

A COMPARATIVE STUDY OF CERAMIC PETROGRAPHY FROM BAN DON THONG CHAI AND BAN CHIANG

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ABSTRACT

This paper presents a comparative petrographic study of ceramic samples from two sites located in geographically similar environments in northeastern Thailand: Ban Don Thong Chai and Ban Chiang. The site of Ban Don Thong Chai is a mound situated in Sawangdaendin District, Sakon Nakhon Province. Ban Chiang lies in Udon Thani Province, approximately 30 kms west of Ban Don Thong Chai. Based on a typological study of pottery vessels and other classes of artefacts, burial rituals and soil stratigraphy, it is believed that both archaeological sites belong to the same cultural tradition. The results of this research suggest that, despite similarities in form and stylistic attributes, the ceramic vessels from both sites are significantly different from each other in terms of temper composition. This research was conducted while the author was a graduate student in the Faculty of Archaeology, Silpakorn University during 1998-1999 (Bubpha 1999).

In 1991, the Fine Arts Department (FAD) of Thailand conducted an archaeological survey in order to collect data on the distribution of archaeological sites with artefacts similar to those found at the Bronze and Iron Age site of Ban Chiang. The results of this survey indicate that many other sites in northeast Thailand have characteristics of the Ban Chiang cultural tradition. One of these sites, Ban Don Thong Chai, has been excavated and its pottery is discussed in this paper. Ban Chiang itself is famous for its beautiful red-on-buff painted pottery, together with evidence for an early development of metal technology. The revised chronology for Ban Chiang, proposed by Joyce White (1986), has three periods: Early Period, 2300 to 900 BC; Middle Period, 900 to 300 BC; and Late Period, 300 BC to AD 300.

Joyce White (1982:23) also noted that each period of the Ban Chiang cultural sequence is characterized by distinctive types of pottery. Characteristic Early Period vessels include footed cord-marked pots with incised shoulder designs, infant burial jars and other pots with densely incised designs, cord-marked pots with tall necks, straight-sided beakers, and globular cord-marked pots with incised and painted shoulder decoration. Characteristic Middle Period vessels include carinated pots with incised and painted designs, white carinated pots, and carinated and round bottomed pots with thick red rims. Characteristic Late Period vessels include buff pots with red painted designs, red pots with red painted designs and red burnished pots.

THE ARCHAEOLOGICAL SITE OF BAN DON THONG CHAI

Ban Don Thong Chai is located in Sawangdaendin District, Sakon Nakhon Province, approximately 30 km east of Ban Chiang (17°28'58" N and 103°26'29" E). It is a mound 400 m in diameter, which rises up from the paddy fields to approximately 5 m high. Excavation was undertaken by the Division of Archaeology, Fine Arts Department, in 1994 and also by the 7th regional Office of Archaeology and National Museums, Khon Kaen Province (now the 9th regional office) in 1997. Based on the typology of the pottery, it is believed that Ban Don Thong Chai belongs to the same cultural tradition as Ban Chiang.

Kitchotprasert, who excavated the site in 1997, divided the site sequence into three phases, identical to the period terminology used for at Ban Chiang, and listed the typical vessel forms of each phase (1997:53). Phase I included cord-marked pots with incised designs on the shoulders, and globular cord-marked pots. Phase II included cord-marked pots with incised and painted shoulder decoration, globular cord-marked pots with red painted rims, globular carinated

pots with cord-marking below the carination, and pots painted with red parallel lines. Phase III included buff or red pots with red painted designs, and red burnished pots. Other artefacts found in the site included polished adzes, bone tools, bronze and iron implements, and stone and metal ornaments. Ban Don Thong Chai thus belongs to the same cultural tradition as Ban Chiang.

THE PROBLEM

As a result of the 1991 survey of Ban Chiang Culture sites, it is apparent that many contain ceramic vessels that are similar in form and stylistic attributes. These include Early Period pedestalled and cord-marked pots with incised shoulders, Middle Period cord-marked, incised and red painted pottery, and Late Period red-on-buff or red-on-red painted and red burnished vessels. The question arises whether these similar and widespread vessels all contain similar tempers. In order to approach this question, petrographic analysis of thin sections was undertaken to analyse tempers from Ban Don Thong Chai. The data were then compared with the results of previous thin section analyses from Ban Chiang.

RESULTS

Sherd samples from the three cultural phases of Ban Don Thong Chai were selected for analysis. They are as follows:

1. Phase I (Early Period of Ban Chiang): black sherd with cord-marked shoulder and appliqué bands (Figure 1);
2. Phase II (Middle Period of Ban Chiang): buff red-painted rim (Figure 2), buff cord-marked body sherd with incision and red paint (Figure 3), buff cord-marked body sherd;
3. Phase III (Late Period of Ban Chiang): red-on-buff painted body sherd (Figure 4), red slipped and burnished body sherd.

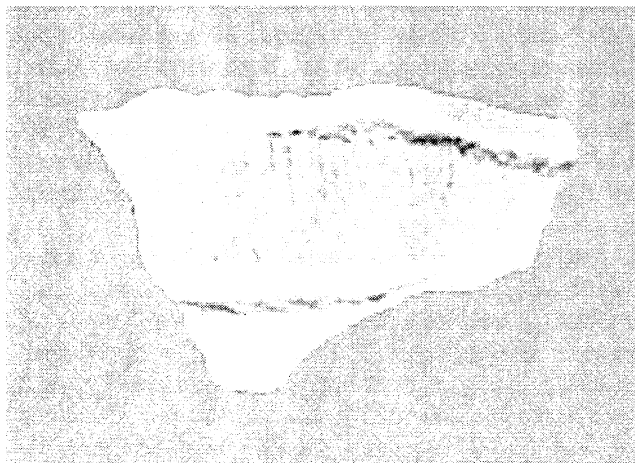


Figure 1: Cord-marked sherd, Ban Don Thong Chai Phase I.

The tempers identified from the three phases at Ban Don Thong Chai are indicated in Figure 5. The main inclusions are grog, quartz and plant material, intentionally added as temper but used in different combinations in each phase. The Phase I and II pottery was tempered primarily with quartz and grog (Figures 6 and 7). In both these periods, grog was the preferred additive and was included at very high levels (maximum 50% by volume), while it is possible that the quartz may have entered via the natural clay matrix.

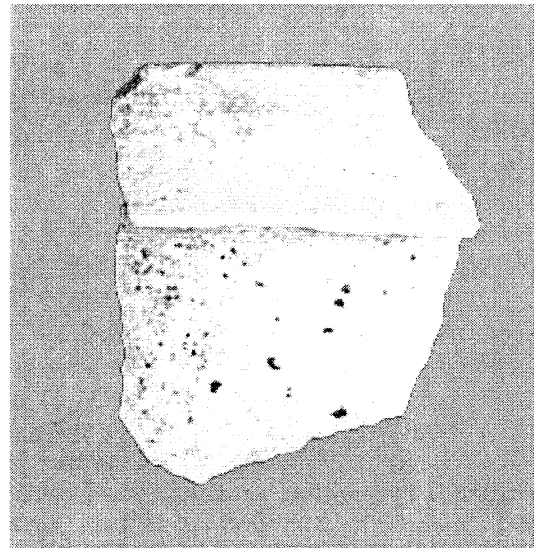


Figure 2: Buff rim with red paint, Ban Don Thong Chai Phase II.

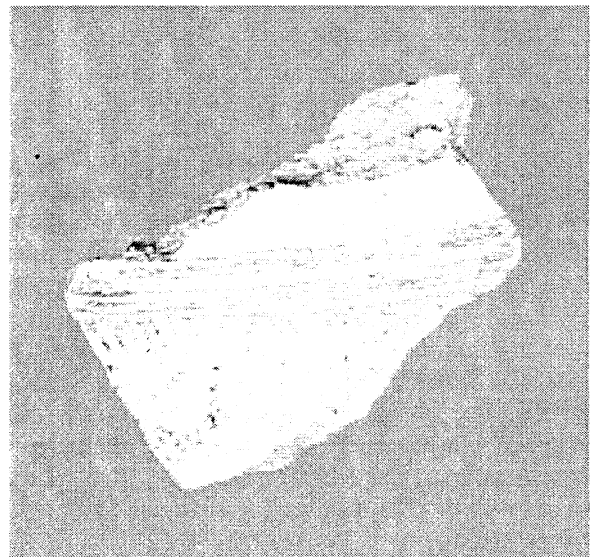


Figure 3: Buff incised and red painted sherd, Ban Don Thong Chai Phase II.

In Phase III pottery, other than quartz and grog, plant material was also used as temper at very high levels (Figure 8), indicating that it was intentionally added. The specific kinds of plant inclusion found at Ban Don Thong Chai still remain to be analyzed.

COMPARISON WITH BAN CHIANG

In 1983, the Museum Applied Science Centre for Archaeology (MASCA) of the University Museum of Archaeology and Anthropology at the University of Pennsylvania began an analytical program to examine ceramic technology at Ban Chiang (Natapintu 1998:55). Patrick McGovern of MASCA has examined the tempers of a sample of the Ban Chiang ceramics (1986) and his findings are compared with those

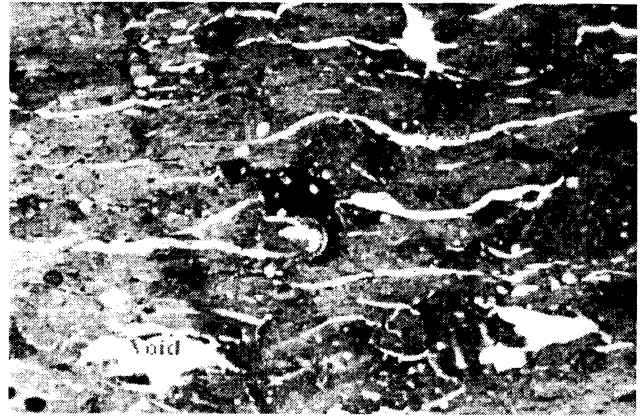


Figure 6: Thin section of a sherd from Ban Don Thong Chai, Phase I. Most of the large, angular fragments are grog.

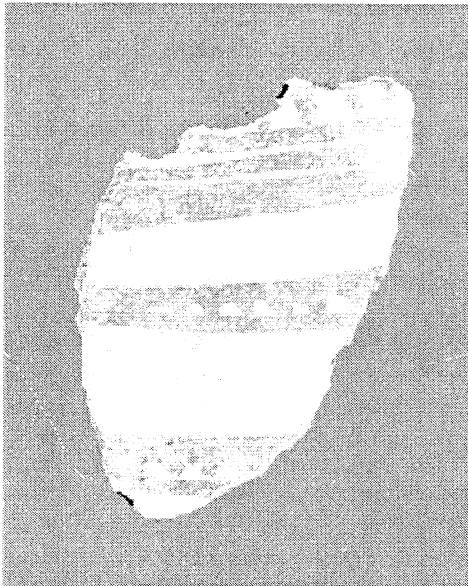


Figure 4: Red-on-buff sherd, Ban Don Thong Chai Phase III.

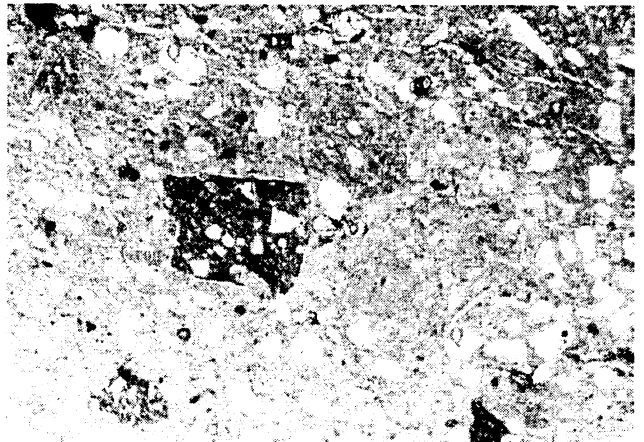


Figure 7: Thin section of a sherd from Ban Don Thong Chai, Phase II. Most of the large, angular fragments are grog.

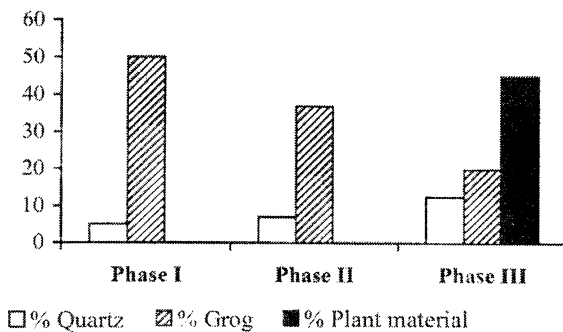


Figure 5: Percentages of temper by volume and phase at Ban Don Thong Chai.



Figure 8: Thin section of a sherd from Ban Don Thong Chai, Phase III. The plant material is long and narrow.

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for Ban Don Thong Chai in Figure 9. At Ban Chiang, the main inclusions were grog, quartz and plant material intentionally added as temper in various combinations in all periods. Early Period Ban Chiang pottery was tempered primarily with grog and quartz, along with varying amounts of rice plant material. The latter was the predominant tempering material in the Middle Period, although still accompanied by quartz in amounts under 5% (perhaps part of the clay matrix), and sometimes grog. In the Late Period, grog was preferred, plant material was only used at very low levels, and quartz continued in use. At Ban Don Thong Chai plant material was not used as temper until the Late Period and then at a high level.

CONCLUSION

Potters at both Ban Don Thong Chai and Ban Chiang selected grog, quartz and plant materials as pottery tempers. But, although the stylistic and form attributes of pottery from both sites appear to be similar, the results of this study indicate there were differences in choices of temper through time. However, the small sample sizes render these results as only preliminary.

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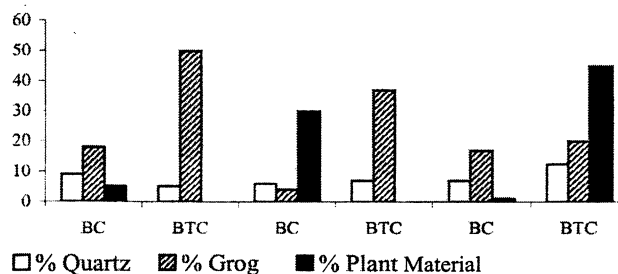


Figure 9: Percentages of temper by volume and phase compared for Ban Chiang and Ban Don Thong Chai (Early, Middle and Late Phases, from left to right).

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