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DEPARTMENT OF ANTHROPOLOGY
WESTERN MICHIGAN UNIVERSITY

REPORT OF INVESTIGATIONS NO. 70
1985

CARBONIZED PLANT RESIDUES FROM 11CT385, A LATE WOODLAND
SITE NEAR THE CARLYLE RESERVOIR IN CLINTON COUNTY, ILLINOIS

William M. Cremin

Site 11CT385 is a Late Woodland site of undetermined extent located in the southeast corner of Section 25, Irishtown Township, T3N R2W, Clinton County, Illinois. Today, this site occupies an actively eroding bank of the Carlyle Reservoir, but formerly it was situated on a ridge spur flanking the eastern margin of the Kaskaskia River Valley at an elevation of about 6 m above the river floodplain.

The former floodplain below the site averaged 4.8 km in width in this segment of the valley. Known locally as the Boulder Bottoms, it was dotted with small ox-bow lakes and supported a dense growth of pin oaks in poorly drained swampy areas, with willow and sycamore along the river banks and minor stands of Palustrine oak-hickory-maple forest occupying better drained landforms. The terrace supported climax vegetation ranging from hydrophytic forms in less well drained areas to mesophytic communities along the rim of the terrace. Slopes and uplands were dominated by upland oak-hickory forest, and the prairie approached to within a short distance of the site. The advantages of such a location for a settlement of Late Woodland people would have been the availability of a wide range of critical life support resources in the diverse zones comprising the immediate site environs.

This site was investigated by American Resources Group, Ltd. of Carbondale, Illinois during the summer of 1985. Excavation consisted of nine 1x1 m and 1x2-m test squares, with special attention being given to lake's edge where several prehistoric cultural features were observed to be eroding out of the bank. How much of the site has disappeared beneath the waters of Carlyle Reservoir cannot be precisely

ascertained, but limited testing has yielded enough evidence of significant Late Woodland occupation to warrant National Register nomination for this prehistoric community (Michael Sirico, American Resources Group, Ltd., personal communication).

During excavation, some carbonized plant residues were recovered while screening unit levels and collected by hand from two of the features. In addition, six 5 l flotation samples from three features produced plant remains. In total, 22 samples of carbonized plant residues from 10 proveniences were submitted to this analyst for identification and quantification. These data are summarized in Table 1.

Carbonized plant remains aggregate 80.19 g by weight and have been placed into the following categories during analysis: unidentified charcoal (consisting of unsorted wood and nutshell fragments that passed through the 3.55 mm laboratory sieve and were not further examined) - 13.69 g; wood charcoal - 20.12 g; nut charcoal - 2.28 g; nutshell and kernel fragments - 42.56 g; and seed residues - 1.54 g.

Nothing can be said with respect to the category of unidentified charcoal, but it is perhaps noteworthy that the small quantity of wood charcoal includes at least six species that were formerly common to native bottomland, slope, and upland forest communities. Present in the sample (together with their frequencies of occurrence) are: white oak group - 5; American elm - 3; American chestnut - 2; white ash - 1; sycamore - 1; and black walnut - 1. The diversity exhibited by this small sample does not argue well for species selectivity on the part of those gathering fuelwood, but would rather appear to indicate that deadwood was being collected by the site's residents as it became available to them in the immediate vicinity of 11CT385.

Table 1: Late Woodland Plant Remains from Site 11CT385 near Carlyle Reservoir, Carlyle, Illinois.

<u>Lot no.</u>	<u>ARG no.</u>	<u>Provenience</u>	<u>Sample Volume</u>	<u>Contents wt(g)/ ct</u>	<u>Comments</u>
1	-	Unit 9, L-1	-	.28 / 1	wood charcoal, diffuse porous, probably <u>Platanus occidentalis</u> (sycamore)
2	-	Unit 5, top of Feature 3	-	.90 / 81	5 pieces are <u>Quercus</u> spp. (white oak group) and remaining wood charcoal not identifiable
				.01 / 1	<u>Carya</u> sp. nutshell
3	-	Unit 5, near base of F-3	-	.19 / 13	<u>Ulmus americana</u> charcoal (American elm)
				.05 / 1	<u>Carya</u> sp. nutshell
4	AS-1	Unit 1, F-1, 40-50 cm	5 l	2.56 / -	unid. charcoal
				.80 / 19	3 specimens of ring porous, 2 <u>Quercus</u> spp. and 1 <u>U. americana</u> wood charcoal
				1.37 / 22	<u>Carya</u> sp. (probably <u>C. ovata</u> , shagbark hickory)
5	AS-2	Unit 1, F-1, 50-60 cm	5 l	8.55 / -	unid. charcoal

Table 1, cont.

<u>Lot no.</u>	<u>ARG no.</u>	<u>Provenience</u>	<u>Sample Volume</u>	<u>Contents wt(g)/ ct</u>	<u>Comments</u>
				11.31 / 192	16 pieces of ring porous, 9 of <u>Fraxinus americana</u> (white ash), 7 <u>Quercus</u> spp. (white oak group) and 4 pieces that are probably <u>Castanea dentata</u> (American chestnut) wood charcoal
				3.19 / 67	<u>Carya</u> spp. nutshell
				.61 / 3	<u>C. ovata</u> nutshell
				.25 / 3	1 <u>Prunus</u> sp. and 2 unidentified seed or stone fragments
6	AS-3	Unit 1, F-1, 60-70 cm	5 l	2.41 / -	unid. charcoal
				2.17 / 73	1 specimen is <u>U. americana</u> and a second <u>Quercus</u> sp. wood charcoal
				1.00 / 16	<u>Carya</u> spp. nutshell
				.42 / 5	<u>C. ovata</u> nutshell
				.48 / 2	<u>C. laciniosa</u> (shell-bark hickory) nutshell
				.02 / 1	probably bitternut hickory (<u>C. cordiformis</u>) shell fragment

Table 1, cont.

<u>Lot no.</u>	<u>ARG no.</u>	<u>Provenience</u>	<u>Sample Volume</u>	<u>Contents wt(g)/ ct</u>	<u>Comments</u>
7	AS-4-1	Unit 4, F-2, at depth of 27 cm in N 1/2	5 1	.46 / 19	2 specimens of <u>Juglans nigra</u> (black walnut) wood charcoal
				4.39 / 154	<u>Carya</u> spp. nutshell
				1.03 / 7	<u>C. glabra</u> (pignut hickory) nutshell
				.51 / 3	<u>C. illinoensis</u> (pecan) nutshell
				.32 / 2	<u>C. ovata</u> nutshell
				.71 / 1	<u>J. nigra</u> kernel and shell (largely intact)
				.18 / 1+	1 complete and several fragments of <u>Diospyros virginiana</u> (persimmon) seed
8	AS-4-3	Unit 4, F-2, at depth of 27 cm in S 1/2	5 1	4.01 / 63	2 fragments of <u>Quercus</u> spp. (white oak group) and 1 specimen of <u>C. dentata</u> wood charcoal and 6 fragments of <u>Quercus</u> spp. bark
				15.24 / 778	<u>Carya</u> spp. nutshell
				.52 / 16	<u>Quercus</u> spp. kernel and shell fragments

Table 1, cont.

<u>Lot no.</u>	<u>ARG no.</u>	<u>Provenience</u>	<u>Sample Volume</u>	<u>Contents wt(g)/ ct</u>	<u>Comments</u>
				2.73 / 15	<u>C. tomentosa</u> (mockernut hickory) nutshell
				.76 / 8+	4 pieces of <u>Prunus serotina</u> (wild black cherry) stone, 1 seed of <u>Polygonum erectum</u> (knotweed), 1 seed of <u>Scirpus</u> sp. (bulrush), 16 minute fragments of <u>D. virginiana</u> and 1 unidentified large, triangular seed-like structure
9	AS-5-12	Unit 5, F-3, 40-50 cm	5 l	.17 / -	unid. charcoal
				.27 / 14	<u>Carya</u> spp. nutshell (6 fresh specimens of <u>Chenopodium album</u> or lamb's quarter and 2 fungal nodules)
10	-	Unit 4, F-2, 41-45 cm	-	2.28 / -	unidentified nut charcoal (mostly meat or kernel fragments)
				4.12 / 14	one whole nut and 13 pieces of <u>C. laciniosa</u> nutshell
				3.97 / 24	acorn kernel and shell fragments (probably

Table 1, cont.

<u>Lot no.</u>	<u>ARG no.</u>	<u>Provenience</u>	<u>Sample Volume</u>	<u>Contents wt(g)/ ct</u>	<u>Comments</u>
					<u>Q. palustris</u> or pin oak)
				1.60 / 13	the meats of pecan or <u>C. illinoensis</u>
				.35 / 1	5 fragments that represent no more than a single seed of <u>D. virginiana</u>

Nut residues, in aggregate, exceed the total weight of wood charcoal in the sample by a ratio of more than 2:1. However, the potential significance of this observation may be biased due to the abundance of nuts comprising several concentrations in a single food processing facility(?), Feature 2, where 28.89 g of hickory, black walnut, and acorn residues, representing 64.4% of all nut remains by weight, occur.

Hickory nut residues have been observed to occur in nine of 10 lots or proveniences and are everywhere the most abundant remains, comprising 37.36 g (87.8%) of the total identified nut weight. The shell fragments and kernels of acorn occur twice in Feature 2 and total 4.49 g (10.5%) of the aggregate nut residues by weight. Black walnut is represented by a trace quantity (.71 g, 1.7%) in a single lot from this same pit.

As was the case with wood charcoal, nutshell and kernel residues, representing a minimum of six species of hickory nut, including pecan, shagbark hickory, mockernut hickory, bitternut hickory, pignut hickory, and shellbark hickory, black walnut, and at least one species of acorn, pin oak, argue strongly for the harvesting of the autumn nut crop and acorn mast across the entire spectrum of plant resource zones occurring within the immediate site environs.

Finally, a mere 1.54 g of seed remains occur in the sample, with the fleshy fruits of the persimmon and American plum and/or wild black cherry being represented by three and two occurrences, respectively, and a single occurrence each being observed for the erect knotweed and the bulrush. The bulrush would have been a common constituent of marsh and/or swamp associations occupying the wet bottoms below the site, and the erect knotweed might be anticipated to have grown in some profusion wherever disturbed habitats existed, including on the site, itself.

Both the persimmon and species of the genus Prunus would have occurred through the immediate vicinity of 11CT385.

While the plant residues under study constitute a very small sample, making interpretation of plant resource utilization by the residents of the Late Woodland site difficult at best, these data do provide the basis for making some preliminary statements about prehistoric subsistence activities undertaken from this location in the Kaskaskia River Valley. First, the sheer diversity and ubiquity, if not the abundance, of nutshell (and kernel or meat fragments) in the sample strongly suggests that the local nut crop played an important role in resource scheduling decisions during the occupation of 11CT385. The oil and fat-rich hickory nut and black walnut would have been of considerable food value, both when in season and perhaps for storage and consumption later in the year. Secondly, the two concentrations of acorn residues together with the the remains of oily nuts in Feature 2 certainly indicate that this source of carbohydrates was being collected and processed for human consumption as well. Just how valuable one resource was in relation to the other is, however, difficult to ascertain from a small sample, especially in light of the often-cited problems associated with the differential preservation of nut and acorn residues. Finally, the presence of several fleshy fruits and the starchy seed of erect knotweed might be anticipated in an assemblage suggesting exploitation of the autumn nut crop, but their small numbers certainly argue for no more than incidental collection along with harvesting of nut resources. And in the case of the single seed of the erect knotweed, accidental inclusion in the sample as a result of natural seed rain on the site cannot be easily dismissed.

The data assembled and herein reviewed, when taken together, would

appear to indicate that 11CT385 functioned primarily as a nut collecting and/or processing station during Late Woodland times and was occupied during the late summer-early fall of the year. However, the possibility that these surviving plant residues represent stored food that was processed and consumed later in the year cannot be ruled out. As the other site data are analyzed and compared with the results of this study, it may prove necessary to extend the occupation of this site over a greater portion of the year and perhaps also expand upon the role of this site in the Late Woodland subsistence-settlement system.