

VERTEBRATE REMAINS FROM THE CAHOKIA SITE, ILLINOIS

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INTRODUCTION

The work of Moorehead (1929) dealing with the historical setting, general description, village areas, mounds, and possible cultural affiliations of this Middle Mississippi Site is the most detailed and comprehensive report yet published on Cahokia. This site, probably the largest of its kind in North America, is located immediately east of the East St. Louis area and is generally thought to have been occupied from about 1,200 to 1,550 A.D. Dr. Frank C. Baker, former Director, Museum of Natural History, University of Illinois, Urbana, was vitally interested in faunal remains found in Indian sites, and he made significant contributions to the field of ethnozoology or archaeozoology in Illinois through identification and interpretation of midden materials (Baker, 1923, 1930, 1931, 1936). The last major contribution by Baker (1941) comprised an up-to-date account of species identified from midden refuse at Cahokia and several other major sites and areas in Illinois.

From September through December, 1956, Mr. Gregory Perino excavated approximately one acre of the village site east of Monk's Mound and a section of the west slope of Mound No. 34. Mr. Perino gave the immense quantity of animal remains

he uncovered to the author for identification and use of the resulting data. Although the shell, most of which was marine (Parmalee 1958a), was rather poorly preserved, the majority of the animal bones were in excellent condition.

Animal remains found in Indian refuse pits and debris from kitchen middens can provide a wealth of information concerning the prehistoric environment and ecology of an area as well as the former abundance and distribution of species. The quantity of faunal material removed by Mr. Perino at Cahokia was the largest for any one site in Illinois, with the greatest number of animal species being represented. All classes of vertebrates were encountered, but the birds and mammals were better represented, both numerically and in number of species. Nearly 9,800 bones were identified; included were a minimum of 10 species of fish, one species of frog, five species of turtles, 58 species of birds and 19 species of mammals (Table 1).

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his kindness in verifying some identifications and in determining certain bird bones.

DISCUSSION OF SPECIES

Fishes:—Remains of fishes were relatively common but, in relation to the total number of bones from this sample, not so numerous as might be expected. Remains of catfish and catostomids (buffalo and suckers) were found most commonly, thus indicating that these fishes were preferred or that they were more readily obtainable by the Indian. It appears that little use was made of other "rough" fishes such as gar and bowfin. In contrast, bones and/or scales of these latter species were fairly abundant in the midden material from the Modoc Rock Shelter (Fowler, Winters, and Parmalee, 1956), an archaic site in southwestern Illinois. The larger size of individual fishes and the greater number of remains of a more limited number of species that could, under present-day standards, be considered preferred (*i.e.*, catfish, buffalo, freshwater drum), indicate a possible change in fishing habits from the primitive Archaic to the more advanced Hopewell and Middle Mississippi cultures.

Fish bones from the Modoc Site were primarily of small individuals and of species (suckers, bullheads, gar, bowfin) that commonly inhabit quiet, backwater sloughs, ponds and marshes. Judging from the remains of some unusually large drum, buffalo and catfish (*Ictalurus*, especially) found in Hopewell (*i. e.* Snyder Site, Calhoun Co.; Clear Lake Site, Tazewell Co.) and Middle Mississip-

pi sites (Cahokia), these later people utilized the main channels of the rivers and deeper waters, and possibly had developed better fishing techniques in the form of traps, nets and seines.

A single, drilled tooth of the white shark was found and it, as in the instance of numerous marine mollusks, in all probability represents a trade item from the Gulf or South Atlantic coast.

Amphibians and reptiles:—Several long bones of a large frog, probably the bullfrog, *Rana catesbeiana*, were identified. At the time the Cahokia Site was occupied, the area was apparently a maze of lakes, marshes and small streams, so that the presence of frog bones could be, and probably is, the natural result of their expected presence in the area.

Remains of turtles were uncommon in proportion to the total number of bones and were evidently little used by the Indians occupying this section of Cahokia. The common aquatic species (*Pseudemys*, *Chrysemys*, *Graptemys*) were the most numerous, and several shell sections and fragments showed evidence of having been drilled or worked, being used possibly as spoons or other utensils. With the exception of the shark, all species of fishes and the turtles identified from this sample of midden material still occur in Illinois and within the general proximity of Cahokia.

Birds:—The number of bones and the variety of avian species present one of the most interesting aspects dealing with the ecological interpretation of Cahokia based on faunal re-

mains. Of the 2,944 identified bird bones, 2189 (representing at least 20 species) or 74.4% are those of ducks, geese and swans. This does not include approximately 250 additional duck bones (primarily *Anas* and *Aythya*) which, because of their fragmentary condition or questionable characteristics, were not specifically identified. Such a high percentage of waterfowl is noteworthy (and typical of most sites in Illinois) in that it points to a preference (coupled with the factors of availability and abundance) for these birds by the Indian, thus serving as an indication of prehistoric ecological conditions. Approximately 40% of the bird remains were waterfowl species and in the case of ducks and geese, the most common species then (mallard, teal and scaup plus species of *Branta* and *Chen*) are still common migrants along the Mississippi River.

As noted earlier, this area was covered with numerous lakes, ponds, marshes, and small streams and, being in close association with the Mississippi River Flyway, provided excellent habitat for waterfowl. Birds such as sandhill crane, great blue heron, pied-billed grebe, American egret, American bittern, and various shore birds which are associated with an aquatic environment, were probably common but seldom if ever used as food. Remains of the coot were numerous, thus indicating its use as a food while turkey and prairie chicken bones comprised slightly over 10% of the total.

Of particular interest is the large number of bones of trumpeter swans, a species that became extinct in Illinois about 1912. Although the flesh

of this bird was probably eaten, the Indians also prized it for the bones, primarily the wing bones and especially the humerus. The ends of thirty-five humeri showed signs of having been cut off and several cut sections of the bone were also found. Several cut ends of the radius, ulna, femur, tibiotarsus, and carpometacarpus were also observed; apparently the bones were cut into sections and utilized as beads.

Several bones of the Canada goose and the turkey, cut in a similar fashion, were also encountered. The cut proximal end of a right humerus of the white pelican, a species now considered a rare migrant in Illinois, was recovered and is of interest since it is the second archaeozoological record (first: tarsometatarsal fragment, Snyders Site, Calhoun Co., 1955, Parmalee, 1958b) of this bird in Illinois. Other species of particular note are the long-billed curlew, sandhill crane, passenger pigeon, swallow-tailed kite, raven, Carolina parakeet, and ivory-billed woodpecker, (Parmalee, *op. cit.*). In contrast to sites in Ohio (Goslin, 1955) and a site in southern Missouri (Stephen Williams, pers. comm.), remains of the formerly abundant passenger pigeon are relatively rare in Illinois. Thus far the greatest number (approximately 40) have been encountered at the Modoc Site with only one or a few bones reported from other sites throughout the state.

The record of the swallow-tailed kite is noteworthy in that it is again the first archaeozoological record of this southern species in Illinois; there are published records of seven specimens having been collected in

TABLE 1.—Animals Identified from Cahokia Village Site, Madison Co., Illinois, 1956.

Species	No. remains
FISHES	
Bullhead, <i>Ictalurus</i>	60
Buffalo and suckers, Catostomidae	38
Bigmouth buffalo, <i>Ictiobus cyprinellus</i>	31
Channel catfish, <i>Ictalurus lacustris</i> , and/or blue catfish, <i>I. furcatus</i>	25
Freshwater drum, <i>Aplodinotus grunniens</i>	24
Catfish spp.	15
Smallmouth buffalo, <i>Ictiobus bubalus</i> , and/or black buffalo, <i>I. niger</i>	13
Gar, <i>Lepisosteus</i>	12
Longnose gar, <i>L. osseus</i>	9
Flathead catfish, <i>Pilodictis olivaris</i>	4
Bowfin, <i>Amia calva</i>	3
Bass, <i>Micropterus</i>	1
White shark, <i>Carcharodon carcharias</i>	1
AMPHIBIANS	
Frog, <i>Rana</i>	7
REPTILES	
Pond te rapin, <i>Pseudemys scripta</i> ; painted turtle, <i>Chrysemys picta</i> ; and/or map turtle, <i>Graptemys geographica</i>	57
Pond terrapin, <i>Pseudemys scripta</i>	12
Snapping turtle, <i>Chelydra serpentina</i>	9
Map turtle, <i>Graptemys geographica</i>	2
Soft-shelled turtle, <i>Trionyx</i>	1
BIRDS	
Mallard, <i>Anas platyrhynchos</i> . Some possibly black duck, <i>Anas rubripes</i>	480
Trumpeter swan, <i>Olor buccinator</i>	376
Turkey, <i>Meleagris gallopavo</i>	261
Snow goose, <i>Chen hyperborea</i> and/or blue goose, <i>C. caerulescens</i>	257
Canada goose, <i>Brantha canadensis</i>	236
Green-winged teal, <i>Anas carolinensis</i>	199
Prairie chicken, <i>Tympanuchus cupido</i>	143
Lesser scaup, <i>Aythya affinis</i>	120
Sandhill crane, <i>Grus canadensis</i>	99
Blue-winged teal, <i>Anas discors</i>	78
Goose spp.	67
Swan, <i>Olor</i>	56
Common coot, <i>Fulica americana</i>	52
Wood duck, <i>Aix sponsa</i>	45
Teal, <i>Anas</i> spp.	40
Canvasback, <i>Aythya valisineria</i>	36
Bufflehead, <i>Bucephala albeola</i>	31
Bald eagle, <i>Haliaeetus leucocephalus</i>	29
Ruddy duck, <i>Oxyura jamaicensis</i>	27
American widgeon, <i>Mareca americana</i>	26
Pintail, <i>Anas acuta</i>	26
Duck, <i>Anas</i> spp. mallard; pintail; black; gadwall group	23
Lesser scaup; ring-necked duck, <i>Aythya</i> spp.	22
Double-crested cormorant, <i>Phalacrocorax auritus</i>	22
Lesser yellowlegs, <i>Totanus flavipes</i>	15
Ring-necked duck, <i>Aythya collaris</i>	15
American merganser, <i>Mergus merganser</i>	12
Merganser, <i>Mergus</i>	12

TABLE 1.—Continued.

Species	No. remains
Barred owl, <i>Strix varia</i>	11
Gadwall, <i>Anas strepera</i>	10
Sandpipers and/or plovers, <i>Charadriiformes</i>	10
Whistling swan, <i>Olor columbianus</i>	8
Cooper's hawk, <i>Accipiter cooperii</i>	8
Pied-billed grebe, <i>Podilymbus podiceps</i>	7
Hooded merganser, <i>Lophodytes cucullatus</i>	7
Redhead, <i>Aythya americana</i>	6
Common egret, <i>Casmerodius albus</i>	6
Passenger pigeon, <i>Ectopistes migratorius</i>	6
Common grackle, <i>Quiscalus quiscula</i>	5
Shoveler, <i>Spatula clypeata</i>	5
Red-tailed hawk, <i>Buteo jamaicensis</i>	5
Rough-legged hawk, <i>Buteo lagopus</i>	4
Common loon, <i>Gavia immer</i>	3
Red-shouldered hawk, <i>Buteo lineatus</i>	3
Great blue heron, <i>Ardea herodias</i>	3
Raven, <i>Corvus corax</i>	3
Golden eagle, <i>Aquila chrysaetos</i>	3
Carolina parakeet, <i>Conuropsis carolinensis</i>	3
Killdeer, <i>Charadrius vociferus</i>	2
Gull, <i>Larus</i> sp. Probably ring-billed gull, <i>L. delawarensis</i>	2
King rail, <i>Rallus elegans</i>	2
American bittern, <i>Botaurus lentiginosus</i>	2
American golden plover, <i>Pluvialis dominica</i>	2
Long-billed curlew, <i>Numenius americanus</i>	2
Swallow-tailed kite, <i>Elanoides forficatus</i>	2
Upland plover, <i>Bartramia longicauda</i>	1
Crow, <i>Corvus brachyrhynchos</i>	1
Barn owl, <i>Tyto alba</i>	1
Ivory-billed woodpecker, <i>Campephilus principalis</i>	1
Sparrow hawk, <i>Falco sparverius</i>	1
Great horned owl, <i>Bubo virginianus</i>	1
Screech owl, <i>Otus asio</i>	1
White pelican, <i>Pelecanus erythrorhynchos</i>	1
Greater yellowlegs, <i>Totanus melanoleucus</i>	1
MAMMALS	
Whitetail deer, <i>Odocoileus virginianus</i>	6,005
Fox squirrel, <i>Sciurus niger</i>	222
Gray squirrel, <i>Sciurus carolinensis</i>	133
Domestic dog, <i>Canis familiaris</i> , and <i>Canis</i> sp.....	58
Rice rat, <i>Oryzomys palustris</i>	54
Squirrel, <i>Sciurus</i> spp.....	50
Pocket gopher, <i>Geomys bursarius</i>	35
Cottontail, <i>Sylvilagus floridanus</i>	34
Raccoon, <i>Procyon lotor</i>	24
Muskrat, <i>Ondatra zibethica</i>	18
Elk, <i>Cervus canadensis</i>	10
Beaver, <i>Castor canadensis</i>	6
Woodchuck, <i>Marmota monax</i>	2
Fisher, <i>Martes pennanti</i>	2
Franklin ground squirrel, <i>Citellus franklini</i>	1
Mink, <i>Mustela vison</i>	1
Gray fox, <i>Urocyon cinereoargenteus</i>	1
Striped skunk, <i>Mephitis mephitis</i>	1
Gray wolf, <i>Canis lupus</i>	1
Coyote, <i>Canis latrans</i>	1

northeastern Illinois (1895 and 1905) and one sight record in DeWitt County (Smith and Parmalee, 1955). The above data, coupled with records of the swallow-tailed kite and the Mississippi kite, *Ictinia mississippiensis* from Ohio (Goslin, 1955) and Illinois (Parmalee, 1958b) sites indicate a greater abundance of these southern raptors as visitants and migrants (or nesters?) during early times in the more northern latitudes.

Remains of the sandhill crane, now a rare migrant in Illinois, were fairly common at Cahokia. In the summer of 1953, Mr. Perino found nine bills of the Carolina parakeet in a single refuse pit near the same location where he recovered a tarsometatarsus and two ulnae of this species in 1956. The occurrence of the parakeet, as well as the ivory-billed woodpecker, at Cahokia is noteworthy since neither have been previously recorded from Illinois Indian sites. It is somewhat surprising, particularly in the instance of the Carolina parakeet, that remains of this showy bird have not been encountered more often and in greater numbers in sites throughout this region.

Remains of several species of hawks and owls were recovered and all, except the kite, occur within the area today. A bill, carpometacarpus and tarsometatarsus of the golden eagle were found, as were a tarsometatarsus, 2 phalanges, and 26 carpometacarpals of the bald eagle. The large number of carpometacarpals, the wing bone supporting the primary flight feathers, points to the possibility that the Indian used the wing tips of the eagle for decoration or ceremony. In this connection, of

the 42 identified hawk and owl remains, 38 (90%) were wing bones. Probably numerous species of birds such as hawks, owls, eagles and cranes were taken for their plumage rather than for food.

Mammals:—The whitetail deer comprised approximately two-thirds of the total number of all identified bones, thus indicating its former abundance and desirability as a staple food by the Indian. A large percentage of the deer jaws were worn smooth at the tip, showing signs of having been used as a tool or utensil. Examples are illustrated by Perino (1957). Elk were apparently uncommon in the Cahokia area or for some reason little used, as remains are few. Two distal ends of a metacarpal (or metatarsal) were found; they had been cut off and they exhibited additional cut marks or "decorations".

The quantity of remains of fox and gray squirrels again points to preference and selective hunting, as do the numbers of bones of trumpeter swans and prairie chickens. Domestic dogs were apparently common during the time the site was occupied; of interest is a cut and marked jaw of a coyote and two femurs of *C. latrans* or *C. familiaris* that had been cut off, one at the proximal and one at the distal end. The palatine section of a gray wolf skull was found in a refuse pit and bore signs of having been cut; possibly it had been carried or worn as a trophy since remains of the larger carnivores (*i.e.* bear, puma, bobcat, wolf), particularly skulls, jaws and teeth, were evidently held in high esteem.

The presence of the rice rat at Ca-

hokia attests to the marshy grasslands that must have existed in this region. This rodent now occurs in such areas only in southern Illinois, although in prehistoric times the range of the rice rat extended northward to Peoria county, as evidenced by remains found at the Kingston Site (Baker, 1936). The complete dentary and anterior half of the skull of a fisher were found in the village midden refuse (Parmalee, 1958c); the presence of this mustelid in west-central Illinois represents a 200-mile southern extension of its known range in the state. Bones of a variety of other mammals were identified, but it is evident that the whitetail deer was utilized to a far greater extent than any other single species.

SUMMARY

1. In 1956, Mr. Gregory Perino excavated approximately one acre of the Cahokia village, a large Middle Mississippi site in western Madison Co., Illinois. Approximately 9,800 bones, representing all classes of vertebrates, were identified by the author.

2. The whitetail deer and several species of waterfowl, especially geese (*Branta* and *Chen*), mallard, teal, and lesser scaup, constituted a major portion of the vertebrate remains. Bones of a large variety of birds and mammals and, to a lesser extent, fish and turtles, were identified (Table 1); most still occur within the general vicinity of Cahokia.

3. Bones of several extinct and rare Illinois species (passenger pigeon, Carolina parakeet, ivory-billed woodpecker, long-billed curlew, rav-

en, swallow-tailed kite, and fisher) were found, their presence at Cahokia representing new archaeological records, extensions of ranges and indications of the prehistoric ecology of the area. The presence of the rice rat and a variety of waterfowl and birds associated with an aquatic environment indicated the former existence of numerous lakes, marshes, and streams. The abundance of remains of prairie chickens pointed to the proximity of former areas of extensive grassland and prairie.

4. The numerous cut bones of several species (trumpeter swan, Canada goose, turkey, and whitetail deer) showed a secondary use of animals in the manufacture of ornaments, tools, and utensils from bone. In the instance of the bald eagle and possibly others, it appeared that some animals taken by the occupants of Cahokia were collected for their plumage, hides, and bones rather than as food.

5. The quantity and variety of animal remains from the Cahokia Site served as an excellent indicator of animal abundance and distribution in relation to ecological conditions in that region during prehistoric times.

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