Although this sample of faunal remains is probably representative within and around the cultural features, it may not be representative of the remainder of the site. It is outside the palisade walls that the greatest concentrations of faunal remains would be expected since the area within the enclosure was not large for a year round post.

In spite of the above noted biases in the site sampling designs in relation to fauna, some patterns are clear. The grouse/ptarmigan group (Tetraonidae) and the caribou are dominant and thus it can be assumed that they were important as subsistence sources. Geese also appear to be important, especially when regarded as a family rather than being divided into two species. Other taxa are less prevalent and therefore perhaps less important as subsistence sources or as fur bearers.

Distribution

Refuse disposal patterns have been examined by Schiffer as they relate to the introduction and distribution of elements in the archaeological context (1972:156-165 and 1976). Schiffer has defined refuse as the post-discard condition of an element (1972:159). De facto refuse consists of those elements which reach the archaeological context without the performance of discard

activities, that is, they are still usable unless decomposable. Primary refuse is that which is discarded at its location of use, and secondary refuse is discarded away from its location of use (Schiffer 1972:160). Refuse has been classified in this manner in order to link archaeological context material to the systemic context. These definitions could be applied to New Severn consumable elements (food) because there could potentially be all three types of refuse at the site. Primary refuse is likely to be a component of any site. Since the post was operated year round, it is assumed that a specialized area for discard would have been developed. Schiffer has hypothesized that long term occupancy or several people living at a site promotes secondary refuse deposits (1972:162). Since the destruction of New Severn was hurried, and the men fled to Port Nelson overland, it is doubtful that all of the food would have been removed prior to igniting the fort. Therefore, de facto refuse is also expected. The distribution of the faunal remains and the application of the refuse patterns of these remains will be discussed within each settlement feature.

As illustrated in Appendix C, there were 7 elements identified in the palisade trench. These represented 1 individual each of caribou and fish. These would have been deposited after the trench was excavated and before

it was completely filled in. These elements would most likely be classified as secondary refuse, although they may have been redeposited during excavation and filling of the palisade trench.

In the main bastion there were 15 elements identified representing 2 caribou, 3 grouse/ptarmigan, and 1 individual each of goose, scaup, and duck. It is unlikely that foods would have been prepared in a bastion, therefore it is improbable that these taxa are representative of food cooked there. It is more likely that the food was eaten there, particularly the birds since the bones represent breast and wing meat. Christianson has suggested that the bastion was used for storing gun powder and munitions and, possibly as a storage and repair area for kettles. Reasons for the bone in this area are not clear. It is not possible to positively assign it to one of Schiffer's categories and thereby infer the systemic context. Neither is it possible to infer the type of refuse by knowing the activities associated with this structure. The bone could represent meat that was eaten there, discarded there, or it could have been transported there later by humans or animals. This bone is primary refuse (that is, resulting from the bones having been dropped where the meat was consumed), or secondary refuse.

Building 1, in combination with Pit 1 which was a storage pit, contained the greatest number of identified elements (73) and the greatest variety of faunal material of all features. Christianson has defined this building as having been used as sleeping and eating quarters. Because of the lack of adequate provenience, it is not possible to detail which elements were in the storage pit and which were in the remainder of the building. Of the 73 identified bones from the 40 square meters of this building and the immediate surrounding area that were excavated, 56 of these bones were from the two, 2m x 2m units that contained the storage pit. Within the unit that contained most of the storage pit, the following taxa were present:

<u>Rangifer tarandus</u>	Phasianidae
<u>Alopex lagopus</u>	<u>Melanitta deglandi</u>
<u>Martes americana</u>	Anserinae
<u>Mustela vison</u>	<u>Chen hyperborea</u>
Tetroanidae	<u>Aythya marila</u>
<u>Grus canadensis</u>	<u>Branta canadensis</u>

In the adjacent unit, which housed the remaining portion or the storage pit, Castor canadensis was also present. The variety of fauna is a mixture of both subsistence resources and animals valued for their fur. Alopex lagopus (arctic fox), Martes americana (marten), Mustela vison (mink), and Castor canadensis (beaver) were more likely to have been valued for their fur than as subsistence sources. As Appendix C illustrates, these species

are only represented by a small amount of bone. The fact that they were most likely caught and skinned away from the post accounts for this paucity of bone. Again, it is impossible to positively and singularly assign any faunal taxa from this building to one of Schiffer's categories.

Notable in Building 2 is the outstanding prevalence of caribou in comparison with the near absence of almost all other taxa. Four individuals are represented (MNI for these caribou was obtained by aging) by 86 elements while marten is represented by 3 elements and beaver by 1 element. There is historical evidence that cellars such as this were used for storage of beef, pork, butter, beer, and probably other perishables (Rich 1948:349, 1958:62). This may explain the presence of the caribou bone. Although Rich has stated that caribou meat could not be salted and had to be eaten fresh (1958:540,603), Andrew Graham has listed in the mess books for Fort Severn for 1762-1764 that dried caribou (venison) was consumed (HBC B. 198/a/4,5). Although it may be true, as Rich says, that the meat would taint before it was cool enough to salt, it is evident that it was dried, possibly by smoking. In the same journals, Graham writes that sides of venison were given to the men as Christmas presents. The bones here could represent stored meat. An alternative explan-

ation is to suggest that this area was used to process meat. There was a large number of unidentifiable fragments (approximately 660) in association with the other bone from this area. The split metapodials could be evidence for extraction of bone marrow. It is unlikely that this cellar is a refuse dump because of the relative paucity of faunal species here in comparison with other features defined at the site. The organic refuse in the cellar is almost exclusively caribou. Since there was no evidence of a floor, it is unlikely that this was an eating area. As with the faunal remains from the bastion and Building 1, it is impossible to define the refuse in this building according to Schiffer's scheme. If it were known what the building was used for, then the refuse type would probably be obvious. Conversely, if it were known what type of refuse it was, the use of the building could be inferred. Schiffer's refuse types are easily defined at the systemic level but, at least at New Severn, they are not so readily recognized in the archaeological context.

The vast amount of bone contained within Pit 2 clearly illustrates its function as a refuse station. Elements identified from this area represented 23 grouse/ptarmigan, 2 caribou, 2 Canada goose, and 1 individual each of marten, seal/walrus, snow goose, greater scaup,

and an unidentified water fowl. Although the grouse/ptarmigan group are predominant, this should not be taken as an indication of what would be in the remainder of the refuse pit. If the refuse for the five years of the post occupation was all discarded in this same area, it could be a very large deposit, of which only a small section was excavated. A deposit such as this is a very important part of the site excavation plan if knowledge of the diet of the occupants is one of the research interests. Most of the bone in this area is likely to be secondary refuse.

Since most of the excavation was confined to the features listed, there is little data on bone outside these features. It is difficult to interpret these isolated areas as to whether they are primary or secondary bone refuse deposits. It is doubtful that they would be representative of unconsumed food (defacto refuse). Bone could have been deposited in these areas by butchering or skinning activities. Although one of the bones from the interior of the palisade shows evidence of carnivore chewing, it is most likely the action of a wild animal since there is no historical or archaeological evidence to suggest that dogs were present on the Severn River at this time.

Discussion

As illustrated in the section on quantification, caribou is probably the most important wild game animal at New Severn. This assumption conforms to historical records for the area. The types of elements excavated at New Severn indicate that caribou were probably killed elsewhere, partially butchered, and then brought to the fur trade post. Belcourt (1944), Harmon (1957), Kehoe (1967), and Wheat (1972) have studied butchering patterns and speculated as to which elements would be left at the kill site and which would appear in the living site. Although there are numerous factors that can affect the resultant disposal patterns such as distance to camp, the particular type of game involved, and even the need for food by the people involved, the elements that are most likely to be left at the kill site are the heavier, less meaty bones. Specifically, unless whole animals were taken back to camp, there would not be a prevalence of foot bones, cranial portions, vertebrae, or pelvic portions. Generally speaking, this is true at Severn for the caribou. Although there appear to be numerous carpals and phalanges, this is not really the case since an individual caribou has 8 carpals and 24 phalanges. It seems likely that these animals were killed and partially butchered away from camp.

Other subsistence sources, probably consumed less frequently than caribou because of availability, would have been moose and beaver. Although beaver was mainly prized for its fur, it was also eaten and the tail was considered to be a delicacy. In later years, beaver tails appear in the mess books as a special occasion food. As noted earlier, the presence of a Bovidae rib is indicative of imported beef, not domestic cattle. Meat imported from Britain was salted and shipped in barrels. Some skeletal representation could be expected of beef and pork but, presumably, much of the bone would have been removed prior to salting and shipment to the Bayside posts. The remainder of the game animals excavated at New Severn were probably valued for their furs, rather than as sources of meat. The fact that all of these are represented by only one or very few elements supports this speculation. It is probable that these animals were skinned away from the post.

All of the fowl were probably utilized as food. Most notable are the grouse/ptarmigan and geese. The fact that there are fewer geese than grouse/ptarmigan is possibly due to the overall excavation plan. On the other hand, it is known that great quantities of ptarmigan were caught in nets (e.g., HBC B 198/a/4). If this practice was common during the time that New Severn was in opera-

tion, then a predominance of grouse/ptarmigan elements over geese elements would be expected.

There are two notable absences in the faunal record, rabbit and fish. No identifiable rabbit bone was found and only one fish was represented. These absences do not conform to the historical records. At Fort Severn (established in 1759), large amounts of both rabbit and fish were utilised. The most probable explanation for the lack of fish is that it was filleted, dried, or smoked elsewhere, possibly where it was caught. This lack of fish in historic sites is a common phenomenon (Pyszczyk 1978:128). The lack of rabbit bone is puzzling. It could be a reflection of the sampling design at the site and perhaps further excavation behind the palisade would prove useful in locating such faunal remains.

There is no literature available on garbage disposal patterns at Hudson's Bay Company posts for this time period, but Pyszczyk has noted the disposal patterns for five fur trading posts in Alberta that ranged in occupation from 1792-1898. In general, there were low faunal frequencies within the various fills in the compound, and a major concentration at the rear of the fireguard (i.e., palisade) with scattered bone or sheet midden elsewhere to the rear of the palisade (1978:78-85). These generalizations can only partially be compared with the data

from New Severn since the excavations were primarily concentrated on structures within the palisade. However, there was a major concentration of garbage just to the rear, or south of the palisade. The other test units outside of the palisade cover such a small area that little else can be said about the remainder of that area. Within the palisade walls, the faunal frequencies are relatively low except perhaps for Pit 1 and Building 2.

Floral Analysis

All floral remains recovered during the 1978 field season have been identified by this writer with the exception of five specimens which were studied by Dr. D. Punter of the University of Manitoba Botany Department. These five specimens were initially thought to have been local berries. However, Dr. Punter and his colleagues have discovered that there are no seeds present in the specimens and therefore suggest that although the resemblance on the exterior is very much like berries, they must be of another nature, such as animal fecal droppings (Dr. D. Punter: personal communication). It has also been suggested that these might be peas.

Only one taxonomic category of plant remains was discovered at New Severn. Prunus sp. (prune) was represented by 195 seeds or pits. Table 11 illustrates the

TABLE 11. Deposition of Prunus Seeds by Feature

Feature	Number of Seeds
Palisade	0
Bastion	0
Building 1	158
Building 2	32
Refuse Pit	2
Inside Palisade	3
Outside Palisade	0
total = 195	

the distribution of these within the features that were used to describe the faunal analysis. The disposal pattern of the prune seeds is important because of the inferences that can be formulated regarding activity areas. Prunes were shipped in large quantities to the Bayside posts and from the start of trading activities were given to the Indians as gifts. With such large quantities being shipped, it is possible that prunes in a site could be de facto refuse, having never been consumed. This would be recognized by a large concentration of pits versus scattered pits. If the prunes were consumed at the posts, it is most likely that the majority of the pits would be dropped wherever the fruit was eaten, rather than being transported, to a specialized refuse area. Prune pits rapidly dry out when exposed to the air,

so it is unlikely that they would ever be considered obnoxious.

The areas of interest are those where the majority of the pits were excavated. As Table 11 illustrates, 158 pits were excavated from Building 1. Of these, 145 were from the unit containing the greater portion of the storage pit and 12 were from the adjacent unit which contained the remainder of the storage pit. This high concentration strengthens the suggestion that the pit was indeed used for storage and that prunes are de facto refuse. A similar interpretation is possible for Building 2. Although the exact function of this building is not clear, the presence of these prune pits (24 of which were in the same 2m x 2m unit which contained most of the bone from this structure), serves to strengthen the argument that the structure was, at least in part, a storage area.

The question of whether or not the Europeans were eating prunes cannot be answered from either archaeological or historical data for this time period. Although the majority of these pits probably represent de facto refuse, and therefore were not consumed, the areas where there would likely be prune pits as a result of primary refuse, such as the grounds outside of the actual structures, were not extensively tested. In any case, it would be

difficult, if not impossible, to suggest who had been eating these - Europeans traders or natives.

CHAPTER FOUR

APPLICATION OF THE DIETARY TECHNIQUES TO NEW SEVERN

Having presented the techniques which organize data within the systemic context, these same techniques will be integrated with the archaeological data from New Severn. This exercise will illustrate the utility of the techniques as well as the differences in the archaeological and historical records.

Food Chronology

In order to ascertain the foods available for consumption at New Severn, three information sources are used. Archaeological excavations at New Severn disclosed eleven foods or indicators thereof. In 1686, provisions were shipped directly to New Severn and twenty-one foods were listed in the invoice (HBC A 24/1, fol.42-45). The foods listed in Appendix A for the years 1688, 1689 and 1690 were shipped to Nelson River and, except for a brief occupation on the Hayes River, were for use by New Severn and Port Nelson only. By applying the regional food chronology to New Severn, nine foods not indicated in the archaeological and historical records directly pertaining to New Severn can be added to the list of available foods. Using

TABLE 12. Foods Available for Consumption at New Severn

Foods Excavated	Foods Shipped in 1686	Food Chronology
prunes	pork	strong beer
moose	beef	mustard seed
caribou	cheese	wheat
beef	butter	bread
beaver	peas	stockfish
goose	Indian corn	harberdine
duck	rice	suet
scoter	oatmeal	lard
scaup	flour	beans
grouse/ptarmigan	sugar	
pike	prunes	
	currants	
	raisins	
	spices	
	oil	
	salt	
	vinegar	
	lime juice	
	molasses	
	malt	
	spirits	

these three information sources, thirty-nine foods are delineated (Table 12).

Only two of the foods are known from the systemic context, prunes and beef. The nine other food representatives that were excavated were local resources and were not indicated in the historical records for this time period at New Severn. In order to discuss diet in more detail, it is advantageous to classify food as outlined previously.

Food Classification

Classification of the foods utilized at New Severn not only allows for discussion of food in meaningful categories, but it allows for suggestions to be formulated as to the nutritional adequacy of the diet based on current nutritional standards (Bureau of Nutritional Sciences 1977; Department of National Health and Welfare 1975). Tables 13 and 14 illustrate the classification of foods according to the categories discussed in Chapter Two.

The fact that there are no surviving daily journals for this time period makes the assessment of dietary status difficult because little is known of food consumption patterns. Also, no letters from the Bayside governors to the Committee in London survive. Because food was redistributed from Port Nelson for all but one year of the habitation period at New Severn, there is little information on the actual quantities of foods flowing into Severn. Therefore, it is necessary to utilize the presence/absence data that is available in addition to the relevant information contained within the surviving letters from the Committee in London to the Bayside governors and the minutes of the Hudson's Bay Company meetings.

The first food classification shows plant versus animal foods as well as local indigenous, local intro-

Table 13. New Severn Food Classification

Local Indigenous	Local Introduced	Imported
	<u>Plant</u>	
		peas beans Indian corn rice oatmeal flour sugar prunes currants raisins spices oil salt vinegar lime juice molasses malt spirits strong beer mustard seed wheat bread
	<u>Animal</u>	
moose caribou beaver goose duck scoter scaup grouse/ptarmigan pike		beef pork stockfish harberdine cheese lard butter suet

TABLE 14. New Severn Food Classification

<u>Milk and Milk Products</u>	cheese		
<u>Breads and Cereals</u>	rice flour oatmeal wheat	Indian corn bread	
<u>Meat and Alternatives</u>	pike harberdine stockfish duck scoter scaup goose caribou moose	beaver grouse/ptarmigan beef pork	
<u>Fruits and Vegetables</u>	prunes currants raisins peas beans lime juice		
<u>Miscellaneous</u>	malt oil lard salt beer	suet sugar spirits spices vinegar	molasses butter mustard seed

duced, and imported foods. Twenty-two plant foods and seventeen animal foods were available for consumption at New Severn. It is likely that all foods being imported during this five year time span have been listed in the historical documents, therefore, the list of imported foods is probably complete. In terms of numbers of different foods, the majority of the foods are of imported origin. While there were no attempts to produce European plants or animals at New Severn, there may have been attempts at raising caribou in captivity as was the case in Port Nelson. A letter to Port Nelson in 1687 encourages the governor to continue in his attempts to domesticate the 'little deer', apparently for the purpose of drawing or hauling (Rich 1948:236). As discussed in Chapter Three, all local animal foods, with the possible exception of some fish species and rabbit, are represented archaeologically. However, because plants are not so likely to preserve and be represented archaeologically, the list of indigenous plants may not be complete. If there were documents relating to daily life in New Severn it might be discovered that there was further plant utilization, particularly of locally available berries such as cranberries and blueberries as well as spruce needles.

The second food classification allows for more

detailed discussion. It is known that by 1685 the weekly rations had been set at five pounds each of flour and meat per man. It is assumed that this amount would have been consumed when it was available. It is not likely that there were any substitutions for flour. Any other grains were probably consumed in addition to the specified flour ration as was the pattern in Britain at the time. This supposition is substantiated by the governors records after they were required to keep mess books detailing the foods that were eaten (1716). Wheat was possibly added to the flour to make bread but was also probably eaten in the same manner as rice, i.e., boiled. Oatmeal was commonly eaten as porridge or gruell at this time (Ainsworth-Davis 1939; Drummond and Wilbraham 1939). Oatmeal was a common food and was included in other rationing systems of the time, notably for the soldiers at Tangier (Drummond and Wilbraham 1939). Of interest is the fact that all foods within the breads and cereals group are of imported origin, hence the men would have been absolutely reliant on shipments from abroad to satisfy their dietary needs from this category.

Meat was available both locally and abroad. The salted and dried meat was standard fare for the working class in Britain at the time so it would not have been

an unfamiliar food at the Bay. The men were encouraged to exploit local resources in order to supplement the meats sent from Britain. Although there appears to be a variety of meats available for consumption, it was the caribou, goose, grouse/ptarmigan which were the main subsistence sources. These were eaten fresh when available, and the surplus was preserved for later use. Geese were available in the highest numbers during the fall and again during the spring. They were rationed at half a goose per man per day for six days. Efforts were made to salt enough geese to last the summer months until the return migration when more could be obtained. Fish were caught and were often salted as winter food with the ration being three fish per man per day (Rich 1958:495, 541). There were no livestock in New Severn during this time period (Moodie 1972).

Milk and milk products were not a formalized part of the rationing system. In later years cheese was eaten on days when no meat was consumed (HBC B 198/a/4,5). This was also the practice in Britain at the time so it is probable that cheese was consumed as an alternate to meat at New Severn. Because there was no livestock at New Severn, milk was not included in the diet.

Fruits and vegetables were not a standard ration.

Dried peas were shipped in high quantities, indicating that they were regularly consumed at New Severn as was the case throughout the region in later years after mess books were kept. Beans were also shipped in large quantities and may have been consumed frequently also. During this time in Britain, broths were prepared with peas and beans when no meat was available and were commonly consumed by the labouring class. Whether this was the practice at New Severn was not known. If it was, then these foods could also be regarded as a meat alternate. Dried fruits were given out at Christmas and perhaps at other times of the year but not in large quantities.

The foods noted in the miscellaneous category served various functions. Lard, butter, suet, and oil were used for baking, cooking, and probably seasoning. These fats were important as an energy source. Spices were given out at Christmas, and although they probably did not contribute any specific nutrients to the diet, they played an important role in that they would have been one of the only ways in which one could exercise any choice in food preparation. Sugar was bought by the men with their earnings to be used as they wished. In addition to imported beer, beer was made regularly at the posts and consumed frequently as it was abroad

(Drummond and Wilbraham 1939; Rich 1976). Lime juice was shipped to the posts. It is not known how this was consumed, but its presence is important because of the high amounts of ascorbic acid contained in it, thus rendering it valuable in the fight against scurvy.

The flow of foods through the subsistence system is presented next in order to define any problem areas in maintaining diet, as well as to illustrate the variables affecting diet at New Severn.

Food Flow

Figure 6 illustrates the various factors affecting ultimate food consumption at New Severn. Because of the lack of daily journals and letters from the governors at the posts, this flow diagram is not as detailed as it might be for a post where these particular documents are present. Nevertheless, some important facts are evident. A major concern during this period of French-English conflict was indeed supplying the posts as intended. Some concern is expressed in a letter to Governor George Geyer and the council in 1687:

Inclosed invoice will Informe you, and we hope our kindnesse and Care in these abundant Supplyes will not Occation your extravagances but rahter encourage you soe to Husband things soe that if a Shipp should miscarry (which God

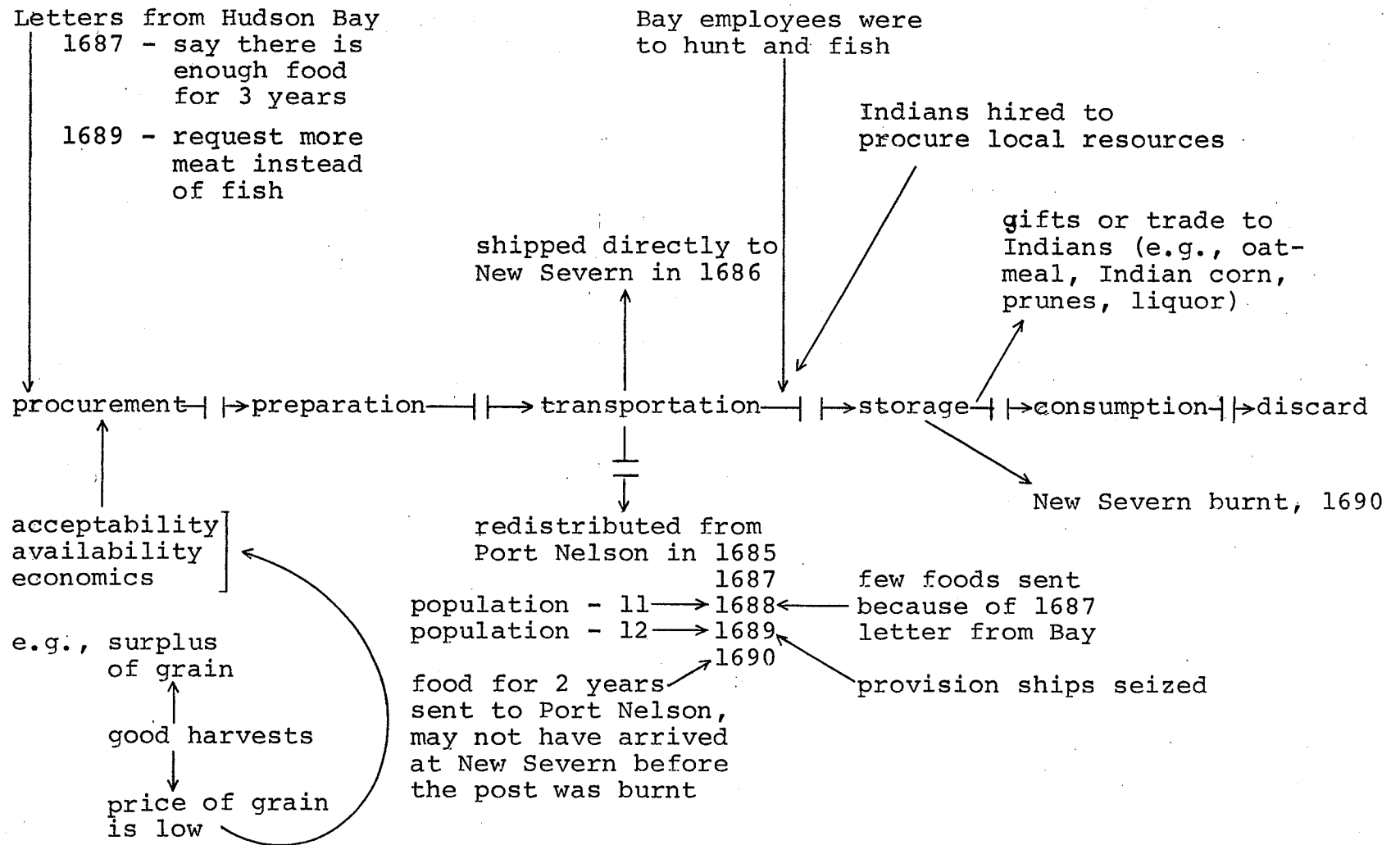


FIGURE 6. Flow of Foods to New Severn, Systemic Context

firbidd) there may be sufficient to support our men and Carry on our Trade for a whole year after, for you may perceive by our this yeares provisions wee are desireous to put you into that posture (Rich 1948:234).

The following year the Committee in London acknowledged the letter received in 1687 (not available but presumably from Port Nelson) and stated that even though there was reported to be adequate provisions in the country to last for three years, a small amount of provisions and other materials were sent (Rich 1951:12). As usual, the men were asked to be careful in expending the provisions and to hunt fresh game and to catch fish and fowl. Even though the men had not asked for provisions in 1688, it was fortunate that the Company sent some anyway because in 1689 the two provision-bearing ships from London, the Northwest Fox and the Royal Hudson's Bay, were forced back to England soon after departure for Rupert's Land. Exactly what strains this put on the provisions at New Severn (or at Port Nelson) is not known. In 1690 however, the Company sought to make up for any hardships that the men might have encountered as is indicated in their annual letter to the Governor at Port Nelson:

In our peculiar Care for Aditionary provisions

of all sorts, Capt. Youngs Advise to whom you Referr that matter in all points been taken, And that to such a proportion that we presume none of your men will hereafter have any Just cause of Complaint, If their has been a Scarcity amongst you heretofore, (unless upon the unavoidable miscarriag of some shipps) It has been an exceeding trouble and affliction to us, wee haveing always designed plentifull supplies.

Further in answer to your desiers, wee send great store of meate in stead of fish, never Intending sparingness, in your stores, whatever misfortune has happened against our wills, though on the other side, there may some unquiett spirits, who will never be Contented doe all wee can (Rich 1951:95).

The provisions sent at the same time as the above letter were enough to last for two years and did arrive as intended. There is no information as to whether or not provisions were sent on to New Severn from Nelson River before the post was burnt. It is likely that they were provisioned since the ships left England in May and there would have been enough time for the goods to arrive in Port Nelson and then be sent to Severn before it was burnt on August 15. It is probable that towards the end of the occupation at New Severn, before the imported goods arrived in 1690, if in fact they did arrive, that imported foods were sparse.

Some of the foods which were shipped to the posts were either traded or given as gifts to the Indians. Foods which fell into this category were

Indian corn, prunes, oatmeal, and liquor. Indian corn purchased from Boston was first introduced in 1686 for the purpose of trade with the natives, one winter beaver skin being good for two quarts of corn (Rich 1948:180). Much of the oatmeal that was shipped to the posts was specifically for the benefit of the Indians during times of hunger (Rich 1958:495). Both prunes and liquor were given to the natives from the start of the fur trade. Although these foods were known to have been consumed by the Indians, this is not to imply that the men at the posts were not also partaking of these foods. The issue here is that caution must be exercised if one were to study the quantities of food flowing into any particular post in anticipation of speculating as to the dietary status of the inhabitants. The previously mentioned foods are known to have been distributed outside of the subsistence system of the Hudson's Bay Company.

During this time period, Indians were employed to supply the posts with local food resources. The men from abroad also hunted and fished, but they did not travel in search of game as did the natives. Rather, they concentrated on those resources close at hand. As discussed in the previous chapter, the transport of game to New Severn is revealed by the paucity of cer-

tain skeletal elements in relation to the presence of others. This is indicative of preliminary butchering elsewhere. The fact that the natives were employed to assist in the exploitation of the local resources is an important factor in the adaptation of the newcomers to a foreign environment. The Indians' knowledge, particularly of the game and their seasonal habitat, would have been invaluable to the men at the Bayside posts.

Discussion

By way of summarizing diet at New Severn, it is helpful to recall the data sources used in the assessment. Utilising the one invoice of foods shipped directly to New Severn in 1686, in combination with the archaeological data and the regional chronology of imported foods has enabled the documentation of thirty-nine different plant foods which were available for consumption (Table 12). A food list of this extent could not have been compiled from either of the data sources alone. Figure 7 illustrates the production of the archaeological record at New Severn. This particular data base is biased in that, because of differential preservation, the majority of the foods represented are meats. The food classification shows that meats are

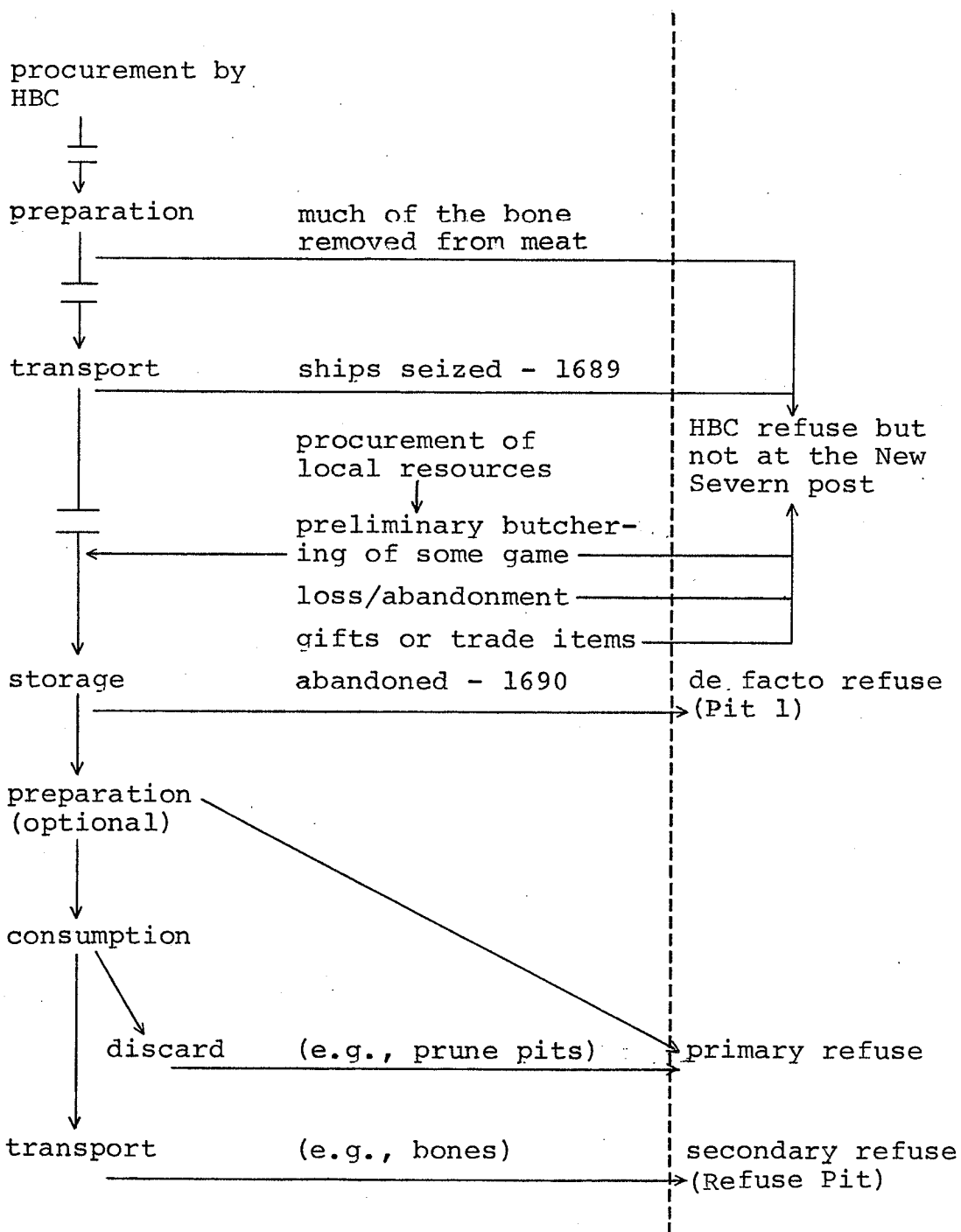
Systemic ContextArchaeological Context

FIGURE 7. Production of Archaeological Record at New Severn

are not the only food type. Not only are meats the main foods being represented archaeologically (only prunes are present in addition), but they are almost exclusively from the local environment. Only beef is represented from Britain, while stockfish, harberdine, and pork are not. The reason for this is perhaps twofold. Differential preservation may affect the fish bone. Also, much of the bone was removed in Britain prior to shipping. The historical data available for New Severn is biased in that there is little information regarding the utilisation of local resources. Neither is there a prevalence of information indicating food consumption patterns. However, the two data sources in combination allow for some speculation as to the diet of the post inhabitants.

The foods available for consumption were very similar to those present in Britain at the time. Most of the foods were staples, either year round or on a seasonal basis. Occasional foods did not play a significant role in the diet at this time but, these did not become common until the 1700's. Foods from all classes were available at New Severn. However, with no milk being consumed, one possible nutrient deficiency is calcium. Other possible sources for this nutrient would have been cheese and the stock made from

boiling the bones. Another problem area is with ascorbic acid. Although foods (such as lime juice) containing this nutrient were present, little is known regarding frequency of intake. If scurvy was a problem at New Severn or elsewhere in the Bayside region at this time (as it was in Britain), there is no indication of it in the available literature. With these two possible exceptions, the diet at New Severn appears to have been adequate in the long run on the basis of food availability. It must be remembered that individuals have varying nutritional needs as well as different personal preferences. Nutritional adequacy would not only depend on sufficient amounts of food being available, but sufficient amounts being consumed.

With the ration being set at five pounds of flour per man per week (approximately 8000 kilocalories) and five pounds of meat per week (approximately 4500 kilocalories), these two foods alone would yield a combined daily caloric intake of approximately 1790 kilocalories (Watt and Merrill 1963). This calculation is a gross estimate since it cannot take into consideration the various types of meat that would make up that portion of the requirement. Different types of fish, birds, and animals vary in caloric content, as do the different cuts and treatments within each type. This

figure would be supplemented daily by fats such as lard and less often butter, vegetables such as peas and beans, as well as liquor. Sugar was purchased by the men for consumption at their own discretion and would have added to the caloric intake. Informal consumption of indigenous foods may have occurred, especially of plant foods. Intake may have varied somewhat seasonally due to local resource availability as well as the annual shipment of imported foods. Although current recommendations stand at 3000 kilocalories per day for men between the ages of 19-35 (Health and Welfare Canada 1975), this figure is not necessarily applicable to the Hudson's Bay Company men because of the probable differences in activity pattern.

The Company repeatedly stated that the well-being of the men was of prime importance so, presumably, if there had been reports of ill health due to lack of food, they would have remedied this (as was the practice in other years when there was complaints about the food). There is no indication of poor health at New Severn in the literature. The most serious factor affecting the dietary status at this time was the eventuality that a ship from Britain might not arrive, as did happen in 1689.

CHAPTER FIVE

CONCLUSION

Four analytic techniques have been developed from the regional historical data in order to study diet during the first century of the Hudson's Bay Company fur trade in Rupert's Land. These techniques are utilised in this thesis to study diet at New Severn (1685-1690). The regional food chronology has documented all imported foods available for consumption and their year of initial introduction into the Bayside subsistence system. Two techniques of classification have been developed. The first has enabled comparison of the types of foods contributed to the diet by different sources. The second is a categorization of the available foods into food groups which has enabled speculation as to dietary adequacy. The final technique proposed in this study, the food flow diagram, illustrates the complex set of factors affecting ultimate consumption of food at the Bayside posts. The utilisation of these techniques at the site-specific level has led to important conclusions concerning diet during the early years of the fur trade on Hudson Bay, particularly at New Severn.

The food chronology is significant in that it

supplements the food inventory for New Severn which was elicited by archaeological data and historical documentation directly pertaining to that post. Foods which were not detailed by either one of these methods were inferred by using the regional chronology. This chronology could be applied to other Hudson's Bay Company posts established during the first century of Bayside trade (i.e., the region). The posts were all receiving the same foods (the only difference being one of quantity) with the exception of livestock and seeds for gardening purposes. This class of food, referred to previously as local imported, is subject to change from post to post because animal husbandry and plant domestication were part of an experimental program carried out with different intensity and various degrees of success at some posts. Having noted this one major exception, the food chronology is applicable to all of the posts within the region. In addition to illustrating the available foods, this chronology could serve as a secondary dating method because of the fact that the historical documentation of imported foods coming into the region is complete after 1684. The presence of a specific imported food in the archaeological context of a particular site would mean that the site was occupied as early as the

earliest date of the appearance in the chronology of that food.

The classification according to the source of foods known to have been utilised at New Severn shows that there was no plant or animal domestication. All known plant foods were imported. That there are no plant foods classified as local indigenous is probably a short-coming of the data. One would expect that at least berries and spruce needles (used elsewhere in the region in beer making) would have been utilised. However, these organic elements are not likely to preserve and a lack of journals relating to the daily life at this post prevents representation in this category. Animal foods were utilised from both the local environment and from the imported provisions. Overall, the men would have been absolutely reliant on imported plant foods but less so on imported animal foods. This food classification could be applied to other posts within the region as well. Variation from post to post would occur primarily on the basis of environmental differences which would affect locally available resources. The archaeological and historical data directly applicable to the specific post under study would elicit information concerning local resource exploitation. Imported foods are the same from post to

post and as time progresses in the region, more foods will be listed within the imported plant and animal food categories. As stated earlier, the prevalence of local imported foods will vary from post to post.

The classification of the New Severn foods into food groups shows that foods were available in all four of the food groups currently recommended. Providing that enough of the foods within each of these categories was consumed, the men would have been getting an adequate supply of nutrients. Two possible shortcomings at New Severn would have been vitamin C and calcium. Without further documentation directly pertaining to New Severn, it is impossible to verify this. This classification has also shown that the foods available at New Severn were very similar to those available in Britain, an important factor in psychological adaptation to diet in a foreign environment. The major adaptive mechanism used by the Hudson's Bay Company was to integrate new, locally available foods with familiar foods imported from Britain, as well as to increase through time the variety of British foods. This reflects a tendency to cling to former food habits rather than to drastically change the diet. The fact that the diet at New Severn appears to have been satisfactory is vital to the overall history of the Company.

Successful nutritional adaptation to a new environment is a biological prerequisite for socioeconomic success (Jerome 1980:276). This classification of foods into food groups is likely to elicit similar conclusions regarding diet when applied to other posts throughout the region. Time of post occupation and the availability of archaeological and historical data would affect representation within the groups. The most significant factor here is that with increased time there would be more foods within the miscellaneous category. At least as early as 1674, all food groups are represented although the variety within the foods groups may differ.

The final analytic technique used in studying diet was the food flow diagram. The most crucial of the processes leading to consumption at New Severn was the transport of imported foods from Britain. New Severn was occupied during a time of French-English conflict and the risk to the Hudson's Bay Company ships was great. In 1689, neither of the provision-bearing ships which left England arrived at Hudson Bay. This could have seriously affected the store of imported foods, especially towards the end of the occupation at New Severn in 1690. All posts within the region were subject to the same general factors governing food flow through the system. Again, the time during which a

specific post was occupied will affect these factors. Furthermore, the location and size of a specific post will affect the food flow. Diet at the major terminus where more imported foods were flowing into and out of the post would be more secure than at the "end of the line" posts where the foods were eventually shipped.

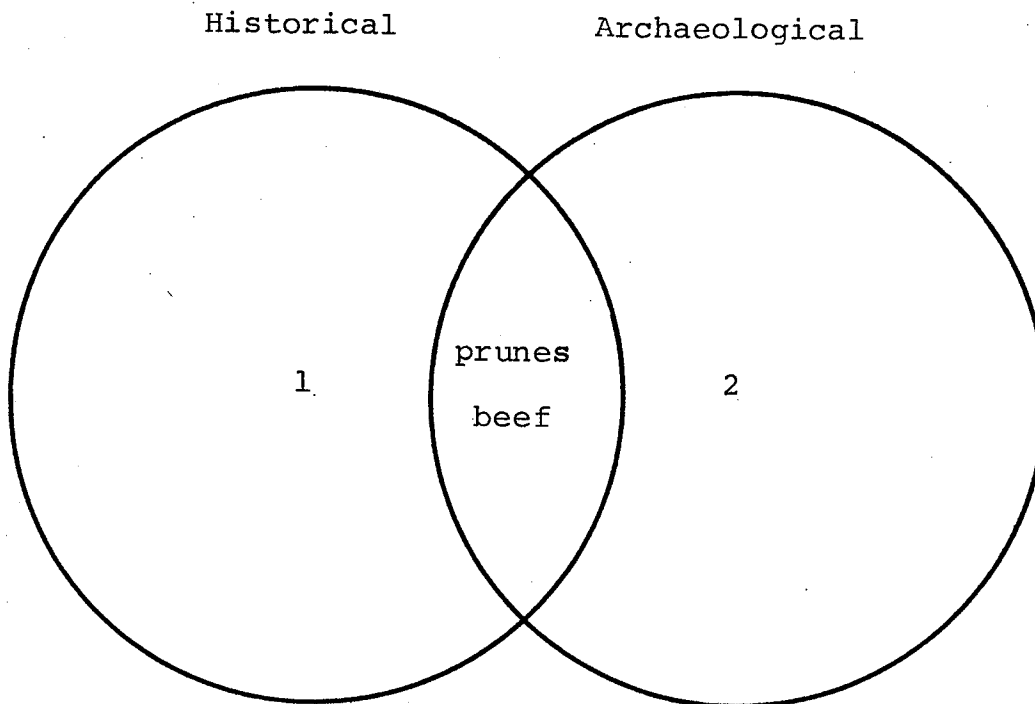
Developing the techniques on the basis of the regional historical data and applying them to a specific post has allowed for comparison between the historical and archaeological records in as much as they contribute to the study of diet. The food inventory of New Severn as elicited from historical records is biased towards imported foods, while the archaeological record is biased in its representation of foods from the local environment. This bias of historical documentation has been noticed elsewhere. Joanne Bowen used probate inventories in the study of zooarchaeology and agriculture history at Mott Farm and made the following comment:

In defining foodways, the use of inventories cannot go beyond the domestic animals. It is here that faunal analysis becomes invaluable in delineating the broad outline of the cultural screen that underlies the whole inter-related system of foodways. It is within these outlines that the selective use of wildlife becomes explainable (1978:15).

Figure 8 illustrates the overlap of the historical and archaeological data as they apply to New Severn.

Throughout the region, both data bases must be employed in order to thoroughly study diet. As mentioned previously, this lack of overlap at New Severn is a result of differential archaeological preservation as well as the selective information contained within the documents.

The historical documents used in this research were chosen for two reasons. First, the lists of provisions and stores and the invoice books are the only available archival sources applicable to New Severn. Second, utilising post journals and mess books for a regional study is a time consuming task beyond the scope of this thesis. However, these more detailed documents, where available, contain information pertaining to the post population, daily activities, consumption of both local and imported foods, foods purchased, and the health of the men. This type of data enables analysis of food intake which can provide evidence of nutritive intakes that may suggest dietary status. Using the presence/absence data as in this thesis, one analyses food availability rather than food intake. This is a more general assessment of diet and enables one only to say which nutrients are likely to



1. Historical Record

pork	lime juice
beef	molasses
cheese	malt
butter	spirits
peas	Indian corn
vinegar	strong beer
rice	mustard seed
oatmeal	wheat
flour	bread
sugar	stockfish
prunes	harberdine
currants	suet
raisins	lard
spices	beans
oil	
salt	

2. Archaeological Record

prunes
beef
caribou
moose
beaver
goose
duck
scoter
scaup
grouse/ptarmigan
pike

TABLE 8. Diagram Showing the Overlap of Historical Versus Archaeological Records in the Study of Diet at New Severn.

have been available or not.

As previously mentioned, a short-coming of the archaeological data from New Severn was the fact that the site was not excavated for the purpose of gaining dietary information. Had this been the intent, the excavations could have been designed around those areas where one would expect to find indications of food such as in middens, privies, and areas around the entrances and exits of the palisade and buildings. As well, recovery techniques at New Severn could have been designed to deal with dietary evidence. For example, attention could be focused at recognizing and collecting carbonized plant remains preserved by the permafrost. A modified method of floatation could be designed to cope with the problems encountered in our research.

Both historical and archaeological records have been used in this study of diet during the first century of the Hudson's Bay Company in Rupert's Land. There are problems with each of these kinds of data which limits their use individually in a study of diet. The historical records used here are biased in that they do not contain any information regarding local resource exploitation. The archaeological record for New Severn, and probably for other posts as well, is biased in that there is little information regarding

imported provisions. The analytic techniques developed in this thesis are an attempt to exploit and integrate these potential sources of dietary information.

This thesis has been a first attempt towards dietary assessment during the early fur trade in Canada. It has shown the extent to which presence/absence and limited quantification data can be utilised when there is a lack of precise archival information on population demography, activity patterns, clinical observations, and food consumption patterns. It has also shown that the study of subsistence, generally recognized by archaeologists as an important area of study, actually should consist of an assessment of diet (food availability) and dietary status (nutritional adequacy).

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APPENDIX B

GLOSSARY OF FOOD RELATED TERMS

aquavitae - a simple distilled spirit, like a crude gin
(Drummond and Wilbraham 1939:115)

beer - 'strong beer' was as its name implies versus 'small beer' which was much weaker and was a standard beverage of young children (Drummond and Wilbraham 1939:114).

cattle - refers to all livestock

colewort - cabbage

corn - refers to all cereal grains

firkin - a measure equal to 9 imperial gallons or 56 pounds of butter; a fourth of a barrel (Webster's Dictionary)

gammon - refers to a side of salted, smoked or dried bacon; a ham may be preserved the same way but is usually from the thigh region of the pig and is cut differently (The Joy of Cooking & Webster's Dictionary)

green tea - Chinese tea

harberdine - salt or sun-dried cod (Rich 1946:15).
since harberdine and stockfish were sent

in the same shipment, there must have been a difference but this difference is not clear since stockfish also refers to dried fish (Drummond and Wilbraham)

hogshead - a large cask for liquor, holds 52½ imperial gallons (Webster's Dictionary)

li. - pound

partridge - throughout the historical documents for the time period under study, ptarmigan were referred to as partridge

ruhigan - dried meat

rundlet or runlet - a small barrel holding 18 gallons
(Rich 1946:9)

sack - a kind of sweet sherry (Drummond and Wilbraham 1939:213)

salt - 'Bay salt' was from the Bay of Biscay and was made by evaporation of the sea water. It was often said to be contaminated with filth arising from putrified human bodies and dead fish. It was coarse salt and was probably used for preserving meat and fish. 'White salt' was table salt and was from England, mainly the salt works in Cheshire (Drummond and Wilbraham 1939:261; Rich 1942:106)

Spanish licorice - this probably refers to a Mediterranean plant, the roots of which were used for medicinal purposes, namely, as a laxative (Webster's Dictionary)

tickameg - whitefish

APPENDIX C

DISTRIBUTION OF IDENTIFIED ELEMENTS BY AREA

Abbreviations are as follows:

<u>Rangifer tarandus</u>	- R.t.	Anseriformae	- Anr.
Tetroanidae	- Tet.	Anatinae	- Ant.
Anserinae	- Ans.	<u>Alces alces</u>	- A.a.
<u>Alopex lagopus</u>	- A.l.	<u>Ursus martimensis</u>	- U.m.
<u>Branta canadensis</u>	- B.c.	<u>Ondatra zibethicus</u>	- O.z.
<u>Martes americana</u>	- M.a.	<u>Canis lupus</u>	- C.l.
<u>Aythya marila</u>	- A.m.	<u>Mustela vison</u>	- M.v.
<u>Esox lucius</u>	- E.l.	Bovidae	- Bov.
<u>Castor canadensis</u>	- C.c.	Pinnipedia	- P.i.
<u>Chen hyperborea</u>	- C.h.	<u>Grus canadensis</u>	- G.c.
<u>Vulpes vulpes</u>	- V.v.	<u>Melanita deglandi</u>	- M.d.
Phasianidae	- Pha.		

Also:

p. - proximal

l. - lumbar

d. - distal

t. - thoracic

s. - shaft

c. - caudal

a. - complete

frag. - fragment

metatarsal (mammal) - metatarsus (avian)

metacarpal (mammal) - metacarpus (avian)

AREA	Building #1	R.t.	TAXON																								
Inside Pallisade	R.t. Tet.	1*																									
	Ans.	2	2	1	1	2*	1	1	1	2	3	1	1	1	2	3	1	1	1	3	1	2	3	1			
	B.c. A.L.	1																									
	M.a.	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	5	5	5		
	A.m.	1																									
	C.c.	1																									
	C.h.	1																									
	V.v.	1																									
	Pha.	1	1	1																							
	A.a.	1																									
	O.z.	1																									
	C.l.	1																									
	M.v.	1																									
	Bov.	(rib)																									
	G.c.	1																									
	M.d.	1																									
	B.c. Amr.	1																									

* - refers to specimens for which there is no provenience

