EARLY WOODLAND CERAMIC AND PERISHABLE FIBER INDUSTRIES FROM THE NORTHEAST: A SUMMARY AND INTERPRETATION

JAMES B. PETERSEN
Rea Postdoctoral Fellow, Section of Anthropology

NATHAN D. HAMILTON
Rea Postdoctoral Fellow, Section of Anthropology

ABSTRACT

The previous recognition of Early Woodland period ceramics and associated perishable fiber industries has been limited and less often well reported in the wide Northeast. This paper offers a summary of Early Woodland ceramics and perishables from the Northeast, including discussion of "Vinette I" ceramics, other related and possibly unrelated ceramic forms, perishables reconstructed from negative impressions, and actual perishables preserved in rare cases. Particular emphasis is given to the behavioral implications of these data in terms of industrial consistency and variability as an indication of social interaction and continuity during the Early Woodland period.

INTRODUCTION

The previous recognition of Early Woodland ceramic remains has been limited and less often well reported in the broad Northeast. In the case of Early Woodland perishable fiber remains, the record is even more abysmal, with recognition and recovery of fiber perishables rare and detailed analyses rare to nonexistent (Adovasio and Carlisle, 1982; Doyle et al., 1982).

In light of these conditions, this paper initially offers a summary and discussion of what we can currently say about Early Woodland ceramic remains.

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and perishable fiber industries in the Northeast. Particular emphasis is given here to identification of Early Woodland perishable fiber industries because they have been so little studied, but like ceramics (for example, Brashler, 1981; Deetz, 1965; Petersen, 1981), potentially provide highly sensitive population specific attributes (for example, Adovasio, 1977, 1983, various). The behavioral implications of the combined ceramic and perishables data are ultimately examined here in terms of technological consistency and variability as possible indicators of social interaction and continuity within and subsequent to the Early Woodland period.

As used herein, the Northeast is loosely defined following Trigger (1978:1) as the area from Virginia and North Carolina in the south to the boreal forest of Ontario and Quebec in the north and from the prairie grasslands in the west to the Atlantic Ocean in the east. The Early Woodland period is likewise loosely and somewhat arbitrarily defined as the 1000 year interval from ca. 1200 (1000) B.C. to 200 B.C. (A.D. 1), following traditional convention (for example, Griffin, 1967, 1978; Ritchie, 1965), but with recognition of alternative designations (for example, Sanger, 1979; Snow, 1980; Stoltman, 1978; Willey, 1966).

EARLY WOODLAND CERAMIC INDUSTRIES

The onset of the Early Woodland period in the Northeast, as elsewhere, has been traditionally marked by the first general appearance of ceramic technology at sometime slightly before about 1200–1000 B.C. In at least one portion of the Northeast, however, early ceramics were apparently present (in what we would call uncertain contexts) during the preceding Transitional or Terminal Archaic period in association with steatite vessels in the Orient and Frost Island phases of New York (Lopez, 1957; Ritchie, 1959; Ritchie and Funk, 1973; Smith, 1950). Likewise, the early presence of ceramic vessels has been demonstrated in the coastal Mid Atlantic region before 1000 B.C., some of which exhibit modelled bowl forms (lug handles, flat bottoms and low “trough shaped”) directly analogous to the earlier steatite vessels and often including actual steatite temper in the clay paste. Other forms, more like beakers (with a variety of other attributes) have been identified in the Mid Atlantic region, giving rise to a plethora of type designations. Although “Bushnell Plain” beaker forms have been dated to 1100 ± 60 B.C. and “Marcey Creek Plain” bowl and beaker forms have been dated to 950 ± 95 B.C., both in the Potomac River drainage, dated associations for such ceramics are extremely rare and consequently these forms have been generally guess dated to the period from about 750 B.C. to 1200 B.C. (Egloff and Potter, 1982; Kraft, 1976; Gardner and McNett, 1971; Stewart, 1982). Poorly understood steatite
tempered ceramics have been also recovered in the Connecticut River, Merrimack River, and Hudson River drainages to the north (Brumbach, 1979; Kenyon, 1979, 1981; Weeks, 1971). In the latter case, “fired clay” fragments recovered at the Schuylerville site can probably be associated with rudimentary ceramic developments in this area (Brumbach, 1979; various personal communications).

On the basis of current evidence, however, it seems safe to say that the first widely distributed form of ceramics in the Northeast was rather different than its apparent predecessor in the Mid Atlantic and southern New England coastal areas. Variability in vessel form and surface finish is characteristic of the earliest, widely distributed ceramics across the Northeast, but nonetheless they can be generally characterized as exhibiting some combination of exterior/interior surface finish applied with perishable fiber industries (such as cordage, netting and basketry or fabrics), a conoidal (pointed bottom) bowl vessel form, coarse grit temper and often coiled construction. The “classic” form, with exterior/interior perishable fiber impressions, was given the “Vinette I” type designation in New York State (Ritchie and MacNeish, 1949:100). “Vinette I” or closely related ceramics have been subsequently identified (or are identifiable) over a considerable portion of the far Northeast, including Pennsylvania (Kinsey, 1958, 1971), New Jersey (Kinsey, 1972, 1974), Connecticut (Lavin, 1980; Pope, 1953), Maine (Borstel, 1982; Byers, 1959; Doyle et al., 1982; Spiess et al., 1983), Massachusetts (Bullen, 1948; Byers and Rouse, 1960; Dincauze, 1975; Fowler, 1966; Moffett, 1959; Ritchie, 1969), New Hampshire (Dincauze, 1976; Kenyon, 1979, 1981), Rhode Island (Fowler, 1952, 1956), and Vermont (Petersen, 1979; Petersen and Basa, n.d.). Dated associations for “Vinette I” ceramics in this area are relatively rare, however, and only include 998 ± 100 B.C. at the Oberlander No. 2 site, 870 ± 60 B.C. at the Scaccia site, 841 ± 68 B.C. at the Hunter site, and 630 ± 100 B.C. and 563 ± 250 B.C. at the Morrow site, all Meadowood Phase components in New York (Ritchie, 1965; Ritchie and Funk, 1973). In the Delaware River drainage, “Vinette I” ceramics have been dated to 480 ± 80 B.C. at the Miller Field site and presumably to 810 ± 100 B.C., 750 ± 100 B.C., 400 ± 95 B.C., and 100 ± 95 B.C. at the Faucett site (Kinsey, 1972, 1974). Well associated dates for “Vinette I” ceramics in New England include 590 ± 105 B.C., 520 ± 120 B.C., 430 ± 80 B.C., and 360 ± 100 B.C. at the Peterson and Pratt sites on Martha’s Vineyard (Ritchie, 1969) and 600 ± 60 (Beta-6852, C-13 corrected) and 365 ± 130 B.C. at the Great Diamond Island site in Casco Bay on the Maine coast (Hamilton and Yesner, 1981; Doyle et al., 1982).

In addition, classic “Vinette I” ceramics have been identified in the adjoining Canadian provinces of Nova Scotia (Ellen Foulkes, personal
communication, August 1982), Ontario (Finlayson, 1977; Mitchell, 1963; Ridley, 1954; Spence et al., 1978; Wright, 1967, 1972; Wright and Anderson, 1963), and Quebec (Clermont, 1978; Clermont and Chapdelaine, 1982; Levesque et al., 1964; Wright, 1979). Unfortunately, few dates can be clearly associated with “Vinette I” ceramics in Canada, although some of the early dates from the Donaldson site in Ontario, ca. 600–700 B.C., may possibly be associated with “Vinette I” ceramics recovered there (Finlayson, 1977; Wright and Anderson, 1963). In addition, two dates of A.D. 130 ± 100 and 80 ± 100 B.C. from a site near Deep River, Ontario, may well date associated “Vinette I” ceramics (Mitchell, 1963; Wilmeth, 1978), although these dates seem too recent.

A closely associated (and presumably synonymous) form to “Vinette I” exhibits smoothing over the interior and/or exterior perishable impressed surfaces. While this latter form has been often isolated as a separate type (for example, Kinsey, 1972; Lavin, 1980; Levesque et al., 1964; Lopez, 1957; Salwen, 1968), this may be an arbitrary distinction since partially smoothed and unsmoothed forms co-occur, frequently intergrade and are often indistinguishable under current definition in areas as widespread as Maine, Pennsylvania, New Jersey, Connecticut, Kentucky, and Quebec (for example, Clay, 1980; Doyle et al., 1982; Kinsey, 1958; Kraft, 1976; Petersen and Basa, n.d.; Pope, 1953; Ritchie, 1969; Smith, 1950; Spence et al., 1978).

Other very similar ceramic forms, with perishable fiber impressed (or paddled) surfaces, have been defined over the wide extent of the Northeast as discrete contemporaneous ceramic types. These forms are seemingly separable as distinct types on the basis of precise attributes of temper, paste, and form. In the Mid Atlantic area, these include “Marcey Creek Cord Marked,” “Seldon Cord Marked,” “Accokeek Creek Cord Marked,” and “Stony Creek Cord Marked,” of which none seem well dated (Egloff and Potter, 1982; Manson, 1948; Stephenson and Ferguson, 1963). Likewise, an analogous but distinct form from “Vinette I” ceramics, “Juanita Thick” beaker form ceramics have been identified in interior Pennsylvania (Michels and Smith, 1967), as have been “Wolfe Neck Cord Marked” and “Cobourn Cord Marked” ceramics in Delaware. The latter two forms have associated dates of 505 ± 60 B.C., 500 ± 85 B.C., 380 ± 85 B.C. and 375 ± 65 B.C. at the Wolfe Neck and Dill Farm sites (Griffith, 1982).

Still other forms which are roughly similar to “Vinette I” include “Wolfe Neck Net Marked,” “Cobourn Net Marked,” “Accokeek Creek Net Impressed,” “Popes Creek Net Impressed” and “Stoney Creek Net Marked,” all of which were roughly contemporaneous with and closely related to other Mid Atlantic types noted above. Another form, “Brod Head Net Marked,” has been actually recovered with “Vinette I” ce-
ramics and associated with dates of 480 ± 80 B.C., 400 ± 95 B.C., and 100 ± 95 B.C. at the Miller Field and Faucett sites, respectively, in the Delaware River drainage (Kinsey, 1972, 1974). Distinctive but similar cordage, fabric and net impressed ceramic beaker forms, which occur in Virginia and adjoining North Carolina, have been dated to 660 ± 60 B.C. at the Currituck site (Egloff and Potter, 1982; Painter, 1977).

Broad relationships are also shared with a host of other named ceramic types in the Midwest Ohio River and Great Lakes drainages. These include “Half Moon Cord Marked” beaker forms (Mayer-Oakes, 1955), well dated at Meadowcroft Rockshelter with a series of dates as early as 1115 ± 80 B.C. and 865 ± 80 B.C. and younger dates before 200 B.C. (Johnson, 1977, 1982). Another early beaker form in the upper Ohio drainage of Pennsylvania, Ohio, and Kentucky, “Fayette Thick” has been dated to at least 855 B.C. and possibly before 1020 B.C. at the Rais-Swartz Rockshelter and 520 ± 310 B.C. at the Leimbach site (Clay, 1980; Griffin, 1945; Ozker, 1982). Further north, “Schultz Thick,” has been defined at the Schultz site in the Lake Huron drainage and dated to 530 ± 150 B.C., as the earliest form in the Upper Great Lakes (Fischer, 1972; Ozker, 1982). Further west in Minnesota, exterior/interior “corded” ceramics are represented by the undated “LaMoille Thick” (Anfinson, 1979). Very similar ceramics occur as the “Marion Thick” and “Baumer” types in the Mississippi River drainage (Griffin, 1952; Linder, 1974; Ozker, 1982), the first of which has been dated to 560 ± 100 B.C. at the Larson site. Still elsewhere in the Upper Mississippi drainage, “Hilgen Cord Marked” beaker forms have been dated to 840 ± 65 B.C., 525 ± 65 B.C., and 460 ± 55 B.C. at the Hilgen Mounds in Wisconsin (Ozker, 1982; Van Langen and Kehoe, 1971).

The presence of plain, smooth surfaced vessels has also been noted for Early Woodland components in the upper Ohio River drainage as “Adena Plain,” with a distribution paralleling that of “Fayette Thick” ceramics (Dragoo, 1963; Griffin, 1945; Ozker, 1982). Additional “plain” forms with zone incised decoration (e.g., “Montgomery Incised”) are also present, which along with “Adena Plain” seem to be late ceramic developments of the Early Woodland period (Clay, 1980; Griffin, 1978). Another, somewhat enigmatic development of plain surfaced ceramics (with occasional punctate decoration) is recorded from the Maritime Province of New Brunswick at about 500–600 B.C. (Allen, 1980, 1981; Turnbull, 1976).

In summary, the earliest ceramics in the broad Northeast seem to clearly predate 1000 B.C. in the Mid Atlantic area, where they appear to be an indigenous development modelled after earlier and likely coexistent steatite vessels. The development of these flat or round
bottomed bowl forms is quite possibly due to “stimulus diffusion,” or broad scale information exchange networks with the Southeast, where distinctive fiber tempered ceramics clearly predate 2000 B.C., or may well be an independent development in the Northeast (Griffin, 1978; Kraft, 1976; Stoltman, 1978; Tuck, 1978; Wright, 1979). Shortly after the development of ceramics in the Mid Atlantic area at about 1200 B.C., a more northern and extremely widespread development is represented by the appearance of “Vinette I” and related ceramic forms, with a characteristic surface finish of perishable fiber industries (cordage, netting, and basketry or fabrics) applied on both exterior and interior surfaces. These forms were widespread over nearly the entire Northeast and beyond, from Maine to Minnesota and Kentucky to Ontario. These representations may have been influenced by the earlier, more restricted forms of the Mid Atlantic or may represent another independent indigenous development.

These early ceramics in the Northeast are most clearly native developments in the context of aboriginal hunter-gatherer populations in eastern North America (Griffin, 1978; Tuck, 1978) and not likely influenced by Asiatic or European developments as previously speculated (Kehoe, 1962; Ritchie, 1955; Willey, 1966; Wright, 1967). In any case, a rapid spread of early exterior/interior perishable fiber impressed ceramics seems well documented in the archaeological record after ca. 1000 B.C. with their persistence as late as 100–200 B.C.

The nature of subsequent later Early Woodland and Middle Woodland ceramic developments is another complicated topic, beyond the scope of this paper. Suffice it to say, however, that later forms seem to have been developed from the antecedent forms discussed in this paper in nearly all areas where ceramics were ever adopted in the Northeast (Braun, 1980; Mason, 1981; Petersen, n.d.a; Petersen and Power, 1983; Ritchie, 1965; Stoltman, 1978).

**EARLY WOODLAND PERISHABLE FIBER INDUSTRIES**

The earliest evidence of perishable fiber industries greatly predates the antiquity of ceramics in the broad Northeast. In point of fact, perishable fiber industries have been clearly identified in Early Archaic period contexts in Alabama (Griffin, 1974), Missouri (Logan, 1952), and Tennessee (Chapman and Adovasio, 1977), well dated to before 7000 B.C. in the latter case, and possibly to Paleoindian contexts in Pennsylvania (Adovasio et al., 1978; Stile, 1982). Likewise, perishable fiber industries were clearly present in the Great Lakes drainage by at least the Middle Archaic period (Adovasio and Andrews [with Carlisle], 1980). It has been well demonstrated that perishable fiber industries have a comparable antiquity in western North America, Mexico, and South America, with the production of cordage and twined basketry
apparently well established for the length and breadth of the New World by the 8th millenium B.C. at the latest (Adovasio, 1970, 1974, various; Adovasio and Carlisle, 1982; Adovasio and Maslowski, 1980).

The early development and ultimate complexity of perishable fiber industries can not be over emphasized for northeastern aboriginal populations and more broadly for eastern North America on the basis of both the fragmentary archaeological and ethnographic records (for example, Bower, 1980; Brasser, 1975; Gilliland, 1975; Harper, 1956; Holmes, 1884, 1896; Mason, 1981; Michels and Smith, 1967; Snow, 1980; Trigger, 1978; Willoughby, 1935). Examination of collections from sites such as Burrs Hill in Rhode Island, Sheep Rock Shelter in Pennsylvania, and Key Marco in Florida reveals the wide array of perishable fiber industries employed by native aboriginal populations across this wide area.

More specifically to the present case, a variety of actual perishables (nearly all fragmentary) have been recovered from a limited number of Early Woodland components in the wide Northeast. These are worthy of further detailed discussion here, along with positive casts of perishables reconstructed from ceramics and other clay remains (Adovasio, 1982; Adovasio and Andrews [with Carlisle], 1980; Dincauze, 1975; Doyle et al., 1982; Dragoo, 1963; Johnson, 1982; King, 1968; Kraft, 1976; Petersen, n.d.a.; Petersen and Basa, n.d.; Ritchie, 1949, 1965; Watson, 1969). It should be emphasized that in spite of the characteristic usage of fiber perishables in surface finish of Early Woodland ceramics (and thus their preservation as negative impressions), the number of sites which have produced Early Woodland perishables is very small and well studied samples even smaller (< 12) for the entire Northeast. Consequently, all extant reported samples have been given consideration and are discussed here in varying detail.

Although only mentioned briefly, Early Woodland perishables were first given broad consideration by Webb and Snow in 1945, who suggested a series of characteristic perishable fiber industries for the classic "Adena Culture" in the upper Ohio River drainage. These forms included simple plaiting, twill plaiting, close simple twining, open simple twining, and open diagonal twining with characteristic S wefts, where present. In addition, close simple twining with S and Z wefts and cordage of various single ply, double ply and multiple ply elements were considered characteristic of Adena perishables (Webb and Snow, 1945; see also Adovasio and Andrews [with Carlisle], 1980; Rachlin, 1960; Webb and Baby, 1957; Willoughby, 1938).

The available inventory of variably studied Early Woodland fiber perishables known to us includes samples discussed by Webb as well as others from Salts Cave and Mammoth Caves (Watson, 1969; King, 1974), the Jean Rita site in southern Illinois (Linder, 1974), the Blanton
Table 1.—Distribution of Early Woodland perishable fiber industries in the Northeast.

| Site name   | Location    | Structural form(s) and twist or weft slant                                                                 | Date       | References                  |
|-------------|-------------|----------------------------------------------------------------------------------------------------------|------------|-----------------------------|
| Salt's Cave | Green R., KY| simple (?) plaited, 1/1 interval (?) "slipper" (14+) twill plaited, 2/2 interval (?) fragment (2) close twined "slipper," S and S & Z wefts and plaited, 1/1 interval (1) close twined "slipper," S & Z wefts and plaited, 1/1 interval (3) close twined "slipper," S & Z wefts, (52+) open twined "slipper," unknown wefts (1) open twined fragment, unknown wefts (1) open simple twined fragment, S wefts (2) open twined fragment, unknown wefts (16+) open twined bag, ? spin, S twist cordage (1) cordage, 2 ply, ? spin, S twist (52+) cordage, 2 ply, ? spin, Z twist (2+) cordage, 3 ply, ? spin, ? twist (1) cordage, braided (73+) | A.D. 30 ± 160 10 B.C. ± 160 290 B.C. ± 200 320 B.C. ± 140 400 B.C. ± 140 480 B.C. ± 140 560 B.C. ± 140 570 B.C. ± 140 620 B.C. ± 140 710 B.C. ± 100 740 B.C. ± 140 770 B.C. ± 140 890 B.C. ± 150 990 B.C. ± 120 1125 B.C. ± 140 1190 B.C. ± 150 1410 B.C. ± 220 1460 B.C. ± 220 1540 B.C. ± 110 280 B.C. ± 40 420 B.C. ± 60 1050 B.C. ± 70 2170 B.C. ± 70 | Watson, 1969:36–41 plates 5, 9, 13A–13B, 1974:211–212 King, 1974:31–40, Figs. 4.1–4.9 Watson, 1969:36–41, 1974:183, Figs. 22.1–22.2 |
Table 1.—Continued.

| Site name       | Location            | Structural form(s) and twist or weft slant                                                                 | Date        | References                                      |
|-----------------|---------------------|-------------------------------------------------------------------------------------------------------------|-------------|-------------------------------------------------|
| Newt Kash       | Licking R., KY      | “slipper” (2) open simple twined fragment, S wefts (1+) cordage, 2 ply (?) cordage, braided                   | 650 B.C. ± 300 | Funkhouser and Webb, 1936:116–123, Figs. 7–14, 19 |
|                 |                     |                                                                                                             | 700 B.C. ± 300 | Watson, 1969:70                                  |
|                 |                     |                                                                                                             |             | Webb and Baby, 1957: 32–38                      |
| Red-Eye Hollow  | Kentucky R., KY     | close twined “slipper,” S & Z wefts (4) open and close simple (?) twined “slipper” S wefts (3) open twined bag, S wefts (1) cordage | —           | Funkhouser and Webb, 1929:49, 86–100, Figs. 10–11, 38–39, 41, 43–61 |
|                 |                     |                                                                                                             |             | Webb and Baby, 1957: 32–38                      |
| Steven DeHart   | Red R., KY          | close twined “slipper,” S & Z wefts (1) cordage, braided (1+)                                             | —           | Funkhouser and Webb, 1930:283–294                |
|                 |                     |                                                                                                             |             | Webb and Baby, 1957: 32–38                      |
| Jean Rita       | Mississippi R., IL  | cordage, Z twist in unknown form (2+)                                                                       | A.D. 35 ± 60 | Linder, 1974:113–121                            |
| Morgan Stone Mound | Licking R., KY     | simple plaited, 1/1 interval fragment (1) twill plaited, 2/1 interval fragment (3+) close simple twined fragment, S & Z wefts (1) open simple twined fragment, S wefts (7) open diagonal twined fragment, S wefts (3+) open simple and diagonal twined fragment, S wefts (1) cordage, 3 ply, ? spin, Z twist (2+) | —           | Carey, 1941a:268–281, Figs. 19–20 Webb and Snow, 1945: 27–28, 103, 105 |
| Site name      | Location     | Structural form(s) and twist or weft slant                                                                 | Date       | References                                                                 |
|---------------|--------------|----------------------------------------------------------------------------------------------------------|------------|-----------------------------------------------------------------------------|
| Drake Mound   | Kentucky R., KY | twill plaided, 2/1 interval (1)                                                                          | —          | Carey, 1941b:185–190, Fig. 27                                               |
|               |              | open simple wrapped twined fragment, S wefts (1)                                                          |            | Webb and Snow, 1945: 27–28, 103, 105                                         |
| Wright Mound  | Licking R., KY | open simple twined fragment, S wefts (1+)                                                                 | —          | Webb and Haag, 1940: 70, Figs. 46–48                                         |
|               |              | open diagonal twined fragment, S (?) wefts (1+)                                                            |            | Webb, 1943:539–540, Fig. 15D                                                |
|               |              | close simple (?) twined fragment, S wefts (1+)                                                              |            | Webb and Snow, 1945: 27–28, 103, 105                                         |
| Hartman Mound | Ohio R., KY   | close simple (?) twined fragment, S wefts (1+)                                                               | —          | Willoughby, 1938:287                                                         |
| Adena Mound   | Scioto R., OH | close simple twined fragment, S wefts (1)                                                                   | —          | Willoughby, 1938:280, 286, Fig. 1h, 1n                                        |
| Westenhaver Mound | Scioto R., OH | twill plaided, 2/1 interval fragment (1)                                                                    | —          | Adovasio, 1982:830–844                                                       |
|               |              | open simple twined fragment, S wefts (1)                                                                    |            | Adovasio, 1982:830–844                                                       |
| 15J035        | Levisa Fork, KY | close diagonal twined fragment, S wefts (1)*                                                                | —          | Adovasio, 1982:830–844                                                       |
| Blanton       | Levisa Fork, KY | fishnet knot netting, 2 ply, S spin, Z twist cordage (1)*                                                   | —          | Adovasio, 1982:830–844                                                       |
|               |              | square knot netting, 2 ply, Z spin, S twist cordage (1)*                                                    |            | Adovasio, 1982:830–844                                                       |
|               |              | unknown basketry or netting (1)*                                                                            |            | Adovasio, 1982:830–844                                                       |
| Natrium Mound | Ohio R., WV   | close simple twined fragment, S wefts (1)                                                                    | —          | Solecki, 1953:374, plate 25b                                                 |
| Site name               | Location        | Structural form(s) and twist or weft slant                                                                 | Date          | References                                                                 |
|------------------------|-----------------|------------------------------------------------------------------------------------------------------------|---------------|---------------------------------------------------------------------------|
| Cresap Mound           | Ohio R., WV     | close (?) twined or plaited fragment (1)                                                                   |               | Dragoo, 1963:32–33, 35, 122, 128–129                                      |
|                        |                 |                                                                                                            |               | Adovasio and Carlisle, 1982:847                                           |
| Northern Thorn Mound   | Monongahela R., WV | close simple twined fragment, S wefts (3)*                                                               |               | Adovasio and Andrews [with Carlisle], 1980: 33–72, Figs. 1–2             |
|                        |                 | close simple twined fragment, S & Z wefts (2)*                                                            |               |                                                                           |
|                        |                 | open diagonal twined fragment, S wefts (13)*                                                              |               |                                                                           |
|                        |                 | open and close diagonal twined fragment, S & Z wefts (1)*                                                |               |                                                                           |
|                        |                 | cordage, 2 ply, Z spin, S twist (7)*                                                                       |               |                                                                           |
|                        |                 | cordage, braided (composed of 3 strands of 2 ply, Z spin, S twist)                                        |               |                                                                           |
|                        |                 | (1)*                                                        |               |                                                                           |
| McKees Rocks Mound     | Ohio R., PA     | open simple twined fragment, S wefts (1)                                                                  |               | Dragoo, 1963:156, Plate 49                                                 |
|                        |                 |                                                                                                            |               | Adovasio and Carlisle, 1982:847                                           |
| Meadowcroft Rock-      | Cross Creek, PA  | simple plaited, 1/1 interval fragment (6)                                                                  | 340 B.C. ± 90 | Johnson, 1982:142–162                                                     |
| shelter                |                 |                                                                                                            | 375 B.C. ± 75 | Stile, 1982:130–141, Figs. 1–2                                           |
|                        |                 | open simple twined fragment, Z wefts (2)*                                                                 | 535 B.C. ± 350|                                                                           |
|                        |                 | unknown basketry or cordage, Z twist (1)*                                                                  | 705 B.C. ± 120|                                                                           |
|                        |                 |                                                                                                            | 865 B.C. ± 80 |                                                                           |
|                        |                 |                                                                                                            | 870 B.C. ± 75 |                                                                           |
|                        |                 |                                                                                                            | 910 B.C. ± 80 |                                                                           |
|                        |                 |                                                                                                            | 980 B.C. ± 75 |                                                                           |
|                        |                 |                                                                                                            | 1100 B.C. ± 85|                                                                           |
|                        |                 |                                                                                                            | 1115 B.C. ± 80|                                                                           |
Table 1.—Continued.

| Site name     | Location        | Structural form(s) and twist or weft slant                                                                 | Date          | References                          |
|---------------|-----------------|------------------------------------------------------------------------------------------------------------|---------------|--------------------------------------|
| Riverside     | Lake Huron, MI  | open twined fragment, S weft (1)                                                                          | A.D. 1 ± 130  | King, 1968:117–123, Figs. 1–6        |
|               |                 | open wrapped simple twined fragment, S weft (1)                                                           | 100 B.C. ± 140|                                        |
|               |                 |                                                                                                            | 130 B.C. ± 140|                                        |
|               |                 |                                                                                                            | 140 B.C. ± 140|                                        |
|               |                 |                                                                                                            | 510 B.C. ± 140|                                        |
|               |                 |                                                                                                            | 1081 B.C. ± 300|                                       |
| Picton        | Lake Ontario, ONT| cordage, 2 ply, ? spin, Z twist (1+)* unknown “hair” or “fur fabric” (1)                                  | —             | Ritchie, 1949:38, Fig. 11p            |
| Bruce Boyd    | Lake Erie, ONT  | cordage, 2 ply, ? spin, Z twist (1+)*                                                                     | —             | Spence et al., 1978:38                |
|               |                 | cordage, 3 ply, ? spin, Z twist (1)*                                                                        |               |                                      |
| Morrow        | Honeoye Lake, NY| close simple (?) twined fragment, Z wefts (1)                                                              | 563 B.C. ± 250| Ritchie, 1965:186–187, 194–196, Plates 67, 70 |
|               |                 | knotted netting, 2 ply, ? spin, S twist cordage (1)                                                        | 630 B.C. ± 100|                                        |
| Van Orden     | Hudson R., NY   | cordage, details unknown (1+)                                                                              | —             | Ritchie, 1958:100–101                |
| Muskalongs    | Muskalongs Lake, NY | cordage, 2 ply, ? spin, S twist (1+) cordage, 1 ply, S twist (1)                                           | —             | Ritchie, 1955:37, 40, Plates 8, 11.7–11.8|
| Canton        | Atlantic Coast, NJ | cordage, 3 ply, Z spin, S twist (1) cordage, ? ply, ? spin, S twist (1)                                   | —             | Mounier, 1981:59–60, Plate 6          |
| Rosenkrans    | Delaware R., NJ  | twill plaited, 2/1 interval fragment (1)                                                                   | 610 B.C. ± 120| Kraft, 1976:18, 21, 23–25, 31–32, Figs. 9f, 9g, 11f, 11g, 14 |
| Site name       | Location        | Structural form(s) and twist or weft slant                                      | Date       | References                        |
|-----------------|-----------------|---------------------------------------------------------------------------------|------------|-----------------------------------|
| Clap’s Landing  | Charles R., MA  | cordage, ? ply, ? spin, S twist in unknown form (4)*                           | —          | Dincauze, 1975:7                  |
|                 |                 | unknown cordage or twined fragment (2)*                                        |            |                                   |
| Boucher         | Missisquoi R., VT | open simple twined fragment, S wefts (3+)                                      | —          | Petersen and Basa, n.d.           |
|                 |                 | knotted netting, 2 ply, Z spin, S twist cordage (1)*                           |            |                                   |
|                 |                 | cordage, 2 ply, Z spin, S twist (4+)                                           |            |                                   |
|                 |                 | cordage, 1 ply, Z twist                                                        |            |                                   |
|                 |                 | unknown cordage or twined fragment (4+)*                                       |            |                                   |
| Augustine Mound | Miramichi R., NB | open simple (?) twined fragment, S wefts (1+)                                   | 380 B.C. ± 110 | Turnbull, 1976:54–55, Plate 3     |
|                 |                 | cordage, 2 ply, ? spin, S twist (1+)                                           |            |                                   |

* Specimen derived from negative ceramic or packed clay remains.
Table 2.—Distribution of Early Woodland perishable fiber industries in Maine.

| Site name       | Location           | Structural form(s) and twist or weft slant                                      | Date            | References                      |
|-----------------|--------------------|---------------------------------------------------------------------------------|-----------------|---------------------------------|
| Great Diamond Island | Casco Bay          | open simple twined fragment, S wefts (1)* close simple twined fragment, Z wefts (2)* interlinked fabric fragment, 2 ply, Z spin, S twist cordage (1)* cordage, 2 ply, S spin, Z twist cordage (2 +)* | 365 B.C. ± 130  600 B.C. ± 60 | Hamilton and Yesner, 1981        |
|                 |                    |                                                                                 |                 | Doyle et al., 1982              |
| Great Moshier Island | Casco Bay          | close simple twined fragment, Z wefts (1)*                                    | 260 B.C. ± 320  | Petersen, n.d.a.                 |
| Hamilton        |                    | open simple twined fragment, Z wefts (3)* close simple (?) twined fragment, Z wefts (1)* close simple (?) twined fragment, S wefts (4)* |                 | Doyle et al., 1982              |
|                 |                    |                                                                                 |                 | Petersen, n.d.a.                 |
| Tidal Presumpscot | Presumpscot R.      | close simple (?) twined fragment, S wefts (1)*                              |                 | Petersen, n.d.a.                 |
| Taylor          | Boothbay Harbor    | interlinked fabric (?) fragment, 2 ply, S spin, Z twist cordage (1)*          |                 | Petersen, n.d.a.                 |
| ME16-37         | Boothbay Harbor    | cordage, 2 ply, S spin, Z twist in unknown form (1)*                          |                 | Petersen, n.d.a.                 |
| Nahanada        | Boothbay Harbor    | open simple (?) twined fragment, Z wefts (1)*                                |                 | Petersen, n.d.a.                 |
| Lime Island     | Penobscot Bay      | open simple (?) twined fragment, Z wefts (1)*                                |                 | Petersen, n.d.a.                 |
| Fernald Point   | Penobscot Bay      | cordage, 2 ply, S pin, Z twist in unknown form (1)*                          |                 | Petersen, n.d.a.                 |
| Site name       | Location        | Structural form(s) and twist or weft slant                                                                 | Date | References                  |
|-----------------|-----------------|-----------------------------------------------------------------------------------------------------------|------|----------------------------|
| Turner Farm     | Penobscot Bay   | open simple twined fragment, Z wefts (1)*<br>open simple twined fragment, S wefts (2)*<br>close simple (?) twined fragment, Z wefts (1)*<br>cordage, 2 ply, Z spin, S twist in unknown form (3)*<br>cordage, 2 ply, S spin, Z twist in unknown form (1)* | —    | Petersen, n.d.a.            |
| Basin Island    | Sebago Lake     | open simple twined fragment, S wefts (1)*<br>close simple (?) twined fragment, S wefts (1)*<br>open simple twined fragment, S wefts (4)* | —    | Doyle et al., 1982<br>Petersen, n.d.a. |
| White's Bridge  | Sebago Lake     | close simple (?) twined fragment, S wefts (1)*<br>open simple twined fragment, S wefts (2)*            | —    | Doyle et al., 1982<br>Petersen, n.d.a. |
| Outlet 1        | Cobbosseecontee Stream | close simple twined fragment, Z wefts (1)*<br>open simple twined fragment, S wefts (4)* | —    | Petersen, n.d.a.            |
| Outlet 2        | Cobbosseecontee Stream | cordage, 2 ply, 2 spin, S twist in unknown form (1)*<br>close simple (?) twined fragment, S wefts (2)*<br>open simple twined fragment, S wefts (1)* | —    | Petersen, n.d.a.            |
| Rips            | Cobbosseecontee Stream | close simple (?) twined fragment, S wefts (2)*<br>open simple twined fragment, S wefts (1)*            | —    | Petersen, n.d.a.            |
| Vassalborough   | Kennebec R.     | close simple (?) twined fragment, S wefts (1)*<br>open simple twined fragment, S wefts (1)*<br>close simple (?) twined fragment, Z wefts (1)* | —    | Doyle et al., 1982<br>Petersen, n.d.a. |
| Sebasticook I   | Sebasticook R.  | open simple twined fragment, S wefts (1)*<br>closed simple (?) twined fragment, Z wefts (1)*<br>open simple twined fragment, S wefts (1)* | —    | Doyle et al., 1982<br>Petersen, n.d.a. |
| Sebasticook II  | Sebasticook R.  | close simple (?) twined fragment, Z wefts (1)*<br>closed simple (?) twined fragment, Z wefts (1)*<br>open simple twined fragment, S wefts (1)* | —    | Doyle et al., 1982<br>Petersen, n.d.a. |
| Site name       | Location          | Structural form(s) and twist or weft slant                                                                 | Date | References                      |
|----------------|-------------------|-----------------------------------------------------------------------------------------------------------|------|---------------------------------|
| Evergreens     | Kennebec R.       | close simple (?) twined fragment, S wefts (1)*                                                           |      | Spiess et al., 1983             |
|                |                   | open simple twined fragment, S wefts (1)*                                                                 |      | Petersen, n.d.a.                |
|                |                   | close simple (?) twined fragment, S wefts (1)*                                                            |      |                                 |
| Carratunk Falls| Kennebec R.       | close simple (?) twined fragment, S wefts (2)*                                                            |      | Petersen, n.d.a.                |
|                |                   | cordage, 2 ply, Z spin, S twist in unknown form (1)*                                                       |      |                                 |
| Hirundo        | Pushaw Stream     | open simple twined fragment, S wefts (1)*                                                                 |      | Petersen, n.d.a.                |
|                |                   | close simple (?) twined fragment, S wefts (1)*                                                            |      |                                 |
| Young          | Pushaw Stream     | cordage, 2 ply, Z spin, S twist in unknown form (2+)*                                                      |      | Borstel, 1982                   |
|                |                   | cordage, unknown ply and twist in unknown form (4+)*                                                       |      | Petersen, n.d.a.                |
| Rhoda          | Sebec R.          | open simple twined fragment, Z wefts (1+)*                                                                 |      | Petersen, n.d.a.                |
| Brockway       | Sebec R.          | cordage, 2 ply, Z spin, S twist in unknown form (1+)*                                                      |      | Petersen, n.d.a.                |
| Schoodic Stream| Piscataquis R.    | close simple (?) twined fragment, S wefts (1)*                                                            |      | Petersen, n.d.a.                |
| Junior Stream  | West Grand Lake   | open simple twined fragment, S wefts (1)*                                                                 |      | Petersen, n.d.a.                |
|                |                   | cordage, 2 ply, Z spin, S twist in unknown form (1)*                                                       |      |                                 |

* Specimen derived from negative impression on Vinette I-like ceramics.
site and 15JO35 in eastern Kentucky (Adovasio, 1982), and the Na-
trium Mound in West Virginia (Solecki, 1953). Other sites from the
upper Ohio drainage include Cresap Mount in West Virginia and
McKees Rocks Mound in Pennsylvania (Dragoo, 1963), Northern Thorn
Mound in West Virginia (Adovasio and Andrews [with Carlisle], 1980),
and Meadowcroft Rockshelter in Pennsylvania (Johnson, 1982; Stile,
1982). In the Mid Atlantic region, samples are available from the
Canton Site in southern New Jersey (Mounier, 1981) and the Rosen-
krans site in western New Jersey (Kraft, 1976). In New England, sam-
ples include material from the Clap’s Landing site in eastern Massa-
chusetts (Dincauze, 1975), the Great Diamond Island site in
southwestern Maine (Hamilton and Yesner, 1981), 25 other variably
known sites from coastal and interior Maine (Doyle et al., 1982; Pe-
tersen, n.d.a.; Spiess et al., 1983), as well as the Boucher site in north-
western Vermont (Petersen and Basa, n.d.) and the East Creek site in
western Vermont (Louise Basa and Stephen Loring, personal com-
munication, March 1983). Samples are also known from the Augustine
Mound in New Brunswick (Turnbull, 1976), the Muskalonge Lake and
Morrow sites in northern New York (Ritchie, 1955, 1965), and the
Bruce Boyd site in southwestern Ontario (Spence et al., 1978). Two
other possibly Early Woodland period sites in the Northeast which
produced actual fiber perishable include the Picton site in Ontario
(Ritchie, 1949) and the Riverside site in Michigan (King, 1968; Ado-
vasio and Andrews [with Carlisle], 1980).

To briefly summarize the inventories from these sites, there were at
least seven different structural types of cordage, two types of netting,
two structural types of plaited fabrics or basketry, and nine structural
types of twined fabrics, basketry or sandals represented (see Tables 1
and 2). Raw materials apparently included paw paw (*Aimina triloba
L*), canary grass (*Phalaris caroliniana*), and rattlesnake master (*Eryn-
gium yuccifolium) in Kentucky, bovid hair (Bovidae sp.) in New Brunswick and more commonly over the broad region, relatively fine Indian hemp (Apocynum cannabinum L.) and milkweed (Asclepias sp.) as well as more coarse inner bark, apparently basswood (Tilia americana L.) for many of the identifiable specimens (Turnbull, 1976:55; Watson, 1969:38; Whitford, 1941).

It should be obvious from the preceding summary that Early Woodland perishable fiber industries remain incompletely known across the entire Northeast due to rare conditions of preservation, recovery, and adequate study. The cumulative data on fiber perishables nonetheless indicate the highly diversified and sophisticated nature of Early Woodland perishable fiber industries in the Northeast. Furthermore, the sum of these data is obviously reflective of a long span of prior development in the region (see Adovasio and Andrews [with Carlisle], 1980; Adovasio and Carlisle, 1982).

Clearly recognizing the limited extent of the available perishable data, one tentative observation seems inescapable. That is, Z twist cordage and twined fabrics or basketry with Z wefts only occur in contexts which are clearly not attributable to classic Adena or Adena-related Middlesex phase contexts. Adena and Middlesex perishable fiber industries share a highly preferred usage of S-twist cordage and twined fabrics or basketry with S wefts (see Fig. 1). Thus, an intriguing technological correlation seems apparent between Adena and Middlesex fiber industries, a correlation which is borne out by a variety of other more commonly noted aspects of their respective technological inventories, such as use of Ohio fire clay tubular pipes, native copper beads and lithic tools manufactured from Midwestern raw materials.

Before embarking on some far reaching diffusionary scheme however, it should also be noted that S twist cordage and fabrics or basketry with S wefts occur in other Early Woodland contexts which do not seem to be classic Adena or Middlesex related, such as the interior sites in Maine mentioned previously or the Clap's Landing site in Massachusetts. Consequently, we may ultimately be able to specify that S twist cordage and/or S weft fabrics are necessary but not sufficient conditions for the definition of Adena or Adena-related fiber perishables, whereas Z twist cordage and/or Z wefts were rare to nonexistent in such contexts during the Early Woodland period.

**Behavioral Implications**

At this juncture, the behavioral implications of the aforementioned Early Woodland ceramic and perishable fiber industries will be given some further consideration. All of the available data allow suggestion of broadly similar ceramic, cordage, netting, and basketry (or fabric)
industries over much of the broad Northeast during the Early Woodland period. Although such uniformity has been previously noted by a variety of researchers (for example, Braun, 1980; Griffin, 1978; Ozker, 1982; Stoltman, 1978; Willey, 1966), few archaeologists have ventured to explain the widespread technological millieu of the Early Woodland period in other than sketchy terms. The well known, if no longer tenable, reconstruction offered by Ritchie and Dragoo suggested that direct and broad scale “splinter migration” best accounted for the wide spread of classic Adena technologies in much of the Northeast, particularly manifest in the burial ceremonialism of the Middlesex phase (Ritchie and Dragoo, 1959, 1960). While no longer supported by more recent research and current interpretive fashion, the mechanics of the commonly accepted alternative of an Early Woodland trading network (for example, Granger, 1978; Kraft, 1976; Snow, 1980; Thomas, 1970; Turnbull, 1976) remain poorly developed and less well understood. We can be reasonably sure that raw materials and presumably finished goods and perishable materials were in some way moved across the northeastern countryside, but the mechanisms responsible for such movement and the motivation behind it need better explication. Although reconstruction of an Early Woodland trade (or exchange) network lies beyond the scope of this presentation, one potentially valuable and possibly analogous discussion has been well formulated by David Clarke (1979) in his consideration of the Bell Beaker network in western Europe. Clarke’s treatment emphasizes the varied economic and social roles which material culture, including textiles and ceramics, may play within and between social groups. His valuable treatment well compliments similar considerations about cultural styles offered by a variety of other archaeologists, including, for example, Braun (1980), McPherron (1967), and Wobst (1977). Still other, more ecological-economic considerations could likewise be used to better examine this matter, including treatments offered by Brose (1979), Dalton (1977), and Ericson (1977), for example. Suffice it to say here that this matter bears further investigation in the context of trade and exchange as well as the more nebulous matter of cultural styles reflected in the archaeological record of the Early Woodland period and the broader span of prehistory and history.

We are in a better position to reflect on a matter of smaller regional scale, but of no less importance, however. Using data drawn from a variety of recent detailed analyses conducted in northern New England (Doyle et al., 1982; Hamilton and Yesner, 1981; Petersen, 1977a, 1977b, 1978, 1980, n.d.a.; Petersen and Basa, n.d.; Petersen and Power, 1981, 1983), we can begin to go beyond subjective reconstruction to examine and evaluate important matters of cultural continuity and identity in this portion of the Northeast. (We would like to reiterate
the word begin here since detailed, problem-oriented technical analyses are a slow, sometimes painful, but nonetheless needed process.)

Individual and combined research in Maine and Vermont permits tentative demonstration of long lasting continuities in both areas on the basis of preserved technologies, specifically including ceramics and fiber perishables. Ceramic data from the Lake Champlain and Connecticut River drainages of Vermont have permitted the tentative definition of a continuum of in-situ development over the span of the entire Woodland period, with distinctive local variation as well as broad parallels to other regional developments. We have elsewhere reasoned that the Western Abenaki may well have an antiquity minimally spanning the entire Woodland period on the basis of this continuum of ceramic development (Petersen and Power, 1983; Petersen, n.d.b.). Likewise, a long span of in-situ ceramic development can be suggested for southwestern Maine (Hamilton and Yesner, 1981), which is broadly comparable to the Vermont sequence, but nonetheless distinctive. This span of development has less precise connection to the ethnographic record however, due to the smaller number of detailed analyses conducted in this portion of Maine.

Further substantiation of these continuities is afforded by an examination of the fiber perishables from both areas, including the Early Woodland materials mentioned here. It should be stressed that twist direction in cordage and weft (stitch) slant in twined fabrics are very highly sensitive, normally population specific attributes in fiber perishables, as well noted by Adovasio and other analysts of perishable industries (for example, Adovasio, 1977, 1979, 1983; Adovasio and Carlisle, 1982; Andrews and Adovasio, 1980; Fry and Adovasio, 1970; Maslowski, 1981; Weltfish, 1932).

"Population" in this sense explicitly equates with an ethnic group in the sense that Pima or Paiute, Karok or Kwakiutl, Cheyenne or Shawnee are ethnic groups. While several linguistically related or unrelated groups may share the same stitch slant (as well as other aspects of production), rarely if ever does any one group regularly employ both of them even if some individuals may opt to use a non-customary pattern. Put another way, although a minor amount of idiosyncratic variation in twining weft manipulation preference may exist within a given population of weavers, rarely if ever will any group systematically exploit both possible stitch slants. Twining stitch slant (like work direction in the production of coiled baskets as well as initial spin or final twist in cordage manufacture) is not dependent on handedness. The preponderance of one or another twist direction or its apparent coexistence in some numbers cannot be explained on the basis of idiosyncratic terms alone. Indeed, there are virtually no ethnographic parallels for the coexistence of both twining twist directions in the same residence unit unless two different populations of weavers have been amalgamated, peacefully or otherwise. (Adovasio and Carlisle, 1982:848).

Numerous archaeological and ethnographic examples well substantiate the diagnostic nature of the attributes mentioned by Adovasio
and Carlisle here (for example, Adovasio, 1983; Andrews and Adovasio, 1980; Bower, 1980; Epstein, 1963). These and a host of other examples provide documentation of the distinctive patterning which characterizes technological learning networks, with preferred twist or weft slant ranging between 70–80% and often exceeding 90% in large samples of fiber perishables. Whether derived from the archaeological or ethnographic record, one or the other of the binary attribute states (S or Z) typically dominates a site-specific or regionally derived sample. Exceptions to this pattern are therefore worthy of hypothesis testing to account for such variability. Moreover, such preferences used in
Fig. 3.—Rare example of actual open simple twined basketry (fabric) from the Boucher site, feature 94A. Wefts and warps are composed of 2-ply, Z-spin, S-twist cordage ($S_t$). Total length of extant specimen (not visible) is 210.0 mm. Native copper bead in lower center section is about 6.80 mm in length.

Conjunction with other attributes have enabled spatial differentiation of archaeological complexes in both synchronic and diachronic dimensions (for example, Adovasio, 1983; Andrews and Adovasio, 1980; Maslowski, 1981). The important point here is that once a population adopts a particular cordage twist or twined weft, they rarely if ever change it.

Although of small size in absolute terms, but not necessarily so in comparison with other samples, the Early Woodland fiber perishables from the Boucher site in the Lake Champlain drainage of Vermont ($n = 9+$) with sufficient detail to permit analysis reveal that S twist cordage and twined fabrics with S wefts account for at least 89% of the extant perishables (Figs. 2–3). More recent samples of fiber perishables ($n = 31+$) from the late and terminal Middle Woodland periods, ca. A.D. 600 to A.D. 1000 in the same drainage include at least 84% with S twist or S wefts (Petersen and Power, 1983), thereby paralleling the continuity reflected in the ceramics.

Conversely, the Early Woodland fiber perishables ($n = 6+$) from the Great Diamond Island site in Casco Bay on the coast of Maine indicate
a pattern of continuity where 66% of the specimens were Z twist cordage or twined fabrics with Z wefts (Figs. 4–5). Later samples of fiber perishables from Middle and Late Woodland occupations of the Great Diamond Island site (n = 11+), ca. A.D. 600 to A.D. 1200 include at least 64% with a Z twist or Z wefts (Hamilton and Yesner, 1981).

These samples demonstrate both local continuities in the manufacture of perishables as well as different preferences between the two areas of the interior Lake Champlain drainage and coastal Casco Bay over time. Of related interest, samples of Early Woodland perishables from 25 other sites in Maine indicate the overall presence of dominant S twist cordage and S wefts from 16 “interior” sites, with generally predominant Z twist cordage and fabrics with Z wefts at nine “coastal locales and one “interior” site (see Fig. 6, Table 2; Doyle et al., 1982; Petersen, n.d.a.; Spiess et al., 1983). While all of these latter samples are dreadfully small, it seems quite possible that these distinct differences in fiber perishable preferences are reflective of distinct interior and coastal groups in Maine during the Early Woodland period. Moreover, other samples from both coastal and interior settings in Maine, reveal that cordage twist preferences (S or Z) remain likewise constant at most sites under current investigation, often surpassing an 80%
preference over a 2000 year period (Petersen, n.d.a.). Again, we find
here suggestive evidence of long term, in-situ continuities at both coast-
al and interior locales in Maine during the Woodland (Ceramic) period.
Curiously, however, this dichotomy disappeared after A.D. 1000, a
matter which is beyond the scope of this treatment, but which is ad-
dressed in some detail elsewhere (Petersen, n.d.a.; Petersen and Ham-
ilton [with LaBar and Hedden], 1984).

The implications of this apparent coastal/interior difference in perishable twist preference are potentially complex, but it seems safe to
suggest that distinct and different technological populations were pres-
ent in coastal and interior environments over much of the span of the
total Woodland (Ceramic) period in Maine. We feel that the available
data permit us to question previous models of seasonal movement
between coastal and interior locales in Maine and the Maritimes, par-
alleling arguments recently presented by Sanger (1982) on the basis of
subsistence data. The social implications of our observations are po-

Fig. 5.—Fiber perishable positive casts from sites in Maine: a, stretched open simple
twining with \( Z \), cordage wefts, Hamilton site; b, stretched open simple twining with \( S \),cordage wefts, Basin Island site; c, open simple twining with \( S \) cordage wefts (and
warps), Great Diamond Island site; d, stretched open simple twining with \( S \) cordage
wefts, Sebasticook I site; e, stretched open simple twining with \( S \) cordage wefts, Hamilton
site; f, close twining with \( Z \) cordage wefts, Hamilton site.
Fig. 6.—Exterior/interior “corded” (Vinette I-like) ceramic sherd and perishable positive casts from the Rhoda site in Maine: a, Vinette I-like ceramic sherd showing interior surface; b, positive cast of interior surface showing stretched open simple twining with Z-cordage wefts; c, positive cast of exterior surface showing extensive smoothing over original impression.
potentially diverse: How do technological populations correlate with social groups? What factors best account for technological differentiation in the first place? and What does the identification of such technological populations mean in terms of regional culture history and previous behavioral reconstructions? We suggest that differentiation of technological populations can be minimally interpreted as being indicative of different social groups, whether local or regional bands, or in this case, that previously unrecognized differences in ethnic populations may be ultimately detailed in Maine (see Adovasio, 1983; Wiessner, 1983). This and a host of other questions bear further investigation.

**Summary and Conclusions**

Our current understanding of Early Woodland ceramic and perishable fiber industries in the Northeast is obviously uneven and incomplete. We have clearly managed a fair start in detailing the variety and significance of the earliest ceramics in the Northeast. Contemporaneous fiber perishables remain little known, however, in spite of their long tenure in the technological inventory of aboriginal populations within the broad region and common usage in the surface finishing of Early Woodland ceramics. The available sample nonetheless provides tentative definition of the relative diversity of structural forms, technological sophistication and widespread similarities of cordage, netting, plaiting and twining industries across the Northeast during the Early Woodland period, ca. 1200 B.C. to 200 B.C. The complexity in Early Woodland fiber perishables is anticipated in the very rare occurrences across eastern North America of even older samples.

An admittedly simplistic but suggestive example of the utility of detailed technical analyses of both ceramics and fiber perishables has been presented here for its summary descriptive value and to encourage further research along similar lines. We expect that the complexity of this reconstruction will be further elaborated, modified or rejected with subsequent investigation, as is the way of archaeological research.

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