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ON THE APPROPRIATENESS OF THE WOODLAND CONCEPT IN NORTHEASTERN ARCHAEOLOGY

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The use of the term "woodland cultures" in the Northeast is a product of the history of archaeology in the eastern U.S. as a whole. As a heuristic device, it presupposes a view of eastern North America as a "culture area" in a Kroeberian, culture-historical, distribution-of-ideas sense (e.g., Cole and Deuel 1937; Woodland Conference 1973; McKern 1946; Kroeber 1948: Ch. 7-10). Its baggage has not been limited only to this culture-area viewpoint, however. Its application in the Northeast has entailed a confusion among chronological, evolutionary, and local vs. regional developmental terminologies (e.g., Willey and Phillips 1958), and also what might be termed a 'Mississippi-centric' view of the East in general (e.g., Ford and Willey 1941; Ritchie 1946; Griffin 1946; 1952a; 1964; 1967). These problems derive not from the "Woodland" concept alone, but, more substantially, from the institutional and methodological history of the profession.

Such problems have receded with the continuing development of local and regional culture-historical terminologies in the Northeast (e.g. Ritchie 1969b; Ritchie and Funk 1973). On the other hand, the Woodland concept remains the framework within which developments after 600 BC in the Northeast are compared to other areas in North America, and communicated to the rest of the profession. In this paper I will address three broad questions raised by this need to compare and communicate, using the central Midwest as the focus of comparison:
1. To what extent do Woodland developments in the Northeast parallel those in the central Midwest, but lag as a result of slow "diffusion" from center to periphery (e.g., Ford and Willey 1941; Ritchie 1946)?

2. To what extent do Woodland developments in the Northeast and the central Midwest indicate simultaneous participation in a single network of communication—what Caldwell would have called an "Interaction Sphere" (Caldwell 1964)?

3. And, to what extent do Woodland developments in the Northeast and the central Midwest represent the same broad evolutionary processes operating at different rates?

These are formidable questions; their detailed consideration clearly beyond the scope of a paper such as this, and subject to some debate over definitions. I intend here only to indicate some directions the answers might take, based on my familiarity with the central Midwest, and using information on ceramic vessel form and decoration as the focus of discussion.

The "Woodland" concept was developed as a device for assessing the participation of societies in the processes included within the "culture area" concept (McKern 1939; Woodland Conference 1943; e.g., Griffin 1973). It was not, as we sometimes are told, a device without anthropological intent (compare Griffin 1943: 327-341; Willey and Sabloff 1974). Further, it was established at a time when site chronologies were extremely compressed by today's radiocarbon-based standards. As a result, traits were selected to define levels of material similarity among sites, with this material similarity to be interpreted in terms of ethnographic similarity. Ethnographic similarity, in the form of a sharing of cultural elements (e.g., Kroeber 1948), was assumed to indicate a sharing of ideas and knowledge. The cultural reasons for the inferred ethnographic similarities were open to interpretation, but the procedures for such interpretation were not defined a priori by the classification.

If, today, we wish to explain the observed material similarities and differences among sites and regions in terms of behavior, we must develop the necessary instruments ourselves. Attributes of ceramic vessel form, decorative technique, and decorative pattern carried equivalent meaning and weight within the original Woodland concept (Woodland Conference 1943). Here, instead, I will use vessel form separately as an indicator of container function, and aspects of vessel decoration separately as indicators of the organization of communication and social signaling behavior. Ceramic similarities and differences, then, will begin to inform us about the organization of subsistence practices and the social environment.

Ceramic containers are implements, which sometimes bear additional encoded information. We can expect that, as implements, such containers will exhibit a strong correspondence between their technological properties and their conditions of use. It is notable, then, that
Woodland ceramic remains in both the Northeast and the central Midwest follow the same pattern of technological change over time. Only the rates of change differ.

The earliest ceramic vessels in both regions conform to a single generalized form: a relatively squat, cylindrical form with flat or conoidal base, thick walls (10-15 mm.), and very coarse temper inclusions (Griffin 1952b: 97-98; Maxwell 1951: 272-274; Stephens 1975; Ritchie 1969a: 194; Ritchie and MacNeish 1949; Fowler 1966). Radiocarbon dates fall in the span of 1000 to 500 BC from Martha's Vineyard to the Mississippi River, with the average date in most regions falling near 600 BC. (Ritchie and Funk 1973: 96-98; Ozker 1977; Stoltman 1978). Type names range from Vinette I in the Northeast to Marion Thick, Baumer and Sugar Hill Cordmarked in the central Midwest.

This so-called Early Woodland form was succeeded in both regions by a second generalized form: a taller, relatively elongate, cylindrical form with blunt or conoidal base, somewhat thinner walls (6-10 mm.), and somewhat finer temper inclusions (Griffin 1952b: 121; Maxwell 1951: 274-278; McGregor 1958: 209-218; Streueer 1965; 1968: 140-172; Loy 1968; Ritchie and Funk 1973: 117-122). Pottery of this form in the central Midwest falls within the Havana, Pike, and Crab Orchard Middle Woodland types, and is radiocarbon-dated up to ca. AD 200-400 (see also, Streueer 1964; Griffin et al. 1970: 1-10; Braun 1977: 8; Kay and Johnson 1977; Benn 1978). Pottery of this form in the Northeast—at least in New York and southern New England—falls within the Point Peninsula and early Owasco and Windsor types (Ritchie 1969a; 1969b; Ritchie and Funk 1973; Smith 1950; Salwen and Ottesen 1912); and probably most types within Stages 2 and 3 of Fowler's Massachusetts classification (Fowler 1966) and Bullen's Medium Coarse Mineral-Tempered and Shell-Tempered pottery classes (Bullen 1949). Radiocarbon dates in the Northeast, however, show this form lasting up to ca. AD 1000-1100, at least 600 years longer than in the central Midwest (Ritchie and Funk 1973: 117-122, 165; cf. Ritchie 1969a: Plates 97, 98, 103). The use of the term "Middle Woodland" to describe sites as late as AD 1000 in New York (Ritchie 1969a; Ritchie and MacNeish 1949; Ritchie and Funk 1973) follows in part from the persistence of this ceramic form.

The period between ca. AD 400 and AD 800 or 900 in the central Midwest witnessed a shift in vessel forms, from the preceding elongate form to a more squat form, globular below the neck or shoulder, with hemispherical base, thin walls (3-5 mm. avg. for latest examples), and fine temper inclusions (Griffin 1952b: 121; Maxwell 1951: 278-281; McGregor 1958: 218-223; Streueer 1968: 140-172; Vogel 1975; O'Brien 1972). Transitional forms during the early phases of this shift fall under the Late Woodland Weaver, White Hall, Canteen, Raymond and Early Bluff named categories (see also Griffin et al. 1970: 1-10; Braun 1977: 8,9). The pottery of the later phases, which subsequently evolves into the early Mississippian forms, falls under the Late Woodland Sepo, Late Bluff, and Dillinger named categories (see also Harn 1975).

A shift in vessel forms in the Northeast, parallel to this Late Woodland shift in the central Midwest, occurred between ca. AD 1000-1100.
1. To what extent do Woodland developments in the Northeast parallel those in the central Midwest, but lag as a result of slow "diffusion" from center to periphery (e.g., Ford and Willey 1941; Ritchie 1946)?

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and AD 1300-1400. This shift is one of the defining characteristics of the Owasco-Iroquois continuum in New York (Ritchie 1969a; Ritchie and MacNeish 1949; Ritchie and Funk 1973). It also appears to be characteristic of this same period in southern New England and coastal New York (e.g., Smith 1950; Moffett 1957; Ritchie and Funk 1973; Ritchie 1969b: 228-229), although the fully globular form may never have become dominant in this subregion (e.g., Fowler 1966; Ritchie 1969b).

Ceramic vessels in both the Northeast and the central Midwest, then, evidence a single pattern of change, involving a shift from elongate, thick-walled, fine-tempered forms. In no instance, however, can the utilitarian Woodland vessels in either region be considered as anything other than cooking containers (cf. Linton 1944; Erickson et al. 1972; Braun 1977: 173-174).

The parallel trends in vessel shape represent an early emphasis on containers with a low cross-section-to-volume ratio, followed by a late emphasis on containers with a high cross-section-to-volume ratio below the shoulder. This ratio strongly effects the efficiency with which the vessels contents can be heated from a concentrated source of heat: the higher the ratio, the greater the efficiency (Ericson et al. 1972). Globular forms also may be more resistant to thermal fatigue (Amberg and Hartsook 1946; Rye 1976).

The thermal conductivity of ceramic vessel walls is inversely and linearly proportional to wall thickness, other things being equal. The cross-sectional rupture strength of a vessel wall, other things being equal, increases with wall thickness, but so does the likelihood of fracture due to thermal stress and thermal shock (Ericson et al. 1972; Kingery 1960: 461-508 and passim; Van Vlack 1964: 117-165; Rye 1976).

Temper inclusions in ceramic vessels serve as binders, important primarily during the processes of manufacture. Within broad limits, the larger the included particles, the greater the binding. Where the vessel walls are heated during use, however, the temper particles are subject to differential expansion within the ceramic matrix, increasing the likelihood of various forms of thermal fracture. This likelihood increases with the size of the included particles (Shepard 1968: 131; Rye 1976).

The broad changes in vessel form and construction, among Woodland cultures in both the Northeast and central Midwest, indicate an early emphasis on robust containers suited to holding larger masses of material and subjecting them to slow, diffuse heat, followed by a shift to containers suited to holding perhaps smaller masses of material and subjecting them to intense, concentrated heat. The shift in the central Midwest parallels an intensification in the use of starchy seed foods, at first involving a wide range of native wild and cultivated plants, and later (ca. AD 800) involving corn (see recent summaries in Ford 1974; 1978; Streuver and Vickery 1973). The intensive cooking of starchy foods to release their full caloric content also is strikingly indicated by a jump in the frequency of human dental caries between ca. AD 200 and AD 800 (Buikstra 1977). The ceramic shift in the Northeast, on the other
hand, parallels the adoption and incorporation of corn and probably beans into the diet between AD 1000 and 1300 (Ritchie 1969a: 276; Ford 1974; Vogel and Van der Merwe 1977). I am not aware of any evidence for the intensive use of native seed foods prior to the adoption of corn, in the Northeast.

Ceramic vessel form, then, appears to inform us not about ceramic trait diffusion between the Northeast and the central Midwest, but about differences in the development of subsistence systems and the extraction of nutrients from food resources. This offers a resolution to one kind of question, but introduces another question, in this case concerning the slightly different patterns of development in diet. I will return to this point later.

The information encoded on ceramic vessel surfaces provides us with one means for assessing the extent of communication between the Northeast and the central Midwest. Ceramic decoration in tribal societies is a social art. Decorative techniques may be imitated, although the patterns of incorporation of the techniques into design configurations may differ among the artisans involved (Stanislawski 1975; Plog 1977; Friedrich 1970). While the social reasons for the sharing and imitation of decorative techniques may vary (e.g., Plog 1976; 1977), such behavior at least identifies for us networks of contact and observation. There are, too, a limited number of generalized elementary techniques feasible for decorating unfired pottery. Thus, geographic and chronological control is essential to avoid seeing, for example, a Jomon fisherman in every village (Meggers, Evans, and Estrade 1965; cf. Lathrap 1973: 1761-1763). Such control generally is available in the eastern Woodlands.

The most noticeable ceramic decorative technique, showing a continuous distribution from the central Midwest to the Northeast, is the so-called Middle Woodland technique of Rocker-Stamping. This technique appears relatively late in the central Midwestern Havana ceramic tradition and is characteristic of terminal Middle Woodland pottery in this region between ca. AD 100 and 400 (Griffin 1952b; Struver 1965; Braun 1977; Kay and Johnson 1977). It occurs as a dominant form of decorative stamping in Ohio during the same period (Pruefer and McKenzie 1965). Rocker-Stamping appears in the Northeast, in turn, during the earlier phases of the Point Peninsula ceramic tradition. It is associated with radiocarbon dates ranging between ca. AD 100 and 400 in central and eastern New York (Ritchie and Funk 1973: 117-120), and is well established by or before AD 400 on Martha's Vineyard (Ritchie 1969b: 107-109, 122).

Regardless of its point of origin or the kinds of design configurations in which it was employed, then, Rocker-Stamping appears to occur synchronously from Massachusetts to Missouri. This is not to deny that Northeastern ceramic decorative techniques during this period more often resemble those found among the so-called "Lake Forest" (Fitting 1970) or "Northern Tier" (Mason 1967) Middle Woodland complexes (Brose 1970). The distribution of Rocker-Stamping is noted here only to demonstrate that no breaks or delays in communication existed between the Northeast and the central Midwest during this period.
It would not be difficult to document other indications that no a priori restrictions existed against communication among Woodland groups between the Northeast and the central Midwest. The dating of "Adena" exchange goods within the so-called Middlesex phase (Ritchie 1969a; 1969b; Ritchie and Funk 1973), would be one example. The dating of various projectile point styles—such as the Early and Middle Woodland contracting-stem forms with names like Mason, Dickson, Adena, Cresap, Robbins, Rossville, and Lagoon (White 1968; Ritchie 1969a; 1969b; Dincauze 1976); or the Late Woodland triangular forms with names like Levanna and Madison (Ritchie 1971)—provide other examples, although in the latter instance utility may have been the dominant constraint on shape. The question we should be asking, then, is not whether the Northeast and central Midwest could participate synchronously in the same network of communication, but why, in sociological terms, this network did exist at some times, and apparently did not at others. Analyses of the homogeneity in ceramic decorative behavior, within communities and regions over time, provide us with one means for exploring this final question.

Analyses of ceramic decorative homogeneity have been conducted both on Owasco and Iroquois materials in New York (Whallon 1968; Englebrectht 1974), and on Middle and Late Woodland materials in western Illinois (Braun 1977). Although the New York analyses were conducted under interpretive assumptions long since discredited (e.g., Allen and Richardson 1971; Plog 1977; 1978), the measurements remain statistically correct. Reconsiderations of the cross-cultural relationship between decorative behavior and social organization subsequently have established alternative, more firmly-supported procedures for interpreting such measurements. Before discussing the New York and Illinois measurements and their interpretation, then, it is necessary to review the supporting bridging arguments.

Recent considerations of decorative or "stylistic" behavior in band and village societies indicate that such behavior is highly sensitive to social gradient and boundary phenomena, and may serve a function in the cultural maintenance of such phenomena (e.g., Wilmsen 1973; Wobst 1977; Plog 1977; Conkey 1978; see also, Kroeber and Richardson 1940; Kroeber 1963; Friedrich 1970; Stanislawski 1973; 1975; Watson 1977). If we view tribal societies as segmental societies, in the sense suggested by Durkheim (1933), Service (1971, 1975), Sahlins (1968), and others, then we find that the decorative arts display information on segmental membership. As Wobst (1977), for example, recently has argued and illustrated, the decoration or stylistic manipulation of surroundings transmits information on social group membership and affiliation. More importantly, he notes that such a form of communication functions to make social intercourse more predictable, by reducing uncertainty in social intercourse between individuals and groups. Therefore, stylistic "messaging" may be expected wherever and whenever continuous verbal communication between segments cannot be maintained, yet the probability of contact is high enough to require some form of social signalling. The probability of use of discrete stylistic indicators in a given situation, then, is expected to be an increasing function of the social distance between interacting parties (Wobst 1977).
This model generates the assumption that decorative homogeneity within a segment, such as the residential unit, will decrease if its network of social contacts expands to include a greater diversity of socially distant individuals or groups. Conversely, decorative homogeneity will increase if the probability of contact with socially distant individuals decreases. Such an increase at the local or village level of analysis, for example, could result either from increasing social isolation or from changes leading to a reduction in the social distance between interacting parties. Increasing local social isolation also should entail a decrease in decorative homogeneity at the regional level, however, as each village or locality should diverge stylistically from its neighbors. A reduction in the social distance between parties, on the other hand, should entail an increase in decorative homogeneity at the regional level, as neighboring villages or localities stylistically should converge (Braun 1977). What has been termed the "information exchange" model of style variability, then, generates clear procedures for interpreting changes in decorative homogeneity at different spatial scales of analysis.

Ceramic decorative homogeneity among Woodland sites in western Illinois has been measured separately for five specific localities in the Illinois and Kaskaskia valleys, and for a combined sample from these localities representing the region as a whole (Braun 1977). Changes in homogeneity over time have been examined in terms of the specific decorative techniques employed, the design configurations or motifs employed, and the patterns of combination of techniques within configurations.

The analyses reveal a single local and regional pattern of change. Homogeneity at all analytical levels decreased from the earliest ceramic assemblages until ca. AD 200-400. After this time it increased, and peaked among assemblages dating to ca. AD 600-800. This later increase in both regional and local homogeneity, of course, is the long-recognized shift in decorative intensity associated with the so-called "Hopewell Decline" or Middle Woodland-Late Woodland transition in the Midwest (Braun 1977; Griffin 1952a,b; Prufer 1968: 150; Prufer and McKenzie 1965).

Given our interpretive assumptions, the Middle Woodland period prior to ca. AD 200-400 in western Illinois appears to have witnessed a single trend of increasing interaction among socially different segments, at both the local and regional level. To some extent this is not surprising, for this period witnessed not only the florescence of the so-called Hopewell exchange network (Struve and Houart 1972), but also an increase in population densities within the major valleys (DeRousseau 1975; Buikstra 1977; cf. Wilmsen 1973).

The Middle Woodland-Late Woodland transition period after ca. AD 200-400, on the other hand, appears to have witnessed a trend of decreasing social distance between communities throughout the region, despite continued population growth. That is, contrary to popular fiction, the "Hopewell Decline" witnessed an increase, rather than a decrease in regional social integration. Given the evidence for changes
in subsistence and demographic conditions, then, the data from western Illinois conform to an evolutionary model of regional tribalization under conditions of horticultural intensification (Braun 1977: 324-328; cf. Sahlins 1968: 5-8; Service 1971: 100-109).

As far as I am aware, measurements of ceramic decorative homogeneity among Woodland sites in New York have not yet been extended to any Point Peninsula collections. I can only speculate, then, about conditions prior to ca. AD 1000. There are indications of a widespread uniformity in decoration among Early Woodland and early Point Peninsula assemblages (Ritchie and Funk 1973: 96-164; Ritchie and MacNeish 1949). Whallon (1968), on the other hand, documents a trend of increasing homogeneity, particular for decorative motifs, among Owasco and Iroquois sites in several localities. Tuck has observed this same trend among exclusively Onondaga sites (1971). Englebrecht (1974) has found high levels of homogeneity within several clusters of late prehistoric and early historic Iroquois sites, and also has observed a slight increase in decorative similarity among localities over time, across a region including the so-called Niagra Frontier. These observations suggest that local and regional decorative homogeneity may have declined in New York prior to ca. AD 1000-1100, but begun to increase again by or after this time.

Given our interpretive assumptions, again, the Woodland period in New York until sometime prior to ca. AD 1000-1100 may have witnessed a trend of increasing interaction among socially different segments, at the local and/or regional levels. It is difficult to document whether this social trend accompanied an increase in population size or population density in particular localities (see Ritchie and Funk 1973).

In turn, the Owasco-Iroquois continuum appears to have witnessed a trend of decreasing social distance between communities. This trend appears at the local level, and, at least among the later communities examined, at the regional level as well. This interpretation differs from that originally proposed by Whallon, due to a change in assumptions, but is consistent with Tuck's (1971) observations of Onondaga development and with Whallon's additional measurement (1968) of increasing decorative attribute association within communities over time. Trends of population growth and local aggregation parallel the inferred social trend (Ritchie and Funk 1973; Tuck 1971).

The Owasco and Iroquois decorative data thus parallel, at a slight temporal remove, the Middle and Late Woodland decorative data from Illinois. Given the evidence for changes in subsistence and demographic conditions in both regions, therefore, both sets of information conform to an evolutionary model of regional tribalization under conditions of horticultural intensification. I am using the term "tribalization" here, clearly, to refer to an intensification of pan-regional segmental networks, rather than to the development of bounded political entities (cf. Sahlins 1968; Englebrecht 1974; Fried 1975). Clearly, too, the New York developments may not apply to the rest of the Northeast.
I would like to conclude by returning to the questions posed about the utility of the Woodland concept for comparing and communicating about the Northeast to other parts of North America. By dividing those ceramic "traits" originally subsumed under the Woodland concept into categories informative about different aspects of cultural organization, I have attempted to show that the "Woodland"-ness is not a monolithic ideational event, complete with center and lagging periphery. There are indeed differences between the Northeast and the central Midwest in the patterns of development and participation in supra-regional networks of communication. These differences, however, cannot be explained by reference to a priori restrictions on the paths and rates of communication. Some of the differences, in fact, are differences in rates of development along parallel lines, which occurred despite synchronous participation in a single network of communication. And these parallel lines are general evolutionary lines of subsistence and social intensification. The original Woodland concept was never intended as a means for dealing with such issues, despite its subsequent terminological abuse (see discussion, for example, in Willey and Phillips 1958; Stoltman 1978).

Having excluded an ideational concept of cultural similarity as a tool for explaining cultural variation, we are still left with the question: Why the different rates of development along parallel lines? This is not a culture-historical question, but rather a theoretical question about evolutionary conservatism, for which the Northeast may provide us a useful laboratory.
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