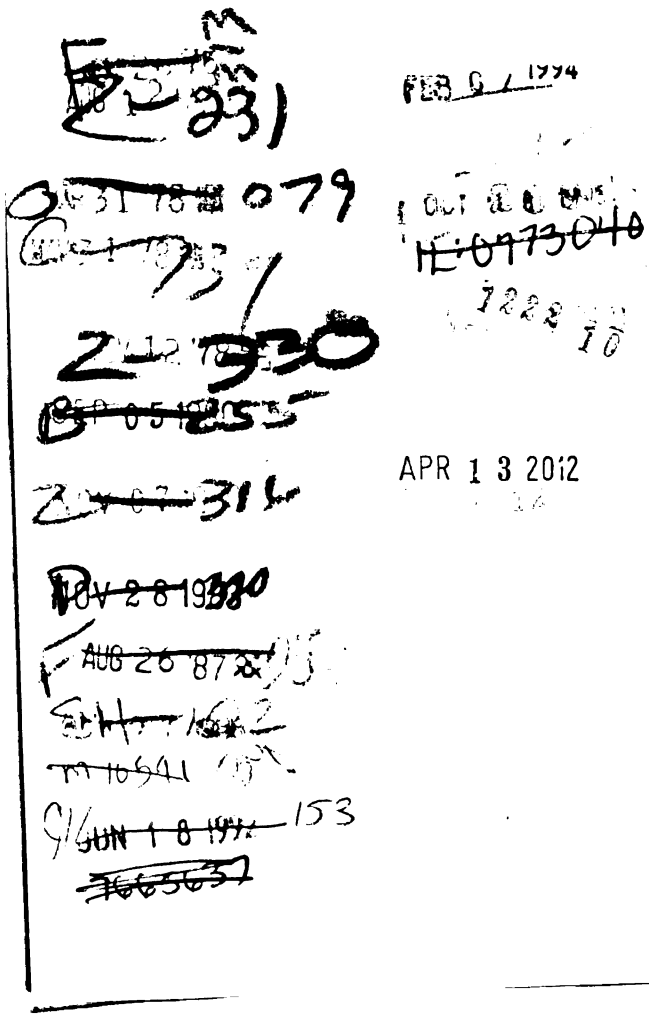
THE ETHNOZOOLOGY OF FORT MICHILIMACKINAC

Thesis for the Degree of M. A.
MICHIGAN STATE UNIVERSITY
ELIZABETH A. BUTSCH
1970



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ABSTRACT

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By

Elizabeth A. Butsch

The French and British occupations of Fort Michilimackinac resulted in depositions of large quantities of faunal remains. Archeological evidence for the varied cultural nature of the occupations leads us to hypothesize that these variations will also be reflected in the faunal remains. Certain features which are thought to reflect these cultural differences were analysed to test this hypothesis. Relationships between certain types of features and groups of species are postulated. These correlations should reflect differences in the inhabitant's way of life, economic status and perhaps nationality.

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A THESIS

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TABLE OF CONTENTS

	Page
ACKNOWLEDGMENTS	ii
LIST OF TABLES	iv
LIST OF FIGURES	v
THE PROBLEM	1
THE FORT	3
The History	3
The Inhabitants	7
THE FEATURES	9
THE FAUNA	19
The Area	19
The Species	20
THE ANALYSIS	33
Hypothesis 1	33
Hypothesis 2	63
Conclusion	67
BIBLIOGRAPHY	68

LIST OF TABLES

Table		Page
1.	List of Species Identified from Features Excavated at Fort Michilimackinac from 1967 - 1969	36
2.	Total Individuals and Meat Percentages for the Basement Floors of SWH1, SWH2 and PH	44

LIST OF FIGURES

Figure		Page
1.	Map of the Straits of Mackinac	5
2.	Master Map South-West Corner, West Section, Fort Michilimackinac	11
3.	Master Map North-West Corner, West Section, Fort Michilimackinac	13
4.	Percent of Individuals (Occupation Floor and Fireplaces)	34
5.	Percent of Individuals (Wall Trenches and Pilaster Pits)	35
6.	Percent of Individuals (Basement Floors and Basement Fill)	36
7.	Percent of Individuals (Basement Pit and External Fences)	37
8.	Percent of Individuals (Latrine Pits and Latrine Fill)	38
9.	Percent of Individuals (Boundary Ditches and Chemin du Ronde)	39
10.	Percent of Individuals (Stockade and Bastion Trenches and Garden Pits)	40

THE PROBLEM

The faunal material from a site constitutes an important part of the evidence for reconstruction of the culture of the inhabitants. Where there is a large amount of well-preserved bone it may yield clues to many facets of the inhabitant's way of life, their economy, their eating habits, and perhaps their personal tastes. The more than sixty-five year occupation of Fort Michilimackinac resulted in the deposition of large quantities of cultural material which includes a substantial amount of faunal remains. This material has been analyzed to test a two-fold hypothesis. First, are there demonstrable differences in proportions of species among different types of historic features (e.g. pilaster pit versus occupation layer)? Second, can differences in proportions of species be attributed to different cultural activities and differential depostion?

The faunal material recovered during the 1967, 1968 and 1969 field seasons was used to endeavor to test these hypotheses. Only the material from recognizable features of occupation zones was analyzed. This material totaled some 33,000 pieces of bone, 21.6 per cent of which

was identified to the family or species level. The remaining 78.4 per cent was not identifiable beyond the class level.

After identification the resulting data were treated in several ways. First, numbers of individuals and amounts of usable meat were calculated to help determine the importance of the species. Second, cumulative graphs were made of per cent of individuals for each functional unit.

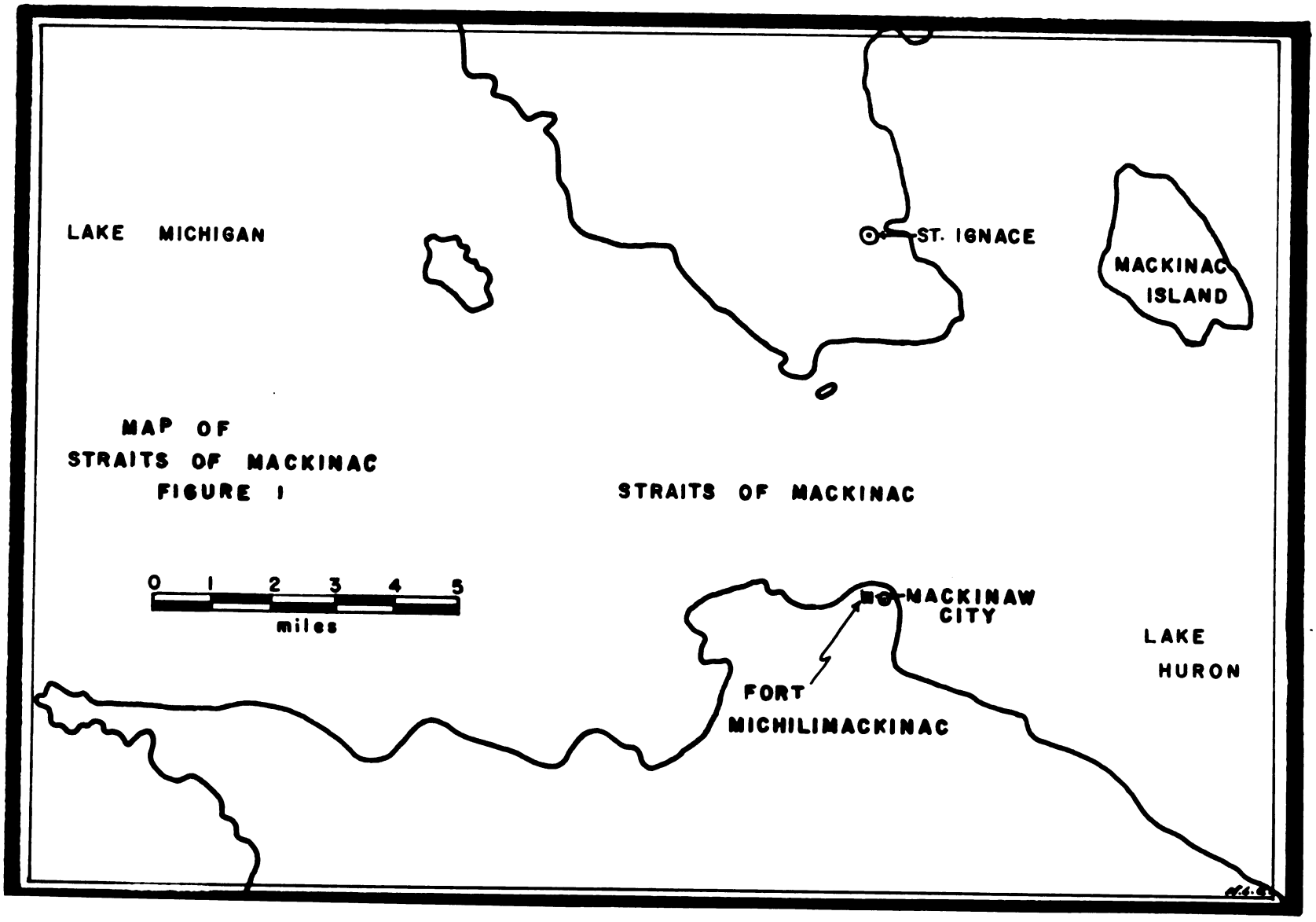
THE FORT

The History

The area of the Straits of Mackinac (Figure 1.) is one with a long history of European occupation. The Straits were early recognized as an important passage to the west, and as a result were settled relatively early. There is some confusion in the historical records as to the exact dates of settlement (Maxwell and Binford 1961:9). Settlements are known to have existed during the seventeenth and eighteenth centuries. One was at the site of modern St. Ignace, one at Mackinaw City and one on Mackinac Island. The exact date of the first construction of Fort Michilimackinac is not known. Some time between 1715 and 1720 it appears that a small stockaded fort was built. This Fort was part of the French plans to defeat the Fox Indians and to continue the fur trade, which was a vital part of French economy in the New World. The archaeological evidence supports the historical knowledge and indicates a stockade of this period containing three rows of houses.

Between the time of its first construction and 1760 the Fort underwent many internal changes and was expanded to more than three times its original size. In 1747 twenty-eight troops were garrisoned there. Much of

Figure 1. Map of Straits of Mackinac



MAP OF
STRAITS OF MACKINAC
FIGURE 1

the land inside the Fort became private property during the French occupation. During this period of its history the Fort was much more a trading settlement of French and French-Indians than it was a military establishment.

In 1760 the Fort was surrendered to the British. It was taken over in 1761 and occupied by forty troops of the 60th, or Royal American regiment. The privately-owned land inside the Fort remained in the possession of the original owners, which forced the British to rent it from French landholders during most of their occupancy of the Fort. In 1763 the Chippewa massacred part of the British garrison, and took some members of the garrison prisoner, including the commanding officer, Captain Etherington. After this, Charles Langlade a French inhabitant, supervised the Fort until it was reoccupied by eighty British troops. At this time the Fort was in very poor repair and this occasioned the repair and replacement of many buildings, as well as the construction of some new ones to house the increased number of troops. During the period between 1760 and 1780 the settlement at the Fort flourished and in 1778 John Askin wrote that there were more than one hundred houses around the Fort (Quaife 1928:69). By 1779 the defensive position of the Fort was of greater importance, due to the threats of the Revolutionary War. Consequently in 1779 Lieutenant-Governor Patrick Sinclair, then commandant of the Fort, began to move it across to

Mackinac Island, where it could be more easily defended. During the winter some buildings were sledded across the ice and in the summer they were dismantled and boated across. By the fall of 1781 the Fort was completely razed and abandoned.

The Inhabitants

Fort Michilimackinac was inhabited by people belonging to two nations. Each of these represented a culture which included a subsistence pattern developed under specific conditions. As Cleland (n.d.) says:

> While the French occupied Michilimackinac, the Fort functioned primarily as a trading and mission center. The society of this establishment must have been a rather egalitarian one composed of a few soldiers, private traders, their wives (who were frequently Indian) and their children. These residents were more or less isolated in the back country of New France at the end of a long and tenuous supply line reaching to Montreal and Quebec, hundreds of miles to the east. As a result, these people were capable of surviving by their own devices. The character of Michilimackinac was abruptly changed under British domination. Then the Fort became a military garrison linked to other British army posts by a fairly well-developed line of supply and communication. The social interaction of the inhabitants was no longer based on egalitarian principles, but was now highly stratified with a privileged class consisting of the officers and wealthy traders. The affluence of this society with its farmers, storehouses and comparatively heavy marine traffic far outstripped the earlier French colony. When we can observe such remarkable differences in the technological, social and ideological systems of these two societies, it is logical to assume that differences in these systems would have resulted in significant idfferences in the subsistence systems.

Cleland's analysis of data from French and British refuse pits (Cleland n.d.) shows that the French subsistence pattern was one which included foraging. Wild food played an important role in their diet, whereas the British depended most heavily upon imported domestic foods. In each case they were utilizing the resources available to them. Better transport systems of course provided the British with greater food surplus including many domestic animals. A group of people tends to use the food resources which are most accessable, most abundant and yield the most amount of food. The French and British, due to differences of technology, had different resources available to them. The French could not count on a supply of pork and beef, so they hunted wild game, while the British, who were assured a supply of these meats, were not required to hunt to such an extent. The fact that they did not have to hunt for food left the British with more time for leisure activities, including hunting for sport.

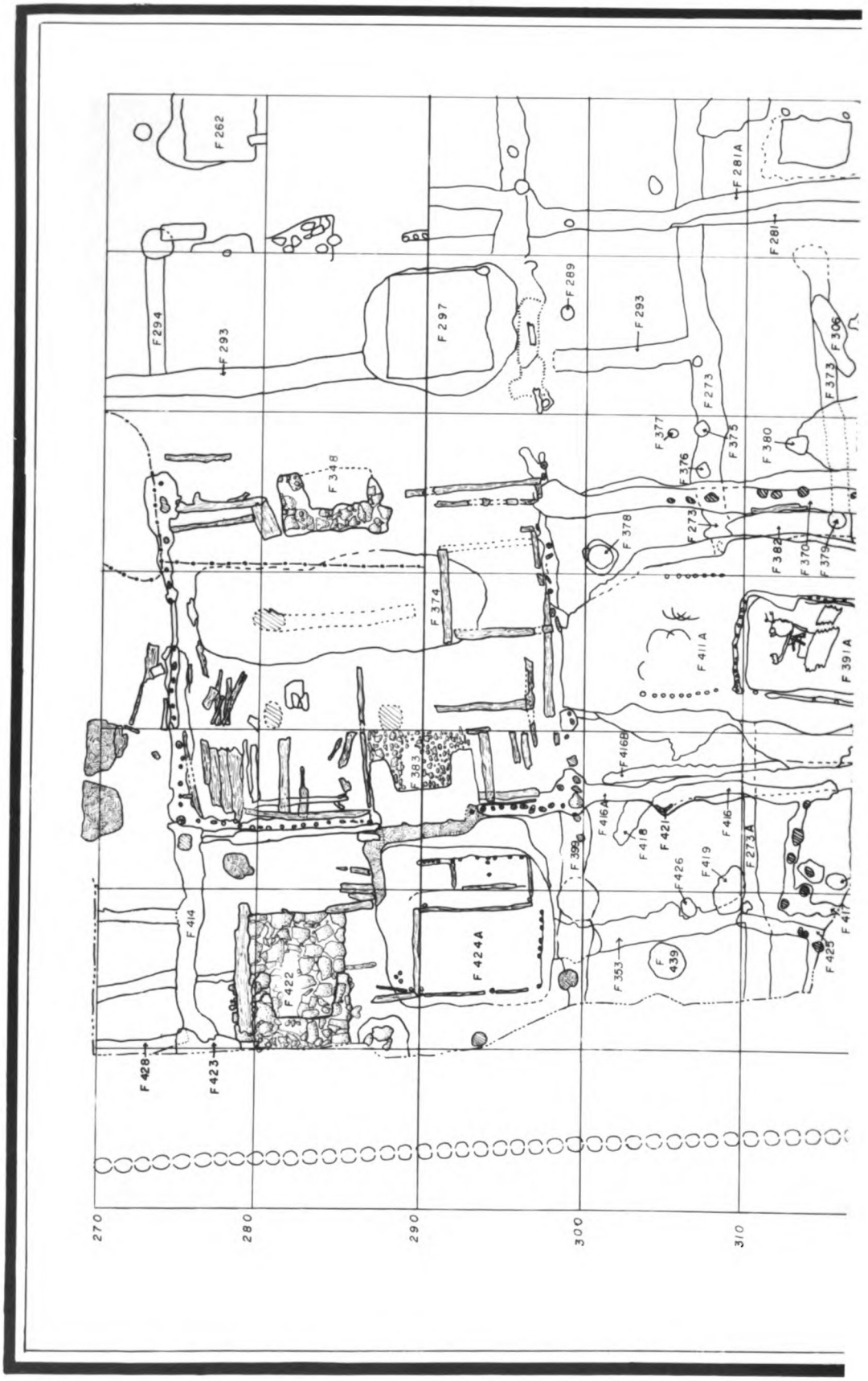
The fur trade was a factor which played a very important role in the history and development of Fort Michilimackinac. It was most important during the French occupation of the Fort and declined after 1760. When the British arrived, the military nature of their occupation made fur trade a much less important part of the economy of the Fort.

THE FEATURES

After 1780 Fort Michilimackinac was abandoned for one hundred and fifty years, until 1932 when a reconstruction of the stockade wall was made as a W.P.A. project. This reconstruction was not accurate, since it was not based on archaeological evidence. In 1959 the Mackinaw Island State Park Commission raised funds for an accurate and complete restoration of the Fort. That season marked the beginning of 10 years of excavations at the Fort by the Michigan State University Museum personnel. At present only about half of the interior of the fort has been excavated and little has been done outside the reconstructed stockade.

The data for this study are made up of faunal materials obtained during the 1967, 1968 and 1969 field seasons. During these years the excavations were undertaken as part of a field school sponsored by the Michigan State University Department of Anthropology under the supervision of Dr. James A. Brown.

The excavational units used throughout the excavation of the Fort are ten-foot squares (see Figures 2 and 3). The grid for these squares was originally laid out from a line passing through the center of the 1932 recon-


F 262
F 294
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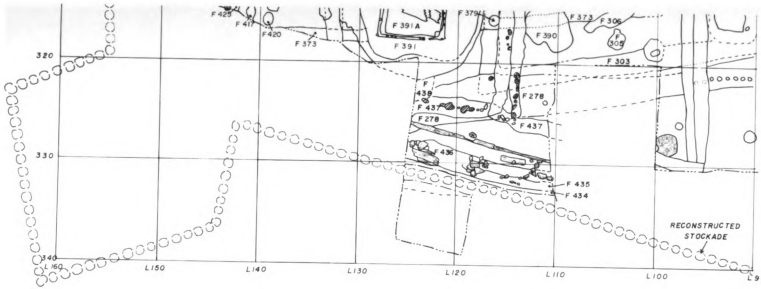


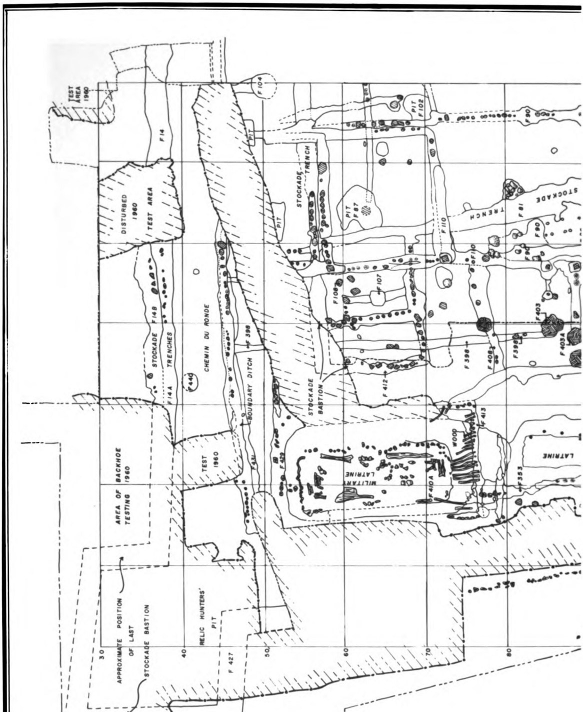
FIGURE 2

MASTER MAP
SOUTH-WEST CORNER
WEST SECTION
FORT MICHILIMACKINAC

0 5 6 7 8 9 10
SCALE in feet

LEGEND
- CLAY
- STONE
- WOOD
- EXTENT OF EXCAVATION
- DISTURBANCE
- POST MOLDS

K.M.M.


TEST AREA 1960
F14
DISTURBED 1960
TEST AREA
F104
PIT
PIT
STOCKADE TRENCH
PIT F87
PIT F102
F90
STOCKADE TRENCH
F81
F90
F110
F107
F108
F14B
STOCKADE TRENCHES
F14A
F440
CHEMIN DU RONDE
F398
BOUNDARY DITCH
STOCKADE BASTION
F412
F408
F403
F403A
F413
WOOD
MILITARY LATRINE
LATRINE
F410A
F353
F429
F431
TEST 1960
AREA OF BACKHOE TESTING 1960
APPROXIMATE POSITION OF LAST STOCKADE BASTION
RELIC HUNTERS' PIT
F 427
30
40
50
60
70
80

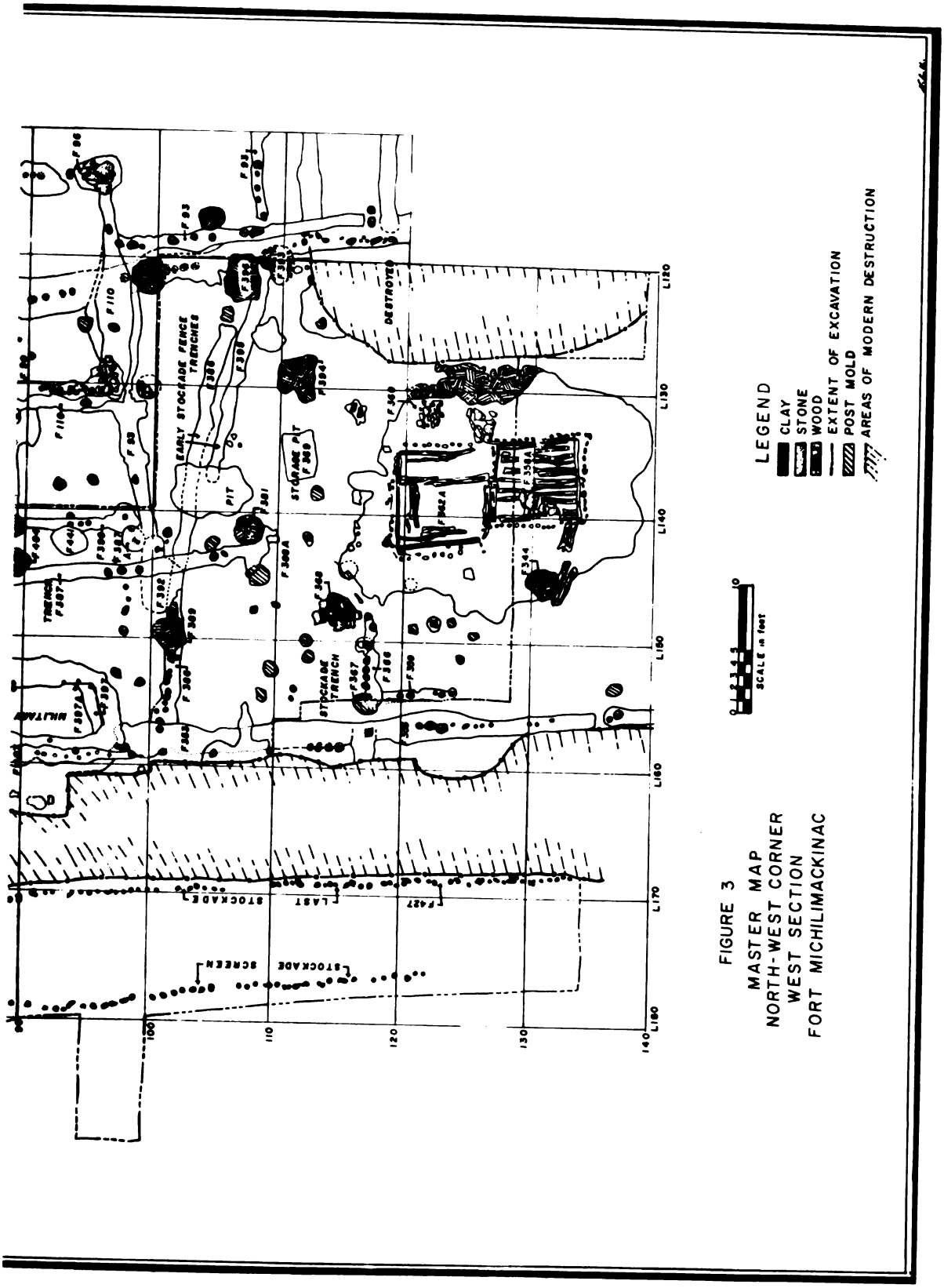


FIGURE 3
MASTER MAP
NORTH-WEST CORNER
WEST SECTION
FORT MICHILIMACKINAC

structed stockade and the zero point on the water (north) side of the Fort. Squares are then designated by their south-west corner, the location left or right of the center line being designated by a prefix L or R. For example, the square 290L150 is located 290 feet south of the zero line and 150 feet left of the center line (Figure 2.). Excavation within the squares was done in three-inch levels, relative to an arbitrary datum plane. As excavation progresses, clearly recognizable soil units were given feature status and numbered. The material from these features were separated from the general level material.

The faunal remains from the features excavated in the last three seasons constitute the data for this study. These features can be divided into fourteen functional categories. House features include occupation floors, foundation walls and trenches, foundation pilaster pits, fireplaces, basement fill, basement pits, and basement floors. Latrine features are latrine pits and latrine fill. Features outside buildings include garden pits, and boundary ditches. Features associated with stockades are, stockade and bastion trenches, Chemin du ronde, or road around the inside of the original stockade, and external fences.

The features can also be grouped by the structures of which they are a part. A brief discussion of each of these structures, and a list of included features, will aid

in understanding the analysis. The abbreviations listed after the name of each structure will be used throughout the rest of this study to refer to them.

South-West House 1 (SWH1)

Wall Trenches: F399, F414, F423A, F423B, F423C, F423D.

Fireplace: F422, F422A, F422C.

Basement: Pit--F424, Floor--F424A.

Garden Pit: F419.

Boundary Ditches: F416, F416A, F416B, F428.

This is the first house of a group of British row houses in the South-west corner of the Fort (Figure 2.). It had a large fireplace and internal basement, or cellar. There are some indications that it was occupied by people of higher social status than those who occupied SWH2.

South-West House 2 (SWH2)

Occupation Floor: No feature number.

Wall Trenches: F371, F373, F402.

Pilaster Pits: F406.

Fireplace: F383.

Basements: Fill and Pit--F391, F411; Floor--F391A, F411A.

Garden Pits: F438.

Boundary Ditches: F370, F370A.

This is the second house in the row of British houses (Figure 2.). It also had a fireplace. The two

basements or cellars are located outside the house in the garden.

South-West House 3 (SWH3)

Garden Pit: F390.

Only a small part of this third row-house was excavated during 1967, 1968 and 1969 (Figure 2.). Material excavated previously is not included here.

Priest's House (PH)

Wall Trenches: F359, F366.

Pilaster Pit: F360.

Basement: Fill--F358, F361, F363, F364;
Pit--F362; Floor--F358A, F358A-362A.

This large separate house is located in the north-west section of the Fort (Figure 3.). This was the residence of the Catholic priests at the Fort. The cellar complex, consisting of two main parts, contributed the largest part of the material from the house.

North-West House 1 (NWH1)

Wall Trenches: F398, F403.

Boundary Ditches: F398, F408.

As with SWH3, only part of this house was excavated during the three seasons included in this study. The two wall trenches are a corner of the house, with F398 extending as a garden boundary ditch (Figure 3.).

Early House Group, North-West (EHGNW)

Wall Trench: F388, F388A.

Pilaster Pits: F368, F389, F393, F394.

Fireplace: F392.

This group includes fragmentary remains from several houses that date before 1750 (Figure 3.).

North-North-West House 3 (NNWH3)

Wall Trenches: F413, F429.

Latrine: Pit--F410A; Fill--F410.

This structure is a military latrine. It was built in 1775, after use of NNWH5 was discontinued. (Figure 3.)

North-North-West House 4 (NNWH4)

Pilaster Pits: F381, F396.

Boundary Ditches: F387.

This structure is earlier than NNWH3 and NNWH5. Again, only parts of it have been excavated (Figure 3.).

North-North-West House 5 (NNWH5)

Latrine: Pit--F397, F397A; Fill--F397B.

This is another large military latrine, which was built prior to NNWH3 (Figure 3.).

Stockade and Bastion Trenches (ST-TR)

Stockade Trenches: Ultimate Stockade--F14, F434;

Penultimate Stockade--F435;

Antepenultimate Stockade--F353, 353A, F431;

Early--F81.

Bastion Trenches: Early--F273, F382, F412.

These are the trenches and bastion trenches for stockades of various dates and their additions. These trenches lie over and under occupation features (Figures 2 and 3.).

Chemin Du Ronde (CR)

Ultimate Stockade--F430; Penultimate Stockade--F437.

These features represent the road which ran around the inside of the stockade under the catwalk.

Early Stockade External Fences (ST-F)

F386, F395.

These features are fences which were located outside the second stockades (Figure 3.).

THE FAUNA

The Area

The climate, flora and fauna of the region around the Straits of Mackinac have not changed significantly for approximately 5,000 years (Cleland 1966:23). This area was heavily glaciated and shows the uneven topography typical of such an area. The climate of the region is cool, with only 80 to 140 frost-free growing days per year. The climax forest on land near Fort Michilimackinac is a hardwood forest dominated by sugar maple, with yellow birch, beech, elm, aspen, basswood, hemlock and white pine as secondary members of the association. Two important subclimaxes are the black spruce, tamarack, cedar, fir, white pine, white birch and alder association which occurs in swampy areas, and the Norway, jack, white pine and hemlock one which is found on poor sandy soil. Such a variety of forest types provides habitats for a large number of animals. The faunal material from Fort Michilimackinac contained 71 species of animals, and the species present seems to represent a fair cross-section of those that would have been present during the occupation of the Fort. A number of these are undoubtedly present as food remains.

Others are present because of their economic value, such as the fur-bearers, while still others such as the ground squirrels, were inhabitants of the Fort itself. Some of the birds demonstrate the Strait's position on a major flyway for migration.

The Species

To clarify the picture of the wild foods being used at the Fort and to show hunting methods and the reasons for the presence of other species, a brief description of their habits and habitats is included here.

Mammals

A Shorttail Shrew (*Blarina brevicauda*)

This shrew is most common in heavy forest and swampy areas although they may be found in almost any land habitat throughout Michigan. They are insectivorous and burrow about under leaves or snow in search of food.

Black Bear (*Ursus americanus*)

This animal lives in heavily wooded areas and swamps. Although they den up and sleep through much of the winter, they were sometimes killed in winter dens. Bear was a profitable animal to hunt, since each individual yields a large quantity of meat. Their range extends southward to the Central Lower Peninsula of Michigan.

Raccoon (Procyon lotor)

Raccoons prefer deciduous forests and forest edges throughout Michigan, especially areas with streams. In the winter they may den up during cold spells, but they do not hibernate. Raccoons may have been hunted for food and also for their fur.

Weasels (Mustelidae)

This family includes the weasels, marten, fisher, mink, otter, badger, skunk and wolverine.

Marten (Martes americana)

The marten lives in mature coniferous forests. Formerly its range extended into Central Lower Michigan. This aboreal carnivore was an important fur animal.

Mink (Mustela vison)

This large weasel is found along streams and lakes, and in woods in all parts of Michigan. Like the marten, it is carnivorous. It was prized for its fur.

Otter (Lutra canadensis)

This animal is chiefly aquatic, spending most of its time near water. It makes its home along stream banks or lake shores. It is valued for its fur and its range includes all of the Upper Peninsula and the northern half of the Lower Peninsula of Michigan.

Domestic dog (Canis familiaris)

The dogs of Fort Michilimackinac may have been hunting dogs, as well as pets. The ones represented in this sample were quite large, some approaching the wolf in size.

Domestic cat (Felis domesticus)

The individuals represented here are generally quite young, perhaps being surplus kittens.

Woodchuck (Marmota monax)

This large ground squirrel lives in forests and brushy areas in all parts of Michigan. They feed on green vegetation and may make their burrows under buildings.

Thirteen-lined Ground Squirrel (Citellus tridecemlineatus)

These ground squirrels prefer grassland habitats, which may include grassy beaches. Their range includes only the Lower Peninsula. They feed on a variety of foods, including both seeds and insects.

Eastern Chipmunk (Tamias striatus)

This ground squirrel lives in all of Michigan, preferring brushy and forested areas. Their eating habits are very similar to those of the thirteen-lined ground squirrel, above.

Red Squirrel (Tamiasciurus hudsonicus)

These squirrels are principally found in coniferous forests throughout Michigan. They may also take up residence in buildings and become pests.

Beaver (Castor canadensis)

Beavers live in streams and rivers that are bordered by deciduous forests, preferring aspen, birch, maple and willow forests. This animal was an important fur animal. Its range includes the Upper and northern Lower Peninsula.

Deer Mouse or White-footed Mouse (Peromyscus sp.)

Three species of this genus, P. maniculatus bairdi, the Prairie Deer mouse, P. m. gracilis, the Woodland Deer mouse, and P. leucopus, the White-footed mouse are present in the Straits area. The last species seems to be the most likely inhabitant of the Fort, as it prefers brushy habitat and may enter houses in the fall.

Meadow Vole (Microtus pennsylvanicus)

This mouse inhabits low, moist areas where it makes runways through the vegetation. Their range includes the Straits area.

Porcupine (Erethizon dorsatum)

Porcupines are confined to forests, but they may cause damage to buildings in their voracious gnawing on wood. They are easy to capture, and may be eaten and used

for their quills. Their range extends south to the central part of the Lower Peninsula.

Snowshoe Hare (Lepus americanus)

These rabbits are found in the Upper and northern Lower Peninsula and prefer spruce and cedar swamps. Their fur is good and was at one time valued for felt-making.

Cottontail Rabbit (Sylvilagus floridanus)

These rabbits are less common than the snowshoe hare in the Straits area. They are found in brushy areas and swamps.

White-tail Deer (Odocoileus virginianus)

These deer live in brushy, semi-open areas throughout Michigan. They are active at dawn and twilight and would be available as food throughout the year. Deer are a good food, supplying a fairly large amount of meat per individual.

Elk (Cervus canadensis)

This large deer is found in forests with open meadows. It would be available throughout the year, but in limited numbers since it was never an extremely common animal in Michigan. It could be an important food item, when available.

Domestic Pig (Sus scrofa)

Pigs are hardy animals and would not require much care in areas where there is sufficient forage. They would be a very reliable source of meat and each individual yields a large amount of meat.

Domestic Cow (Bos taurus)

The cow was a valuable food resource providing both meat and milk. They were an important food animal yielding a very large amount of meat.

Domestic Sheep (Ovis aries)

Only one sheep bone was found indicating that sheep were probably not as common at the Fort as pigs and cows. Compared to these two they yield a smaller amount of meat.

Birds

Pied-billed Grebe (Podilymbus podiceps)

This bird nests in suitable marshes throughout Michigan in the summer. They are never found far from water, and will dive, rather than fly, when approached.

Whistling Swan (Cygnus columbianus)

Swans pass through Michigan in the early spring and fall on migration and rest during the day in lakes and on large rivers.

Canada Goose (Branta canadensis)

These birds also migrate through Michigan and nest in the Straits area occasionally.

Blue or Snow Goose (Chen sp.)

Both of these are uncommon in Michigan, usually migrating to the west along the Mississippi Valley, or to the east along the Atlantic Coast. These geese would be a good food source.

Ducks (Anatidae)

This family contains all types of ducks, including domestic varieties. They are difficult to identify to species, so they are grouped by family for the purpose of this study. There is a possibility that some of the ducks may be domestic. Wild species would be available in greatest numbers in the fall when they migrate through the area.

Common Merganser (Mergus merganser)

This duck is fairly common in Michigan, especially during migrations. It is a diving duck, which feeds on fish.

Turkey Vulture (Cathartes aura)

This carrion-feeder is not common in the northern parts of Michigan, but it occasionally wanders north.

Hawks (Accipitridae)

These hawks are common in Michigan and migrate across the Straits in large numbers.

Goshawk (Accipiter gentilis)

This hawk is not common in Michigan. It is an inhabitant of large forests. In the wild it eats grouse and rabbits.

Sharp-shinned Hawk (Accipiter striatus)

It is present in Michigan and nests throughout the area. It prefers open woodlands and margins.

Cooper's Hawk (Accipiter cooperi)

This hawk is abundant and nests throughout the state. Like the sharp-shinned hawk, they are found in open woodlands and forest edges.

Red-tailed Hawk (Buteo jamaicensis)

This is a very common hawk in Michigan. It prefers open land and feeds primarily on mice and other rodents. It also migrates across the Straits as do the Accipiters.

Red-shouldered Hawk (Buteo lineatus)

The Red-shouldered Hawk is very like the Red-tailed Hawk in habits, except that it prefers more wooded habitats.

Golden Eagle (Aquilla chrysaetos)

This is a very rare bird in Michigan. Michigan is the extreme eastern edge of its range. The Lower Peninsula is included in its winter range, and the Upper Peninsula in its summer range.

Bald Eagle (Haliaeetos leucocephalus)

The bald eagle is not a common bird in Michigan, but is present in limited numbers year-round. This eagle lives near water and is a fish-eater.

Sparrow Hawk (Falco sparverius)

This tiny hawk is a valuable control on mice and other rodents. It is found throughout Michigan in open or semi-open country.

Ruffed Grouse (Bonasa umbellus)

This bird is a permanent resident in Michigan's open woodlands and coniferous forests throughout the year.

Turkey (Meleagris gallopavo)

This bird is a resident of deciduous woodlands, where it occurs in open areas and clearings. When available it would be a good source of food, each individual yielding a large amount of meat.

Domestic Chicken (Gallus domesticus)

Chickens were raised at the Fort as a food item.

Kildeer (Charadrius vociferus)

This shorebird is common along the beaches and edges of ponds as well as in plowed fields.

Black-bellied Plover (Squatarola squatarola)

This species appears in Michigan during fall migrations. It would then be present on the beaches and dunes along the Great Lakes.

Herring Gull (Larus argentatus) and Ring-billed Gull (L. delawarensis)

These gulls are common residents in the area near the Fort. They are scavengers and are often present near human habitations and at garbage dumps.

Passenger Pigeon (Ectopistes migratorius)

Passenger Pigeons were at one time extremely abundant in Michigan. They nested in vast numbers in Emmet and Cheboygan Counties (Mershon 1907), and were very easy to kill. They could be shot, or netted and the squabs could be caught by hand. They were considered a great delicacy and this contributed to their extinction, since they were hunted without any restrictions.

Great Horned Owl (Bubo virginianus)

This large owl is a year-round resident of Michigan. It exerts a valuable control on mice, rats and other pests.

Barred Owl (Strix varia)

This owl is also a Michigan resident. It has much the same habits as the Great Horned Owl.

Yellow-shafted Filcker (Colaptes auratus)

This woodpecker is a common summer resident of open areas of Michigan. It spends much of its time searching for insects on the ground.

Blue Jay (Cyanocitta cristata)

This bird is a common summer resident of Michigan, where it inhabits oak and pine woods. It is a scavenger and is frequently found around dwellings.

Crow (Corvus brachyrhynchos)

These birds are common in Michigan. They are found around garbage heaps and other refuse pits, where they search for insects. Their habits may be destructive, since they rob the nests of other birds.

Robin (Turdus migratorius)

The robin is a summer resident of Michigan. It prefers moist woodlands and open areas, where it searches for insects and earthworms.

Red-winged Blackbird (Agelaius phoenicus)

These birds are common in marshes, and at edges of lakes in the summer. They have little economic value.

Fish

Sturgeon (Acipenser fulvescens)

This large fish lives in the shallow waters of lakes and rivers, and was common in the Upper Great Lakes. It is most available in spring during spawning runs. It can be taken by spearing or with nets.

White Sucker (Catostomus commersonii)

This small fish is available year-round, but is most concentrated during spawning runs in May and June. It may be caught with dip nets or with hook and line.

Sucker or Quillback (Catostomus/Carpiodes)

These are found in shallow lakes and tributaries. See the description above.

Redhorse (Moxostoma sp.)

This fish is found in larger lakes and streams and is available in large numbers during spring spawning runs.

Largemouth Bass (Micropterus salmoides)

This game fish is found in warm lakes and streams. It may be caught with hook and line.

Northern Pike (Esox luscius)

These fish are found in shallow, weedy water in the summer, and are in deeper waters in the winter. They may be speared or caught with tackle.

Walleye (Stizostedion vitreum)

This is found in large, clear rivers and lakes. They spawn in shallow water in the spring, where they can be caught or speared.

Whitefish (Coregonus sp.)

This is probably C. clupeaformis, the lake whitefish, which lives in deep lakes and spawns in fall in shallow water. They may be speared or netted.

Lake Trout (Salvelinus naymaycush)

These trout weigh 10 to 15 pounds on the average in the Great Lakes. They are found in cold water (40-45^{o}F),

regardless of the depth. They may be caught with hook and line, speared or netted, especially when spawning late in the fall.

Freshwater Drum (Aplodinotus gruniens)

This fish is a bottom-feeder in quiet waters. It may be caught with nets or on a trot-line and occasionally with hook and line.

Turtles

Blanding's Turtle (Emydoidea blandingi)

This semi-box turtle is found in marshes, bogs, lakes and small streams.

Map Turtle (Graptemys geographica)

This turtle is found in large bodies of water.

Wood Turtle (Clemmys insculpta)

This turtle is quite terrestrial and may be found quite far from water.

Amphibians

Toad (Bufo sp.)

Toads may be found almost anywhere. They only need shallow water for breeding, moist places for shelter and food.

THE ANALYSIS

Hypothesis 1

Are there demonstrable differences in proportions of species among different types of historical features?

In order to test this hypothesis one method of analysis was used. Cumulative graphs were made of the percentages of individuals of each species present in every functional feature type (Figures 4 through 10). The functional categories used were those listed on page 14. These categories include features from any structure in which they occur. For convenience the species were numbered and grouped by categories of use types (Table 1.). Species 1 through 4 are edible domestic animals, 5 and 6 are dogs and cats, 7 through 31 are edible wild animals, 32 through 36 are fur-bearers and 37 through 71 are wild edible species. The resulting profiles of these graphs then show the faunal composition of each feature category and may be compared for similarities and differences. The graphs show each functional unit of features to have a distinct pattern which illustrates the use and disposal of faunal resources.

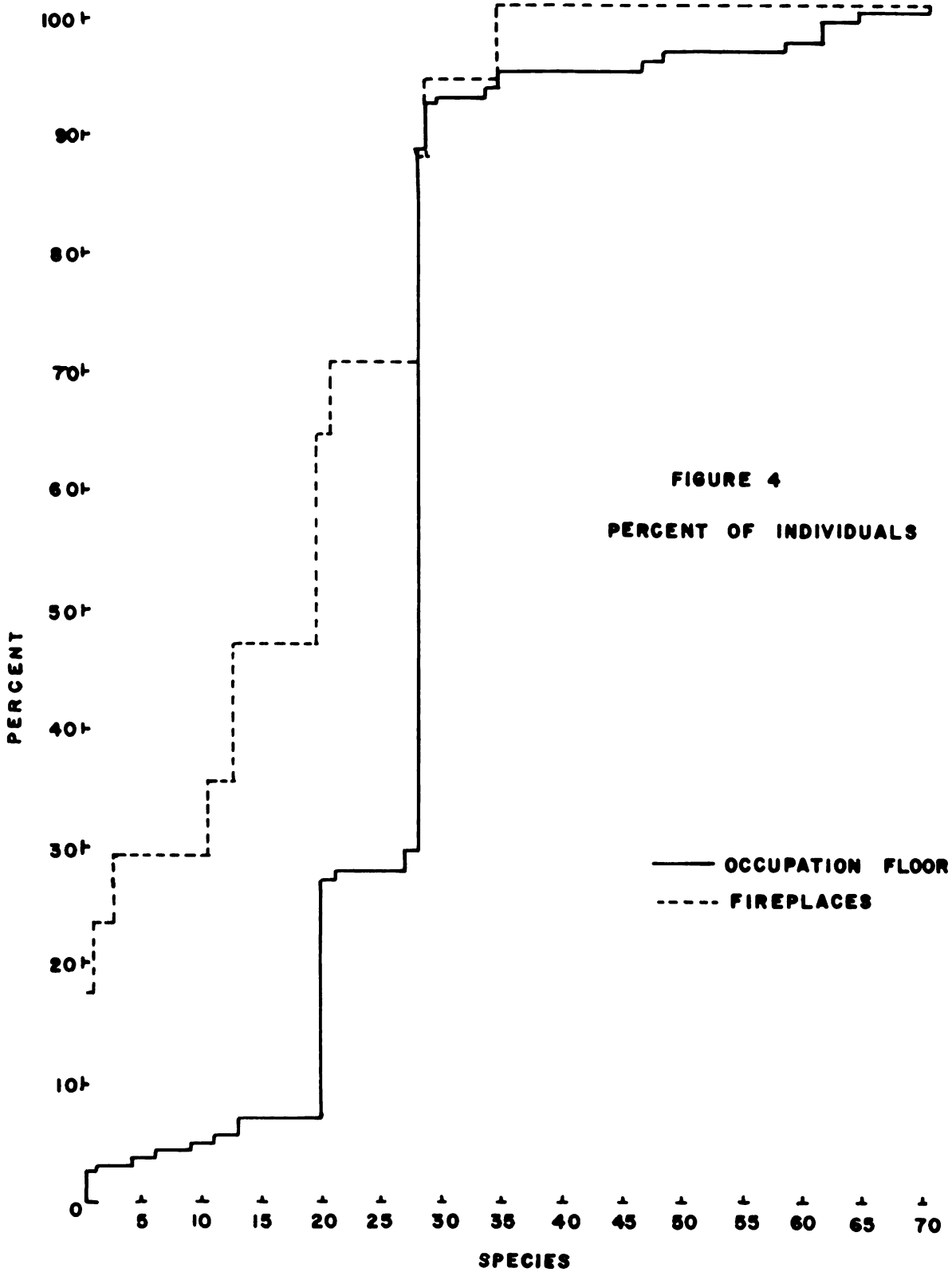
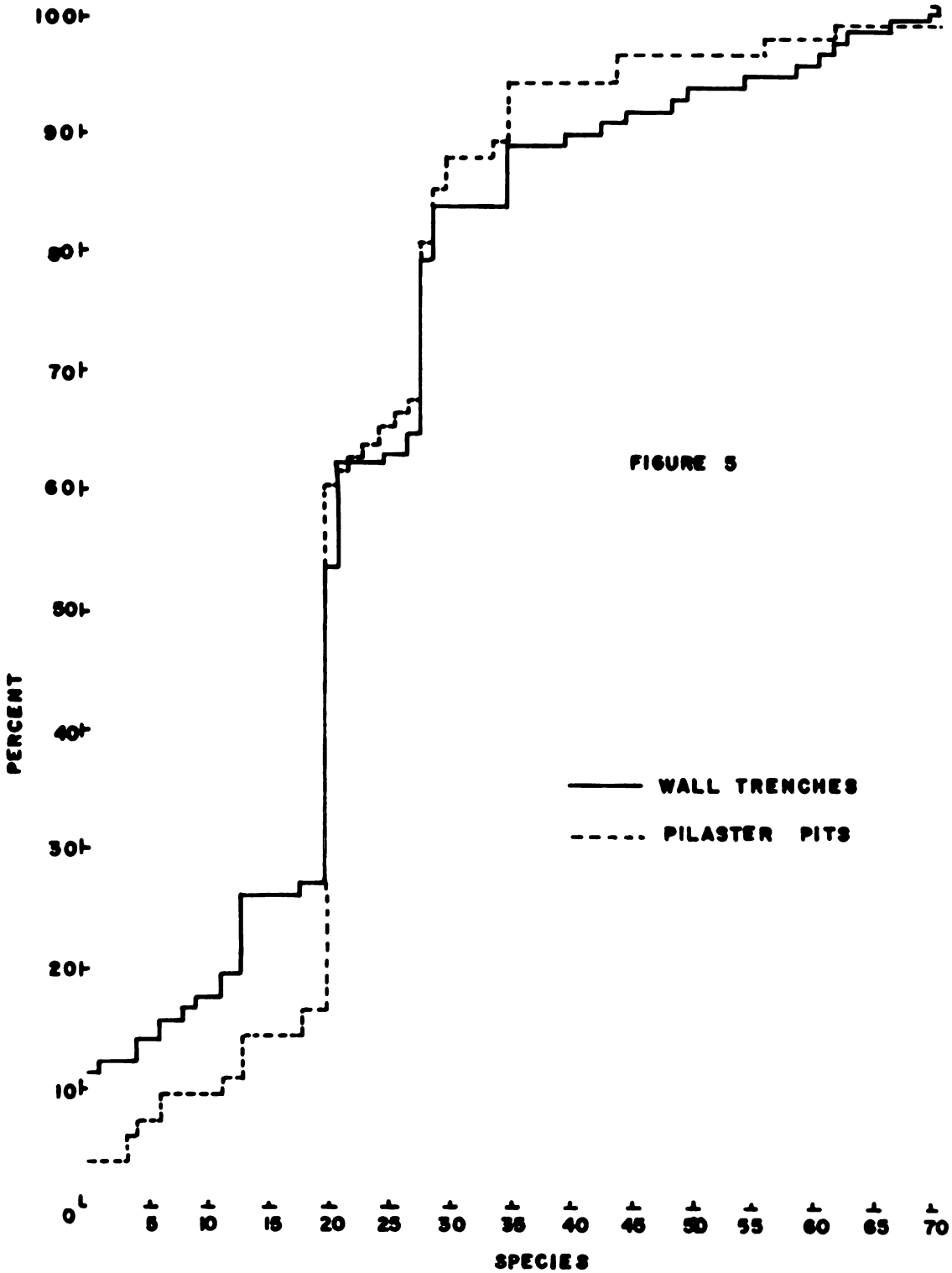


FIGURE 4

PERCENT OF INDIVIDUALS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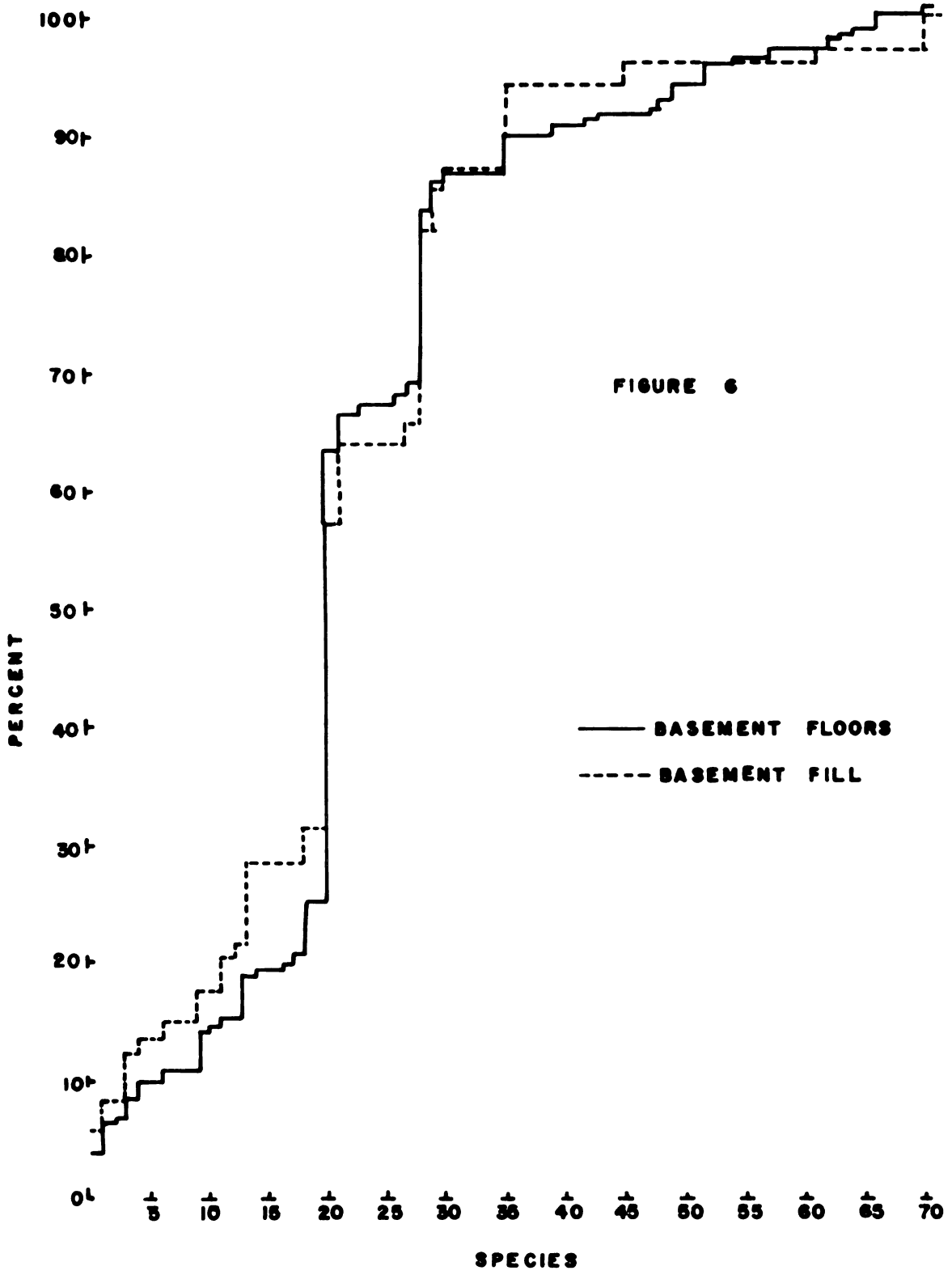
SPECIES
WALL TRENCHES
PILASTER PITS

FIGURE 5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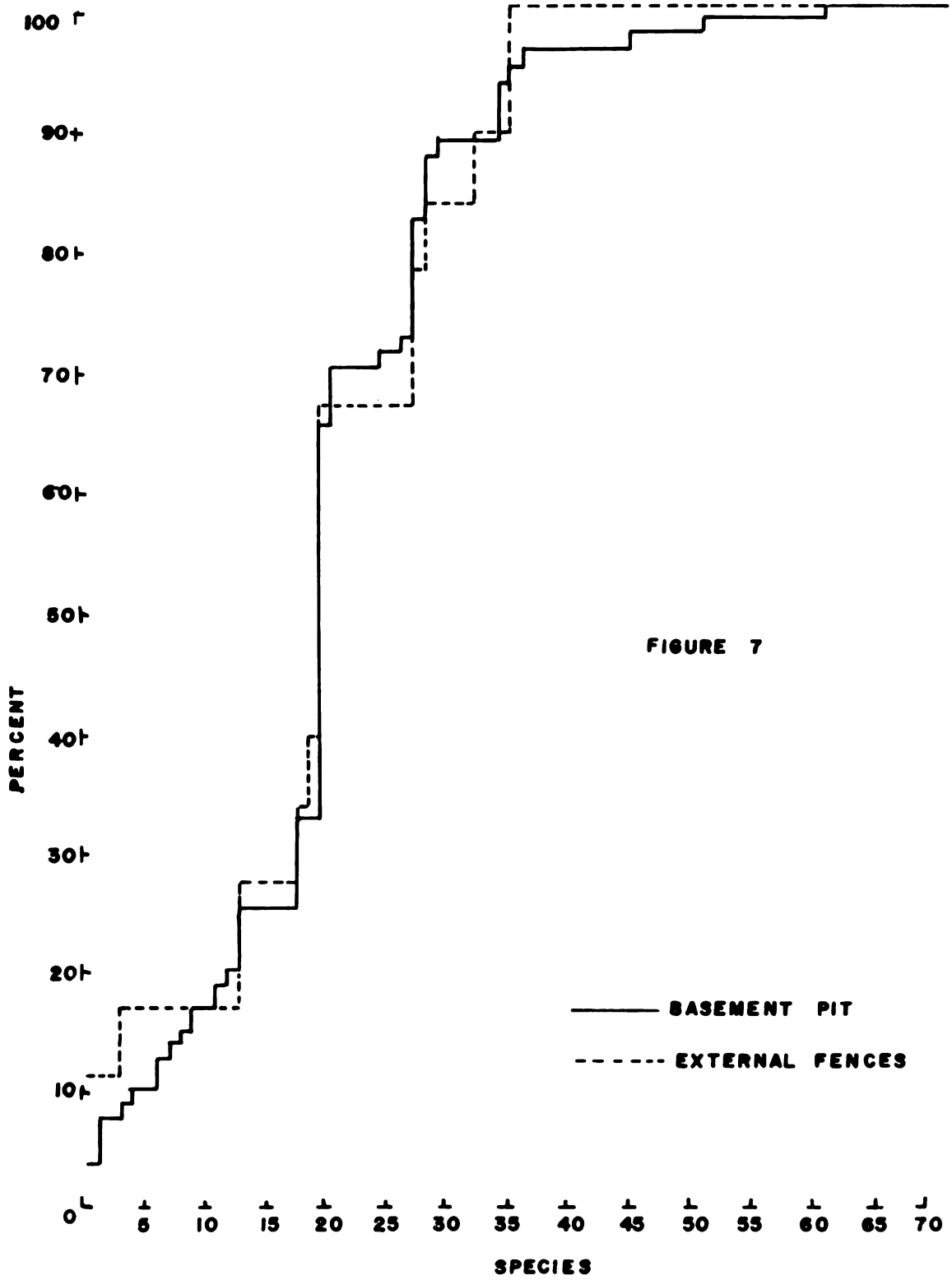
SPECIES
BASEMENT FLOORS
BASEMENT FILL

FIGURE 6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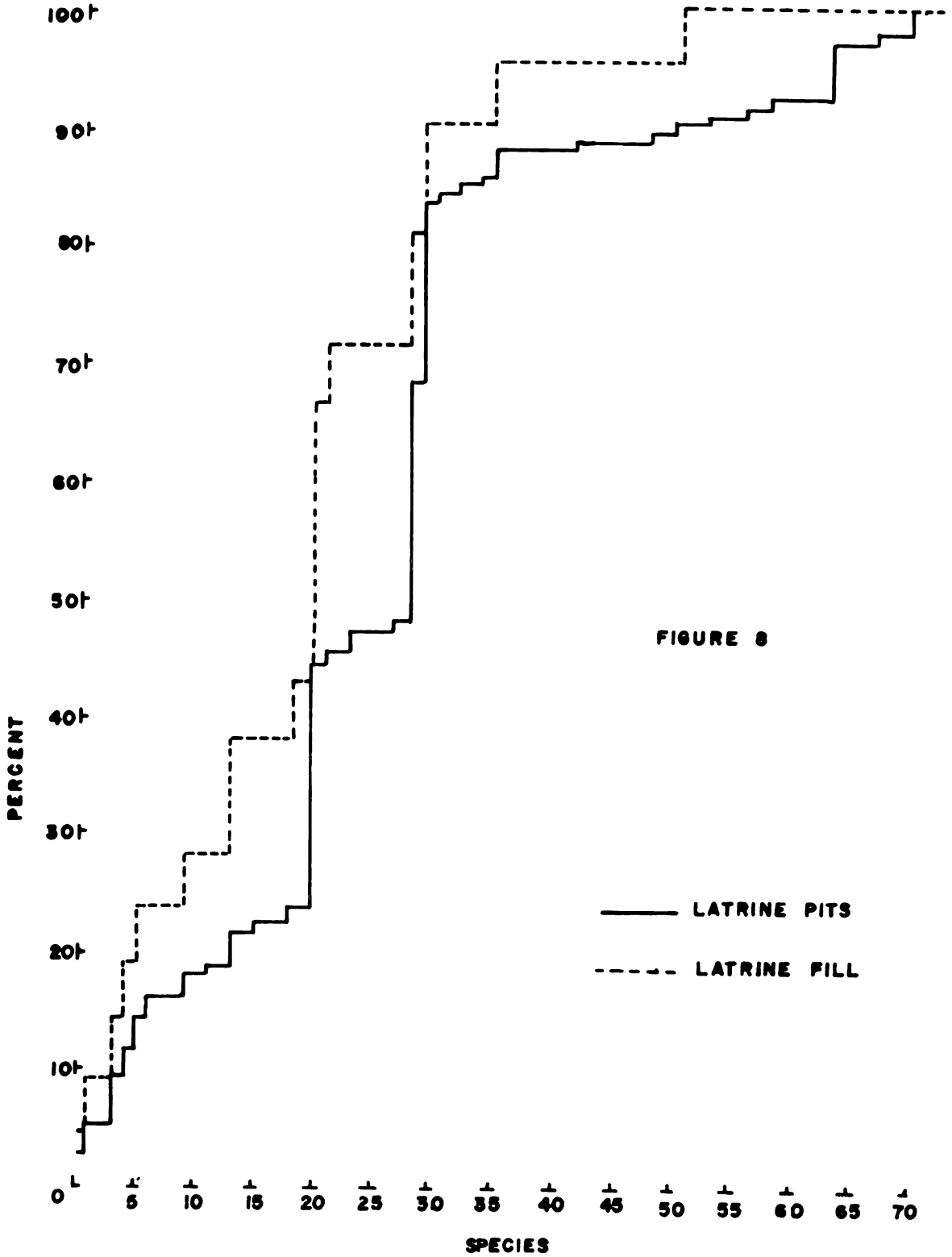
SPECIES
BASEMENT PIT
EXTERNAL FENCES

FIGURE 7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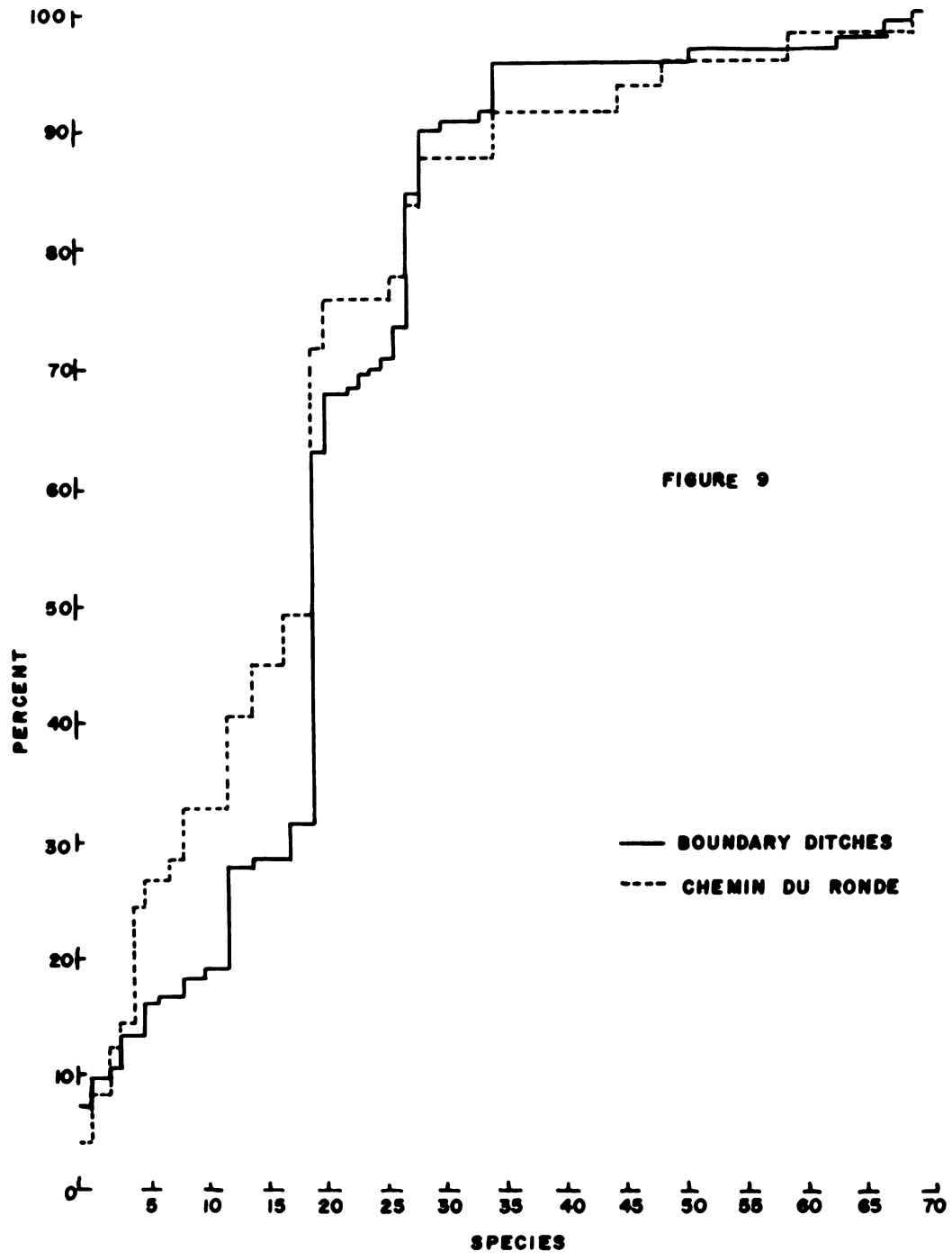
SPECIES
LATRINE PITS
LATRINE FILL

FIGURE 8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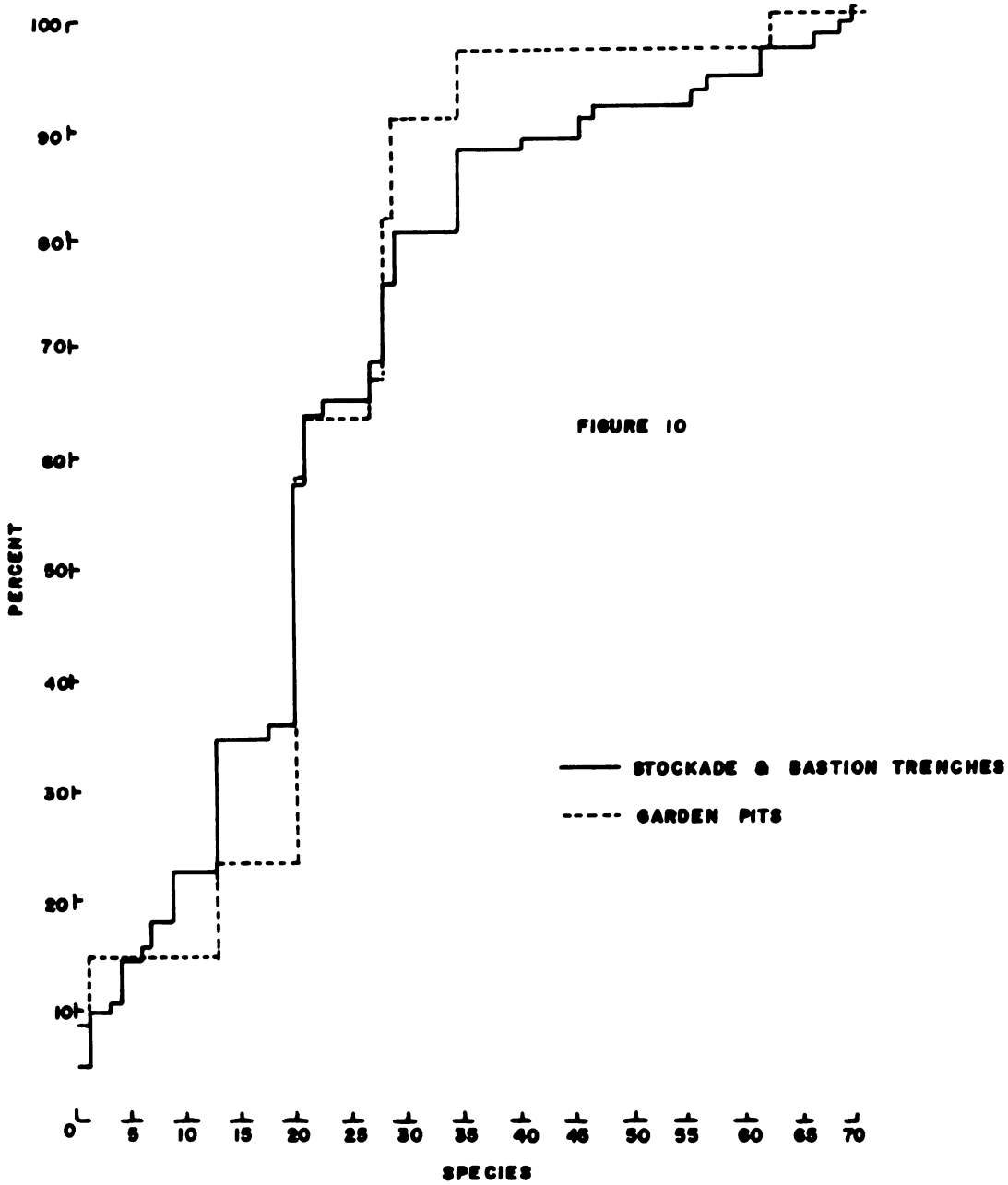
SPECIES
BOUNDARY DITCHES
CHEMIN DU RONDE

FIGURE 9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SPECIES
STOCKADE & BASTION TRENCHES
GARDEN PITS

FIGURE 10

Table 1. List of Species Identified from Features Excavated at Fort Michilimackinac from 1967 to 1969.

Species		Reference Number	Usable Pounds of Meat
Domestic Pig	*Sus scrofa*	1	172.0
Domestic Cow	*Bos taurus*	2	500.0
Domestic Sheep	*Ovis aries*	3	40.0
Domestic Chicken	*Gallus domesticus*	4	2.24
Domestic Dog	*Canis familiaris*	5	15.0
Domestic Cat	*Felis domesticus*	6	--
Black Bear	*Ursus americanus*	7	210.0
Raccoon	*Procyon lotor*	8	17.5
Porcupine	*Erethizon dorsatum*	9	7.0
Snowshoe Hare	*Lepus americanus*	10	2.1
Cottontail Rabbit	*Sylvilagus floridanus*	11	1.75
White-tailed Deer	*Odocoileus virginianus*	12	85.0
Elk	*Cervus canadensis*	13	300.0
Ducks	Anatidae[a]	14	1.47
Whistling Swan	*Cygnus columbianus*	15	9.6
Canada Goose	*Branta canadensis*	16	5.6
Blue or Snow Goose	*Chen sp.*[b]	17	3.8
Common Merganser	*Mergus merganser*	18	2.4
Ruffed Grouse	*Bonasa umbellus*	19	1.1
Wild Turkey	*Meleagris gallopavo*	20	9.6
Passenger Pigeon	*Ectopistes migratorius*	21	0.8
Sturgeon	*Acipenser fulvescens*	22	36.0
Sucker or Quillback	*Catostomus/Carpiodes*	23	--
White Sucker	*Catostomus commersonii*	24	1.2
Redhorse	*Moxostoma sp.*	25	2.0
Largemouth Bass	*Micropterus salmoides*	26	1.6
Northern Pike	*Esox luscius*	27	4.0
Walleye	*Stizostedion vitreum*	28	5.6
Whitefish	*Coregonus sp.*	29	6.0

Table 1. Continued.

Species		Reference Number	Usable Pounds of Meat
Lake Trout	*Salvelinus naymaycush*	30	14.4
Drum	*Aplodinotus gruniens*	31	2.2
Weasels	Mustelidae	32	--
Marten	*Martes americana*	33	2.1
Mink	*Mustela vison*	34	1.05
Otter	*Lutra canadensis*	35	12.5
Beaver	*Castor canadensis*	36	32.0
Hawks	Accipitridae	37	--
Goshawk	*Accipiter gentilis*	38	--
Sharp-shinned Hawk	*A. striatus*	39	--
Cooper's Hawk	*A. cooperi*	40	--
Golden Eagle	*Aquilla chrysaetos*	41	--
Bald Eagle	*Haliaeetus leucocephalus*	42	--
Sparrow Hawk	*Falco sparverius*	43	--
Shorttailed Shrew	*Blarina brevicauda*	44	--
Woodchuck	*Marmota monax*	45	--
Thirteen-lined Ground Squirrel	*Citellus tridecemlineatus*	46	--
Chipmunk	*Tamias striatus*	47	--
Red Squirrel	*Tamiasciurus hudsonicus*	48	--
Deer or White-Footed Mouse	*Peromyscus sp.*	49	--
Meadow Vole	*Microtus pennsylvanicus*	50	--
Pied-billed Grebe	*Podilymbus podiceps*	51	--
Turkey Vulture	*Cathartes aura*	52	--
Red-tailed Hawk	*Buteo jamaicensis*	53	--
Red-shouldered Hawk	*Buteo lineatus*	54	--

Table 1. Continued.

Species		Reference Number	Usable Pounds of Meat
Kildeer	Charadrius vociferus	55	--
Black-bellied Plover	Squatarola squatarola	56	--
Herring Gull	Larus argentatus	57	2.4
Ring-billed Gull	Larus delawarensis	58	2.0
Owls	Strigidae	59	--
Great Horned Owl	Bubo virginianus	60	2.0
Barred Owl	Strix varia	61	--
Flicker	Colaptes auratus	62	--
Blue Jay	Cyanocitta cristata	63	.64
Crow	Corvus brachyrhynchos	64	1.6
Song Bird	Passeriformes	65	--
Robin	Turdus migratorius	66	--
Red-winged Black Bird	Agelaius phoenicus	67	--
Blanding's Turtle	Emydoidea blandingi	68	--
Map Turtle	Graptemys geographica	69	--
Wood Turtle	Clemmys insculpta	70	--
Toad	Bufo sp.	71	--

[a] Anatidae = all ducks, the weight is an average of several species.

[b] Chen sp.= Blue or Snow Goose, the weight is an average of the weights of the Blue Goose and the Greater and Lesser Snow Geese.

Occupation Floor (Figure 4.)

This unit is characterized by a very low percentage of the domestic species and some of the edible wild species. The largest percentages are passenger pigeon and whitefish. There are some wild non-edible species present, but they also contribute low percentages. There are no domestic dogs and cats. In relation to all the other categories the occupation floor has lower percentages for domestic and wild edible species, and similar or slightly different percentages for the remaining fur-bearing and non-edible wild species. It also has consistently lower percentages of most species than fireplaces. These percentages show that the occupants were not disposing of garbage by throwing it on the floor, and further that this was not a trap or shelter for the wild non-edible species. Those that did intrude may have done so when the house was not occupied. In addition, the lack of remains of pets indicates that these were disposed of outside the house. The large percentages of passenger pigeon and whitefish bones may be accounted for in several ways. First, both species have small bones which could be lost between floor boards, or in other places, and second, they were both very abundant species at the Fort. Larger bones were apparently disposed of in other ways.

Fireplaces (Figure 4.)

This unit has high percentages of edible wild and domestic species. Domestic pets and wild non-edible species were absent. The percentages of the species found in fireplaces are generally higher than all other units, except latrine fill, chemin du ronde and the external fences. Fireplaces are similar to these three for most species. The high percentage of food remains in fireplaces indicates that garbage was being burnt and perhaps that some bones were lost there during cooking. Peaver was the only fur-bearing animal present and they are also an edible species. The lack of wild non-edible species is predictable, as they were not being eaten and did not find this a good shelter. The same considerations as mentioned for the occupation floor apply to the frequency of passenger pigeons and whitefish, as well as to ducks. This suggests that smaller bones were burned and larger bones were removed from the house for disposal.

Wall Trenches (Figure 5.)

The pattern of this category is somewhat different than the preceeding ones. With the exception of pig, the domestic animals exhibit small percentages. The wild edible species have low percentages except for ducks, passenger pigeons, sturgeon and whitefish, which are abundant in many of the feature categories. Fur-bearers are

represented only by beaver. There are more wild non-edible species in this category than in the previous ones. The material in the wall trenches would have more of these non-edible wild species, since the trenches are outside the house and include soil that has been mixed and gathered from other areas. Also, some discarded food bones would become mixed with the deposit. Some species could be included because they burrowed into the trench in search of shelter or food.

Compared to the other types, wall trenches are similar to a number of the other units. Most similar of these are basement fill, basement pit, boundary ditches and external fences for the domestic and edible wild species, and basement floor, and garden pit and stockade and bastion trenches for the non-edible wild species. The wall trenches have lower percentages than latrine fill, chemin du ronde, and fireplaces, as well as external fences for the fur-bearing animals and non-edible wild species. Wall trenches have higher percentages of nearly all species than the occupation floor. These associations show that similar amounts of food remains were discarded, or not discarded in these places. It is notable that there is a high degree of similarity in species profiles in wall trenches and stockade and bastion trenches and also with boundary ditches. Since these are similar types of features, it indicates that their composition is similar,

and that the material in them comes from similar deposits.

Pilaster Pits (Figure 5.)

The composition of this unit parallels that of the wall trenches, except that it has lower percentages of domestic and wild edible species, and generally higher ones for some wild edible species, the fur-bearers and non-edible wild species. These pits are clay-packed footings for house posts. The lower numbers of food bones indicates that the material in the pits was not taken from garbage dumping areas, or that food remains were purposely not included. Several factors may account for the increased number of bones from some of the wild edible and non-edible species and the fur-bearers. Particularly, the increase begins with the species which occurs in the largest percentages, passenger pigeon, and continues with the whitefish. These species, moreover, have small bones that would have been difficult to remove, if indeed bone was removed from pilaster pit fill. There are few wild non-edible species represented, which might be expected, since fewer animals would seek shelter in a clay pit or burrow into them. Overall, pilaster pits have lower percentages of most species than latrine fill and fire-places, and lower percentages than basement fill, base-ment pits, chemin du ronde and stockade and bastion

trenches for the domestic and some of the wild edible species. They have higher percentages than garden pits and the occupation floor for the wild and domestic edible species. Pilaster pits are similar to basement fill, basement pits, latrine pits, the chemin du ronde and the occupation floor for the wild edible and non-edible species and the fur-bearing species. These patterns indicate that these pit features were not ones in which food remains were discarded. The amount of wild non-edible species is comparable to other units, perhaps because there are similarities of habits of these species, or because there were similar patterns of waste disposal.

Basement Floors (Figure 6.)

These features contain a wide diversity of species. There are appreciable amounts of many food animals, both wild and domestic, and also quite a few non-edible wild species. These percentages indicate that this area was used to some extent as a place to dispose of garbage and perhaps also as a storage area for meat. Again, a small number of domestic pets indicates their disposal in other places. The high percentages of wild non-edible species also indicates this as a disposal area, as well as being a natural trap where animals might be caught.

In relation to other units, basement floors are most similar to basement pits, wall trenches, pilaster pits

and latrine pits; they have lower percentages than basement fill, external fences, latrine fill and fireplaces in general, and lower percentages for the domestic and wild edible species than boundary ditches, and garden pits. This unit has higher percentages than the occupation floor for domestic and wild edible species. For fur-bearing and wild non-edible species basement floors are similar to boundary ditches, the chemin du ronde and stockade and bastion trenches. They have lower percentages than garden pits and the occupation floor for the fur-bearing and wild non-edible species. The basement floors appear to be in the middle of the range of distribution of percentages. This would indicate basement floors were used for garbage disposal or meat storage more often than certain other units, (i.e., the occupation floor) and less than others, such as the basement fill. The same applies to the amount of wild non-edible species. The basement floors were a natural trap that animals could accidentally fall into. This would be especially true for the basements that are located outside the houses.

Table 2 demonstrates the near identity of the three basement floors with respect to domestic edible wild and fur-bearing animals.

Table 2. Total Individuals and Meat Percentages for the Basement Floors of SWH1, SWH2 and PH.

Species	SWH1			SWH2			PH		
	Number of Individuals	Usable Pounds of Meat	Per cent Usable Meat	Number of Individuals	Usable Pounds of Meat	Per cent Usable Meat	Number of Individuals	Usable Pounds of Meat	Per cent Usable Meat
Pig	3	519.0	36.5	2	344.0	31.5	2	344.0	16.7
Cow	1	500.0	35.1	1	500.0	45.7	2	1000.0	48.7
Sheep	-	-	-	-	-	-	1	40.0	1.9
Chicken	1	2.2	.2	-	-	-	2	4.5	.2
Edible Domestic	5	1021.2	71.8	3	844.0	77.2	7	1388.5	67.6
Dog	-	-	-	-	-	-	2	30.0	1.5
Domestic Pets	-	-	-	-	-	-	2	30.0	1.5
Black Bear	1	210.0	14.7	-	-	-	1	210.0	10.2
Snowshoe Hare	1	2.1	.1	1	2.1	.2	5	10.5	.5
Cottontail Rabbit	-	-	-	-	-	-	1	1.7	.1
Deer	-	-	-	-	-	-	1	85.0	4.1
Ducks	2	2.9	.2	1	1.5	.1	5	7.4	.4
Whistling Swan	-	-	-	-	-	-	1	9.6	.5
Blue/Snow Goose	-	-	-	-	-	-	1	3.8	.2
Common Merganser	-	-	-	-	-	-	2	4.8	.2
Ruffed Grouse	2	2.2	.2	1	1.1	.1	6	6.6	.3
Passenger Pigeon	28	22.4	1.5	18	14.4	1.3	31	24.8	1.2
Sturgeon	1	36.0	2.5	1	36.0	3.3	2	72.0	3.5

Table 2. Continued.

Species	SWH1			SWH2			PH		
	Number of Individuals	Usable Pounds of Meat	Per cent Usable Meat	Number of Individuals	Usable Pounds of Meat	Per cent Usable Meat	Number of Individuals	Usable Pounds of Meat	Per cent Usable Meat
White Sucker	-	-	-	1	1.2	.1	1	1.2	.1
Northern Pike	-	-	-	2	8.0	.7	-	-	-
Walleye	-	-	-	1	5.6	.5	-	-	-
Whitefish	13	78.0	5.5	12	72.0	6.6	4	24.0	1.2
Lake Trout	1	14.4	1.0	2	28.8	2.6	2	28.8	1.4
Drum	-	-	-	1	2.2	.2	-	-	-
Edible Wild	49	368.0	25.7	41	172.9	15.7	63	490.2	23.8
Beaver	1	36.0	2.3	2	72.0	6.6	4	144.0	7.0
Fur-bearers	1	36.0	2.3	2	72.0	6.6	4	144.0	7.0
Cooper's Hawk	1	-	-	-	-	-	-	-	-
Sparrow Hawk	-	-	-	-	-	-	1	-	-
Shorttailed Shrew	-	-	-	-	-	-	1	-	-
Red Squirrel	-	-	-	-	-	-	1	-	-
Deer Mouse	1	-	-	-	-	-	-	-	-
Meadow Vole	-	-	-	1	-	-	2	-	-
Red-tailed Hawk	2	-	-	1	-	-	-	-	-
Kildeer	-	-	-	-	-	-	1	-	-
Ring-billed Gull	1	2.0	.1	1	2.0	.2	-	-	-

Table 2. Continued.

Species	SWH1			SWH2			PH		
	Number of Individuals	Usable Pounds of Meat	Per cent Usable Meat	Number of Individuals	Usable Pounds of Meat	Per cent Usable Meat	Number of Individuals	Usable Pounds of Meat	Per cent Usable Meat
Blue Jay	-	-	-	1	.6	.1	-	-	-
Crow	-	-	-	1	1.6	.1	-	-	-
Robin	1	-	-	-	-	-	2	-	-
Toad	1	-	-	-	-	-	-	-	-
Non-Edible Wild	7	2.0	.1	5	4.2	.4	8	-	-
TOTAL	62	1427.2		51	1093.1		84	2052.7	

Basement Fill (Figure 6.)

Like the preceeding unit, this also shows a diversity of species. Since the matrix is fill, the diversity indicates that material from surrounding areas with discarded food bones and buried remains of non-food species was being utilized for the fill. The faunal composition of basement fill is most similar to basement pits, boundary ditches, stockade and bastion trenches, wall trenches, external fences and garden pits. It is similar to latrine pits for domestic and edible wild species, and to chemin du ronde and pilaster pits for some wild edible species, fur-bearers and wild non-edible species. Basement fill

has lower percentages than latrine fill and fireplaces for all species and lower than chemin du ronde for edible species and domestic pets. This fill is higher in overall percentage than basement floors, the occupation floor and also higher than pilaster pits for domestic and wild edible species. As in the case of the basement floors, these differences in percentages indicate the basement fill to be in the middle of the distribution. The fill material does not contain either a high or a low amount of any group of species. It is predictably higher than some units, such as the occupation floor, and lower than others where more food remains were discarded and where more wild edible species were present.

Basement Pit (Figure 7.)

This unit is like the other basement units in having a diversity of species, and their percentages are quite similar. This curve is also similar to boundary ditches, external fences, and to garden pits as well as to latrine pits, stockade and bastion trenches and wall trenches for domestic and wild edible species. It resembles latrine fill, the chemin du ronde, the occupation floor and pilaster pits for fur-bearers and wild non-edible species. It has lower overall percentages than fireplaces, and lower percentages than latrine fill and the chemin du ronde for domestic and wild edible species. It has higher percentages than the occupation floor and pilaster pits for domestic and edible

wild species and latrine pits, stockade and bastion trenches, and wall trenches for the fur-bearing animals and non-edible wild species. These similarities and differences once again show the basement pit to be in the middle range of distributions. This unit is similar to the latrine pits for domestic and edible wild species. The fact that it is similar to boundary ditches and garden pits may indicate that the material in all the units was originally deposited in the same way. The higher percentage of non-edible wild species than in latrine pits, stockade and bastion trenches and wall trenches shows these species to have sought shelter there, as well as being included in secondary depositions.

External Fences (Figure 7.)

This is a very small sample, which yields high percentages of the ten species present. The species present are all ones that are used primarily for food, except mink and beaver. These fur-bearers may be present as a result of the fur trade activities, as these fences are associated with early stockades. These percentages are most similar to boundary ditches, wall trenches, and the basement features. It is also similar to stockade and bastion trenches for domestic and wild edible species, and to pilaster pits for wild edible species, fur-bearers and non-edible wild species. It has lower percentages than latrine pits, chemin du ronde, and garden pits for the edible and fur-bearing species, and to fireplaces and pilaster pits

overall. It has higher percentages than latrine pits and the occupation floor; and higher percentages than latrine fill, chemin du ronde, garden pits and stockade and bastion trenches for non-edible wild species. The similarities to other features of the same type, like the boundary ditches, is interesting. These similarities indicate similar depositions of material. The lack of non-edible wild species in this group may be due to the location of these structures outside the stockade, or to its not being an area where animals would seek shelter.

Latrine Pit (Figure 8.)

This is another category with a diversity of both edible and non-edible species. One species present in this unit and the next two, which was not present in preceeding units, is the domestic cat. The individuals here are all young. It is probable that they are unwanted kittens, which were disposed of in the latrine pits. The high percentage of non-edible species is to be expected, as the latrines would be a natural trap for animals, both during their use and afterwards, if they were not completely filled in. In relation to the other units latrine pits are similar to wall trenches and pilaster pits overall, to boundary ditches, garden pits and basement units for domestic and wild edible species, and to stockade and bastion trenches and basement floors for fur-bearers and non-edible wild species. This category contains higher percentages of species than stock-

ade and bastion trenches and the occupation floor for domestic and wild edible species, and higher percentages than garden pits for a few wild edible species, the fur-bearers and non-edible wild species. It has lower percentages than latrine fill, chemin du ronde and fireplaces overall and lower than the boundary ditches, the occupation floor, basement fill and basement pit for fur-bearers and wild non-edible species. The similarities to the basement unit is notable, since they are similar types of structural units, although with different uses.

Latrine Fill (Figure 8.)

The composition of this unit is different from that of the preceeding one in several respects. First, there is a higher percentage of edible species, both domestic and wild. Second, there are fewer wild non-edible species. Since this material is a secondary deposition these differences may reflect the nature of the fill material itself, rather than the nature of the area filled. Compared to other units the latrine fill is most similar to the chemin du ronde, boundary ditches, fireplaces and to garden pits, the occupation floor and basement pits for fur-bearers and wild non-edible species. It is higher for all species than stockade and bastion trenches, wall trenches, pilaster pits, basement floors, basement fill and higher than basement pits, external fences and the occupation floor for the domestic and wild edible species. This category has

generally high percentages. This may reflect the fact that the latrines were used as refuse pits for disposal of many things, including food and other faunal remains. It may also indicate that the area from which the secondary fill was obtained was a disposal area. The lack of wild non-edible species probably reflects the nature of the fill. The one species present is the meadow vole, which prefers moist habitats and might intrude into the area after it was filled.

Boundary Ditches (Figure 9.)

The diversity of species in this unit is quite great. These ditches separate the gardens of houses and as such cut through any previous deposits. This may result in variation in the nature of the material in the ditches. Faunal material included probably comes from the surrounding garden areas and incorporates the faunal waste found there. This would indicate that the garden area has a diverse fauna also, perhaps because this was used for disposal of garbage. The paucity of wild non-edible species would indicate that these were scarce in the fill, and that few intruded subsequently. In relation to other units this one is in the middle range of distributions. It is most similar to stockade and bastion trenches, garden pits, pilaster pits, basement fill, basement pits, external fences and latrine fill. It is also similar to the occupation floor, chemin du ronde and basement floors for the fur-bearers and wild

non-edible species, and to wall trenches and latrine pits for the domestic and wild edible species. It has higher percentages than the occupation floor and basement floor for the domestic and wild edible species and higher percentages than wall trenches and latrine pits for part of the wild edible species, the fur-bearers and the non-edible wild species. It has lower percentages than fireplaces generally and than chemin du ronde for the domestic and wild edible species. At least for some species there is similarity between this unit and the other trenches. Since the various trenches might be presumed to be filled in the same way, this indicates that their fill came from areas of similar composition.

Chemin Du Ronde (Figure 9.)

The chemin du ronde is a deposit which would be added to through the years of occupation and this might help account for the high percentage of food remains as well as for the presence of wild non-edible species. Relative to other units this has medium-high percentages. It is generally similar to latrine fill and is similar to garden pits, the occupation floor, pilaster pits, and basement units, external fences, and boundary ditches for the fur-bearers and wild non-edible species. It has higher percentages than stockade and bastion trenches, wall trenches, and latrine pits overall, and higher than garden pits, the occupation floor, pilaster pits, the basement units,

external fences and boundary ditches for domestic and wild edible species. It is slightly lower than fireplaces. These associations show that this unit has a high amount of both food remains and wild non-edible species. The fact that this unit represents public property and is just inside the stockade wall may indicate that garbage and other faunal remains may have been disposed of there, rather than on private property.

Stockade and Bastion Trenches (Figure 10.)

This unit contains high percentages of edible species and several wild non-edible species. These percentages can perhaps be accounted for in several ways. First, it may have been customary to dispose of food remains just inside of the stockade. Second, wild non-edible species would probably be at least as active outside the stockade as inside it, if not more so. Consequently, their bones would be included with the stockade when additions or repairs were made. In relation to other units, stockade and bastion trenches are most similar to wall trenches, basement fill, and boundary ditches. Also they are like garden pits and pilaster pits for some of the wild species, numbers 22 through 28, like pilaster pits and external fences for domestic and wild edible species, and like basement floors and latrine pits for fur-bearing species and wild non-edible species. They have lower percentages than fireplaces, latrine fill and chemin du ronde for all species and lower

ones than the occupation floor, garden pits and basement pits for fur-bearers and wild non-edible species, and than pilaster pits and latrine pits for domestic and wild edible species. The stockade and bastion trenches have higher percentages than garden pits, latrine pits, the occupation floor and basement floor for domestic and wild edible species, and higher percentages than pilaster pits and external fences for fur-bearers and non-edible wild species.

Garden Pits (Figure 10.)

These features had few species generally, and relatively low percentage of those present. These pits were specialized dumps in which various kinds of refuse was disposed. It would appear that these pits were not areas where wild non-edible species sought shelter and became included in the material of the pits. These pits are most like basement pits and boundary ditches, as well as like stockade and bastion trenches, pilaster pits, and basement floors for wild edible species, numbers 22 through 28, and like latrine pits, latrine fill and chemin du ronde for fur-bearers and wild non-edible species. The percentages of species in garden pits are higher than stockade and bastion trenches, pilaster pits, basement floors, and wall trenches for fur-bearers and wild non-edible species and higher than pilaster pits, basement floors, external fences, and latrine fill for domestic and wild edible species. They have lower percentages than stockade and bastion trenches, latrine

pits and chemin du ronde for domestic and wild edible species, and than basement fill overall. These similarities and differences indicate the similarity of deposition of the matrices.

To summarize the relationships of these feature types, it can be demonstrated that they exhibit certain characteristic patterns of faunal composition as a result of different places of deposition of food waste and other animal remains, and the intrusion of non-edible species. The units vary in the frequency of occurrence of each group of species. Domestic food remains were deposited least frequently in the house occupation floor and most frequently in the fireplaces. There is, in general, a larger percentage of food remains in features not directly associated with buildings such as the trenches and fences. The perimeter of the Fort (the chemin du ronde, and stockade trenches) has a large amount of the food remains. The domestic pets were most frequently disposed of in the latrines and the chemin du ronde, and are absent from the house features, the occupation floor and basement units.

The deposition of edible wild animals is different than edible domestic ones. Again the occupation floor has the least, but the other units are not grouped in any noticeable way. The low amount of these bones generally makes such a small sample that the percentages may not be representative. The fur-bearing animals are most frequent

in pilaster pits, external fences and stockade and bastion trenches, and least frequent in the occupation floor and other house units. Since these species may or may not have been eaten, it is to be expected that they would be distributed differently from food species.

The non-edible wild species are absent from fireplaces and the occupation floor. They occur most frequently in latrines and basements, which would be areas of shelter for them and also were natural traps for small animals. In addition the latrines were general dumping areas for the refuse of the Fort. Any animal found dead might be put there as well as the remains of any other species not to be eaten.

The results of this analysis lead to the conclusion that there are differences in proportions of species in various feature types, and that these differences are measurable.

Hypothesis 2

Can different proportions of species be attributed to different cultural activities and differential deposition?

This hypothesis was tested by compiling total pounds and percentages of usable meat and types of species (edible domestic species, edible wild species, fur bearing species, domestic pets and non-edible wild species) for the various species present in the basement floors of SWH1, SWH2 and the Priest's House. These features were used for comparison because they are the only similar features represented in all three structures, and because these features are the closest to being primary deposits. The results are shown in Table 2. Certain facts are apparent when these results are examined. A great difference can be seen in the importance of the groups when total number of individuals are compared to total pounds of meat. The edible domestic species yield the largest percentage of meat relative to the number of individuals, whereas the wild edible species yield less meat in relation to the larger number of individuals. These figures show the relative importance of each group in subsistence. The edible domestic species yield the largest percentage of meat, the edible

wild species the next largest amount and the domestic pets the least. This pattern reflects the dependence of the British and other inhabitants of the 1760-1780 period on domestic mammals for food, and support the same conclusion presented by Cleland (n.d.).

An idea of the relative social status of the inhabitants of each structure might be obtained by comparing the percentages of meat from each group. Presumably, those of higher status would have more money either to buy food animals which were imported, or to maintain them. This condition would presumably be represented by different proportions of wild and domestic meat. We have seen that domestic animals supplied the majority of the meat. The importance of domestic animal foods as opposed to wild animal foods is therefore thought to reflect the inhabitant's ability to purchase and maintain domestic species as well as their preferences for domestic species.

It was stated previously that SWH1 was inhabited by a family of higher status than that of SWH2. It could be postulated also that the priests would be higher class than some of the residents. They would be more likely to be on a status level with the officers than with the soldiers. From these hypotheses, it could be assumed that the percentages of meat from various sources in each basement floor would reflect these differences. This hypothesis is not borne out by the data. The percentages and number of indi-

viduals for each group on each basement floor are nearly identical. This would indicate similar status and/or similar food preferences.

In order to discover any differences of status or preference in these three structures it is necessary to examine the particular species present in each house. SWH1 and SWH2 have 18 and 19 species represented respectively. The Priest's House has 26 species. This gives an indication of the difference in composition between these three houses. Ten species are present in all three houses. They are pig, cow, snowshoe hare, ducks, ruffed grouse, passenger pigeon, sturgeon, whitefish, lake trout and beaver. All of these are species which are very frequently represented in the faunal material from Fort Michilimackinac, and which contributed large amounts to the food resources. SWH1 and SWH2 have twelve species in common, and these are the ones which yield the greatest percentage of the meat. Each house has some species which are unique to it, but the Priest's House has more of these than the others. Indeed, some of these are the only occurrance of the species for the total faunal material included in this study. The animals that occur only in the Priest's House are the domestic sheep, cottontail rabbit, whistling swan, blue/snow goose, and common merganser. Even though these contribute minor amounts of meat to the total for the Priest's House they give an indication that the inhabitants had a slightly

more diverse selection of food species than the occupants of SWH1 and SWH2. The residents of the Priest's House relied mostly on beef for meat, but supplemented it with a large variety of wild foods. This pattern contrasts with those of SWH1 and SWH2 where slightly fewer wild species supplemented beef and pork for meat.

Another difference that can be seen is the relative amounts of fish in the three houses. SWH2 has 14.0 per cent fish, SWH1 has 9.0 per cent, and the Priest's House has 6.12 per cent. These percentages are totals for seven, three and four species respectively. These figures demonstrate that the occupants of SWH2 utilized a larger amount of fish and a greater number of species. This may be a result of the preferences of the inhabitants, or may reflect an economic variable, since fish were probably less expensive to obtain than either domestic or wild meat.

These differences in the faunal composition of the structures shows that, although the percentages for the species groups are very similar, the occupants of each house had a slightly different group of species which composed their food. With a larger sample and more comparable feature units it might be possible to determine the relative social status and food preferences of the inhabitants to an even greater degree.

CONCLUSION

It is possible to investigate many questions using the faunal remains from an archaeological site. From the answers to these questions we may arrive at a better understanding of the lives and cultures of the occupants of Fort Michilimackinac. Two questions were posed in this study and were answered to the extent the data permitted. It had been demonstrated that the disposal patterns of the residents included disposing garbage on public property, the chemin du ronde and inside the stockade, and to lesser extents in areas outside the house. Basements or cellars were not used to any great extent for disposal of garbage, but the latrines received a large amount of garbage and other faunal refuse. The interior of the houses was fairly free of garbage, except the fireplaces where small bones were burned and/or lost during cooking.

Comparing three basement floors shows some small differences in the personal food preferences and similarities in the economic status of the occupants of the houses. While the groups of species contributed the same relative amounts of food, the composition of each group shows particular differences in the inhabitant's preferences.

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