

Abstract

Reconstructing prehistoric economy and understanding its relationship to social organization poses a significant archaeological challenge. This paper reviews models treating socio-economic implications of craft production as well as demonstrates how and why ancient northern Southwest societies do not ideally fit into these evolutionary schemes. Based on a statistical analysis of spindle whorls, I explore yarn production organization in three Sinagua communities. The results test two competing models of Sinagua social organization: (1) a chiefdom supporting full-time craft specialists, or (2) egalitarian with independent, part-time specialists. Understanding craft specialization via spindle whorls provides unique insight regarding ancient northern Southwest technological traditions.

Introduction

My primary goals in this paper are to first briefly review the evolutionary models that examine the socio-economic implications of craft production. Second, I use as an example of two competing evolutionary models of Sinagua social organization and explore yarn production specialization via spindle whorl standardization in three Sinagua communities. Specifically, I examine whether or not the Sinagua were organized as a chiefdom supporting the efforts of full-time craft specialists; or were the Sinagua an egalitarian society with independent, part-time specialists? Based on a statistical analysis of spindle whorls, I determine if the Sinagua, during the period including the late Pueblo II to Pueblo III, organized yarn production at the community or household units of analysis. Was one community or one household within a community producing a finer yarn or were all the households and each community producing the same products? The results direct a discussion of how and why the Sinagua do not ideally fit into these evolutionary schemes. By exploring craft specialization via yarn standardization I provide a unique perspective regarding ancient Sinagua technological traditions.

To begin, craft specialization suggests routinized production above and beyond the household for distribution to other households (Stark 1995:231). *Independent* versus *attached* specialists are the two opposing types of specialized producers along a varied continuum defined by the *degree* and *type* of craft specialization. (Brumfiel and Earle 1987; Clark and Parry 1990; Earle 1991; Costin 1991). Independent specialists retain their right to the final product and produce for a general market of consumers often to meet utilitarian and economic needs (Brumfiel and Earle 1987). Independent specialization may evolve out of increased population pressure or unequal distribution of resources (Costin 1991). Conversely, attached specialists respond to the demand from an elite class. Elites sponsor production to control consumption and distribution of the elite goods (Brumfiel and Earle 1987). Consequently, attached specialization is a product of social and political inequalities (Costin 1991).

Archaeologists attempting to reconstruct prehistoric economic systems recognize a significant relationship exists between the level of social organization and the *degree* and *type* of craft specialization. Along the evolutionary spectrum, ranging from egalitarian to state level societies, the relative *degree* and *type* of craft specialization varies according to *context*, *concentration*, *scale* and *intensity* of craft production. Cathy Costin (1991) reviews these variables in detail. However, the general idea suggests that as a society becomes more complex along the evolutionary spectrum, the *degree* and *type* of craft specialization becomes more "differentiated, regularized, permanent and perhaps institutionalized" (Costin 1991:4). Consequently, identifying the *type* and *degree*

of craft specialization within the archaeological record enables the archaeologist to measure the level of social organization associated with the culture responsible for the archaeological remains.

Research attempting to quantify craft specialization in order to reconstruct the level of social organization tends to follow this formal evolutionary scheme. Degrees of standardization, skill, efficiency, and output directly correlate with particular levels of social organization. For example, in a state-level society, the elite tend to sponsor the production of attached craft specialists. The specialists may produce highly standardized utilitarian products en masse or high quality prestige items. The products in turn increase the wealth of the elite (Brumfiel and Earle 1987). Standardization, implying a high degree of product uniformity, results from two primary situations. First, frequent, regular spinning increases both motor skill and experience thus resulting in fewer yarn thicknesses or product variations (Stark 1995:233). The second situation arises when there are fewer producers. Slight variability does exist from individual to individual. However, a small group of specialists will produce less yarn thickness variation when compared to every family producing its own yarn (Stark 1995:234). While the above evolutionary approach is extremely productive for the study of socio-economic organization, the direct correlation between degree and type of craft specialization and level of social organization may not always occur.

Gregory Johnson (1989) deviates from the strict evolutionary framework by recognizing the important distinction between a single trajectory, vertically, differentiated society and a horizontally, differentiated society. The single trajectory, vertically, differentiated society follows the strict evolutionary framework -- societies fall into the egalitarian through to the state-level spectrum. The horizontally, differentiated society is what Johnson (1989) termed a "sequential hierarchy...a structure for the organization of consensus among basically egalitarian aggregates of increasing inclusiveness" (Johnson 1989:378). Consequently, ancient societies of the northern Southwest were egalitarian in the sense that they lacked an institutionalized elite. Ritual structures, rather than an elite administration, served as the integrative mechanisms above households. Households and lineages cooperated in an egalitarian fashion for production purposes (Johnson 1989). Differential access to environmentally restricted resources led to production intensification in particular regions. Whereas any extra-household exchange served as buffering mechanisms for those who did without.

By recognizing the distinction, Johnson (1989) avoids the typologies following a strict evolutionary scheme. Thus, a one-to-one relationship between type and degree of craft specialization and level of social organization may not exist in the horizontally, differentiated society.

So who were the Sinagua and how were they organized along the socio-political evolutionary spectrum? Fortunately, my task today does not involve explicitly defining who the Sinagua were and locating their political, social, economic, ideological and technological boundaries. Beginning around A.D. 700 and ending approximately A.D. 1450, the Sinagua material culture displayed a great deal of variability over time and across space. In many instances, the Sinagua exhibited distinct indigenous culture traits and in a number of cases the Sinagua appeared to share traditions from outside culture groups (Colton 1946; McGregor 1941). The Little Colorado River, the San Francisco Peaks, and just west of the Verde River bound ever-so fuzzily the Sinagua culture area (Kamp 1998:6). Archaeologists typically differentiate between the northern Sinagua who lived above the Mogollon Rim and the Southern Sinagua who occupied the area in and around the Verde River and its tributaries (Downum 1995??). Production of Alameda Brown Ware, a plain ware made from local clays using a paddle-and-anvil technique, in conjunction with the use of modelled spindle whorls derived from southern technological traditions, remains the only two material culture attributes defining the Sinagua as a separate cultural entity (Colton 1946; Downum 1995???; Neff 1996).

This paper focuses on the transition from the “Middle Period Sinagua” roughly dating A.D. 900 to 1150 -- to the Early Pueblo III Sinagua at and around A.D. 1150 (Pilles 1996). Following the initial eruptions of Sunset Crater in A.D. 1064 and 1066, this period witnessed considerable population increase. The influx was possibly a result of increased agricultural productivity – a product of enhanced fertility of the cinder deposits (Colton 1946; Colton 19??; Pilles 1996) in conjunction with “increased moisture availability around the peaks during this period of overall drier conditions” (Hevley et al. 1979:499-501; Pilles 1979:463). Formal community organization and village structure took the form of pit houses clusters around ???//

Two competing models of social organization continuously plague interpretations regarding how much social stratification was present spanning the period encompassing the Middle Period Sinagua and on into the Pueblo III Sinagua.

Understanding social organization is critical to any reconstruction of the organization of yarn production in the ancient northern Southwest. Gumerman and Dean (1989), Dean (1969), Adams (1989), Burchett (1990) and Kamp and Whittaker (1990) all agree that the Western Anasazi, Sinagua and ancient inhabitants of Wupatki primarily were egalitarian societies. Gumerman and Dean (1989) define egalitarian as follows:

...one whose members have essentially equal access to critical resources and to an unrestricted flow of information about those resources. This definition allows for the development of leadership through achievements, personal abilities, and even hereditary status, so long as the status does not convey the right to restrict access of others to critical resources" (1989:132-133).

The authors recognized a settlement hierarchy with central pueblos that possibly served as multi-pueblo communities. Additionally, they identify intravillage, integrative structures (Adams 1990; Burchett 1990), community planned and organized labor investment (Dean 1969), and intracommunity line-of-sight communications strategies (Dean 1969; Gumerman and Dean 1989). However, Gumerman and Dean (1989) interpret the social organization as nothing more than loosely defined communities (Dean 1969) exhibiting no evidence of social or political vertical differentiation (Gumerman and Dean 1989).

Based on architectural layout and settlement patterns, the authors infer an existence of a similar social organization of the ancient northern Southwest inhabitants and the Hopi villages. Drawing from Eggan's (1950) ethnographic study of Hopi social organization, Dean (1969) sees both kinship and ritual as the primary social integrative mechanisms. Eggan (1950) postulates that the matrilocal households and matrilineal lineages in conjunction with the crosscutting clan-phratry system developed to integrate the larger population. Dean (1969) posits that the development of the clan-phratry system originated during the Pueblo III period.

How the Northern Southwest Cultures Do Not Ideally Fit the Evolutionary Scheme

In a horizontally, differentiated society, including the prehistoric cultures of the northern Southwest, the simple distinction of part-time independent specialists and full-time attached specialists has obscure boundaries. In the evolutionary classification systems, part-time independent specialists, often associated with egalitarian societies, primarily produced utilitarian products (Brumfiel and Earle 1987; Clark and Parry 1990; Costin 1991; Earle 1991). On the other hand, full-time attached specialists created prestige goods that represent symbols of power and

authority. Prestige goods express the wealth, power and control of the elite thereby sanctifying chiefly authority (Helms 1993).

Clearly, power is a loaded term having numerous meanings in a horizontally, differentiated society. Rappaport (1971a; 1971b) recognizes two types of power: effective and affective. Effective power suggests the existence of a larger "administrative structure capable of wielding a certain amount of power" to "ensure the acceptance of social conventions" (Drennan 1976:346). Affective power associates with the evolutionary stage "during which the technology of force was not sufficiently advanced to render large numbers of men a truly effective coercive body" (Drennan 1976:346). In a society that is not capable of supporting an administrative structure, such as many of the societies in the American Southwest, Rappaport (1971a) suggests that these societies use ritual as a form of symbolic communication, acting to assure the social acceptance of social conventions. Ritual, then, is the affective power or political control used for purposes of social integration. Thus, the ritual surrounding the production of cotton textiles and yarn was a form of symbolic communication acting to strengthen social bonds (Drennan 1976:347-348).

Thus, power is multidimensional as are hierarchical systems. Hierarchical societies following the vertically, differentiated, evolutionary scheme more than likely sponsors the creation of prestige goods symbolizing effective power. Conversely, horizontally, differentiated societies create prestige goods symbolizing affective power.

The part-time specialist and the attached specialist boundary breaks down when examining horizontally, differentiated societies. A part-time specialist may also participate in the production of prestige goods. However, the prestige goods in a horizontally, differentiated society sanctify ritual not the elite administration. Craft specialists create and maintain "social, political, and economic ties and mutual, interpersonal obligations" (Cross 1993:61). Social relations "define political, economic and social participation in society" as well as access to restricted goods and services (Cross 1993:61-62). Thus, the work of part-time specialists has important consequences to society's members.

Model of Cotton Textile and Yarn Production in the Ancient Southwest

The demand for cotton textile and yarn production in the northern Southwest resulted from differential access to a highly versatile product. Current research (Huckell 1993; Kent 1983; Magers 1986; Teague 1996) suggests the cotton plant does not show up on the Plateau until after A.D. 850. The agricultural limitations confined it to hot, low lying locations with an extremely long growing season. Within the northern Southwest region, locations with the latter restrictions are rare.

Prior to the arrival of the cotton plant on the Plateau, cotton textiles appeared in the archaeological record with no associated production tools (Kent 1983). The difficult to obtain cloth presumably was a Hohokam trade product (Kent 1983). Due to the great distances traveled the items carried a certain amount of prestige during the early pueblo periods. The prestige carried over into the later Pueblo periods substantiating the extra effort entailed

to maintain a crop. Thus, a considerable amount of social force existed to get the Plateau inhabitants to work with a plant on the extreme margin of its natural range.

Environmental limitations played major roles in determining the locations of textile and yarn production. The differential access could have resulted in specialization based on environmental restrictions. People in some areas were able to grow cotton while others were not.

The demand for textile products may have also resulted from its mounting value not only as a trade product but also as ritual paraphernalia. Southwest ethnographic accounts document that cotton cloth not only served a utilitarian purpose but also carried significant ritual value. In ethnographic accounts of the Zuni, Matilda Cox Stevenson (1987) addressed the variety of roles cotton plays in puebloan society. The cotton plant symbolizes white clouds in the Zuni religion (Stevenson 1915) and often occurs in symbolic contexts with the rain-making gods.

In 1882, Matilda Cox Stevenson observed the preparation of cotton for the kiva loom at Shimopavi, a Hopi village.

This ceremony, which is strictly religious, must be performed with many prayers. A piece of commercial cotton cloth was spread upon the floor in the chamber of the high priest (head rain priest) and a disk-shaped bed of sand was laid upon the cotton cloth...The process of manipulating the cotton began. A white cloth containing cotton pods was deposited by the sand bed, and each man of the circle began picking the cotton and placing it on the bed. The picked cotton was patted with a willowy rod, some two and a half feet in length, with five fingers or prongs wrapped securely to it...The better part of a day was required to prepare but a small quantity of cotton for the spindle. Then the spinning began...(Stevenson 1987).

Clearly, the act of crafting or the transformation of cotton into cloth played a significant symbolic role in maintaining "a direct, living connection between the temporal/spatial here-and-now of the cultural setting and the there-and-then of outside dimensions" (Helms 1993:18).

The physical transformation of cotton was possibly part of a longer prayer expressing a request to the rainmaking gods for water. Cotton and cotton textiles perhaps played a socially integrative role to the early Pueblo II through Pueblo III period societies. Thus, cotton served as a symbol of and a vehicle for power through ritual and redistributive practices.

Many of the ancient puebloan textiles possibly symbolized an *affective* form of political control. Simultaneous with the introduction of cotton cultivation in the study area, Adams (1989) documents a change in the role of ritual to the ancient pueblo occupants. Gumerman and Dean (1989) suggested early Pueblo III inhabitants had a heightened concern for domestic water. In response, the puebloan peoples built a variety of water management facilities, primarily reservoirs and other storage structures (Gumerman and Dean 1989). Could another response to the water shortage include an increased emphasis on ceremonies focusing on rainmaking themes? If so, the transformation of raw cotton into cotton cloth was an active and material expression of ritual *affective* power. Thus, the power and wealth of a community related to the possession of these ritually charged items.

The latter summary of textile specialization research establishes the necessary demand associated with textile and yarn production. An unequal distribution of cotton cultivation (the resource) in conjunction with its accompanying prestige resulted in differential access to a highly versatile product. The unequal distribution of cotton implies the existence of production loci with varying degrees of production specialization. Some areas may have focused on cotton cultivation (Adams and Hays 1991), while other areas centralized in the production of the final products. Often nucleated community specialization occurs in environmentally diverse areas, including the Colorado Plateau. Thus, some areas probably concentrated on both cultivation and production. In doing so, the specialists reduce the cost of production by locating themselves near the cultivation areas (Costin 1991).