

Paleoethnobotany of the Draper and White Sites

LARRY KING and GARY CRAWFORD

Plant remains from the Draper and White sites were submitted to the authors for analysis at the University of Toronto in the fall of 1973. Samples were in the form of flotation residue (flotation according to Struever, 1968)

and plant remains recovered directly from excavation units.

A total of 2,755 cc of carbonized material was recovered from 33 flotation samples from Draper. Flotation at the White site procured 2,805 cc of similar remains from 16

Table 1A Flotation Samples from the Draper Site

Square N. E.	Subsq.	Feature	WILD PLANT REMAINS											TOTAL	CULTIGENS										
			Rubus	Sambucus	Rhus typhina	Crataegus	Chenopodium	Prunus pens.	Prunus nigra	Cycloloma	Cyperaceae	Gramineae	Unknown		Kernel	Zea mays Kernel frag.	Cob frag.	Cucurbita	Phaseolus	Helianthus	nut Fagus	Cu. cm sorted	Liters floated		
27-74	13	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	100	-	
30-64	11	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	75	-	
32-60		1	1	-	3	-	1	-	-	-	-	-	1	-	-	-	1	-	-	-	-	50	-		
34-60	11	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	10	-	-	-	-	75	17.6	
34-70	8	4	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	500	-		
36-58	4	4	-	-	1	-	-	-	1	-	-	-	-	-	-	-	24	1	-	-	-	100	11.7		
38-60	2		-	-	-	4	-	-	-	-	-	-	-	-	-	-	2	24	4	-	-	225	17.6		
38-60	9	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	8.8		
42-42	16	1	-	-	-	5	425	-	-	-	-	2	3	-	-	-	-	-	1	-	-	55	17.6		
42-44	15	2	2	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	175	17.6		
42-50		3	2	-	1	-	-	-	-	-	-	-	-	-	-	-	4	30	2	-	-	50	-		
42-52	11	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	2	-	-	200	-		
42-52		2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3	-	1	-	150	-		
42-52		4	1	-	-	1	4	-	-	-	-	-	-	-	-	-	-	33	15	-	1	125	-		
42-52		9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	-		
42-52		18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	39	11	-	-	100	-		
44-44	7		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
44-44	11	3	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	
44-50		1	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	3	-	-	-	175	-		
44-52		1	-	-	2	3	22	-	1	-	-	-	-	1	-	-	-	3	-	1	-	-	-	-	
46-44		1	1	-	2	-	11	-	1	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	
46-44	8	2	-	-	1	3	-	-	-	-	-	-	-	-	-	-	-	13	-	-	-	100	-		
46-44	12	2	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
46-46	1	3	-	-	-	1	-	-	-	-	-	-	-	1	-	-	9	60	17	-	-	125	-		
46-46	13	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8	-	-	125	17.6		
46-48	1		-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	17.6		
46-48	13	3	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	35	17.6		
48-44	11	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	11	-	-	-	30	8.8		
48-42	16		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	100	-		
48-44		1	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	2	-	-	-	50	-		
50-44	4	1	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	350	23.5		
54-30	15		-	-	-	-	-	-	-	1	-	-	-	2	-	-	-	2	-	-	-	-	-	-	
Midden			4	1	35	1	-	3	1	-	-	-	-	5	-	-	10	112	164	2	1	2	3	500	-
Total			15	3	52	18	464	3	6	1	4	3	14	583			37	429	226	2	3	3	3		

Table 1B Miscellaneous Samples from the Draper Site

Square N E.	Subsq.	Feature	CULTIGENS						
			Kernel	Zea mays		Cucurbita	Phaseolus	Helianthus	Juglans cinerea
				Kernel Frag.	Cob Frag.				
26-70			—	—	1	—	—	—	—
26-72	5		—	—	1	—	—	—	1
28-64	8	1	—	—	2	—	—	—	—
28-64	12	1	—	—	1	—	—	—	—
28-64	14		—	—	3	—	—	—	—
28-64	15		—	1	—	—	—	—	—
28-66	13	1	—	2	1	—	—	—	—
34-60		1	—	6	7	—	1	—	—
36-58	10		—	—	2	—	—	—	—
38-54	6		—	—	1	—	—	—	—
38-54	2		—	1	—	—	—	—	—
38-54	9		—	—	1	—	—	—	—
40-52	4		—	1	—	—	—	—	—
40-52			—	1	—	—	—	—	—
40-46	1		—	1	—	—	—	—	—
42-50		1	—	4	4	—	—	—	1
44-44	2		—	1	—	—	—	—	—
44-44	3		—	—	1	—	—	—	—
44-44	6		—	—	1	—	—	—	—
44-44	13		—	1	—	—	—	—	—
48-46	10		—	—	1	—	—	—	—
50-42	9		1	—	—	—	—	—	—
50-44	8		—	1	—	—	—	—	—
50-44	12		1	—	—	—	—	1	—
50-44	14		—	5	3	—	—	—	—
44-7	13	4	—	—	—	—	—	—	—
Misc.			11	44	53	8	—	—	—
Total			13	70	82	8	1	1	2

samples. Tables 1A and 2A present a breakdown of the volume of charcoal recovered and (where available) the soil volume floated per sample.

To facilitate sorting of the flotation samples, each was separated into four size classes using three sieves of 2 mm, 850 μ and 250 μ aperture. Fossil seeds and nut fragments were then picked from the concentrate with a fine brush and forceps. The remaining volume of concentrate was measured and sieved through a 9.5 mm screen to remove identifiable wood charcoal.

Identifications were made with a binocular microscope at magnifications of 10x or 30x, and were assisted by the reference collections of the Geology Department at the Royal Ontario Museum.

Although there is no *a priori* basis to assume prehistoric connection of the peoples between the two sites in question, the data from the sites have been presented together to allow for convenient reading and to minimize redundancy.

Wild Plant Remains

Draper Site:

Tables 1A and 1B summarize the data from the Draper site. A total of 583 carbonized seeds of wild plants were recovered. One non-carbonized seed of *Echinocystis lobata* was present in a sample from 44N 7E, subsquare 13 but its context is questionable. In the samples studied, nine taxa of wild plants are represented.

The largest quantity of carbonized seeds present are those of the genus *Chenopodium*, making up 79.6% of the wild plant seeds. This figure does, however, place an exaggerated importance on this taxa since it has such limited distribution in the samples. *Rhus typhina* (staghorn sumac) is the second largest taxa represented, accounting for 8.9% of the total. *Crataegus* (Hawthorn) is 3.1% of the remains, and *Rubus* (raspberry or blackberry) is 2.6%. The remaining taxa in descending order of abundance are: *Prunus nigra* (Canada plum) 1.3%; *Cyperaceae* (sedge), 0.7%; *Sambucus* (elderberry) *Gramineae* (grass), *Prunus pensylvanica* (pin cherry) and *Cycloloma atriplicifolium* (winged pigweed) each represent 0.5% or less of the samples. Unidentified seeds accounted for 2.4%.

Nut fragments from Draper occur in only four samples. One partially carbonized and one half uncarbonized nut of *Juglans cinerea* (butternut) were found, but data regarding their context is not sufficient to warrant giving definitive significance to them. Three well-preserved carbonized beech nuts (*Fagus grandifolia*) were recovered from the midden sample. All of these nuts become mature in the fall.

White Site:

Tables 2A and 2B summarize the White site data. A total of 536 carbonized seeds of wild plants were recovered. Eight taxa of seeds are represented in this section.

Rubus being 54.7% of the total has the largest representation. *Sambucus* is the second largest taxa represented (24.6%). Two other genera, *Rhus* (4.0%) and *Prunus nigra* (3.9%) are the next most common. The remaining taxa in descending order of abundance are: *Chenopodium* (1.3%) *Vaccinium*, and *Crataegus*, each constitute 0.6% of the seeds. One seed of *Cornus* and one of *Prunus pensylvanica* were recovered, each representing 0.2%. Unidentified seeds accounted for 13.3% of the samples. Table 5 presents known uses, habitat and seasonality for those plants represented in the samples.

Cultigens

Draper Site:

Zea mays (maize), *Phaseolus vulgaris* (common bean),

Table 2A Flotation Samples from the White Site

Square	Subsq.	Feature	WILD PLANT REMAINS										CULTIGENS						Cu. cm sorted	
			<i>Rubus</i>	<i>Sambucus</i>	<i>Rhus</i>	<i>Crataegus</i>	<i>Vaccinium</i>	<i>Chenopodium</i>	<i>Cornus</i>	<i>Prunus nigra</i>	<i>Prunus pen.</i>	Unknown	Total	Kernel	Kernel Frag.	Cob Frag.	<i>Cucurbita</i>	<i>Phaseolus</i>		<i>Helianthus</i>
S. W.																				
0-0	1		9	3	11	-	3	3	-	-	1	27	57	-	45	23	-	-	-	200
18-2	3		-	-	1	-	-	-	-	-	-	2	3	-	2	3	-	-	-	125
18-8	1		7	7	-	-	-	-	-	-	-	-	14	1	14	38	-	-	1	200
20-10	2		31	7	-	-	-	1	-	-	-	3	42	2	103	182	1	1	-	150
20-10	3		177	75	-	-	-	-	1	1	-	3	257	-	-	-	-	1	-	100
20-10			19	8	1	-	-	2	-	-	-	7	37	2	81	89	-	2	1	600
28-0	1		2	-	-	-	-	-	-	-	-	1	3	-	9	1	-	-	-	100
36-0	4		-	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	50
38-0	4		1	8	-	-	-	-	-	-	-	3	12	-	4	-	-	-	-	125
N. E.																				
2-20	9		-	-	-	-	-	-	-	-	-	1	1	-	1	-	-	-	-	25
2-20			-	-	-	-	-	-	-	-	-	3	3	-	-	-	-	-	-	230
42-5	1		9	16	2	1	-	-	-	-	-	7	35	1	10	30	-	-	-	425
44-5 Midden			15	-	1	1	-	1	-	-	-	2	20	6	42	30	-	1	1	75
S. E.																				
7-47			2	-	-	1	-	-	-	1	-	4	8	-	7	-	-	-	-	125
N. W.																				
21-0	13		7	3	5	-	-	-	-	-	-	5	20	2	23	2	-	1	-	150
40-0	3		-	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	125
Total			279	127	21	3	3	7	1	2	1	68	512	14	341	398	2	6	3	2805

Cucurbita pepo (squash), and *Helianthus annuus* (sunflower) were found in the Draper remains. Distributions of the cultigens encountered in the samples is presented in Tables 1A and 1B.

Maize represented the greatest quantity of these plant remains. Whole kernels totaled 50, kernel fragments 499, and cob fragments (mostly cupules) 308. Measurements of 67 kernels averaged 9.7 mm in width (range 8.0-12.0) and 5.9 mm in thickness (range 3.4-6.8). The dimensions of the kernels along with the generally crescent shape are indicative of a Northern Flint variety (Winter 1971).

Two uncarbonized peduncle fragments of squash were recovered in the midden sample. Five bean seed fragments were recovered from 5 samples. Four of the fragments each represent 1/2 of a complete seed, usually separated along the horizontal axis. The average length of the fragments is 9.4 mm (range 7.7-11.0), width 5.1 mm (range 4.0-5.8), thickness 2.3 mm (range 1.8-2.8).

Three sunflower seeds were recovered from 2 samples, 2 well-preserved specimens had average measurements of

4.8 mm in length, 1.9 mm in width, and 1.5 mm in thickness.

White Site:

Zea mays, *Cucurbita pepo*, *Phaseolus vulgaris* and *Helianthus annuus* are present in the White Site samples. Tables 2A and 2B contain a summary of the domesticated plant remains from the White Site.

Maize is represented by 167 whole kernels, 477 kernel fragments and 422 fragments of cob. Measurements of 156 kernels averaged 9.4 mm in width (range 4.0-13.0) and 6.6 mm in thickness (range 4.0-11.0). Large numbers of corn remains, along with the presence of beans and squash indicate a strong reliance on domesticates for a major portion of the vegetable diet.

The recovery of non-carbonized and partially carbonized remains, both domestic and wild is very unusual. Further studies of the conditions for the preservation of organic material at the sites must be carried out before the signi-

Table 2B Miscellaneous Samples from the White Site

Square	WILD PLANT REMAINS					CULTIGENS						
	Subsq	Feature	<i>Rubus</i>	<i>Prunus nigra</i>	Unknown	TOTAL	Kernel	Kernel Frag.	Cob Frag.	<i>Cucurbita</i>	<i>Phaseolus</i>	<i>Helianthus</i>
Zea mays												
S. W.												
0-0	9				1	1	1	1				
0-0	13						1					
18-2		6					1	1				
20-10		2					22	20	4			
20-10	3						1					
20-10	11						1	1				
20-10							5	13	6			
28-0							1	1				
N. E.												
2-20	8							2				
2-20	10							2				
44-5	Midden		16	3	19	107	82	11	1	1		
44-7	Midden		1			8	4					
44-7	9					2						
N. W.												
32-0			1	3	4	1	2	3	1	2		
38-2	10						7					
38-2		1					2					
40-0	Post		1			1						
Total			1	18	7	24	153	136	24	2	3	

fificance of these remains can be interpreted.

The Draper and White sites have a great potential for paleoethnobotanical studies, as is indicated by the remains recovered. Flotation of soils from the sites should continue during future excavations. With adequate supporting data the outcome should add greatly to our knowledge of prehistoric Iroquoian subsistence.

Table 3 Wood Charcoal Identified from the White Site

Square	Subsq	Feature	Level	Gymnospermae																
				Acer (maple)	Fagus (beech)	Ulmus (elm)	Ostrya (ironwood)	Betula (birch)	Carya (hickory)	Fraxinus (ash)	Juglans (walnut)	Prunus (cherry)	Partially carbonized	Uncarbonized						
S. W.																				
2-2			10	X		X	X													X
20-10	1		9-12	X	X	X	X													X
22-12	2			X	X	X				X		X	X							
22-12	3			X																
22-12			3-6	X	X		X	X												X
22-12			9-12	X	X	X				X										X
S. E.																				
2-40			1																	X
N. W.																				
32-2			9-12																	X
N. E.																				
42-5			1	X		X				X										
42-5			1	X						X										
42-5			17-23	X	X	X					X									
42-5			25-30																	X
Total				9	5	6	3	3	3	3	1	1	1	2	5					

Table 4 Charcoal Identified from the Draper Site

Square	Subsq	Feature	Level	Gymnospermae																
				Acer (maple)	Fagus (beech)	Ulmus (elm)	Juglans (walnut)	Ostrya (ironwood)	Betula (birch)	Carya (hickory)	Tilia (basswood) Populus (aspen)	Fraxinus (ash)	Prunus (cherry)							
N. E.																				
30-64			1	33-45	X	X	X	X	X		X									
36-58			4	27-47	X		X	X												X
42-44			2	24-27	X	X	X	X		X										
42-52			2	24-28		X		X												
42-52			4	24-28	X															
42-52			18	30		X	X				X									
44-42			1			X				X	X		X							
44-44			3	33-42	X	X				X										
44-46			3	30	X		X													
46-46			4	30	X															
46-48			3	30	X						X									
Midden					X	X	X						X							
Total					9	7	6	4	3	3	2	2	2	1	1					

Table 5 Seasonality, Habitat, Use (Yarnell 1970, Soper 1949)

PLANT NAME	KNOWN USES	HABITAT	SEASON
<i>Rubus</i> (blackberry)	food	thickets, clearings borders of woods	July–August
<i>Sambucus</i> (1) <i>S. canadensis</i> (2) <i>S. pubens</i>	food, medicine	(1) damp rich soils (2) woods, clearings	June–August
<i>Rhus typhina</i> (Staghorn sumac)	food, medicine, smoking, technology	dry, rocky or gravelly soils; waste ground	June–July
<i>Chenopodium</i> (Goosefoot)	food greens collected in early summer	waste ground	August–October
<i>Crataegus</i> (Hawthorn)	food, medicine smoking technology	thicket, open ground	September–October
GRAMINEAE (Grass family)	food(?)	varied habitat	June–August
CYPERACEAE (Sedge family)	food, medicine, technology	varied habitat	June–August
<i>Vaccinium</i> (blueberry)	food, medicine	varied habitat	July–September
<i>Cornus</i> (Dogwood)	food, medicine	wood, thickets, damp openings	August–October
<i>Prunus nigra</i> (Wild or Canada plum)	food, dyes	rich alluvial soil, thickets, border of woods	August–September
<i>Prunus pensylvanica</i> (Fire cherry)	food, medicine	dry woods, clearings hillsides, sands	July–August

REFERENCES

- Soper, J.H.
1949 *The Vascular Plants of Southern Ontario*. Toronto: Dept. Botany, Univ. Toronto. 95 pp.
- Streuver, S.
1968 Flotation Techniques for the Recovery of Small Scale Archaeological Remains. *Amer. Antiquity* 33: 353–362.
- Winter, J.
1971 A Summary of Owasco and Iroquois Maize Remains. *Penn. Archaeologist* 41: 1–11.
- Yarnell, R.A.
1964 Aboriginal Relations Between Culture and Plant Life in the Upper Great Lakes Region. *Mus. Anthropology, Univ. Michigan* No. 23.

