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Rice farming and pottery production among the Kalinga: New ethnoarchaeological data from the Philippines



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ABSTRACT

We seek to expand ceramic ethnoarchaeology by factoring in subsistence behaviors in a holistic approach to household economies. With never before published data from the Kalinga Ethnoarchaeological Project, we analyze the relationship between household rice farming and pottery exchange in Dangtalan from 1975 to 1976. We show that inequalities in rice landholdings and yields were ameliorated through household exchange of pottery. Households with the highest rice productivities (rice yield divided by field area) received pots from households with lower productivities. There is a clear inverse relationship between household investment in rice farming and ceramic exchange to other community households. By tracing out the exchange networks, we find that village divisions have influence on who exchanges with whom. The fact that women manage a household's pottery production and rice farming and that village divisions play a role in the socialization of young men suggests that subsistence and craft production cross-cut gendered cultural traditions. This pattern may be the product of a complex-adaptive system undergoing change.

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1. Introduction

Specialized economic production and exchange remain a central concern to archaeologists interested in state formation and social complexity (Arnold, 2001; Branje and Erlandson, 2007; Chapman, 2009; Flad, 2011; Frachetti, 2012; Gijanto, 2011; Patterson, 2005; Smith, 2006; Trigger, 2003). Such examples, typically from intensifying agricultural societies from the mid- to late Holocene (6000–1000 BP), document how economic specialization was related to opportunistic and varied political institutions with concomitant social stratification. Typical in these cases is an emphasis on macro processes and effects, but as anthropological archaeologists, we want to elucidate smaller scale patterns of human material behavior, especially when tied to incipient complexity and signals of change.

In this paper, we call for a new direction in ceramic ethnoarchaeology by including household subsistence practices as quantifiable variables against social behaviors surrounding pottery. For the first time in the Kalinga Ethnoarchaeological Project's history, we present direct data on rice farming and landholdings from 1975 to 1976 and compare these against the intra-village exchange of pottery at the household level.

Ceramic ethnoarchaeology has provided a wealth of insight into aspects of ceramic technology, its use, economic distribution, cultural transmission, and social boundaries, for which there is not adequate space here to cite its corpus (for reviews, see Arnold, 2000; Hegmon, 2000; Kramer, 1985; Stark, 2003). In the absence of subsistence correlates to household pottery behavior, complex patterns linking material culture, social organization, and cultural practices might be overlooked. Households are key human institutions in which culture permeates a group's kinship and informs social, economic, and political action (Hammel and Laslett, 1974; Netting et al., 1984; Wilk, 1984). For archaeologists, being aware of such material signatures would be valuable in exploring community variability and avoiding interpretations which paint normative views (e.g., Kramer, 1982).

We want to take this new direction a step further by providing empirical examples of incipient complexity that archaeologists can model when considering household subsistence or crafting behaviors and their linkages to cultural traditions. We show that material evidence of pottery exchange between households in Dangtalan signals a household's capacity for craft specialization or agricultural intensification. That is, choices of household production mutually limit one another. Most interestingly, these trade-offs are further expressed in inter-household exchange networks and connect traditions of gender boundaries—women make pottery and manage rice farming, while men provide defense

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for the village. Although we cannot prove it yet, we argue that this is likely the function of a complex adaptive system uniting household economics, social relations, and village spatial organization. The fact that this system operates without socio-political oversight offers new insight into how complexity can develop and persist within a non-stratified village community and be elucidated by material remains.

2. Background

2.1. Kalinga geographic setting

Kalinga villages are tucked into the steep river valleys of the Cordillera mountains on Luzon Island in the Philippines. This rugged region covers approximately 20,000 km² and spans six provinces (Arba, Benguet, Ifugao, Kalinga, Apayao, and Mountain Province), in which a number of officially recognized ethnic minorities share cultural traditions and related Cordilleran languages. In the Kalinga province, Kalingas are the predominant ethnic minority. Ethnographic research conducted over the past 60 years in the southern Kalinga province has documented Kalinga social, political, and economic structures and shown how historical forces have contributed to cultural change (Barton, 1949; De Raedt, 1991; Dozier, 1966; Scott, 1977; Takaki, 1977).

The Kalinga Ethnoarchaeological Project has focused on southern Kalingas between the Chico river and its tributaries, especially concentrating on the Pasil municipality along the Pasil River Valley. Here, Kalingas reside in fifteen settlements composed of one or more communities placed in the few flat spaces near springs or along river banks (Longacre, 1981; Stark, 1995). Kalingas refer to these communities as barrios, which are grouped into socio-political segments based on relative elevation and water drainage relationships (Longacre, 1981; Longacre and Stark, 1992; Skibo and Stark, 2007).

2.2. Cultural context

Kalingas have a type of socio-political organization that is conveniently described as tribal and, for archaeologists, are considered a middle-range analog of past non-state level societies (Longacre, 1981). Traditional Kalinga means of gaining status and positions of leadership depend upon achievements in battle (Dozier, 1966; Scott, 1977). Leaders maintain a well-codified institution of law that centers around a peace pact, or *bodong*, system (Bacdayan, 1967). These agreements join villages and wider regional communities to settle “head hunting” blood feuds, ensure justice, establish peaceful trading, and facilitate alliances for intermarriage (Skibo and Stark, 2007). Kalinga economy revolves around the barter system, typically with pottery and intensive rice cultivation (Stark, 1992).

In Kalinga society, there is traditionally a very clear division of labor. Women manage their household's pottery making and exchange, and they also bear the brunt of the work farming rice (Longacre, 1981; Stark, 1991). Thus, women are responsible for a significant portion of a household's material gain. Men's labor role is largely political and symbolic. Men exclusively participate in the *bodong* peace pact system and act as combatants during raids (Bacdayan, 1967; Takaki, 1977). It is important to note that the *bodong* system is effectively independent of craft production and intra-community exchange and that Kalinga participation in the peace pact and leadership systems are historically contingent and variable over space and time. We hope not to impose a logic of tribal homogeneity or a sense of unitary self identity by assuming that Kalingas are isolated or immune from contradictory

cultural, political, and economic forces (e.g., Boellstroff, 2002; Gupta and Ferguson, 2002; Stasch, 2009).

By categorizing Kalingas as tribal or middle-range, we employ a useful heuristic to integrate quantitative data collected through ethnography with material inferences of social processes made by archaeologists. Kalingas may be prestige-based regarding leadership in *bodong*, but they are rank-based concerning inheritance of land and prestige items; they practice bilateral descent, with kin groups including third cousins of both individuals in an affinal pair (Dozier, 1966; Longacre, 1981; Takaki, 1977). Archaeologists can often not tell the difference in the material record and thus lump these distinctions into the “middle-range society” classification (Berezkin, 2004; Earle, 1997; Rousseau, 2006). Internal differences in Kalinga society provide a testing ground for analyzing relationships between the production and exchange of rice and pottery, two Kalinga central economic pursuits, in order to understand intersections of social complexity with the material record.

2.3. Rice agriculture

Kalingas practice intensive wet-rice cultivation as their primary means of subsistence. Rice fields carve the steep valleys into meandering terraces surrounding their barrios. Rice agriculture represents an economic and symbolic livelihood of being Kalinga but is not their only type of food productivity. Swidden cultivation in surrounding forests produces a spectrum of crops, including sugar cane, sweet potato, taro, corn, mung beans, white beans, and coffee (Longacre, 1981; Stark, 1991). Kalingas also manage water buffalo, pigs, and chickens, which can serve as a currency for purchasing rice fields and residential property (Takaki, 1977). Hunting and fishing wild resources play a negligible role in Kalinga subsistence because of environmental damage by logging and mining industries (Lawless, 1978). If consumed, meat is typically reserved for ritual and celebratory events (Longacre, 1981). The consumption of rice remains Kalingas' main source of calories.

Kalingas cultivate two rice crops per year. In early December, a red rice (*onoy*) is planted and harvested in April or May. In June, a white rice (*oyak*) is planted and harvested in November. Fluctuations in annual precipitation cycles dictate the exact schedules of their farming periods, which demand intensive labor organization and fine coordination to accomplish delicate nursery germination and sprout transplanting, followed by demanding harvesting and husking (Stark, 1995; also Clark and Haswell, 1967). Females organize the cultivation of their own household's rice fields through combinations of reciprocal work groups, tenant farming, and limited wage labor (Dozier, 1966; Takaki, 1977). Kalinga women are thus considered the agriculturalists, while men participate in large jobs during the harvests. Kalinga rice cultivation also requires cooperation for water management in an irrigation system that was developed in the early 1900s and up until the middle 20th century was tied to spatial divisions within villages.

As with most egalitarian societies, Kalingas are not free from inequality and do settle problems with differences by engaging in behaviors to disguise and ameliorate wealth gaps. While households vary in the number and size of rice fields and in the quality of access to shared irrigation systems, social cooperation offers means to level household subsistence, especially when combined with ceramic production and exchange.

2.4. Pottery production and exchange

In Kalinga society, women make pots for utilitarian needs and to generate additional income through exchange. Potters hand-form vessels without a wheel using combined paddle-and-anvil and coil-and-scrape techniques with local clays, generally mined by male relatives, but the industry is female dominated

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