

VI. BONES AND SEEDS

A. BONES

1. *The Archaeology of Animal Bone*

We study the animal bones from archaeological sites for several reasons. First of all, we wish to find out what people of earlier times ate. Animal food was of course only part of the diet, and for some people it was a small part. Since ancient times, the mainstay of the European diet had been bread, and bread probably remained the staff of life for most Europeans in the New World. Unfortunately, bread and grain, and vegetable foods in general, only rarely survive in the ground for archaeologists to discover. Our knowledge of past diets is therefore limited in most cases to animal food, since in the right circumstances bones survive in the soil. (As described in the next section, an attempt was made at the McKean/Cochran Farm to find charred seeds or other plant remains, but these efforts were not very successful.) Bones can also tell us something about how people farmed: what animals they raised and how they managed their herds. For example, farmers who concentrated on dairying usually killed and ate most of their young male cattle, while saving the cows for milking; their bone heaps should therefore contain the bones of young bulls and very old cows, but very few middle-aged animals. The bones of wild animals tell us about hunting and fishing. The places where bones are found can also provide some information about how a farm was run, since the bones from the butchering of whole animals can usually be distinguished from table scraps. Butchering was very messy work, and knowing whether it was done right next to the house or in a special area a long way off can give us some idea of how people organized space on their farms and around their houses.

One example of the kind of information we can get from the study of animal bone from archaeological sites concerns the eating of beef. Beef, which is ubiquitous on eighteenth- and nineteenth-century archaeological sites, rarely appears in the documents used by historians to study diet. Probate inventories made for estate purposes, for example, often include large amounts of pork, and sometimes salt fish, but they almost never mention beef. Some historians have used these documents to argue that Americans ate little beef (Walsh 1992). However, since the bones show us that beef was regularly eaten, it seems clear that there is a problem with the documentary records. The fact is that the probate inventories include only preserved food in storage, and beef was almost always eaten fresh. Archaeology in this case provides a very important correction to information in the documentary record.

Bone was recovered from all contexts at the McKean/Cochran Farm, including the plowzone and the features. How well the bone was preserved depended on where it was found. Some of the bone fragments, especially the bone that was found in the plowzone and had therefore been repeatedly shifted around by plowing, were merely scraps of badly worn bone, not really identifiable. In some of the features, however, bone was preserved remarkably well, and even fish scales and tiny fish bones were completely intact. The bone from the two cellars and the early well (Features 1, 4, and

29) was particularly well preserved. Bone preservation depends not only on whether the bone has been physically disturbed and broken, but on the chemistry of the soil. Acidic soil eats away at bones and eventually dissolves them. In Delaware, as in most of eastern North America, the soil is naturally acidic, so bones buried by themselves are eaten away to nothing in a few hundred years. Fortunately for archaeologists, some of our ancestors' trash disposal habits had the unintended effect of making the soil less acidic and therefore preserving bone. Oysters were eaten by all people of the region, Indian or European, and oyster shell is weakly basic. Wood ash, which was, of course, produced in great quantities by households that heated and cooked with wood, is strongly basic. (Wood ash was used to produce the lye which, along with oil, was needed to make soap; lye is a very strong base.) A typical colonial trash deposit containing oyster shell and large amounts of wood ash, therefore, will be neutral or basic, preserving even the smallest bones for centuries.

The bones from the McKean/Cochran Farm were counted in two ways. Fragments were counted separately, producing a number called the Total Number of Fragments, often abbreviated TNF. However, the number of fragments does not actually tell us how much bone was present, since it also depends on how broken up the bone was; a deposit that had been thoroughly crushed would give a higher count than a well-preserved deposit. For the well-preserved deposits, therefore, the Minimum Number of Units, or MNU, has also been calculated. The Minimum Number of Units is a calculation of the least number of bones that could have produced the bone fragments in the collection (Grayson 1984; Lyman 1994). For example, three small fragments of rib bone from a cow could have come from a single rib, providing an MNU of one rib; however, if two of the fragments are both from the lower tip of the rib, then at least two ribs are represented, giving an MNU of two ribs. Archaeologists also sometimes calculate the Minimum Number of Individual animals (MNI) that could have produced the bones they have found, but this calculation has not been made for the McKean/Cochran Farm.

The bones from the collection have been placed in one of three categories: butchery waste, processing waste, and dietary refuse. *Dietary refuse* refers to the bones that were thrown away in the kitchen, during cooking, or from the table, after the meat on them had been eaten. In the language of contemporary recycling, dietary refuse is "post-consumer" bone. Dietary refuse therefore contains mainly bones from the edible parts of the animal. *Processing waste* is bone that was thrown away during the extraction of organ meat or bone marrow. A good example of processing waste is the bone refuse from making head cheese. Head cheese, a traditional European dish, was made by boiling the skulls of cattle (after the obvious meat, such as the brain, cheek muscles, and tongue, had been removed) to extract the remaining protein; the resulting liquid was then bound into a solid mass with gelatin extracted from calf's feet. The processed waste appears as butchered skull, mandibles (jaws), and foot bones from immature cattle, or veal. Another example is the processed waste from extracting cattle, or beef, tongue, which appears as butchered mandibles. *Butchery waste* is defined as the residual, or discarded, skeletal material from the processing of a carcass, and usually consists of the head and feet. (But not pigs' feet, which were usually eaten.) It is sometimes hard to distinguish between on-site butchery waste and processing waste based on this definition. However, butchery waste is generally identifiable by the large number of head and

foot elements, compared to dietary materials, from more than one individual of the same species, or head and foot elements from more than one species in the same deposit.

The slaughtering and processing of large domesticated mammals, such as sheep, pig, and cattle, was fairly standard. The carcasses of cattle, pig, and sheep were first cut up into large meat sections, or "butcher cuts." These were then cut into smaller units, or "meat cuts." Obviously, some parts of the animal offer better eating than others, and archaeologists have devised a system for rating the different parts of the carcass in terms of the quality and the quantity of the meat they provide (Huelsbeck 1991; Schmidt and Zeier 1993; Schultz and Gust 1983). Bones from archaeological sites are often well enough preserved to show marks of butchering and eating. Cutting by cleavers and axes leaves marks, called "cut marks," and the sawing of meat leaves particularly distinctive marks. The presence of these "butcher marks" helps determine which bone was eaten and which was not; for example, a groundhog bone found in a pit might simply be the remains of a recent inhabitant that had died nearby, in which case we would classify the bones as "intrusive," but if butcher marks are present on the bones, the animal was almost certainly hunted, butchered, and eaten. If bones are gnawed by dogs or rats, this also leaves identifiable marks, which can tell us something about how the bones were disposed of.

2. *Bones from the McKean/Cochran Farm*

We excavated 9,529 bone fragments at the McKean/Cochran Farm. Most of these were bones from domesticated animals such as cows and pigs, but some bone from wild animals was also found. A detailed, technical description of this material is presented in Appendix A, and only a summary is given here. Little bone was recovered from the plowzone, and because of its poor preservation, little could be learned from it. Most of the bone could only be identified as "large mammal" or "medium mammal," since it was too damaged for the species to be identified. Cattle, pig, and sheep were identified, as well as opossum, rabbit, and dog. Two pieces of stony coral were found, one in STP 30 and one in Unit PZ51. This material was probably used for making jewelry or other decorative objects.

The feature excavations contained a great variety of mammal, bird, reptile, and fish species. Bones were recovered from 17 features. Table 15 summarizes the species represented in each of the smaller features, the ones for which Minimum Number of Units calculations were not made. Most of this bone came from domesticated animals, especially cows and pigs, but the bones of fish, snapping turtles, rabbits, ducks, and geese were also found. Several bones had been gnawed by dogs, and others by rats.

The largest of these deposits were recovered from Feature 27, the later well, and Feature 55, a pit in Structure B. Feature 27 yielded 253 bone fragments. Most of the bone came from mammals, but a small number of bird, fish, and reptile bone fragments were also present. Identified mammal species included cattle, pig, rabbit, and sheep, although the largest categories were medium and large mammal. The bone deposit from this feature was composed of a mix of butchery/processing waste

Table 15. Summary of Species for Smaller Features, by Total Number of Fragments (TNF)

SPECIES	FEATURE												
	2	8	27	30	31	38	47	50	53	55	56	58	59
Mammal													
Cat	2	.	.	.	.
Cattle	2	3	29	28	.	8	.	.	2	1	.	.	15
Horse	4
Opossum	6	.	.	.
Pig	8	.	17	124	.	14	.	.	3	22	.	5	11
Rabbit	.	.	3	.	.	.	.	.	3	.	.	.	.
Rodent	1	.	.	2	.	.	.	.
Sheep	.	.	13	3	.	1	.	.	.	5	.	.	1
Small	.	.	4	1	.	1	.	.	5	1	.	.	.
Medium	.	5	110	22	5	17	.	2	19	28	.	3	11
Large	19	9	71	26	10	21	.	.	4	13	.	1	3
Subtotal	29	17	247	204	15	63	.	2	40	76	.	9	45
Bird													
Chicken	2	3	.	.	.
Duck	1	.	.
Goose	1	.	.	.	.	.	.	.
Small	.	.	2	.	.	.	.	.	.	.	.	.	.
Unidentified	.	.	1	1	1	.	.	.	.	4	.	1	.
Subtotal	.	.	3	1	1	1	.	.	2	7	1	1	.
Fish													
Catfish	2	.	.	.	.
Unidentified	.	.	2	.	.	.	.	.	.	21	.	.	.
Subtotal	.	.	2	.	.	.	.	.	2	21	.	.	.
Reptile													
Snapping Turtle	12	.	.	.	5	.	.	.
Unidentified	.	.	1	11	.	.	2	.	4	.	.	.	.
Subtotal	.	.	1	11	.	12	2	.	4	5	.	.	.
Bone													
Unidentified	1	.	.	.
Subtotal	1	.	.	.
TOTAL	29	17	253	216	16	76	2	2	48	110	1	10	45

and dietary refuse. Processing waste was evident from the presence of head and foot elements from sheep, pig, rabbit, and cattle, as well as from medium and large mammal. Dietary refuse was indicated by a variety of mutton, pork, beef, and veal meat cuts, as well as by butchered fragments of longbones and vertebrae from medium and large mammal. Mutton cuts came from the shank and butt-end of the leg, and pork cuts included a trotter (or foot). Beef cuts consisted of the chuck and shank, and veal of a cut from the leg. Throughout this deposit, several bone fragments had canine gnaw marks. A few bone fragments were charred and calcined (burned white), indicating either that they had been cooked or that the trash had been burned, and a fair number were stained. Bone

becomes stained when it is dumped with other organic material, such as rotting meat or decaying vegetation, so this bone was probably part of a mixed trash deposit. Bird, fish, and reptile remains were not identified by species. Bone from all three of these groups was present in low frequencies. Reptile was represented by a turtle carapace (shell) fragment.

Feature 55, an eighteenth-century pit located in Structure B, yielded a fair-sized bone deposit of 110 fragments. It was composed of mammal, bird, fish, and reptile species. Mammal included cattle, opossum, pig, and sheep. Bird species included chicken, and reptile species included snapping turtle. One of the most notable characteristics of the bone recovered from this feature was the almost complete lack of gnaw marks. The deposit represents a mix of butchery/processing waste, dietary refuse, and possible intrusive material. Butchery/processing waste is indicated by cranial (skull) and foot bones from sheep, pig, cattle, medium and large mammal, and fish. The sheep cranial bone came from a newborn. Dietary refuse was evident from mutton, pork, and beef meat cuts, as well as from chicken elements. Mutton consisted of a stew cut from the shoulder and hindshank, pork of a shank ham, and beef of a round roast. Components of the deposit that may be intrusive include bones of snapping turtle and opossum. None of the skeletal elements from either of these species exhibited butchering or gnaw marks.

Only a small sample of the oyster and clam shell from the site was kept; the rest was counted and thrown away in the field. Overall, more than 1,000 shells were found, most of them oysters. However, clam shells were found both in Feature 4 (before 1800) and in Feature 1 (circa 1830). The oyster shells exhibited a wide range of shapes and sizes, so they were harvested in both shallow, brackish water and deeper, salt water. The saltwater oysters would have to have been harvested some distance from the site, in the Delaware Bay, so they may have been purchased from commercial oystermen. A sample of the valves, which have growth rings like those on trees, was examined in the field with a hand lens, and the results suggested that most of the shellfish were gathered in winter or spring (Kent 1988).

3. *Analysis of Bones from the Major Features (1, 4, 15, and 29)*

Four features on the McKean/Cochran Farm yielded large, well-preserved deposits of artifacts, including bones. The bone from these features was subjected to more intensive analysis, including Minimum Number of Units calculations, which give us a better idea of how many bones were actually present.

The early cellar, Feature 4, was filled in before 1800. It yielded a fairly large faunal deposit, at least 306 bones (Table 16). The deposit was primarily dietary refuse, with small amounts of butchery and processing waste. Mammal, bird, fish, and reptile bones were found. Mammals included a variety of domesticated, exploited, and intrusive species. Domesticated species consisted of cattle, dog, horse, pig, rabbit, and sheep. Wild species included opossum, raccoon, and squirrel, and intrusive species included rat and other unidentified rodents.

Table 16. Summary of Species for Major Features, by Minimum Number of Units (MNU) and Percent

SPECIES	FEATURE 1, LATER CELLAR		FEATURE 4, EARLY CELLAR		FEATURE 15, DAIRY		FEATURE 29, EARLY WELL	
	MNU	%	MNU	%	MNU	%	MNU	%
Mammal								
Cat	27	2	.	.	.	.	6	1
Cattle	165	10	61	20	43	21	72	12
Cottontail	3	<1	.	.	.	.	.	.
Deer	1	<1	.	.	.	.	1	<1
Dog	4	<1	1	<1	1	<1	3	<1
Horse	.	.	9	3	9	5	.	.
Human	1	<1	.	.	.	.	.	.
Mink	2	<1	.	.	.	.	.	.
Muskrat	34	2	.	.	9	5	.	.
Opossum	4	<1	3	1	1	<1	1	<1
Pig	417	24	71	23	35	17	64	10
Rabbit	22	2	3	1	4	2	9	2
Raccoon	.	.	1	<1	2	1	2	<1
Rat	83	5	5	2	13	6	11	2
Rodent	22	2	2	<1	2	1	16	3
Sheep	83	5	52	17	12	6	34	6
Squirrel, Fox	7	<1	1	<1	.	.	.	.
Squirrel, Gray	11	1	.	.	1	<1	.	.
Woodchuck	2	<1	.	.	.	.	.	.
Small	72	4	6	2	5	2	15	3
Medium	118	7	17	5	10	5	36	6
Large	15	1	5	2	6	3	5	<1
Subtotal	1,093	64	237	77	153	74	275	44
Bird								
Blue Jay	8	<1	.	.	.	.	.	.
Chicken	110	6	11	4	19	9	53	9
Duck	22	2	5	2	.	.	.	.
Goose	48	3	2	<1	2	1	15	3
Pigeon	18	1	4	1	1	<1	11	2
Red-bellied Woodpecker	2	<1	.	.	.	.	.	.
Turkey	8	<1	.	.	.	.	3	<1
Unidentified	111	6	10	3	9	4	25	3
Subtotal	327	19	32	10	31	15	107	17
Fish								
Catfish	58	3	6	2	11	5	11	2
Cod	.	.	.	.	.	.	1	<1
Drum	1	<1	.	.	.	.	.	.
Salmonid	.	.	1	<1	.	.	.	.
Shad	53	3	7	2	.	.	2	<1
Striped Bass	15	1	.	.	.	.	.	.
Unidentified	127	7	19	6	2	1	218	35
Subtotal	254	15	33	11	13	6	232	38

Table 16 (continued)

SPECIES	FEATURE 1, LATER CELLAR		FEATURE 4, EARLY CELLAR		FEATURE 15, DAIRY		FEATURE 29, EARLY WELL	
	MNU	%	MNU	%	MNU	%	MNU	%
Reptile								
Blanding's Turtle	.	.	1	<1	4	2	.	.
Box Turtle	3	<1	.	.	3	2	.	.
Pond Slider	.	.	.	.	2	1	.	.
Snapping Turtle	12	1	.	.	.	.	1	<1
Soft-shell Turtle	1	<1	.	.	.	.	.	.
Unidentified Turtle	10	<1	2	1	.	.	4	<1
Subtotal	26	1	3	1	9	5	5	<1
Bone								
Unidentified	2	<1	1	<1	.	.	.	.
Subtotal	2	<1	1	<1	.	.	.	.
TOTAL	1,704	100%	306	100%	206	100%	619	100%

The most frequent mammal species in the early cellar were cattle, pig, and sheep, and pig was the most common. There were 71 pig bones, representing dietary refuse and processing waste. Processing waste consisted of four butchered skulls. Dietary refuse was indicated by a wide variety of cuts, most of which represented high-quality hams or roasts from the shoulder and ham, as well as a few chops from the loin. Stew meats were also present, including trotters and ham hocks. There were 59 bones from adult cattle and two veal bones. Cattle was represented by dietary refuse, processing waste, and butchery waste. Dietary refuse included bones from both low-cost meat, such as roasts and stew meats from the chuck and round, and prime cuts such as steaks from the prime rib. Veal was represented by a leg roast and stew meat from the shank. Processing waste consisted of butchered mandibles and metapodials (feet). Butchery waste was also present, although in small amounts, and consisted of toe bones. There were 52 sheep bones, representing dietary and processing waste. Processing waste consisted of two skulls and mandibles. One of the mandibles bore butcher marks. There were roasts and stew meats from the shoulder and leg as well as a few chops from the bracelet and loin. Shank cuts predominated, followed by roasts from the butt-end of the leg.

Some of the other mammal bones in the early cellar had also been butchered, including opossum, rabbit, and horse. Horse skeletal elements with butcher marks included the head and feet. The butchering of horses for food was rare in colonial America, and these bones are therefore highly unusual. Dog, rat, squirrel, and raccoon did not exhibit butcher marks, which indicates that these animals were not necessarily eaten.

The bird species identified in the early cellar included chicken, duck, goose, and carrier pigeon (see Table 16). Chicken was the most frequent species. All of the bird species were represented by edible body parts. With the exception of a duck bill and three chicken foot bones, no evidence of bird processing was noted. Identified fish species included catfish and shad. A salmonid species

was also present, probably a trout. All of the fish remains represent processing waste. They were composed of skull, scales, and fins. Turtle species consisted of Blanding's turtle. This edible species was represented by carapace fragments.

Feature 29, a well, also dates to the site's early period. It yielded a large and diversified faunal deposit of 619 bones. The deposit was composed of a mix of dietary refuse, processing waste, and butchery waste, and included mammal, bird, fish, and reptile bones. Mammal species were the most frequent. The domesticated mammal species present were cat, cattle, dog, pig, rabbit, and sheep (see Table 16). Species that may have been eaten included opossum, raccoon, and deer. Since rats were not eaten, the rat bones are presumably from animals which burrowed into the trash and died there; these bones are classified as intrusive.

The most common mammal species in the well were pig, cattle, and sheep. Pig consisted of 64 bones. It was composed of dietary refuse and processing waste. Dietary refuse consisted of several roasts from the shoulder and ham, as well as stew meats such as hocks and trotters. Processing waste was evident from six paired mandibles and possibly associated skulls that exhibited butcher marks. Seventy-two cattle bones were found, a mix of beef and veal dietary refuse and processing waste. Beef included large cuts of meat from the chuck, prime rib, plate, loin, and round. Processing waste consisted of butchered skull and mandibles. Veal included two leg roasts and a butchered skull. There were 34 sheep bones, almost all dietary waste. Meat cuts were predominantly roasts and stew meats from the shoulder and leg. There were also a few chops from the bracelet and loin. Processing waste was indicated by a single mandible.

The well yielded a small range of bird species, including chicken, goose, pigeon, and turkey (see Table 16). Chicken was the most frequent species. Each of these species was represented primarily by edible body parts. A few foot bones suggest the presence of processing waste resulting from the cleaning of bird carcasses. Identified fish species were limited to catfish, cod, and shad, each represented by skull elements. Since cod is an ocean species that was generally caught and preserved by commercial fishers, these fish were probably purchased as salt fish. The catfish and shad could have been caught in the Appoquinimink. Most of the unidentified fish consisted of skull, fin, and scale elements. Unlike the early cellar, this deposit also contained a small number of fish vertebrae. Reptile species included snapping turtle. Both snapping turtle and unidentified turtle were represented for the most part by carapace fragments.

The later cellar, Feature 1, contained the largest deposit recovered from the site. It yielded 1,704 bones, composed of a mix of dietary refuse, processing waste, and butchery waste. A wide range of mammal, bird, fish, and reptile species was represented (see Table 16). The mammals included domesticated, exploited (wild animals that were hunted or trapped), and intrusive species. Domesticated species consisted of cat, cattle, dog, pig, rabbit, and sheep. As the cat and dog bones showed no butcher marks, it is unlikely that the meat from these animals was eaten. On the other hand, since these bones were tossed out with the rest of the trash, it seems clear that the farmers on the site were not particularly sentimental about their pets. Wild species included cottontail, mink or otter, muskrat, opossum, raccoon, squirrel, and woodchuck. Only mink bore any obvious butcher

marks, probably from the skinning of the animals. The bones of these small mammals represented in the feature consisted of cranial and postcranial skeletal elements. The large variety of species and their associated skeletal elements argues that these small mammals were hunted, and were not just included accidentally. Intrusive species were present, however, in the form of rat.

In the later cellar, large domesticated mammal species predominated. Pig was the most frequent species. There were 417 pig bones, including dietary refuse and processing waste. Pork cuts included several roasts and hams from the shoulder and ham, as well as stew meats from the hocks and trotters. Processing waste was indicated by several skulls and paired mandibles exhibiting butcher marks. Pig made up a larger percentage of the bones in the later cellar than in the earlier features, indicating increased reliance on pork in the later period of the site. There were 165 cattle bones, consisting of dietary refuse, processing waste, and butchery waste. Beef meat cuts included roasts and stew meats from the chuck and round. Veal meat cuts also included roasts and stew meats from the shoulder and leg. Processing waste was indicated by butchered skull bone. Butchery waste was evident in the form of foot bones. Sheep consisted of 83 bones. Most of the mutton was stew meat cuts from the shanks; there were also a few chops from the bracelet and loin and roasts from the leg and shoulder. A number of mandibles and skulls that did not have butcher marks from brain or tongue extraction suggest butchery waste.

The later cellar contained a wide range of bird species, including species raised or hunted for food and species that were almost certainly not eaten (see Table 16). Food-related species consisted of chicken, duck, goose, pigeon, and turkey. Non-food species included blue jay and red-bellied woodpecker, both of which were represented by only a single bird. All of the edible species were represented by both edible body parts and processing waste from the removal of heads and feet. Blue jay consisted of a full range of skeletal elements, whereas the red-bellied woodpecker consisted of a foot element. There was a limited range of fish species represented, including catfish, drum, shad, and striped bass. Catfish and shad were more frequent than the other species. Reptile species consisted of box turtle, snapping turtle, and soft-shell turtle. Although box turtle is not considered an edible species, snapping turtle and soft-shell turtle are edible. All of these species were represented by longbone and shell fragments. A few of the turtle longbones exhibited cut marks.

The dairy, Feature 15, yielded a fair-sized faunal deposit, consisting of 206 bones (see Table 16). It was composed primarily of dietary refuse and processing waste, and a small amount of butchery waste. The deposit contained mammal, bird, fish, and reptile species. Mammal species included domesticated, exploited, and intrusive species. Domesticated species consisted of cattle, dog, horse, pig, rabbit, and sheep. Dog was the only species not eaten. Exploited mammal species included opossum, muskrat, and squirrel, and the intrusive species was rat.

In the dairy, large domesticated mammal species predominated. There were 35 pig bones, all dietary refuse and processing waste. The pig bone consisted of several cuts from the ham and a few cuts from the shoulder, loin, and feet. Processing waste was indicated by skull bone. Forty-three cattle bones were found, including dietary refuse and butchery waste. There was a high frequency of beef meat cuts from the chuck, along with lower frequencies from the prime rib, loin, and round. In

addition, there were two veal cuts from the shoulder. Butchery waste was indicated by loose teeth and four foot bones. Only 12 sheep bones were found, including a single skull with horn stubs attached. In addition to pig, cattle, and sheep, horse was also present in the deposit. It was composed of two mandibles and teeth. The mandibles exhibited chop and slice marks that indicated the removal of the tongue for eating. None of the small mammals showed signs of having been butchered, but this does not mean they were not eaten, or exploited for fur.

Bird species from the dairy were limited to chicken, goose, and pigeon. Chicken, which was the only species that was well represented (see Table 16), consisted of skull, feet, and edible body parts. Several fish skull bones, all from catfish, were found. Reptile was represented by three species of turtle, including Blanding's turtle, box turtle, and pond slider. Except for the box turtle, these are edible species. Almost all of the turtle bone consisted of turtle carapace fragments, none of which exhibited butcher marks.

4. *Summary*

The bones from the McKean/Cochran Farm were for the most part what one would expect to find at a farm of the 1750 to 1830 period. Most of the meat eaten came from pigs and cattle, which were raised on the farm. Sheep were also raised and eaten, but not in large numbers. Most of the pigs were killed when they were one year to 18 months old. Some historians have argued, based on written records, that it was the common practice to kill most of the year's pigs at a single slaughtering in November, when they were about 10 months old (Fletcher 1950; Lemon 1967), but archaeology has not confirmed this model. Most of the cattle were adults. The killing of adult cattle suggests that they were being raised primarily for meat, or as draft animals, and that the residents did not have a commercial dairying operation. On a dairy farm, most of the males are killed when they are young. However, other evidence from the site, especially the large number of milk pans found, suggests that the residents were dairying on a large scale. Perhaps they sold their young bulls instead of killing them. Chickens were certainly raised, and probably geese as well. The bones from the earlier and later deposits on the site were very similar, so the pattern of stock raising and meat eating seems to have changed very little over the site's history.

The bones from pigs, sheep, and cattle show that the residents of the farm ate all the parts of these animals, including both the prized cuts (hams, roasts, tongues) and the less valuable parts, such as heads and feet. Some archaeologists have found large differences between the meat cuts eaten by rich and poor people in towns and on southern plantations (Garrow 1987; Huelsbeck 1991; Otto 1984). Planters and rich urbanites seem to have eaten only the best parts of the cow or pig, leaving the rest for the slaves and poor townspeople. However, these differences have not been observed on eighteenth- and nineteenth-century farms in the Middle Atlantic region or the Northeast (Bedell et al. 1994; Catts et al. 1995; Coleman et al. 1984; cf. the historical research of Fletcher 1950:403). Farmers who lived in these areas, whether rich or poor, seem to have eaten all parts of the animals they raised and slaughtered. Rich farmers may have eaten more meat, and their animals may have been better fed and fatter, but they still ate pig's feet and head cheese. Their diet was determined by their traditional culture, which enjoined them to waste nothing and provided recipes for using all

the parts of the animal. If we exclude the extremes of aristocracy and deprivation, status differences between rich and poor seem to have had little impact on the kinds of meat eaten in the region.

A wide range of wild animal bones was also found. Wild animals did not provide a large percentage of the residents' diet, but the 20 or so wild species represented did provide some variety. Butcher marks were present on several species, including opossum, rabbit, and turtle, so these animals were definitely eaten. Other animals, such as the mink and raccoon, may have been trapped for their fur. Pigeons were certainly hunted regularly, since pigeon bones were found in all four major features. Duck bone and the remains of one turkey were also found.

What is most striking about the wild animal bone is that almost all of it is from small animals; only one deer bone was found on the entire site. Most of the fish found was catfish and shad, which could be taken by hook and line in the Appoquinimink River or other nearby streams. The presence of a variety of small animals suggests that the hunting and fishing on the site may have been done by boys. Small game hunting was, and still is, a boyhood ritual in much of America, and both Letitia McKean and John Cochran had sons of the appropriate ages. This suggestion is reinforced by the presence of box turtles in two features and the blue jay and woodpecker bones in Feature 1. None of these animals were eaten by Europeans. (Box turtles, which consume a wide variety of poisonous mushrooms and berries, are actually dangerous to eat). However, all of them provide trophies and decorations that are desired by boys, so boys hunt them today and probably did in 1800. These bones therefore lead us to imagine young Birmingham McKean Clark or Robert Cochran decked out in bird feathers like the Indians of a boy's fantasies, on his way out to hunt rabbits in the woods or fish for catfish in the lazy Appoquinimink.

One difference between the earlier and later deposits on the site is that muskrat bones were found only in the later deposits. Muskrats are regularly eaten in Delaware and on the Maryland Eastern Shore, but they are generally regarded as a somewhat disgusting food by people from outside this area. Their absence from earlier deposits may therefore indicate a gradual adaptation to local conditions. Prior to 1800, the residents, new to the area, may have found the thought of eating muskrat disturbing. The Cochrans, however, who had been living close by in Maryland for some years, had either already taken up this local custom or soon acquired it.

The bones also tell us something about how the residents ate their meat. Pigs, cattle, and sheep were butchered into large meat cuts by chopping and cleaving. Only a few possible saw marks were found on the bones from the site, and these may actually have been made with cleavers. This point is important, because the way we eat meat has changed greatly in the past 200 years. The traditional European practice was to cook meat in large pieces, such as roasts or hams, that could feed large groups of people. In the nineteenth century it became common to saw meat into smaller portions, such as steaks or chops, that could be eaten by a single person. Traditionally, the odd parts of the cow were cooked in stew, whereas now they are more likely to be ground up, pressed into patties, and served as individual hamburgers. This change in eating habits seems to some people to indicate a decline in the communal way of doing things and a rise in individualism (Deetz 1977). The residents of the McKean/Cochran Farm ate their meat in the traditional way.

Although some butchery waste was found for all the major species, chicken was the only animal for which the amount of butchery waste matched the amount of dietary waste. Chickens were clearly killed and butchered right outside the kitchen. Cows and pigs, however, must have been butchered in a separate area, because little of the butchery waste for these animals became mixed with the dietary refuse from the kitchen. The residents evidently made an effort to separate the messy butchering process from their living space. On the other hand, many of the bones had been chewed by dogs, and a few by rats, which suggests that there may have been a certain amount of mess around the house.

B. PLANT REMAINS

To search for preserved plant remains, samples of soil were taken from Features 1 and 29. These two features contained large deposits that looked rich and organic, with visible charcoal and tiny, well-preserved bones. The soil, totaling 35 liters, was processed using a technique called flotation. In flotation, the soil is dumped into water in a device that gently agitates the water. The heavy material sinks to the bottom and is caught in a screen. Material light enough to float, including plant specimens, rises to the top of the water and is skimmed off with very fine cloth mesh. The light material was inspected using low-power binocular magnification (10X). A sample of wood charcoal, and all of the nutshell and other floral remains greater than 2 millimeters in size, were recovered from the samples. The very small (< 2 millimeters) material was then inspected for seeds, and any found were recovered.

Unfortunately, despite the apparently ideal condition of the soil strata from which the samples were taken, very little plant material was recovered from the site. A single, carbonized fragment of black walnut shell was recovered from Feature 29, the earlier well. Two burned corn kernels and a single, carbonized grain of wheat were recovered in the samples from Feature 1, the later cellar. A single burned peach pit and a burned fragment of what appeared to be a corn kernel were recovered from the early well, Feature 29, and a second burned peach pit was recovered during the excavation of Feature 38, a small pit. Weed seeds were ubiquitous, but none of them were burned, and they may all have been recent (Minnis 1981). Five unburned blackberry and elderberry seeds were also found, but they looked particularly fresh and were probably recent. The wood charcoal sample included oaks (50%) (red and white groups), hickory (15%), ash (8%), poplar (8%), walnut (5%), and maple (3%), as well as unidentifiable specimens. The charcoal probably gives us an idea of the trees that grew around the site.

The discovery of corn and wheat at the site is hardly surprising, since almost all farmers in the region grew these crops. The peach pits are interesting, since they probably mean that the residents had an orchard, something that was common but by no means universal at the time. Commercial peach growing was not introduced into Delaware until the 1830s, so these peaches were grown either for the residents' own use or to sell at the local market (De Cunzo and Garcia 1992). The black walnut suggests the gathering of wild nuts. Other fruits and vegetables undoubtedly eaten by the residents of the site, however, remain archaeologically invisible.