

## Lower Great Lakes Region Maize and Enchainment in the First Millennium A.D.

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*In this paper, I suggest that maize spread through the Lower Great Lakes region as part of the largely cooperative projects of women, who were symbolically interlinked with peers and relatives across the landscape. The mechanism behind this relational networking is presented as enchainment, the reconstruction of human identities through the transmission of materials. I see maize as having been taken up within contexts of local traditions of broad-based subsistence and wide-reaching adoption and exchange of materials. The available data suggest that maize was not simply, or not only, taken up within the competitive feasting campaigns or conspicuous displays of élites, nor was it transferred in a clearly and formally sacred or ceremonial system that swept through the region. Instead, maize appears to have been taken on by persons as a material that straddled the designations “food” and “artifact.”*

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### Introduction

The advent of farming lifeways is often considered to have been revolutionary for past hunter-fisher-gatherer communities. The spread of agriculture entailed the movement across the landscape of previously unfamiliar species or new varieties of known species as well as novel materials and their attendant activity suites (Dennell 1983; Rowley-Conwy 1986; Zvelebil and Lillie 2000; Zvelebil and Rowley-Conwy 1986). For the archaeologist, this situation of interface and experimentation provides an exemplary venue for exploring a number of research themes and the interaction among past communities that lived on and used the same terrain and its resources differently. Some recent scholarship has suggested that material possessions and the actions that went along with their manufacture and use in many past societies may have, in a very tangible manner, built identity and community in ways distinct from those at work or perceived today (Chapman 2000a, 2000b; Fowler 2004; Jones 2002; Strathern 1988). In these interconnections, persons not only took on new materials as their own, they also took up elements of others (neighbours, relatives and, perhaps, enemies) (see also Ehret 1988). In these acts of exchange, new selves or identities were constructed.

A number of researchers (Dietler and Herbich 1998; Moore 1994; Pearson and Shanks 2001; Shanks and Tilley 1987; Thomas 1996, 2002; Wobst 2000) have proposed that materials and artifacts are not simply efficient and functional items that we employ to do jobs and later cast aside as meaningless or dysfunctional. Instead, materials, whether vessels or implements, are more closely tied to our identities and bodies than they at first appear to be. Things and people are bound together in inextricable ways and it could be said that past daily lives were made and held together at the intersection of peers, things and human projects (Robb 2001). Materials are said to have an active role in human lives and have an agency or influence of their own (Gell 1998; Shanks and Tilley 1987:134). Furthermore, it may be that the edible resources of past subsistence regimes should also be perceived in this active manner (see Chapman 2000b:40; Johannessen 1993b:188, 205; see also Watson and Kennedy 1991). If making and exchanging artifacts can alter identities, perhaps so too can food in the contexts of its procurement, tending, preparation and consumption. To me, then, maize, as a novel resource, should also be seen a material that was critical in the construction of new identities and new plans in the Lower Great Lakes region of North America across the first millennium A.D. and, perhaps, even earlier.

Some researchers in the Lower Great Lakes region have suggested that the spread of maize was the result of a combination of factors such as diffusion, assimilation and migration (Ferris 1999b; Smith and Crawford 1997:28; Stewart 1998) or due to shifts in environment and technology associated with social factors (Crawford and Smith 2002:131). My recent synthetic, archival research (Martin 2006) has explicitly been aimed at elucidating the role of human agency in the initial spread of maize through the Lower Great Lakes region. My mandate was bifurcate: to review the evidence for sites with the earliest maize and to characterise the physical contexts of maize at those sites. From there, I could assess patterns of maize uptake and disposal and, perhaps, infer the social context(s) of the earliest maize in the region.

In order to fulfil the first part of the programme, and since developer-driven archaeology or cultural resource management (CRM) has accounted for perhaps 80% of the archaeological work conducted over the last 20 years or so (i.e., Ferris 1999a, 1999b; McElrath et al. 2000:4; Whitley 1998:20; Williamson 1999:3; Zeder 1997; cf. Crawford and Smith 2002:126), my study required access to site reports generated by CRM projects as well as to those deriving from institutional researcher excavations. Many of the archaeological reports that stem from these undertakings are housed in various state and provincial archival repositories and, following the logistics of working within modern political boundaries, I employ the term Lower Great Lakes region here to inclusively describe Michigan's Lower Peninsula, Ohio, Pennsylvania, New York and southern Ontario (see Figure 1; Table 1). This region, then, encompasses an area somewhat broader than the Lower Great Lakes drainage basin proper.

### **The Advent of Maize in the Lower Great Lakes Region**

Maize is not indigenous to Eastern North America and had been domesticated long before its appearance east of the Mississippi River (Cordell and Smith 1996; Pope et al. 2001; Smith 1995). This means that maize kernels or cobs did not spread

north and east by "natural" processes but rather by people giving it to their neighbours through various kinds of mobility and social connections across the landscape. We can infer network creation and the tearing down or disassembly of agricultural frontiers or borders at these times (Martin 1999; Zvelebil and Lillie 2000). Sometimes, social boundaries were erected to the movement of certain materials, and possibly to some or all personnel of neighbouring groups, but I suspect that these sorts of restrictions on movement and resource availability were both rare and temporary in the Lower Great Lakes region during the first millennium A.D. I see maize as having moved within these milieux of wide scale interactions (Ferris 1999b; Fritz 1993; Stothers 1977; Wymer 1993). My research picks up the trail of the spread of maize in the American Midwest just as it seems to have been first entering the region. The earliest AMS radiocarbon dates on the macrobotanical remains of maize in Eastern North America, so far, come from the Holding site in western Illinois (c. 170 B.C.-A.D. 10) (see Crawford et al. 1997; King 1999; Riley et al. 1994; Thompson et al. 2004). Conventional radiocarbon dates potentially place maize at Meadowcroft Rockshelter in southwestern Pennsylvania, slightly earlier than this date, but these dates may not be closely associated with the maize from that site (Carlisle and Aodovasio 1982; Crawford et al. 1997; Riley et al. 1994) and so are accepted here with reservations.

Maize was not the first domesticated plant in the Lower Great Lakes region although, for some communities, it may have represented the first plant with which people were engaged in every stage of its life-cycle (see Crawford and Smith 2003). Since the early 1980s, it has become clear that a number of indigenous plants had been domesticated well before maize appeared in the Northeast (see Chapman and Watson 1993; Crawford 1999). Further research in this vein may demonstrate that many more societies in the region were knowledgeable about indigenous plant cultivation many centuries before their introduction to maize. It may even demonstrate that indigenous seed crops were exchanged between communities and not domesticated independently by each one. The Eastern

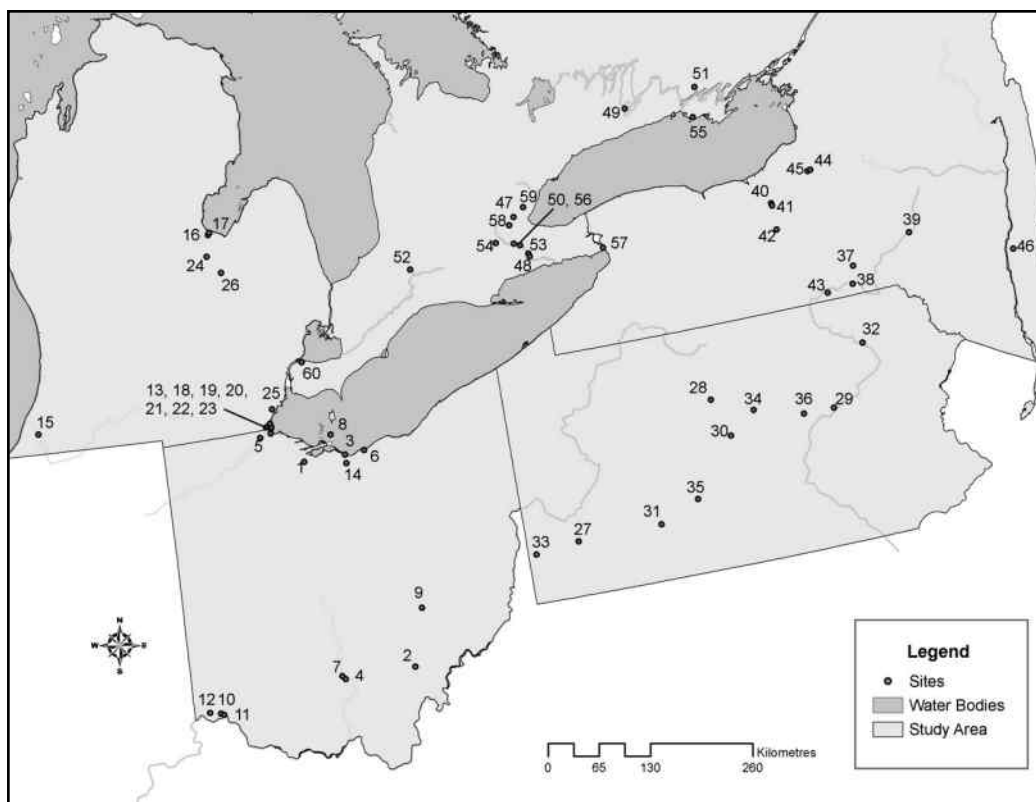


Figure 1. Sites yielding maize in the lower Great Lakes (see Table 1).

Agricultural Complex plants (e.g., sumpweed/marsh elder, goosefoot, maygrass, erect knotweed, little barley, pigweed and giant ragweed) seem to have been cultivated in some places within the region as early as 2000-1500 B.C. (Cowan 1998; Crawford and Smith 2003; Fiedel 2001:101; Fritz 1990, 1993; Smith 1995; Wymer 1993). Amid and beside these cultigens, their wild counterparts likely remained important, as did white-tailed deer, wild turkey, various fish species (e.g., anadromous salmonids and non-migratory fishes), wild rice, various nuts (e.g., hickory nuts, walnuts, acorns) and fruits and berries (Crawford and Smith 2003; Ferris 1999b; Fritz 1990; Johannessen 1993a; Wymer 1993, 1996). We can imagine, then, a mosaic of agroeconomies into which maize was adopted (see Fritz 1990; Hart 2001; Watson and Kennedy 1991; Wymer 1993) or, indeed, amid which maize was rejected, even as an option.

Hunter-fisher-gatherers and their indigenous crop-growing neighbours were likely not stationary

on the landscape. Instead, they seem to have moved through their territories in tailored annual rounds, targeting the seasonal appearance of localised animal and plant resources (Binford 1980; Ferris and Spence 1995:99-100; Wright 1999:653; Wymer 1993:154). Some of these communities may have lived in two, three or more localities in any given year (see Wright 1999:649). During the cold season, it is likely that many of these communities split up into smaller groups and relocated to their microband, family-based campsites or hamlets following the harvest and processing of plant and animal resources (Spence 1999; Stothers 1977; Stothers and Abel 2002; cf. Smith and Crawford 1997:21-22). These dispersed family groups may have taken advantage of the yarding behaviour of deer or they may have set up campsites and trap lines along the game trails of other species (Purtill 2001; Stothers 1977).

Processes of community-building and events or rites of social reintegration probably took

Table 1. Sites with maize by approximate maize date range and context.

Map No.	Site Name	Maize Date Range	Site Type	Maize Context	Source(s)
1	Bear Fort	A.D. 500-1000	hamlet	non-funerary	Stothers and Abel 2001
2	Daines Mound II	A.D. 1-250	burial mound	mound deposit	Murphy 1975
3	Dillon	A.D. 750-1000	hamlet	non-funerary	Stothers and Abel 2002; Stothers et al. 1994
4	Edwin Harness Mound	A.D. 1-250	burial mound	mound burial	Greber 1979, 1983
5	Gladieux	A.D. 750-1000	basecamp and cemetery	non-funerary	Schneider 2000
6	Leimbach	A.D. 750-1000	campsite	non-funerary	Shane 1975; Stothers and Yarnell 1977
7	McGraw Village	A.D. 280-440	hamlet	non-funerary	Blake and Cutler 1983; Prufer (ed.) 1965; Prufer 1974, 1998
8	Misery Acres	A.D. 750-1000	campsite	non-funerary	Purill 2001
9	Philo Archaeological District	A.D. 600-900	hamlet	non-funerary	Carskadden and Morton 1996; Morton 1989
10	Sand Ridge I	A.D. 300-600	village	non-funerary	Niquette and Crites 1993; Simon 2000
11	Turner Mound No. 1	A.D. 1-300	burial mound	mound deposit	Secman 1979a
12	Twin Mounds West	A.D. 250-500	hamlet	non-funerary	Ford 1979; Hawkins 1996
13	Waterworks Mound	A.D. 500-750	burial mound	mound deposit	Schneider 2000; Stothers and Bechrel 2000
14	Weilnau	A.D. 500-1000	hamlet	non-funerary	Stothers and Abel 2002
15	Eidson	A.D. 200-400	campsite	non-funerary	Garland (ed.) 1990
16	Fletcher (Main Locale)	A.D. 500-1000	campsite	non-funerary	Lewis (ed.) 2002
17	Fletcher (Marquette Viaduct)	A.D. 500-1000	campsite	non-funerary	Lewis et al. 1996
18	Gard Island No. 1	A.D. 750-1000	campsite and cemetery	non-funerary	Schurr and Redmond 1991; Schneider 2000
19	Gard Island No. 3	A.D. 750-1000	campsite	non-funerary	Schneider 2000; Stothers and Miller 1977
20	Indian Island No. 3	A.D. 900-1100	campsite	non-funerary	Schneider 2000; Stothers and Miller 1977
21	Indian Island No. 4	A.D. 600-800	campsite	non-funerary	Schneider 2000
22	Indian Island No. 5	A.D. 750-1000	campsite	non-funerary	Schneider 2000
23	Morin	A.D. 750-1000	basecamp and cemetery	non-funerary	Parker 1996; Prah 1974; Schneider 2000
24	Schultz	A.D. 1000-1200	campsite	non-funerary	Lewis et al. 2001
25	Sissung	A.D. 600-900	campsite	non-funerary	Prah 1974; Stothers and Yarnell 1977
26	20SA1034	A.D. 1050-1200	campsite	non-funerary	Parker 1996
27	Backstrum #1	A.D. 400-900	campsite	non-funerary	George 1992
28	Bald Eagle	A.D. 850-1000	hamlet	non-funerary	Hay et al. 1987; King 1999; Stewart et al. (eds.) 1988
29	Catawissa Bridge	A.D. 400-500	campsite	non-funerary	Bush (ed.) 1992
30	Fisher Farm	A.D. 700-900	hamlet	non-funerary	Hatch 1980; Hay et al. 1987; King 1999

Table 1. Sites with maize by approximate maize date range and context.

Map No.	Site Name	Maize Date Range	Site Type	Maize Context	Source(s)
31	Gnagey	A.D. 800-1000	village	non-funerary	Blake and Cutler 1983; George 1983
32	Harding Flats	A.D. 700-1000	hamlet	non-funerary	East et al. 2001
33	Meadowcroft Rockshelter	500 B.C.-A.D. 1	campsite	non-funerary	Carlisle and Adovasio (eds.) 1982; Crawford et al. 1997
34	Memorial Park	A.D. 700-1000	hamlet	non-funerary	Asch Sidell 2002; King 1999
35	Sheep Rock Shelter	A.D. 1000-1200	campsite	non-funerary	Michels and Dutt (eds.) 1968; Michels and Smith (eds.) 1967
36	St. Anthony	A.D. 800-1000	campsite	non-funerary	Moeller 1988; Rieth 2002
37	Boland	A.D. 1000-1100	village	non-funerary	Kuhn 1994
38	Chenango Point	A.D. 950-1100	basecamp	non-funerary	Kuhn 1994; Würst and Versaggi 1993
39	Fortin 2	A.D. 500-650	campsite	non-funerary	Funk 1998; Thompson et al. 2004
40	Hunter's Home	A.D. 700-1000	basecamp and cemetery	non-funerary	Hart et al. 2003; Ritchie 1969; Schulenberg 2002
41	Kipp Island	A.D. 500-750	basecamp and cemetery	non-funerary	Hart et al. 2003; Ritchie 1969; Schulenberg 2002
42	Levanna	A.D. 500-800/900	village and cemetery	non-funerary	Ritchie 1969; Schulenberg 2002
43	Roundtop	A.D. 900-1200	village	non-funerary	Hart 1999c, 2000a; Ritchie 1969, 1973
44	Vinette	A.D. 1-100	campsite	non-funerary	Ritchie 1969; Thompson et al. 2004
45	Wickham	A.D. 500-750	campsite	non-funerary	Hart et al. 2003; Ritchie 1969
46	211-1-1	A.D. 900-1200	campsite	non-funerary	Cassedy et al. 1993
47	Bull's Point	A.D. 900-1000	campsite	non-funerary	Saunders 2002; Smith 1997b; Smith et al. 1997
48	Cayuga Bridge	A.D. 750-1100	campsite	non-funerary	Crawford and Smith 2002; Saunders 2002
49	Dawson Creek	A.D. 550-750	campsite	non-funerary	Crawford et al. 1997; Jackson 1983
50	Forster	A.D. 750-1150	basecamp	non-funerary	Bursey and Smith 1999; Crawford and Smith 2002
51	Foster	A.D. 750-1150	campsite	non-funerary	Daechsel 1985
52	Giffen	A.D. 750-1000	campsite	non-funerary	D. Smith, pers. comm. 2002; C. Watts, pers. comm. 2003
53	Grand Banks	A.D. 500-750	basecamp	non-funerary	Crawford and Smith 1996; Crawford et al. 1998
54	Holmedale	A.D. 1000-1100	basecamp	non-funerary	Monckton 1999; Pihl (ed.) 1999
55	Lakeshore Lodge	A.D. 800-1100	campsite	non-funerary	Fox 1990; S. Smith 1981
56	Meyer	A.D. 700-1100	basecamp	non-funerary	Crawford and Smith 2002; Saunders 2002
57	Peace Bridge	A.D. 500-750	basecamp	non-funerary	Williamson and MacDonald 1997
58	Princess Point	A.D. 500-750	basecamp	non-funerary	Crawford and Smith 2002; Strothers 1969, 1977
59	Rambo	A.D. 600-900	campsite	non-funerary	Molnar et al. 1997
60	Silverman	A.D. 750-1000	campsite	non-funerary	Mayer Heritage Consultants 1994; Saunders 2002

place in the spring upon re-aggregation at fish run locales, such as at river rapids (Spence et al. 1990; Stothers and Abel 2002) and other resource-rich areas. These agglomeration sites or base camps were occupied by macrobands made up of about 20 family groups (Ferris 1999b:21; Snow 1999:269; Warrick 1996:12; Wobst 1974) or, perhaps, fewer. Some examples of these base camps or long-term and recurrently used sites include, but are not limited to: Boresma (Wilson 1990, 1991), Donaldson (Wright and Anderson 1963), Serpent Mounds (Spence 1986) and possibly Princess Point (Stothers 1977; cf. Crawford et al. 1998:125; Smith and Crawford 1997:21-22; Smith et al. 1997:95) and Grand Banks (Smith and Crawford 1997:28; Crawford and Smith 1996:785-786, Crawford et al. 1998:133-134) in Ontario; the Philo Archaeological District (Carskadden and Morton 1996) and Missionary Island No. 4 (Schneider 2000) in Ohio; St. Anthony (Stewart 1994:191-192) and Fisher Farm (Hatch 1980; Hay et al. 1987; King 1999) in Pennsylvania; Vinette (Thompson et al. 2004), Tufano (Funk 1976) and Kipp Island (Hart et al. 2003; Schulenberg 2002) in New York; and Schultz (Lovis et al. 2001) and Norton Mounds (Kingsley 1984) in Michigan.

Stothers and Abel (2002) characterise such agglomeration sites, particularly those in the western Lake Erie basin, as gathering spots for the macroband to bury the dead, renew social relations, exchange gifts, feast competitively and (inter)marry (cf. Crawford and Smith 2002:127-128; Smith 1997b:5-6; Smith and Crawford 1997:25). If we perceive marriages throughout much of the Lower Great Lakes region at this time as having been exogamous, with wives moving into patrilineal macrobands upon marriage (Hart 2001; Smith 2001, 2007; Spence 1986, 1999; Spence et al. 1984; Trigger 1981:23; Wilson 1991; cf. Latta 1991), and since foreign materials sometimes found their way into these base camps (Smith 2001; Spence 1999; Stothers and Abel 2002; Wright 1999), then these macrobands were likely not closed marriage networks. They can, instead, be thought of as communities with fluctuating group membership and with far-reaching relational ties (Wobst 1974; cf. Ferris 1999b:20-21).

“Outsiders,” then, would have been present at the base camp, whether for marriages, or gift exchange, or to commemorate the deceased. The “insides” and “outsides” of society, it could be said, would blur at these times, if not also at others.

During these social engagements, relationships were built and (re)confirmed materially. These interactions may be the reason why similar artifacts came to be found in many communities across the region (Ferris 1999b:18, 20; Ferris and Spence 1995:98; Spence et al. 1990:143, 148, 157). Based on the similar ceramics (e.g., cord-wrapped stick wares) and projectile points (Jack’s Reef and Levanna) that seem to have spread across the entire Northeast and beyond, perhaps as early as the first few centuries A.D. but more evidently after about A.D. 500 (Burse 1995; Crawford and Smith 1996; Curtis 2002; Dieterman 2001; Fiedel 1991, 1999; Fox 1990; Gates St-Pierre 2001a, 2001b; Hawkins 1996; Petersen 1998; Rankin 2000; Saunders 2002; Seaman and Dancey 2000; Shen 2000, 2001; Smith 1997a; Snow 1996; Stewart 1994, 1998; Stothers and Bechtel 2000; Woodley 1996), it appears that social boundaries, at least those marked by these visible material traits, did not exist in the region or were rare and short-lived (see also Hart 1999b; Hart and Brumbach 2003; Hart and Means 2002; Martin 2006).

For many indigenous crop-growing communities in southern Ohio (Seaman 1996; Seaman and Dancey 2000) and possibly western Pennsylvania (George 1992) during the final centuries B.C. and the early centuries A.D., a different annual round or system of mobility across the landscape seems to have been in place, compared to that of many of their neighbours in Lower Peninsular Michigan (cf. Kingsley 1999), northern Ohio (Schneider 2000; Stothers and Abel 2002), eastern Pennsylvania (Hay et al. 1987; Stewart 1994), New York (Gates St-Pierre 2001b; Hart 2001; Schulenberg 2002; Snow 1995a, 1995b) and Southern Ontario (Crawford and Smith 2002; Wright 1999). About this time and particularly during the years between about A.D. 1 and 200, the famous and far-reaching interaction networks centred on southern Ohio and western Illinois seem to have been at their

most geographically extensive and materially diverse, and many material items, exotic and otherwise, were on the move across the Eastern Woodlands and beyond (Braun 1986; Mason 1981; Seeman 1979b). Whether procured directly or indirectly, raw materials and finished goods were brought to these centres from as far away as Wyoming, the shores of Lake Superior, Northern Ontario, the Mid-Atlantic seaboard and the Gulf of Mexico (Braun 1986; Seeman 1979b).

Archaeological sites at this time in southern Ohio included great ritual centres that featured variable numbers of burial mounds of variant dimensions, some of which were erected over earlier charnel houses (Greber 1983; Seeman 1979a). Impressive earthworks—sometimes circular, sometimes square, and sometimes both conjoined—often enclosed these mortuary monuments (Pacheco 1996; Seeman 1979a, 1996; Seeman and Dancy 2000). These centres appear to have been temporarily occupied, likely for short periods of time, whether annually or on some longer-running cycle. Their devotees seem to have lived in smaller, extended family-based hamlets dispersed across the landscape for the rest of the year (Pacheco 1996; Prufer 1996). Many people, then, at this time were mobile and there were occasions during which they would have interacted with peers who lived some distance away during periods between such gatherings.

A number of communities outside southern Ohio, western Illinois and western Pennsylvania also seem to have been influenced by the spectacular mound-building enterprises, as seen at Serpent Mounds in Ontario and at Norton Mounds in Michigan, among others (see also George 1992; Kingsley 1984; Spence et al. 1979; Wright 1999). At these and other sites throughout the region, typical ceramics consisted of pots constructed by the coil technique and, in the main, decorated with pseudo-scallop shell motifs, dentate or toothed stamping designs and linear incisions (Ritchie 1969; Smith 1997a, 2001). These sorts of vessels are also generally associated with side- and corner-notched projectile points (Fiedel 2001; Fox 1990; Mason 1981; Wright 1999). It is in this broad material context that maize seems to have made its first appearances in

southern Ohio and neighbouring states to the south and west around 2000 years ago or slightly before.

In Southern Ontario, the spread of maize has come to be associated with the issue of ethno-linguistic identity in the past—specifically with the appearance of speakers of Northern Iroquoian languages (Burse 1995; Fiedel 1991, 1999; Smith and Crawford 1995; Snow 1994, 1995a, 1995b, 1996, 1999; cf. Crawford and Smith 1996; Seeman and Dancy 2000). We know from ethnohistoric accounts that Iroquoians, such as the Huron, were dependent on maize, beans and squash as staples (King 1999; Ounjian 1998; Snow 1994, 1998). The metaphor of the Three Sisters aptly describes these intercropped cultigens, both in terms of their more-or-less symbiotic growth and their dietary synergy (Wilkes 1989). The post-contact Iroquoians were matrilineal (or uxorilineal; see Warrick 2000:422), they reckoned descent matrilineally and lived in permanent longhouse villages, most of which were defended or at least demarcated by palisades (Hart 2001; Ramsden 1990; Snow 1994).

While small or “incipient” versions of these longhouse villages appear as early as A.D. 900, and although some Ontario examples are known through the succeeding centuries, most longhouse villages did not appear until after A.D. 1300, particularly in New York (Hart 1999c, 2000a, 2000b, 2001:174-176; Stothers 1977; Warrick 1996, 2000; cf. Kuhn 1994). Beans do not seem to have been present in much of the Northeast until after A.D. 1000 either, although they may have been taken up slightly earlier in the Midwest and in southern Ohio (Hart et al. 2002; Hart and Scarry 1999). As has been noted, indigenous squashes, most likely a green variety (*Cucurbita pepo* subsp. *ovifera* var. *ozarkana*), had been known in the region for millennia, although their orange counterparts may have only spread into the Northeast somewhat later (Hart et al. 2002; Smith 1995; see also Fritz 1990; cf. Hart et al. 2004). So, this “Iroquoian” pattern of life did not begin until after about A.D. 1000 and perhaps not until around A.D. 1300 (Hart 2001; see also Warrick 2000). It does

not appear that all of these materials actually came together at once. They cannot, therefore, really be considered as a suite of traits that moved together, accompanying and distinguishing migrating speakers of Northern Iroquoian languages (see Hart and Brumbach 2003). Instead, processes of in situ evanescence and convergence in contexts of personal community-to-community mobility may be the more appropriate models or concepts to account for these material changes (Hart and Brumbach 2003; Smith 2007; Spence 1999; see also convergence in Renfrew 1999).

Even so, some researchers suggest that material developmental precursors of some of these contact period Iroquoian traits are manifested in the archaeological record before and around A.D. 1000 in New York and Ontario (Bursey 1995; Crawford and Smith 1996; Gates St-Pierre 2001a, 2001b; Smith and Crawford 1995; cf. Ferris 1999b:25; Warrick 2000:426). In this way, material traits such as cord-wrapped stick-decorated ceramics manufactured by the paddle-and-anvil or modelling technique as well as triangular projectile points (e.g., Levanna), dating back to about A.D. 500 in central Southern Ontario and adjacent New York, have also come to be linked to maize agriculture (Bursey 1995; Fox 1990; Smith and Crawford 1995; Snow 1996; cf. Bowen 2001; Crawford and Smith 1996; Ferris 1999b; Seeman 1992; Seeman and Dancy 2000; Warrick 2000). Matrilineality and uxoricity of the contact period, then, may well have developed in association with sedentism and an increasing reliance on agriculture during—perhaps late in—the first millennium or early second millennium A.D. (see Hart 2001).

In the years around A.D. 500, therefore, new material traits and novel ways of making and doing things appeared or were adopted across the region. Following on from this, it has been proposed that some or all of these new appearances in central Southern Ontario and New York around A.D. 500 may be the artifactual correlates of Northern Iroquoian speakers as they moved into the area from Pennsylvania (Bursey 1995; Fiedel 1991, 1999; Snow 1995a, 1995b, 1996). Other researchers, however, emphasise or imply in situ development, including various

processes of diffusion, as accounting best for the evidence for the spread of maize into the area (Chapdelaine 1993; Crawford and Smith 2002; Ferris 1999b; Fox 1990; Martin 2005; Smith 1997a:63-64, 2007; Stothers and Bechtel 2000; Stothers and Graves 1983; Warrick 2000; Williamson and Robertson 1994). It is within this framework for examining the social dynamics at work in these transitions that I have sought to understand the role of early maize use, both within and separate from these novel assemblages during the first millennium A.D. By compiling the physical contexts of maize recovery across the region, I have undertaken a critical reassessment of the social contexts of maize use and deposition in the past (Martin 2006). Based on current evidence, I present my assessment of some hypothetical models for the spread of maize through the Lower Great Lakes region.

### Modelling the Spread of Maize

Snow (1999:269) has recently exhorted us to consider how social factors were manifested in the spread of maize. That is, we should entertain and assess various models for the mechanisms behind the dispersal(s) of this cultigen. While the database has been biased in numerous ways (e.g., in research, recovery and reporting), I suggest that there are three main models of the spread of maize that give prominence to the interactions of people. They emphasise human agency and do not give primacy to environmental pressures or permissions (King 1999; Stothers and Yarnell 1977:209) or to the “essential” efficiency or high productivity of maize (see Ford 1979; Hart 1999a; Wymer 1993:143). Each of these three hypotheses entail the operation of enchainment (Chapman 2000a, 2000b; Fowler 2004; A. Jones 2002; Strathern 1988).

Following Strathern’s (1988) and Weiner’s (1992) ethnographic work in Papua New Guinea, the concept of enchainment pertains to communities in which possessions are owned in common by a community. These items, which are exchanged mainly through face-to-face interactions, are not seen as objects of personal wealth



and have been described as “inalienable” (Wagner 1991; Weiner 1992; cf. “fractal” items in Gregory 1982). Enchainment is the process through which the act of transmitting materials from human hand to human hand serves to extend, whether consciously or inadvertently, personal and community-based associations and connotations between exchange partners as peers (Chapman 2000; Fowler 2004). As items circulate from person to person, a recipient is symbolically tied to a former holder. These materials were at work weaving the very fabric of past communities (see also Pearson and Shanks 2001). In a sense, then, such objects had an agency of their own (e.g. Wobst 2000) and persons were not completely bounded by their own physical bodies (see Chapman 2000; Fowler 2004; Wagner 1991). Chapman (2000) has suggested that fragmented items also carried enchainment messages with them. I extend the notion of fragment enchainment to maize, where single kernels grew to become whole maize plants which were divided up and consumed as parts, or fragments, of a parent plant or parent cob. These kernels were ultimately carried, planted and consumed by people throughout the region. Each of the three proposed models for the spread of maize considered here is characterised by different kinds of persons that conducted transactions with maize, and each model features a distinct rationale that lay behind early endeavours with this food, as well as its appropriate handling and discard. I discuss the correlates of these models below.

The main assumption of the first model that I consider is that maize spread as a sacred material, bound up in religious and ceremonial shifts (Bender 1985:48; Dimmick 1994:243; Fritz 1990:416, 1993:56, 1998; Johannessen 1993a:74-77, 1993b:188; King 1999:21; Scarry 1993:89-90; Seaman 1979a:44; Simon 2000:61; Smart and Ford 1983:57; Trigger 1985; Witthoft 1949:70; Wymer 1993, 1996). Eight-row maize among the historic Huron, for example, was considered to be both a staple crop and sacred or symbolic (King 1999:21). Some have implied that this sacred quality of maize can be extended back into the late first millennium B.C. or early first millennium A.D., to the time of its first

appearances in the region (Engelbrecht 1999, 2003; Trigger 1985). The archaeological correlates of this assumption may be represented by finds of maize in particular contexts—with unique individuals, for example (such as the graves of shamans), or with items in contexts such as middens that do not also contain “normal” refuse.

In the Lower Great Lakes region, the sacred use of maize has been suggested most clearly for the Edwin Harness Mound in Ohio (Prufer 1996:411; Smart and Ford 1983:57; Wymer 1996:47). Some researchers interpret the site as representing the clearest evidence in the Northeast for the sacred status of maize, as it came to be taken up in the region. Evidence from the Mund site in western Illinois has also been presented in terms that link ceremony and maize. Within pits that were dug into the site’s central plaza, and that are dated to about A.D. 500, a number of exotic materials were recovered: galena, red ochre, pipe fragments and a bird effigy, for example (Johannessen 1993a:74). A small amount of maize was located in these pits as well (Johannessen 1993a:75). To Johannessen, then, “[t]his association with other ‘special’ classes of material suggests that corn, grown in small quantities, had, along with tobacco a role in ceremonial life at this time...” (1993a:75; see also Fritz 1993).

A second model—the antisocial consumption model—contains the assumption that early maize in the Northeast, and particularly in the Midwest, may have been considered a prestige item, taken up by society’s leaders and would-be leaders to broadcast conspicuously their affiliation with other influential groups or individuals through competitive display (Bender 1985; Hayden 1995; Johannessen 1993b:188; Rowley-Conwy and Zvelebil 1989; Scarry 1993:90; Smith 1989). This model implies that wild or domestic harvest plenty, excess craft items or exportable forest products were needed for ambitious individuals to “buy into” a prestige goods network, or that maize became one more item with which to “fight,” to build or maintain a separate status for self-aggrandisers. This model presumes that certain exchanges were not associated with the majority of the people in any given community. For the conspicuous display argument to hold up

throughout the Lower Great Lakes region, one would expect maize to be associated with the remains of competitive acts of display during feasting, for example in great feast-derived middens, or at the graveside of macroband members (or both)—especially the graves of individuals interred in mounds, or otherwise commemorated at the moundside, or in other distinctive forms of mortuary treatment. In fact, then, the Edwin Harness Mound maize, associated with a high status or otherwise prominent member of society, could also be used as evidence for this model (see Stothers and Abel 2002).

While I have separated them here, some researchers fuse the ceremonial shifts and the elite display models. For example, Scarry has suggested: “[t]he emerging elite may have co-opted the ‘food of the gods.’” (1993:90). Johannessen mirrors this position when describing communities in the central Mississippi River valley in the A.D. 600-800 period with, “I would suggest that corn had some cultural value ... that made it a powerful expression and instrument in the negotiation of the shifting socio-religious configurations that we see occurring at this time” (1993b:188). In possible accord with this apparent inability to decide between elites and ceremony, or high-status members of society who were also shamans or other spiritual leaders, many researchers have suggested that social life and spiritual life were not separable in many past and present societies (Brück 1999; Hall 1997).

Instead, a dichotomy between the secular/profane and the ritual/symbolic is overly simplistic: it is likely that many communities in the past did not perceive that ritual actions or action sets were detached from other “functional” or pragmatic day-to-day activities (Brück 1999). Brück (1999:326) argues that many projects in the past were concerned with how to get on in the world in a logical and historically-contingent manner. In many of these societies, then, the powers of causation may have been seen to lie in spirits, gods, structures, inanimate objects (cf. Gell 1998) and/or the human ancestors (Brück 1999:321). Thus, things of the human world were not set apart from things of the natural world or from the afterlife or “other world” for

that matter (Brück 1999:318, 321). Daily life at the interface of all of these conjoined realms was likely still conducted logically and with harmony, success and healthfulness as main goals (Brück 1999:321).

In this context, I present the third hypothetical model for maize spreading within or through the broad domain of the social world. This model proposes that maize was transmitted as an edible material item that was accepted in a socially acceptable as opposed to antisocial (Robb 2001) or otherwise restricted manner. The identities and skill sets of a community’s plant specialists, likely women as mothers, sisters and daughters (Hart 2001; Watson and Kennedy 1991), were inextricable from the products of their work in their gardens and fields. Maize was emblematic of their relationships and the results of their learning and labour. In this way, maize may have been accepted in order to emphasise social connectedness among many people across the region. Women may have been associated most closely with maize, although if maize were also eaten by whole families, and even by whole macrobands, then all individuals within these groups were connected to this new venture. The crop was not simply a food, not just fuel for a body, but was an artifact or embodiment of human plans, work and successes. Maize was caught up in group-wide projects that likely included both spirituality and practicality—a “pre[contact] rationality” (Brück 1999:314) or ancient logic for action in and interaction with the world (Brück 1999:337, 327). This third model, then, proposes that maize was not limited to the sanctified or to the socio-economically or politically privileged members of society. Instead, everyday or quotidian pragmatics, something like “secular rituals”, which are said to characterise the lives of animistic societies, may have been at work (Brück 1999:319; see also Hall 1997; Kus 1983). Such a perception fuses the spiritual and the secular; it collapses the dichotomy between special and mundane and has ramifications for assessing models of maize spread in an either/or manner. So, what evidence is there that may point to any one of these three models as the most reasonable way to think of the earliest uptake of maize?

## Discussion

From my database (see Figure 1; Table 1; Martin 2006), only four sites out of a total of 60 sites that have produced maize, and for which I have been able to find contextual data, give the impression that maize was used or deposited in ways stemming from formal ceremonialism or conspicuous consumption. These sites, comprising Edwin Harness Mound, Daines Mound II, Turner Mound No. 1 and Waterworks Mound, all in Ohio, provide evidence for early maize being deposited in association with burial architecture. Although not included in my database, maize has also been reported in a burial mound fill context at the Esch Mounds site in north-central Ohio (Timothy Abel, personal communication 2004). This conforms to the idea of association between maize and public ceremonialism or conspicuous display in some places in Ohio (Stothers and Abel 2002). All of these sites, then, come from the period around or before A.D. 500 and all are found in Ohio. Only at the Edwin Harness Mound, however, was maize actually recovered in direct association with a buried person. No maize at the other sites in my database appears to be associated with exotics such as those items found in association with maize in the plaza pits at the Mund site in western Illinois (see above; Johannessen 1993a:74-75).

Evidence from all of the other sites suggests that maize was not being used, or at least discarded, differently from other food and other material debris of the time. A number of river basins throughout the region provide evidence for mounding enterprises; and some of these areas also include sites from which maize has been recovered (e.g., the Rice Lake area, the Moira drainage, Cootes Paradise/Burlington Heights, the middle Niagara River, Point Pelee, the Erie Islands, Maumee Bay and some areas inland of the western Lake Erie shore, the Northern Finger Lakes, the Susquehanna River valley and, of course, a number of southern Ohio drainages that empty into the Ohio River). Upon closer inspection, the maize in these localities is usually neither contemporaneous with nor physically associated with the monumental burial

architecture except, in southern Ohio (Smart and Ford 1983), northwestern and north-central Ohio (Stothers and Abel 2002; Stothers and Bechtel 2000) and, perhaps, a little later in the Susquehanna River drainage (Stewart et al. 1988). No maize has so far been located, for example, at Serpent Mounds in Ontario, or at Norton Mounds in Michigan, or at the vast majority of investigated mounds and burial complexes throughout the Lower Great Lakes region. Of course, recovery bias (e.g., lack of flotation), partial excavation and contact period disturbance or destruction likely contribute to this absence of evidence (cf. Chapman and Watson 1993; Crawford and Smith 2003; Fritz 1990). If, flawed as they are, archaeological patterns can be used to infer maize uptake, then maize was associated with neither conspicuous display nor sanctified mortuary disposal.

With the recent finds of maize in circa A.D. 100 contexts at the Vinette site in New York (Thompson et al. 2004), it now appears that maize could very well have been eaten and grown outside Ohio by communities who also built some of these mortuary structures. We simply have no clear evidence for the mounds being venues for maize deposition. Throughout much of the region, current evidence still supports a later date for the appearance of maize, after about A.D. 500, and it is only after about A.D. 750 that there is an exponential increase in the number of sites with maize (see Table 2). This late first millennium A.D. increase in maize has been documented by a number of researchers in the region (Crawford and Smith 2003; Fecteau 1985; Fritz 1990, 1993; Johannessen 1993a; Parker 1996; Simon 2000; Stothers and Abel 2002; Wagner 1994; Wymer 1993).

In a similar way, some base camps with non-mound cemeteries, where one would also expect both mortuary display and feasting to have occurred, have not produced any maize (e.g., the MacNichol and Missionary Island No. 4 sites in Ohio and the Reau site in Michigan). Also inconsistent with the conspicuous display model, and also, perhaps, with the formal sacred or ceremonial model, is the Gladieux site in Ohio. Gladieux was a base camp and cemetery with maize located in what appears to be a non-funerary and non-mass-feasting context. The Gard Island No. 1 and

**Table 2.** *Number of sites with maize by time period (Martin 2006). This table should be taken as conservative for the timing of maize uptake or appearance in that, if a site's maize date range straddled the demarcation between two of my broad time periods, I have, in most cases, placed the site in the later range.*

Time Period	Sites
250 B.C.-A.D. 1	1
A.D. 1-250	3
A.D. 250-500	5
A.D. 500-750	9
A.D. 750-1100	42
Total	60

Morin sites, both in Michigan, are also considered campsites (not base camps) with adjacent cemeteries (cf. burial and agglomeration, above) and both have produced maize in non-funerary contexts. The Vinette site in New York is also thought to have been a seasonal campsite; yet maize phytoliths have recently been discovered there as well (Thompson et al. 2004). Conspicuous display models for early maize uptake may, therefore, only apply to a very few communities within the Lower Great Lakes region (see Stothers and Abel 2002). Not only is maize rarely associated physically with death and burial in the region, but also it is often found in small, temporary sites where there were no large audiences for the institutionalised ceremonies or conspicuous displays (or both) of the novel crop.

Few localities outside southern Ohio exhibit more than two mounds together (they include sites such as Serpent Mounds in Ontario and Norton Mounds in Michigan), so the construction of these earthen monuments and any associated competitive acts of display may have been sporadic or temporary outside southern Ohio and western Illinois. Some early maize-producing sites are found in localities with burial mounds, but other sites with maize occur in areas without strong evidence for mounding enterprises. A number of communities associated with early maize, such as those in central Southern Ontario during the last half of the first millennium A.D., appear to have been largely egalitarian and unranked (Smith 2001; Stewart 1998). So, while peer-polity interaction (Renfrew 1986; Snow 1999; Williamson and Robertson 1994), or some similar process, may have been at work

in some cases, it appears that many local societies without evidence for élites, hierarchy or territoriality – societies that should not have been well-positioned, socially or economically, to pull in prestigious exchange products from outside—also came to grow maize. Thus, even if their ancestors had been keyed into the great pan-regional and extra-regional exchange networks of the final centuries B.C. and early centuries A.D., by A.D. 500 or so, local groups had ceased to erect burial mounds and were already oriented away from the impressive and far-reaching exchanges in exotics that had been centred on southern Ohio and western Illinois (Bender 1985; Braun 1986; Dancey 1996; Ferris 1999b). It is really only after this period, during the final third of the first millennium A.D., that most of the early maize samples appear (see Table 2). What does this mean for understanding the social contexts of the initial spread of maize through the region?

Following Brück's (1999) reasoning, I suggest that it is difficult to know which archaeological correlates can be used to demonstrate a formally sacred or ceremonial role for early maize in the Lower Great Lakes region. In fact, it may be that our knowledge of the sacredness of maize from ethnohistoric sources (Engelbrecht 1999, 2003; Snow 1994) has guided the general interpretation of this sacrosanct or esoteric role for maize in the more distant past. Alternatively, it is possible that a number of plant and animal resources, and other materials as well, had meanings that we tend to overlook, or over-emphasise (see also Brück 1999). For example, carbonised goosefoot and knotweed seeds (two of the Eastern Agricultural Complex species) have been located in association with the bundled individual at the Edwin Harness Mound site in Ohio—the same site that is taken as providing some of the best evidence in the region for a “special” role for maize. Although these indigenous crops are rarely considered to have had sacred or symbolic qualities, Smart and Ford (1983:57-58) suggest that these non-maize botanical remains represent mortuary offerings of economically important seed resources.

Fiedel (2001:106) has also presented a case in which pigweed, goosefoot, hickory, acorn and hazelnut remains were found in a late second or early first millennium B.C. cremation in Connecticut, possibly suggesting the importance, at least locally, of floodplain plants and nuts. On the other hand, at the Capitulum Mound of the Marietta Works, Ohio, goosefoot remains were found in a mound pit feature and, along with other seeds and nutshells that were recovered from the mound fill, were considered “incidental” (see Wymer 1996:46). A sand dune cremation on Grand Traverse Bay, Michigan, dating to the early first millennium B.C., has also been shown to have contained charred wild rice (Brose and Greber 1979:140). What should we make of these examples of local plant foods being used in apparently non-dietary ways? Were plants and animals, or their remains, interlinked with spiritual mediation or provisioning and with communal and personal identities long before maize was known in the region?

Chapman (2000b:42-43; see also Brück 1999:333-334) suggests that rites of passage (van Gennep 1960) or rites of institution (Chapman 2000b:42-43) may have been conducted alongside the temporary fissioning and fusing of hunter-fisher-gatherer and early agricultural communities during their annual rounds and movements across the landscape. It may have been these cycles wherein the lives of humans, places and things intersected that inspired various sorts of deposition, consumption (deposition embodied?) and even waste or loss. These rituals were enacted by the people of local communities as part of their daily lives. Maize may have been valued for both practical and symbolic use during such times of agglomeration and separation, community change and social upset. It is at these times that I suggest maize came to mark sociable interactions across the landscape and to constitute new or renewed lives and projects.

Accepting that it was mainly the women of these Lower Great Lakes societies—wives, mothers and daughters—who were the plant specialists, it is likely that women were responsible for physically working with local maize stands or demes or gardens and making them viable and

productive (see Smith 2007; Spence 1999; cf. Hart 2001; Watson and Kennedy 1991). These experimenting and political women were local translators (Spence 1999:276) or “long-distance specialists” (Chapman 2000b) with regard to outside materials, practices and beliefs as well as the seed stock of maize and other plants (see also Ferris 1999b; Fiedel 1999; Hart 1999a, 2001). While demonstrating their abilities in bringing in seed crops and translating and adapting novel techniques, or a distinct agro-economy, to their new communities, these mobile women would have been caught up in and have been required to manoeuvre through and influence what have been called rituals of the everyday (Brück 1999).

### Conclusion

According to the sites data (see Figure 1; Table 1), maize does not derive from institutionally ceremonial or sacred contexts for much of the region outside Ohio. Feasting and mortuary contexts have only rarely produced maize, suggesting that conspicuous and competitive consumption was not an important means by which maize was conducted into Lower Great Lakes societies. It may be that the breakdown (or success) of the great pan-Eastern networks of exchange by about A.D. 400 (see Bender 1985; Braun 1986; Dancey 1996; Seeman and Dancey 2000; Wymer 1993) caused any previous restrictions on the use and deposition of maize to be removed (see Stothers and Abel 2002), but I think that the variable lifeways across the region and the lack of exotica at a number of sites, even at relatively early maize-producing sites, suggest that maize was locally negotiable or that maize was distinct from the other material exotics on the move during the first half of the first millennium A.D.

If, following Brück (1999), the ritual and the everyday realms were not separate in many past societies, then evidence of maize in “special” features (e.g., large middens or graves or in burial mound fill) or “mundane” or “domestic” ones (e.g., small middens or in-filled pits associated with other “normal” refuse) cannot be used to discriminate the social role of maize as either one or the other. We may have no way, then, to assess

archaeologically any of the models presented here. On the other hand, if it is only through archaeological provenances and their associations that we are able to find any grounded evidence of the nuanced relationships between people, things, places and time, then such a contextual approach may be useful. In fact, Brück (1999:335) also suggests that we can explore the logic or rationale of past communities through comparing and contrasting what we may see as odd, or special, with other physical settings of deposition and site maintenance practices. Assessment of the contexts of maize (Table 1) is one step towards this goal.

Building on the premise of a domestic and sociable role of maize, I extend to maize an active, personified capacity in past societies in the Lower Great Lakes region. If group members were growing maize locally, then its life was enchaind to each person in the garden or field. I suggest, then, that maize symbolised interpersonal relationships between women and children within and between macrobands and—by extension and association—men, as husbands and relatives (cf. Fritz 1998; Hart 2001; Stothers and Abel 2002; Watson and Kennedy 1991). Maize can be seen to have embodied social ties and social (re)production of local communities and, as such, was important in the pragmatics of the everyday (Brück 1999). Maize was bound up, then, in cycles of mobility and interaction and of cooperation, dispersal and exchange network quiescence. I also suggest that maize was taken up by local groups as an edible artifact, not simply a reserved exotic or sacred item specifically of the other world. Instead, maize passed from hand to hand between people who were more or less equals—peers and relatives, or persons who would soon come to be. Within this context, I propose that maize extended identity and spirituality and built community across the landscape (Martin 2006). Maize was not simply a subsistence product. It was a marker or badge that extended identities and, perhaps, collaboration in spiritual matters across the region (cf. Chapman 2000b; Ehret 1988). I argue that maize was initially taken up in the Lower Great Lakes region as a food/material that consisted in and was sustained by the enchaind messages that it sent and promoted about interpersonal and intercommunity cooperation.

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Dans cet article, je suggère que le maïs s'est propagé dans la région des Bas Grands Lacs comme un élément qui faisait généralement partie des projets coopératifs des femmes symboliquement interreliées à leurs pairs et à leurs parents proches et éloignés. Le mécanisme à la base de ce réseautage de gens apparentés se présente comme un enchaînement, à savoir la reconstitution des identités humaines par la transmission des matériaux. Je vois le maïs comme un élément faisant partie des traditions locales liées à un mode de subsistance à base élargie, à une adoption à grande échelle et à un échange de matériaux. Les données disponibles laissent croire que le maïs n'était pas simplement, ou pas seulement, transmis par la voie des campagnes compétitives des fêtes ou par l'étalage indiscret des élites, ni n'a été transféré grâce à un système clairement et formellement sacré qui aurait balayé la région. Au contraire, le maïs apparaît avoir été accepté par des individus comme un élément qui enjambait les désignations "nourriture" et "objet".

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