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(NOTE added in 2006: This research continues.

As of mid-year 2006, additional fieldwork had taken place in  
Northeast Thailand, Laos, and Vietnam and one additional paper had been published.\*)

A REGIONAL SURVEY OF PRESENT-DAY EARTHENWARE AND STONEWARE  
PRODUCTION IN MAINLAND SOUTHEAST ASIA<sup>1</sup>

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## I. Introduction, Goals and Methods

Since 1993, the three authors have engaged in an ongoing survey and documentation of the variety and distribution of present-day village-based stoneware and earthenware ceramic production in Mainland Southeast Asia. Our goal is to understand and record the technical and social contexts for such production. We have found that Mainland Southeast Asia presents an exceptionally rich field of study. Our survey began in Northeast Thailand and has expanded in all directions to cover the rest of Thailand as well as portions of Malaysia, Laos, Cambodia, and Vietnam, with further seasons anticipated. This paper presents the results of the total project to date, with the exception of the first season, already published elsewhere.<sup>2</sup>

It consists of reports for the five seasons from 1994-95 through 1999, focusing on technology, followed by discussion of several broader issues arising from the scope of the study.

While this survey documents current ceramic production in Southeast Asia, we believe that it contributes as well to an understanding of historical ceramic production in Japan. In particular, it demonstrates that a variety of coexisting yet distinctively different technical processes may lead to similar end products, and it shows that “coiling” is far from being the only way to construct a round-bottomed earthenware pot.

Northeast Thailand, located in the heart of mainland Southeast Asia, has been the base for Lefferts’s field work in cultural anthropology since 1970.<sup>3</sup>

While Lefferts studied village-based textile production in Northeast Thailand in 1989-91, Cort joined him for nine months for her first research experience in Southeast Asia. Previously she had conducted research on historical and present-day ceramic production in Japan and India.<sup>4</sup> Earthenware has always been the dominant ceramic technology in India, where she documented

a community of potters who make ritual cooking vessels for a prominent Hindu temple. In Japan, by contrast, stoneware and earthenware production once constituted complementary technologies. As Narasaki pointed out in his writings on ceramic production in medieval Japan-- and as recent archaeological investigation of consumption sites in Japan has amply demonstrated--earthenware production was once widespread, and earthenware vessels (*kawarake, nabe, horaku, shiotsubo*) once played major roles in Japanese material culture.

Northeast Thailand is the most rural region of the Thai Kingdom, and agriculture continues as the dominant mode of production. There, Cort and Lefferts found that both unglazed stoneware and earthenware are produced, constituting separate ceramic industries that engage different groups of villages and different workers. In one network of villages, men make stoneware vessels; in another, women make earthenware vessels. Most of the men and women who make pots do so only during the dry season after the rice harvest (December--May), since they belong to households whose chief activity during the rainy season (May--October) is growing wet rice.

The principle vessel forms made of unglazed stoneware are large vats (*hai yai*) used for storage of water and grain; double-mouthed jars (*hai pladek*) employed for production of fermented fish (*pladek*), a protein-rich staple of the Northeast Thai diet serving both as a flavoring and a side dish; and mortars (*krok*) used for many basic culinary preparations. These three shapes seem to correspond closely in their features to the characteristic “medieval package” of *kame, tsubo*, and *suribachi* in Japan. Additional shapes, made until recently, include long-necked water bottles, small bowls for grating turmeric (used as a cosmetic to beautify the skin), and bowls used in the spinning of silk thread.

The principle earthenware shapes are lidded, round-bottomed jars for storage and cooling

of drinking water (*ong nam*) and wide-mouthed, round-bottomed cooking pots used flexibly for preparing soup, for steeping herbal medicine, or for burying the cremated remains of the dead (termed *maw geng*, *maw tom*, or *maw kep kraduk*, depending upon use).

For Cort, observing the production, marketing, and use of unglazed stoneware and earthenware in Northeast Thailand amounted to “visiting” the living landscape of ceramic production and use in medieval Japan. On her next meeting with Narasaki in Japan, she described what she had seen and suggested that a visit to Northeast Thailand might prove interesting in relationship to his own research. This suggestion led to a two-week exploratory trip taken by the three authors in December 1993--January 1994, during which we visited twenty-seven village sites, seven of which produced stoneware and the remainder earthenware. Traveling with a hired car and driver, we planned our route by consulting the excellent maps in a published survey of ceramic production sites in the Northeast compiled by Samruad Inban in 1989.<sup>5</sup> In our own notes we adopted Samruad’s numbering system for sites that he had identified, although we also discovered some sites not on his list which we identified by letters.

By the conclusion of this short but wide-ranging initial survey, we felt that a longer-term, intensive study was merited. The production of stoneware was illuminating in relation to aspects of stoneware manufacture in medieval Japan, while the production of earthenware was suggestive of helpful ways to interpret Jomon, Yayoi, and *hajiki* earthenware production. Moreover, the active regional system of stoneware and earthenware production in Northeast Thailand revealed many interesting aspects in its own right, such as an unexpected diversity of techniques used for earthenware production and a possible relationship to the diversity of ethnic groups also found there. At the same time, it was clear that the production of both earthenware and stoneware that survives today represents a marked reduction from what once existed within

living memory of the potters with whom we spoke. We felt an urgency to document the activity in one of the last areas of the world where earthenware and stoneware are still manufactured in coexisting and complementary systems for local use.

Our primary goals for the long-term study are: (1) to document the diverse technological styles of ceramic (especially earthenware) production in Northeast Thailand, their distribution within the region, and their possible relationship to ethnicity; (2) to understand the social, cultural, and economic significance of the potter's work within individual households, villages communities, and regional economies; and (3) to understand the relationship and interaction between stoneware and earthenware production in the region.

During the second season (29 December 1994--17 January 1995), we conducted an intensive survey within Northeast Thailand. At every turn, however, we encountered new questions regarding the relationship between the Northeast and what lay on the other side of the highly permeable topographical and political boundaries of the region--the Mekong River to the north and east, creating the modern political borders with Laos and Cambodia; the Dangrek Mountains to the south, continuing the border with Cambodia; and the Petchabun Range to the west, marking the division between Northeast Thailand and the rest of the Thai Kingdom. From our discussions with many potters, we became aware that both pots and potters had moved frequently across these natural features of the landscape until around 1975, when the borders with Laos and Cambodia "hardened" as a result of political events within those countries.

Accordingly, in the third season (23 December 1995--21 January 1996), we surveyed earthenware production in Central and North Thailand. (Stoneware production, which once flourished at various sites in these two regions, has been largely extinct for an indeterminate length of time.) We also continued our visits to selected sites in Northeast Thailand. In the

fourth season (29 December 1996--27 January 1997), we surveyed Central and Southern Laos, finding both stoneware and earthenware production. We were joined on this trip by Mori Tatsuya, Curator at the Aichi-ken Toji Shiryokan. Cort and Lefferts also continued on to Cambodia to survey earthenware production. During the fifth season (January-March and July 1998), Lefferts and Cort extended the survey to Southern Vietnam (earthenware production by Cham and Khmer ethnic groups), to Southern Thailand and Malaysia (earthenware made by Thai and Malay), and to Central Thailand, while also returning to Northeast Thailand. During the most recent season (January-February and June, 1999), they conducted further surveys in various regions of Thailand and in Central Vietnam.

By expanding our survey to encompass an area that includes most of mainland Southeast Asia except Burma,<sup>6</sup> we have developed a regional perspective on the distribution of various pottery-making processes. At the same time, we have also benefited from developing long-term relationships with potters in a number of Northeast Thai communities that we have now visited as many as four times. These repeat visits have been especially useful for an understanding of the social context of pottery production. From year to year we have seen dramatic changes in the numbers of potters (earthenware or stoneware) at work. One earthenware potter even changed her location, reflecting the decline of one village production center and the rise of another.

## II. Methodological Points

At this point we summarize three key points that have become clear in the course of our research and that now influence the way we proceed in our survey. These points will be discussed in further detail at the end of the paper.

### A. Diversity of earthenware production (“operational chains”)



In Northeast Thailand, not all earthenware is produced the same way. French anthropologists have developed the useful concept of *chaines operatoires* (“operational chains”) to describe the total production packages of technology.<sup>7</sup> In Northeast Thailand, several different operational chains or patterns of earthenware production can be distinguished. These differences in technological style appear to be associated with the various ethno-linguistic groups represented among the earthenware potters as a result of the complex history of settlement and resettlement of the area.

Earthenware production in the Northeast is now dominated, however--both in the numbers of different villages making pots and in the total number of potters--by the ethno-linguistic group that defines itself as Thai-Khorat. Our very first visit to an earthenware production site happened to be to a Thai-Khorat community, the village of Baan Maw (NE-30), outside the provincial capital of Mahasarakham Province, in December, 1993. (*Baan* means “village” and *maw* means “earthenware pot”.) We assumed that our survey would simply lead us to other villages using essentially the same operational chain for production. As we continued, however, we gradually came to recognize variations in technology (as well as customs and social organization) that differentiate various groups in Northeast Thailand.

Once we crossed into the other areas of our survey, the diversity became even more pronounced. At present we have distinguished six distinctive operational chains used by earthenware potters in Mainland Southeast Asia (excepting Burma). While these six technological groups are closely associated with ethno-linguistic groups, they cross modern political boundaries, creating a different sort of “map” of Mainland Southeast Asia (see map). We will present these patterns at the conclusion of this paper.

#### B. Concept of the preform

The key aspect by which we differentiate technological style in earthenware production is visible not in the finished product but in the first stage of production, when the potter makes what we term a preform. This is the initial clay form from which the potter goes on to form the vessel rim and then the body. Differences in this form are fundamental. To mention two examples, Thai-Khorat potters make the preform as a solid cylinder of clay that they open from both ends to make a hollow cylinder. This preform has no base: the potter later uses a paddle and anvil to close the base. By contrast, Lao potters in North Thailand make the preform by adding a series of coils or thin slabs of clay to a base made from a round disk of clay. They later obliterate the angular edge between the base and the walls to form a round-bottomed vessel.

Significantly, the nature of the preform usually cannot be detected in the final vessel form. (Whereas it is easy to tell whether a vessel form has been finished by using paddle and anvil or by some other means, such as scraping.) One can discern the nature of the preform only by witnessing the actual production process.

### C. “Women produce earthenware, men produce stoneware”

While these gender distinctions related to types of pottery broadly hold true in Mainland Southeast Asia, we have also discovered instances where men make earthenware, where men and women collaborate to make earthenware, or where women use the fast potter’s wheel to make earthenware.

In addition, a note on procedure: Beginning with the second season we have placed importance on documenting production processes with a video camera. Still photography proved inadequate to capture the timing and flow of the potters’ gestures. Video has also been useful for recording the terminology potters use and, in some cases, for capturing longer interviews, especially when we were working through interpreters.

### III. The Thai-Khorat Operational Chain for Earthenware

The report of our initial trip in 1993-94 outlines the basic features of earthenware and stoneware production technology in Northeast Thailand. The earthenware technology presented in that report represents in essence the dominant Thai-Khorat operational chain. We will summarize it again here, since for us it has become a standard against which to measure the diversity of other, contrasting operational chains. This is not to state that the Thai-Khorat technology is necessarily older or more important, simply that it was the first procedure with which we became familiar and through which we discovered the importance of the preform. In our summaries of research seasons, we will concentrate on presenting the distinctive features of earthenware production by other ethno-linguistic groups using different operational chains.

#### (1) Preparation

The Thai-Khorat potter uses a clay body that is a combination of clay and temper. She prepares temper by mixing rice husks with wet clay, forming the mixture into balls, firing the balls slowly, and pulverizing them in a wooden mortar. At the end of each day she prepares enough clay body for the following day's work.

#### (2) Forming the vessel

Using that mixture, the potter begins by making a solid cylinder and opening it into a hollow cylinder, using her hands and a bamboo stick, pushing through from the center of each end of the cylinder and opening the now-hollow cylinder out. (She makes enough cylinders for the day's work and repeats all the steps that follow for each cylinder.) One cylinder (or a stack of two identical cylinders, in the case of a large vessel) contains all the clay she will need to make the vessel.

The Thai-Khorat potter manipulates the cylinder to shape first the rim, then the body, of the vessel. In order to shape the rim, she places the cylinder upright on a work-stand made from a section of tree-trunk or an inverted wooden mortar. She walks around this stand, revolving both forwards and backwards, while she shapes a rim on the upper edge of the cylinder. To do this she holds a folded strip of plastic (or in some cases, a leaf) over the rim. She also uses a textured wooden paddle and a fired-clay anvil to gently expand the center section of the cylinder into an oval shape. (She strikes the paddle against the outside of the cylinder and receives the blows on the anvil held inside.) She may use a narrow, carved wooden blade to impress a band of decoration around the neck. Later, after the preform has dried a little, in order to close the base of the cylinder and to expand the body into a spherical form, she holds the partially-formed vessel on her lap and manipulates the clay using the clay anvil and a smooth wooden paddle. This step is repeated two or three times, with the vessel allowed to dry between each repetition.

### (3) Firing

The Thai-Khorat potter and her husband collaborate to fire large groups of the finished and dried vessels in an open bonfire. In the customary firing place at the edge of the village, they begin by setting out rows of supports, made of fired clay, in a grid arrangement. On these they make a frame by laying long wooden or bamboo sticks in one direction across the rows of supports and laying a second row of closely-spaced sticks perpendicular to the first. The pots are placed mouth-down on this frame, surrounded by short sticks leaning upright against the outermost pots, and covered with rice straw. The rapid firing is completed in under one hour, during which more straw is added as needed.

### (4) Marketing

The husbands of Thai-Khorat potters usually market the pots. They use a three-wheeled

vehicle or a pickup truck to take pots for the most part directly to nearby villages (rarely to district market towns), making use of the well-developed system of paved roads in Northeast Thailand. They may return in a single day or, because of the way in which the vehicles and the roads facilitate travel, they may stay away over one or more nights.

#### IV. Second season, 1994-95: Northeast Thailand

We planned to conduct intensive surveys of four villages (two earthenware, two stoneware). In fact, we were able to undertake additional surveys within the time available. In all, we conducted extended surveys of six villages (five earthenware, one stoneware) and made shorter visits to eight others (five earthenware, three stoneware; see chart 1). We visited seven communities for the first time and conducted intensive documentation in three of them. We also returned to seven villages we had contacted in 1993-94 and did intensive documentation in three. We found that those repeated contacts resulted in good rapport, fruitful conversations, and generous demonstrations of technology.

Our choice of villages changed in the course of our research, as the result of unfavorable conditions in two intended survey sites, where potters had not yet begun work, and new information obtained from others. In particular, in NE-37 we observed a style of earthenware production that we had not seen before. That experience raised questions that led us to focus primarily on earthenware-producing sites during this and subsequent seasons.

In particular, we sought out earthenware sites representing technology that differed from the Thai-Khorat model.

##### A. NE-64 (Baan Daun Jik, Ubon Province)

This Thai-Lao community in eastern Ubon Province lies not far from the Mekong River. Ninety of the 130 households make pots, including some women who formed a cooperative to use a new kiln introduced by a government development organization and others cooperating to produce clay bucket-shaped stoves. We watched Mae (“mother”) Piak (age 33 in 1995), whom we had met the previous year on our survey visit to this community. The process she uses has much in common with the Thai-Khorat process, although differences are noticeable in certain tools and procedures.

#### (1) Preparation

The nearest source of clay is several kilometers away on private land. Each year the potters pay the landholder for the right to dig clay. All the villages in the area used to make pots and the land where clay was dug used to be common land. Over the years, as clay was dug, the swampy land dried out and was surveyed and turned into private rice fields. The other villages have ceased making pots.

#### (2) Forming the vessel

Mae Piak prepared the clay by mixing it with pulverized temper of the same kind as used by Thai-Khorat potters. She formed the clay into a solid cylinder. Standing the cylinder on end, she used her thumb to open a hole in each end, then pushed her arm through the openings to form a hollow cylinder.

To form the rim, she stood the cylinder on the rounded base of an inverted used pot. She used the smooth side of a heavy paddle (the other side of which was grooved) and a fired-clay anvil to raise and expand the body. Then she used a narrow blade-like paddle on the inside wall to open the cylinder and flatten the edge. (This blade is not used by Thai-Khorat potters.) She folded several wetted fresh leaves over the edge and revolved around it, clockwise, to shape the

rim.

In the second step, after the form had dried sufficiently, Mae Piak sat on a low wooden bench and rested the form on her thighs. With the grooved side of the paddle she closed the base and rounded the sides. Standing the form upright, she rubbed the anvil around the inside of the rim in short strokes to smooth the neck and round out the shoulder. Setting the pot on her lap again, she beat the vessel walls while rotating the vessel. Then, with the smooth paddle face, she worked over the entire base, erasing the paddle marks. The pot was set aside on its rim to dry.

Thirdly, sitting on the bench with the pot on her lap, she used the smooth paddle face to erase the paddle marks from the walls. She again set the pot on its rim to dry.

Finally, using the pattern carved into the handle of the heavy paddle, she added a band of design to the shoulder. Then she carefully worked over the base and walls of the vessel until she was satisfied with the shape and texture.

### (3) Firing

Firing took place in an adjacent empty field belonging to Mae Piak and her husband. The couple worked together to fire. They laid sticks directly over a bed of straw (without the supports used by Thai-Khorat potters). They framed the edges of the rectangular bed with thicker sections of bamboo. They laid the pots on the bed in a single layer, facing in four different directions depending on their position on the bed. Mae Piak lit the straw at the windward (south) end of the bed while the pots were still uncovered, only adding straw over the tops of the pots when the underlying straw began burning. The couple continued to add straw locally as the firing progressed down the pile, from south to north, blown by the wind. The firing was not very successful, with many pots exploding and others severely cracked. We felt perhaps the potters were hurrying to fire for our benefit.

#### (4) Marketing

We gathered little information on marketing from this large site. However, we were told that middlemen would come to buy pots and take them to resell in the Ubon area.

#### B. NE-37 (Baan Na Kraseng, Loei Province)

This Lao village is located on a tributary of the Mekong River in the relatively isolated, hilly province of Loei. Loei is known for being colder than other areas of the Northeast. When earthenware production flourished in this village--until the mid-1970's--potters sold much of their production to Lao living across the river.<sup>8</sup> Now only one woman, Mae Yai (“grandmother”) Liem (age 54 in 1994), makes pots. She works on an irregular basis, as people request goods from her or as she needs to earn money to buy food. She lives with her husband, age 63, who works as a blacksmith. The couple also owns some farmland. The processes used differ fundamentally from those of the Thai-Khorat potters.

##### (1) Preparation

Mae Yai Liem digs her own clay from a termite mound located in a nearby field that once belonged to her father. She digs clay only once a year (enough to make about two hundred pots) and stores it in a pile in her back yard, covered by plastic sheeting weighted down by logs. She adds no temper to the clay body.

##### (2) Forming the vessel

Mae Yai Liem soaks the mound of clay with water the night before using. She prepared the clay in a trough made from a section of tree trunk split lengthwise and hollowed out. When she is working seriously she usually makes ten pots in a day, but to show us she made just one (a *maw geng*). She placed enough clay for that pot in the trough and pounded it with the blunt end



of a long, sturdy stick. Then she kneaded the clay in the trough, rolling it back and forth to form a coil. She lifted the two ends of this coil and joined them, forming a ring. (We do not know how this procedure would differ if she were planning to make ten pots at once.)

Her working surface was a square woven mat, 27 x 29 cm., that she made herself from strips of bamboo. It rested on the mouth of a stoneware jar as support. (Formerly she used one of her own large earthenware water pots. When making ten pots in a full day's work, she would use ten such mats.) She placed the ring of clay on the bamboo mat and squeezed up the clay to form a low wall, while walking slowly around the jar in a clockwise direction. This formed a cylinder with no base. She used two wooden paddles in alternation, working against her left hand held inside the cylinder, to further raise and thin the wall. With a long blade-shaped wooden paddle (like the one we first saw at NE-64) she flattened the top of the rim, beating against her open left palm. Then she used a thicker rectangular wooden paddle with incised lengthwise grooves in combination with a round river stone as an anvil. With this pair of tools, she expanded and raised the wall. She then used the blade-shaped paddle against the inside wall to evert the upper edge and form a wide rim with plain edge.

After the form had dried about twenty minutes, she used the thicker, grooved paddle and the stone anvil to expand the body.

The rounded vessel form was set in the shade under the house to dry. When it was sufficiently dry to work, Mae Yai Liem sat on a low wooden stool and rested the form on her thighs. Wielding the thicker, grooved paddle and stone anvil, she closed the hole in the base of the body and completed the rounding of the body. She struck simultaneously with both paddle and anvil, rather than striking the paddle against the stationary anvil. The marks of the parallel straight lines carved into the paddle were not smoothed away but remained on the surface of the

finished pot, where they formed diagonal grooves.

### (3) Firing

Mae Yai Liem said that she usually fires just once a year, at the end of her dry-season period of making pots, when she has prepared about 150-200 pots. According to her verbal explanation, she lays out a bed of rice straw, over which she lays split bamboo stems. She lines up the pots on their sides, with all the mouths facing in one direction--downstream. (She says that they should be aligned with the flow of water so that they will not break.) The pots can be stacked up to three layers high and small pots are nested inside larger ones. She leans lengths of bamboo against the pots and covers and surrounds them with rice straw. Once she lights the fire, she adds no more straw unless pots are incompletely fired when the original straw is burnt up. She fires in the late afternoon.

### (4) Marketing

The potter indicated that she sells most of her production to customers who come to her house to buy. In addition to pots for cooling drinking water and for cooking, her repertory includes very large pots for distilling liquor (*maw tom lao*). (Distilling is now illegal in Thailand but practiced freely across the river in Laos.) She also makes small bowls (*tuey*), mortars, and turmeric graters (*kala ki min*). Elsewhere these three shapes are made by male stoneware potters.

## C. NE-3 (Baan Kut Pla Kao, Kalasin Province)

This village is populated by people of Phu Thai ethnicity, who migrated from Laos in the nineteenth century. On our first visit in 1993-94, we focused on the stoneware produced by some men, but we also heard that a few women made earthenware pots. This is the only village

in Northeast Thailand where we have found both types of ceramics made in the same community. On our 1995 visit, we were able to see a demonstration of earthenware production and collect further information from stoneware potter Nai (Mr.) Ban (age 76) and his female relative Nang (Mrs.) Mun (age 72), who had not made earthenware pots for some years.

#### (1) Preparation

Nai Ban dug clay for earthenware ("black clay") from a "high place" higher than the surrounding rice fields. Nang Mun pulverized the dried clay in a wooden mortar, using a wooden pestle, and sieved it. She prepared temper in the mortar by pulverizing bits of broken earthenware pots. She used a flat, circular basket for mixing the two materials in the proportion of three parts clay: one part temper. She added water and kneaded the mixture on the basket surface until it stuck together.

#### (2) Forming the vessel

Women in this village used to make cooking pots, pots for steaming glutinous rice (*maw nung*), and pots for cooling and storing drinking water. Men, using the wooden wheels that they employed for making their own stoneware vessels, coiled and threw preliminary cylinders with finished necks and flat bottoms for earthenware vessels that women then paddled to complete the body form. (Conversely women made coils for men to use for shaping earthenware or stoneware and they spun the wheel during the throwing process. Usually husbands and wives worked together, although we talked to one man--now a school teacher--who had made earthenware forms for his mother to finish.)

Men also used to coil and throw a long-necked earthenware drinking-water bottle called *nam tao*, which was used for serving water to guests. This form was finished on the wheel and did not require paddling.

The women's use of rims made on the wheel by men appears to be a recent form of collaboration. Nang Mun said that as a young woman she used to form her pot rims entirely by hand, working on an inverted pot. To show us how, she worked on an overturned wooden box. She rolled a solid cylinder of clay, stood it on end on the box, and opened one end only by pressing her thumb into the top, then expanding the opening with her fingers. To enlarge the form, she stood and revolved around the form while using a length of split bamboo to thin and smooth the walls, paddling against the palm of her left hand inside the form. She then placed the form in the center of Nai Ban's wheel head and used a long, blade-like wooden paddle to repeat the procedure. To shape the rim, she wet a strip of banana leaf and held it over the vessel rim with her right hand while turning the wheel with her left hand. The finished preliminary form had an intact base.

After the preliminary form had dried somewhat, Nang Mun sat on a wooden bed in the shade beneath the house and placed the form on her lap. In her right hand she held a fired-clay anvil inside the form; in her left hand (she was left-handed) she wielded a heavy wooden paddle that was smooth on one side and carved on the other. Revolving the form on the anvil, she beat the outer surface, first with the grooved side of the paddle (rounding out the flat bottom), then with the smooth side (rounding and smoothing the form).

### (3) Firing

We were told that earthenware was sometimes fired with wood in the single-chamber subterranean kilns used primarily for stoneware. We also heard that it used to be fired in the open, using straw alone (no wood or bamboo) as fuel. In the latter firing, the pots were laid on their sides, all facing the same direction, away from the wind. Another woman, Nang Luup (age 62), who still made earthenware, said she had fired fifty or sixty pieces altogether the previous

season, in a single firing.

#### (4) Marketing

Nang Luup said that customers came to her to buy pots, although she also described walking to a nearby village (accessible on foot only), carrying six to eight pots in a basket on a shoulder pole to trade for chili peppers and rice.

### V. Third Season, 1995-96: Central and North Thailand; Northeast Thailand

At this point in our research, we felt a need for a comparative understanding of village-based ceramic production in the regions contiguous to Northeast Thailand--North Thailand, Laos, and Cambodia. Accordingly, we next undertook a survey of contemporary ceramic production in Central and North Thailand.

No survey has been done for the North corresponding to Samruad Inban's thorough survey of production sites in the Northeast. An undated list of "Traditional Pottery Making in Thailand" compiled by the Fine Arts Department of Thailand, Archaeology Division, mentioned only five northern sites. Thus our research depended primarily upon information gathered along the way. We visited sixteen sites in North Thailand as well as one in Central Thailand (charts 2, 3).

At the conclusion of our survey in the North, we returned to Northeast Thailand and visited three stoneware villages (one for the first time) and eight earthenware villages (six for the first time), thus expanding our knowledge of Northeast Thai production sites (chart 1). On a brief preliminary visit to Laos, in preparation for our 1996-97 research, we visited one stoneware and one earthenware village, both located outside Vientiane (chart 5). In addition, en route to Thailand, Cort and Lefferts briefly visited national museums in Kuala Lumpur and Songkhla to

examine earthenware production data for the Malay Peninsula and Southern Thailand.

#### A. Associated earthenware and stoneware

Although a number of major historical production sites in North-Central and Northern Thailand made both unglazed and glazed stoneware from circa the twelfth through the seventeenth centuries (or later),<sup>9</sup> it is striking that no stoneware production takes place in these regions today, except for some recently established modern factories run by Chinese-Thai. In Northeast Thailand, as noted above (NE-03), we had seen stoneware and earthenware produced together in the same location by men and women of the same community. Visits to historic stoneware kiln sites in North-Central Thailand revealed that earthenware had been produced in cylindrical updraft kilns located within the “stoneware” complexes in Ban Tao Hai (Phitsanulok Province), Si Satchanalai, and Sukhothai. Little attention has been paid to this dual production, with scholarly attention focusing almost entirely on the stoneware (especially glazed) vessels.<sup>10</sup>

#### B. Earthenware technology in North Thailand

In Northern Thai villages we observed two basic patterns of procedures for making and firing earthenware, both of which exhibited fundamental differences compared to the dominant Thai-Khorat style of Northeast Thailand (but similarities to those on the margins of Thai-Khorat production).

One pattern was represented by NT-04, whose inhabitants were of Shan (Thai Yay) ethnicity. They had migrated from adjacent Shan State in Burma in the late eighteenth century, when Burmans had ruled the Chiang Mai area. Potters in NT-09 and NT-10 had migrated from

NT-04. These potters made drinking-water vessels in two shapes, a long-necked bottle and a round-bodied, lidded jar. Both shapes were distinguished by their slipped and burnished surfaces and both red and black versions of the shapes were available.

Potters in NT-04 purchased their clay and added no temper. They worked on rows of tiny wheel heads barely wider than the diameter of the pot base, with one wheel for each pot in process. Many sets of wheels were motorized. Most potters were men, although some women also worked on the wheels. They threw the completed shape with flat bottom attached. Women coated the pots with red slip and polished them, using quartz pebbles and a solution of benzine and water. The pots were fired in a cylindrical updraft kiln, sometimes using a strong reducing atmosphere to produce shiny black vessels.

A second pattern, observed in the majority of northern pottery-making villages, was closer in principle to Lao and Thai-Khorat production, yet it exhibited telling contrasts in all stages of production. Our survey clarified key differences in techniques for earthenware production in those villages, notably the use of a slow turntable for forming and a slow, smothered (usually overnight) firing. Since NT-04 represents an isolated intrusion from Burma, this report focuses on that second group.

#### (1) Preparation

Potters in some northern villages (NT-01, NT-03) collected their clay from swampy areas. Potters from other villages dug their clay from beneath rice fields, at a depth of one to two meters. In either case, they dried the clay in the sun, pulverized it, and soaked it overnight in water. In preparation for use, they added river sand as temper, usually in the proportion of three parts clay : one part sand.

#### (2) Forming the vessel

Women in several northern villages (NT-01, NT-03, NT-12) used wooden wheels as turntables for making the preliminary form. Carved in single blocks from sections of tree trunks, these wheels closely resembled the wheels used by Lao stoneware potters in Northeast Thailand and Laos. The women potters, however, used the wheels as slowly-revolving turntables, not as fast wheels capable of throwing.

Women potters in some other villages worked on square pieces of board placed on an upright post (NT-05, NT-06, NT-08, NT-11, NT-13, NT-14). Elsewhere they placed the board on a section of tree trunk imbedded in the earth (NT-12). One potter worked on a board that she rotated at first on her own knee, then moved to the mouth of a large jar (NT-15).

In most villages where we observed the making of the initial form of a pot, the potter began with a flat circle of clay that became the base for the vessel. She built up the cylindrical walls by attaching coils, flattened coils, or rings (coils joined end to end) to the flat base. She then shaped the rim on this cylinder. The resultant form was a flat-bottomed cylinder. (Potters in NT-13 and NT-14 made no base.)

To shape the vessel body, most potters used anvils made of stone--a selected round river pebble--together with wooden paddles. (Potters in NT-03 used both fired-clay and wooden anvils.) Potters did the initial shaping with a wooden paddle that had one patterned side (incised lines) and one smooth side. They used the patterned side when roughing out the vessel form, a process that included obliterating the edges of the flat base. (The finished pot had a round bottom.) They then used the smooth side for finishing the vessel. Potters in some villages (NT-05, NT-06, NT-14) also used a long, narrow blade-shaped tool made of bamboo in the finishing and smoothing of the pot. This blade resembled the tool we had seen used in the Lao villages NE-64 and NE-37 in Northeast Thailand.



### (3) Firing

The firing procedure was consistent throughout the Northern villages we visited and distinctive from the procedures used in the Northeast. Potters began with a bed of straw, wood, or bamboo. They laid out the pots on their sides, usually with all pots facing in the same direction. After placing pieces of wood, twigs, or bamboo sections around the pots (and sometimes placing wood inside the pots), they covered the mound with rice straw. Then they covered the straw with a layer of rice husks or, less frequently, ash (NT-05, NT-06). They usually lit the fire in the afternoon or evening and left it to burn overnight, removing the pots the following morning. This slow, unattended firing was distinctly different from the short bonfire used in the Northeast.

Potters in NT-01 used a roofless rectangular “kiln” structure, consisting of low brick walls. They reported that the kiln was a recent introduction by an organization involved in economic development, replacing the common procedure of firing described above.

### (4) Marketing

Many Northern potters had added flowerpots to their repertoires of drinking water storage jars and cooking pots. Cash rather than barter was the usual medium of exchange, especially since many potters told us they have to buy clay, sand, straw, and rice husks (especially if they do not own farm land).

## C. Earthenware production in Central Thailand

In CT-01, north of the old capital of Ayutthaya, we found yet another basic pattern of earthenware production, making use of the fast wheel to shape the preform. This community had only recently converted from making roof tiles to making vessels.<sup>11</sup>

### (1) Preparation

Clay was dug from fields by someone and sold to the potters. It was prepared by pounding the mound of clay with a wooden mallet to expose stones. Slices of clay were soaked in water for a day, then kneaded by foot. Sand (also purchased) was added as temper.

### (2) Forming the vessel

The woman potter threw the initial form on a fast wheel, which was spun by a male assistant sitting opposite her. (We were told that another potter used a motorized wheel.) The wheel was a solid structure of wood, with a socket on the base that rested on a spindle imbedded at the base of a shallow hole in the ground. Working on a mound of clay attached to the wheel head, she threw a series of cylindrical forms with mouth rim, cutting each form off the mound so as to leave an open bottom. She also threw lids on the wheel from the same mound of clay.

The potter used a stone anvil and a set of three wooden paddles to finish the pot, rounding out the sides and closing the base to make a wide, flat base with rounded edges. She used both a small, smooth paddle and a potsherd to polish the surface of the finished pot. This smooth, polished surface represented a recent style. In the potter's household we saw older pots bearing complex paddle-impressed textures, consisting of a diagonal "floral" pattern on the shoulder and a cross-hatch pattern on the base.

### (3) Firing

Potters fired in an enclosed updraft kiln, using wood as fuel. Firing usually took place in the afternoon and lasted four hours. They had two sizes of kiln and chose which to use depended on the number of pots ready to fire.

### (4) Marketing

The potters produced many small pots ordered by urban restaurants for use in table-top

cooking and serving, and their customers came to them to place orders. They also made small cooking pots. A small pot with overall patterned surface was used for storing salt.

#### D. Suay Earthenware Technology in Northeast Thailand

NE-48, in Surin Province, is a village of Suay and Thai-speaking people. Suay is a language within the Mon-Khmer language family. We first visited in 1994 and returned in 1995 for an intensive study, only to find that no one was making pots that year. We made an appointment to return again in 1996 to see the production process demonstrated by Mae Juan (age 60 in 1996).

##### (1) Preparation

Mae Juan digs clay herself from a field on the outskirts of the village, the only local source of clay. Ordinarily she walks there and collects the needed clay in a bucket, although we gave her a ride in our rented van. Extensive digging has lowered what once was a large mound, creating a hollow lower than the surrounding land. The vein of pottery clay lies beneath the reddish sandy earth. Clay directly above that vein is dug for making temper.

At Mae Juan's home, the clay to be used the next day was broken up and soaked in water overnight. She had already prepared temper from a mixture of rice husks and clay, fired slowly then pulverized in a mortar and sieved. At the start of the day's work, she kneaded the wet clay and dry temper together in a flat basket. She divided the mixture into quantities for each vessel, and she kneaded each smaller mass and formed it into a solid cylinder.

##### (2) Forming the vessel

Still working on the basket surface, Mae Juan opened a hole in each end of the cylinder with her thumb and expanded the two openings until they meet, creating a hollow cylinder

without a base. She placed the cylinder on top of an inverted wooden mortar and used a narrow stick to thin and open out the walls. Holding a dripping wet cloth in her left hand, draped over the upper edge of the cylinder, she walked swiftly forward (clockwise) to shape the rim.

The wooden paddle she used to expand the vessel body was made by her husband. One face bore a carved geometric pattern and the other bore parallel incised grooves. She used the grooved side in the first phase of paddling, while she used the patterned side subsequently “to make the pot pretty.” She also used a long, smooth blade-shaped stick. The anvil was made from fired clay.

To paddle, she sat directly on the ground, with her legs stretched out in front of her and the vessel on her lap. During the first beating she closed the base, roughly rounded out the body, and added a texture around the neck. Two hours later, she did the second (and final) beating very slowly to refine the shape and texture.

### (3) Firing

Firing took place in an empty rice field adjacent to Mae Juan's home. Preparations began in mid-afternoon. Mae Juan and her husband brought straw from another nearby field. Her husband arranged strips of bark and sticks of jute as a base. He then placed the pots on their sides on the base, starting with the largest pots, facing them in various directions. The completed stack had three levels. Lids were stood on edge around the outside of the pile. He leaned more pieces of bark against the stack all around.

As soon as the stack was prepared, he ignited the interior of the stack by inserting the burning tip of a long stick of jute. As smoke began to rise, he kept on adding bits of bark and jute. He placed handfuls of straw into the center and around the outside of the pile only gradually, waiting for each handful to burn almost completely before adding the next in a

different location. Sometimes he moistened the straw first by spitting a mouthful of water onto it. The moistened straw burned at the desired slow rate. About ninety minutes after preparations had begun, the firing was declared finished. The pile was left as it was until the next morning, when Mae Juan and her husband dismantled it.

#### (4) Marketing

Mae Juan said she and other potters would sell or barter their pots by carrying them to nearby villages, using baskets suspended from shoulder poles. This production appeared to be primarily household-based, with the potters supplying the needs of other households as asked.

### VI. Fourth season, 1996-97: Southern Laos and Cambodia

The fourth season of research was a further effort to place Northeast Thai ceramic production in a wider context. We surveyed contemporary ceramic production in Laos (chart 5) and Cambodia (chart 6).

#### A. Laos

In Laos, we hired a four-wheel drive vehicle with driver in Vientiane for a one-way drive along Highway 13 from Vientiane south to Pakse and Champassak, paralleling the course of the Mekong River. Although new bridges have been installed with funding from the Japanese government, extensive construction on the roadbed created frequent detours and lots of red dust.

In the absence of any published survey of present-day ceramic production in Laos, we relied on our own inquiries in market towns and on scrutiny of earthenware drinking-water jars standing on the front porches of roadside houses and shops. Whenever we noticed a change in vessel form or decoration, we asked the owner where the jar had been made or acquired.

Southeast Asian regional politics dictated that Laos has remained relatively under-developed. Accordingly, just as Lefferts had observed in Burma,<sup>12</sup> in Laos we expected to see more centers of production for both earthenware and stoneware and to find them producing on a smaller scale and distributing over more limited areas than in Northeast Thailand. Our choice to conduct our survey along the best highway in the country undoubtedly influenced what we saw. (We surmise that heading further into the mountainous interior along lateral roads toward the Vietnamese border probably would yield situations more like what we expected.) Nonetheless, we found production surprisingly concentrated (perhaps even more concentrated than in Northeast Thailand) and distribution from these centers surprisingly widespread.

#### 1. Earthenware technology

Until 1975, frequent and easy contact took place in both directions across the Mekong River. We received information about recent migration of potters from Northeast Thailand to Laos, but not the reverse. Among earthenware producers, LO-01 had been settled before 1975 by potters from NE-49 in Nong Khai Province, and the techniques they used were Thai-Khorat.<sup>13</sup>

In LO-12 we interviewed an elderly woman who had migrated circa 1968 from a village in Ubon Province that no longer makes earthenware. She told us that other potters had come from nearby villages, including NE-64. The technology as she described it (but did not demonstrate) confirmed that it was not Thai-Khorat, but similar to that we had observed in NE-64.

Technology seen in LO-13 also suggested a relationship to NE-64.

Lao earthenware potters women prepare a somewhat larger repertory of shapes than now exists in Northeast Thailand. Noteworthy are a large jar used for distilling liquor, a bowl, and a long-necked bottle for drinking water. The flowerpot is emerging as a new product in villages

located near urban centers.

In Northeast Thailand the equipment for steaming the staple grain, glutinous rice, used to be a clay pot (now replaced by aluminum) supporting a bamboo basketry steamer. In Laos we learned that shallow bronze pots (said by some informants to have been made in Vietnam) had been used in combination with wooden steamers for that purpose. We have seen such bronze pots frequently in Northeast Thailand (for example, in Khon Kaen), but no one there remembers how they were used. In addition, the bronze pots still form one of the set of utensils used for distilling home brew liquor.

#### (1) Preparation

Production of round-bottomed earthenware pots in all the villages we visited is completely controlled and executed by women. Men are not involved. Women dig their own clay and, in the absence of motorized vehicles or even paths suitable for hand-drawn carts, carry it home using pairs of baskets on shoulder poles. This procedure defines the limit for daily production, since the baskets hold enough clay for four large pots at most. In general we found the scale of individual daily production, including the number of pots in a firing, smaller than in Northeast Thailand.

#### (2) Forming the vessel

In the earthenware-making villages along Highway 13, we saw variations in technology that reminded us of that used by non-Thai-Khorat potters in Northeast or, more frequently, North Thailand. Women used a flat basket for mixing and wetting the clay and temper (unfired rice husks). They used a wooden turntable as the base on which to form their pots. They started from a solid ball of clay, opening it out and shaping the rim. (Potters in LO-07 made the preform with a flat base, then used a stone anvil to pound out the bottom from the inside.) The flat

surfaces of the wooden paddles were incised with grooves and the resultant paddle marks remained visible on the surfaces of finished pots made in many communities.<sup>14</sup>

When we moved inland from Highway 13, however, we encountered earthenware technology completely unfamiliar to us. Potters in both LO-14 and LO-16 formed the first stage of the pot from the “waist” up to the rim, then inverted the form onto its rim and coiled upwards to form the base. They finished the base with a narrow stick and did not employ paddle and anvil. Potters in LO-16 worked on an upright post, whereas those in LO-14 used a wooden turntable. (We interpreted this as a borrowing from the technology of pottery-making villages along the river.) The neck of the pot was decorated with punched decoration described as “tattooing.”<sup>15</sup>

### (3) Firing

Because of our relatively rapid survey, we were not able to witness any firing. In LO-05 we heard a description of a small-scale firing of about ten or twenty pots at a time, using a base of bark and straw, on which the pots were placed mouth down and covered with straw. LO-06, a community of Lao Suak ethnicity, we were told of firing a small number of pots on a bed of bamboo sticks, with all pots lying on their sides facing in the same direction. The potter in LO-10 said she never fired more than four or six pots at a time (the equivalent of two days’ work).

### (4) Marketing

Men (either potters, husbands of potters, or middle-men from the same village) market wares from villages located along Highway 13. They use horse-drawn carts and travel in groups up and down the main highway and its tributary roads. We were surprised at the distances these caravans cover. Typically these men told us they are absent for several days. Only in the interior, away from good roads, do women themselves carry their pots to trade in nearby



villages. Regardless of the method of transport, as compared to Northeast Thailand we encountered a greater prevalence of bartering for husked or unhusked rice rather than selling for cash.

## 2. Associated earthenware and stoneware

The woman we interviewed in LO-12 also described a “kinship” relationship between her former village, where women had made earthenware, and a nearby village where men had made stoneware. A similar close relationship was described for villages LO-09, which made earthenware, and LO-11, which made stoneware. This was the pattern we had found surviving faintly in the Phu Thai potter communities in central Northeast Thailand, especially NE-03.

In LO-03, which produced stoneware, some male potters also made earthenware using a different clay. They added temper to their clay but employed a stoneware operational chain using a wooden wheel. They produced flat-bottomed water jars with coiled-and-thrown walls. These vessels were considerably heavier than the round-bottomed pots produced by women in other villages who finished with paddle and anvil. The pots were fired in a bonfire. These wheel-formed water pots closely resemble the products of NE-41 in Sakhon Nakhon Province, Northeast Thailand, where men throw drinking-water pots on a fast wheel. The men in NE-41 do not make stoneware--did they formerly?

In a related approach, in LO-15, LO-18, and LO-19, flat-bottomed jars made of underfired stoneware (fired in the cooler back area of the kiln) were used instead of earthenware for storing drinking water. The underfired jars were sold more cheaply than the well-fired stoneware. This inventive use of underfired stoneware suggests an intermediate stage before the intentional *making* of earthenware versions of such forms as in LO-03.

### 3. Stoneware

In the three stoneware-making villages in Champassak province (LO-18, LO-19, and LO-20) we heard about potters who had immigrated roughly fifty to seventy-five years ago (circa 1922-1947) from the large stoneware center of NE-61 in Ubon Province and had instructed local men. It was unclear whether this instruction supplemented a pre-existing local stoneware production or was the inauguration of stoneware production in these villages. These stories suggest an expanding market for jars at that time in southern Laos. What were the causes for this boom market?

Evidence for a shrinking repertory of stoneware shapes was found in the form of discarded vessels lying in house yards and workshop yards. These discards indicated a range of shapes no longer made, including liquor bottles, lamps, spittoons, and betel containers. On the other hand, decorated and glazed stoneware storage jars for rainwater, made in Chinese-run factories in Ratchaburi, southwest of Bangkok, were much in evidence. These jars, brought across Thailand and the river on big ten-wheel trucks, compete directly with one of the principal forms in the remaining repertory of Lao stoneware potters. In addition, production of cement rainwater storage jars is a flourishing household industry for village men. The stoneware industry seems to be experiencing rapid decline.

### 4. Technology and ethnicity

In the course of various conversations we recorded considerable data on earlier movements of potter communities. Despite the diversity of ethnicity implied by such movement, however, it was rare to find potter groups that identified themselves as anything other than

“Lao.” In modern Laos, where membership in a minority group is a potential source of discrimination, many people now declare themselves to be “Lao Lum” (lowland Lao)--as distinguished from the other two major categories established by colonial French administrators, Lao Sung (highland Lao) and Lao Theung (midland Lao), or from earlier ethnic designations such as Phu Thai and Lao Phuan.

The intentional discarding of earlier ethnic labels by earthenware potters was seen clearly in the case of LO-14 and LO-16. In terms of pottery technology, they two villages were clearly related. In LO-14, situated close to Highway 13, potters called themselves Lao, although people in neighboring villages (self-identified as Lao Lum) called the potters Lao Theung. Located further inland and upland on the Salavan Plateau, the potters of LO-16 identified themselves explicitly as Suay. At the same time, they distinguished between themselves as Buddhist Suay and the residents of nearby villages of Suay “who worship spirits.” The forming technology represented in both LO-14 and LO-16 differed markedly from that of the Suay village in Northeast Thailand (NE-24), where potters used paddle and anvil in a manner resembling the Thai-Khorat.

This fluidity of self-defined ethnicity was also demonstrated by a retired stoneware maker in LO-08, who told us he was born Phu Thai but “became Lao Lum” after coming to this village. Ethnic fluidity is a common trait in mainland Southeast Asia, much discussed in the ethnographic literature.

## B. Cambodia

In Cambodia, with a base in Phnom Penh, we enlisted the help of a young archaeologist, Kim Sedara, who had graduated from the Royal University of Fine Arts and received a year's

training at the University of Hawaii, East-West Center. He helped with hiring a vehicle, ascertaining the safety of our intended destinations, and translating from Khmer to English. Basing our itinerary chiefly on the work of pre-1975 French ethnographers,<sup>16</sup> we drove south in a day trip to Phnom Chisor and Kompong Speu provinces and made an overnight trip northward to several villages in Kompong Chhnang province (chart 6).

We did not know how present-day production would compare to that documented by French ethnographers in the early 1970s, when Khmer Rouge activities were already disrupting the countryside. From potters we heard stories of how pottery production had ceased completely during the Pol Pot era, then resumed once villagers returned home (or settled in a new village, accounting for some changes in distributions of products). Most surprising and reassuring to us was the robust nature of the economy that the potters had reconstituted. It appeared that this production had reconstituted itself without major economic assistance from the national government. In fact, caravan drivers told us how they had to hide money and other goods on their return journeys to protect them from being seized by corrupt police.

## 1. Earthenware technology

Our primary goal in Cambodia was to ascertain whether, as French ethnographic reports of the early 1970's suggested, the technology of Khmer potters is related to the technology used by the dominant group of Thai-Khorat potters in Northeast Thailand. The attribute of the operational chain that distinguishes Thai-Khorat potters from most others we had seen in Northeast, Central, or North Thailand is making the preform as a seamless, hollow clay cylinder without a base. French reports suggested that similar technology existed in Cambodia. Our preliminary conclusion is that there is a close relationship, with methods that are similar and

parallel if not identical.

### (1) Preparation

Clay was collected from nearby mountainous areas, and collecting the clay was men's work. Potters in CA-03 reported that clay was dug from holes three to four meters deep at the base of a mountain.

In CA-01 potters mixed 70 percent clay with 30 percent sandy rock. The potter in CA-05 mixed two different kinds of clay, one "coarse" and the other "sticky," and did not add temper. Elsewhere potters prepared temper by mixing rice husks and clay, forming balls, firing them, and pulverizing the balls--like Thai Khorat potters. They mixed two small carrying baskets of clay to four balls of temper.

### (2) Forming the vessel

In the five Khmer pottery villages we visited, we saw a range of approaches to making the preform. All seemed conceptually related to the Thai-Khorat. Khmer potters in CA-02, CA-03, and CA-04 worked on a woven bamboo mat to make a thick clay coil and flatten and stretch it into a rectangular slab. They then used the mat as support to stand the clay slab on one long edge, pinching the two ends together to form a cylinder. They placed that cylinder on the post and proceeded to form the mouth rim, using several fresh leaves that varied depending on the community. As do Thai-Khorat potters, they stacked two cylinders of standard size when making a large pot.

The potter in CA-05 formed a solid cylinder of clay and set it upright on the post, opened a hole in the top, and hollowed out the interior. Then she inverted the cylinder and opened the opposite end in the same way. This method seemed more closely allied to the Thai-Khorat process than the use of a slab. This potter told us, however, that women in these villages can

produce pots either way, depending on their preference. This alerted us to the flexibility of technology and the idea of choice on the part of the potter.

In general the potters used anvils of fired clay. The anvils used in CA-01 were teardrop-shaped. The potter in CA-05 used a wooden anvil coated with tar. Paddles for the initial shaping are made from sections of thick bamboo stalk, while those for the final finishing are wooden. Potters in CA-02 used a wooden blade with a jagged end to make bands of vertical “combing” around the neck of the vessel, while the potter in CA-05 used a wooden blade with three teeth to produce a band of ornamental “jabbed” marks (aptly termed “tattooing”).

### (3) Firing

We watched a firing take place in a clearing at the edge of CA-2. Men and women shared the process. They built a bed of crisscrossed dried stems of date-palm fronds and stacked the pots on it, mouth down, in several layers. (The pots had been preheated in an adjacent fire built on a bed of rice straw.) Large, fired, damaged pots were placed mouth-down at the four corners of the pile. More palm-frond stems were propped around the sides of the pile, and the entire pile was covered with rice straw. The burned remains of straw from the pre-heating fire were shoveled onto the top of the pile. Meanwhile, a corner of the pile was lit, and the fire burned rapidly

### (4) Marketing

In Cambodia, a distinctive aspect of present-day earthenware production is its centralization in the villages surrounding the market town and provincial headquarters of Kompong Chhnang (“jar province”). (Production of earthenware also continues at a number of smaller sites in the south.) Unlike the Northeast Thai model, where a single community of potters serves the immediately surrounding villages, in Kompong Chhnang multiple villages

make pots, and the vessels are marketed over most of the northern half of the country. Our quick survey of three villages suggested that potters in each village specialize in certain pot forms, although the population of potters in the region was greatly disturbed by the social disruption and dislocation of the Pol Pot era and the older patterns remain to be determined.

Marketing of the great quantities of earthenware made in Kompong Chhnang villages is carried out in a correspondingly large scale, over long distances. Men, either of the same household or of the same village, do the marketing. Collecting different kinds of pots and stoves from the villages that make them, they pack pots in ox-carts, using straw, and travel in caravans to sell, sometimes staying away for several weeks. The largest caravan we saw was made up of nine carts. Pots and stoves hanging from the sides of the carts serve as advertisements for the products on sale, and the straw packing becomes food for the oxen as items are sold. We were told that this system of selling pots developed after the French colonial administration built long-distance roads. French colonial records from the early twentieth century describe long-distance distribution of Kompong Chhnang pots by boats traveling on the Tonle Sap river system.

At the same time, some individual potters traded their pots for rice, and we saw two women come by bicycle to CA-04 to buy pots that they would take away to sell in their own village and nearby communities.

#### (5) Products

The form of the pot for cooling drinking water made in Cambodia differs in significant ways from that made by Thai-Khorat potters in Northeast Thailand. Thai-Khorat water jars are installed for use on a platform close to the house. They are refilled as necessary with water transported from the source (pump, pond, or stream) in non-ceramic containers (the traditional container is a resin-coated basket or long bamboo tube). Many Thai-Khorat water jars are now

made with attached foot-rings for stability. Cambodian village women use the equivalent clay jar for transporting water as well as for storing and cooling it. They carry the jar not by a shoulder-pole, as would a Northeast Thai or Lao, but either on the head or on the hip.

Such behavior seems related to South Asian procedures, just as the Cambodian clay jar form relates to the narrow-mouthed, long-necked, round-bottomed metal water jar of South Asia. Furthermore, water jars from Kompong Speu are not smooth, as are most water-cooling jars made today in Thailand, but bear ridged patterns on the body imparted by carved wooden paddles. We were told these are there in order to make a wet pot easier to hold. In summary, closely related technology is used in Cambodia and in Thai-Khorat communities of Northeast Thailand to produce quite different products.

A distinctive Cambodian product, made in abundance, is the earthenware stove. Stoves of this shape can be seen in historical collections in Central Thailand, but we have not seen them made in the present day.

## 2. Stoneware

The Vietnamese stoneware factories inside Phnom Penh documented in French reports of the early 1970s have vanished completely. Those reports indicated that Vietnamese potters were already the target of ethnic persecution. In markets outside Phnom Penh we did see stoneware jars for sale, and we also saw jars in the yards of potters' homes. Most bore thin brown glaze dribbled over the shoulder only, a style of partial glazing that reminded us of utilitarian stoneware produced in present-day southern Vietnam. We were told these jars are produced in Cambodia but were unable to visit the sites. At the UNESCO office in Phnom Penh we learned of at least one Lao man making stoneware in Rattanakhiri Province, in northeastern Cambodia.



## VII. Fifth season, 1998: Northeast and South Thailand, Southern Vietnam

### A. Northeast Thailand

In January, 1998, Cort and Lefferts revisited six stoneware or earthenware-producing sites and went to five sites for the first time. In addition, Lefferts visited three new sites (all of which have ceased production) on 19 March 1998 (chart 1). Since the technology was already familiar to us, we focused on other issues relating to social structure, migration, and changes in production and pot repertory.

### B. Vietnam

In Vietnam, we were sponsored by the Center for Anthropological Religions, part of the Institute of Social Sciences in Ho Chi Minh City (ISSHO). Our counterpart for research was Mr. Phan Van Dôp, a specialist in Cham culture, who greatly aided our research in the Cham villages and also accompanied us to the Khmer villages that were new to him as well. In addition, we were fortunate to work again with Mr. Nguyễn Thanh Sơn, who had assisted us when we conducted research on textiles and ceramics in northern Vietnam in 1990. Mr. Sơn took leave from his work in the Office of the Prime Minister to travel with us and was of invaluable help through his familiarity with our research approach and goals. Through ISSHO we hired vehicles with drivers for a one-day trip to Sino-Viet stoneware workshops in Đồng Nai Province and for two longer trips to visit Cham and Khmer potters (chart 7). ISSHO made the arrangements for our visits to two Cham and two Khmer pottery-making communities.

## 1. Chinese (Sino-Viet) stoneware

Stoneware pottery production in Đồng Nai centers around technology introduced from southern China. One workshop we visited gave prominent place near the kiln and office to gravestones for the present owners' great-grandparents, who had been born in Guangdong Province in the 1890s.

The international export market is quickly transforming the products as well as the technology of this region. We saw flowerpots produced for the international marketing corporation Ikea. Provincial authorities are supporting the transformation of kiln fuel from wood to gas, motivated by an acute shortage of firewood. Within the category of large jars produced for household water storage (*lu*), we saw a range from squat, fat jars made of dark red clay with matte brown glaze over the shoulders forming a fringe of drips (seemingly “old-fashioned” in style) to tall, slender jars with shiny yellow-brown glaze (seemingly “modern”). (We also saw cement *lu*, carefully painted to imitate the glaze drips of the old-fashioned stoneware jars.) Although we later saw hundred of jars of both types in use around households in the Mekong Delta, the Đồng Nai kiln owners told us they were phasing out such jars in favor of export items. The surviving brick-making kilns that have not converted to export ware production are being forced to relocate to the outskirts of the city.

The river and canal network in the south is still used for distribution of domestic pottery to local markets. Boat owners cobble together a range of goods for round-trip sales in the Mekong Delta, such as bringing duck eggs from the delta and carrying back Đồng Nai pots. Pots piled on the deck of the boat or dangling over the sides serve as advertisements for the wares on board. Meanwhile, large trucks move containers of export goods to Sài Gòn for shipping overseas.

## 2. Cham earthenware

Villages VN-03 and VN-04, situated between Phan Thiết and Phan Rang near the coast in south-central Vietnam, represent Cham pottery production centers located within different river valleys. Presumably these centers are fragmentary survivals of production that once was much more widespread, but the striking difference in operational chains of production between the two locales remains to be explained. Potters in both villages work year round except for a few days at Tet.

### (a) VN-03 (Palay Gok or Trí Đuc)

This village is located just off the main north-south road, National Highway 1, at the northern end of Chợ Lầu Town. Known both by the Kinh (Viet) name Trí Đuc and the Cham name Palay Gok, it is one of three Cham hamlets attached to a larger Kinh settlement. A total of one thousand Cham households--about six thousand people--live near ten thousand Kinh. People from the Cham and Kinh communities intermarry. In Palay Gok, almost all of the two hundred households make pots.

The potters are women, both elderly women and their daughters and granddaughters. The elderly women dress in the characteristic long black skirts, white blouses, and white head scarves of the Cham, but the younger women wear modern, Western-style clothing. Products include water pots (*nôi dât*); portable stoves (*lô*); shallow, round-bottomed pans in three sizes for cooking fish (*trà*); basins with broad, flat bases (*khuong*) for storing salt and for housing the charcoal fire used to warm women after childbirth (*chau*)<sup>17</sup>; pots for steeping herbs for illness and for women after childbirth (name not ascertained); and mortars (*chay*).

The local official first guided us to a large, prosperous-looking house where women

dressed in their finest clothing were waiting to give a “demonstration.” (We later heard that people from this house had gone to Japan to participate in the 1996 “Fire Festival” in Saga Prefecture and had made enough money to begin working as pottery wholesalers.) We chose instead to visit two houses where the women of the family were working in the courtyard in front of the house, as well as one small “factory” where three women, hired as laborers, worked in a concrete room. We spent a day and a half in the village altogether.

### (1) Preparation

We were told that clay is dug by the men from places in the mountain five to ten kilometers distant. The clay is free, but they pay to hire ox carts to transport the clay back to the village. The clay is dug from a stratum beneath layers of earth and stone, about 90 centimeters below ground level. (Mr. Dôp was told that a small ceremony involving betel and two eggs took place before clay was dug.) Men also play roles in preparing to fire and firing, and in marketing the finished pots. One man told us he hired a three-wheeled vehicle to vend pots to villages along the coast. Another man, who had three hectares of farm land, sold the pots made by his wife and three daughters to another person in the same village, who took them to sell.

Sand used as temper is collected from the river. It is added to the clay body “so the pots won’t break in the fire.” The clay and sand are kneaded together by foot.

### (2) Forming the vessel

To shape the preform, the potter works on a small stand made from a round wooden disk (about 40 cm. diameter) attached to a wooden post. The post was inserted, in turn, into an old cylindrical wooden piece that we discovered was the hub of a wooden cartwheel, held in place with wooden wedges. The complete stand is 80 cm. tall. The conveniently portable hub replaced the earlier method whereby the stand was fixed in the ground.

To make a small vessel, the potter spread wood ash on the disk, then took a lump of clay and flattened it on the disk by pressing down around the edges, leaving a small knob in the center, which she then pressed into the disk. (A second potter who showed us this process left no center knob, although she pressed extra clay into the center of the disk.) She then raised the edges of the disk, forming a shallow bowl shape. Walking backward and counter-clockwise around the stand, she raised the vessel wall. Backing clockwise, she scraped the wall upward to make a bucket-shaped form. She made a coil of clay and attached it to the vessel rim, walking forward and counter-clockwise. She also added a second, smaller coil. She then moistened a small square of plastic and used it to shape the rim, alternately backing around the stand, counter-clockwise, and moving forward, clockwise.

At this point the vessel was wiped both inside and out with a thin, reddish solution consisting of red clay dissolved in water. We were told it kept the form from drying too fast. The red clay was dug close to the site for the clay used for forming the vessels.

After the preform dried to workable stiffness, the potter finished shaping it using one large wooden paddle (but no anvil) and an assortment of ring-shaped scrapers made of iron banding, bamboo, or rattan, and sea shells or smooth stones. The scrapers were used to remove clay both from the outside (followed by consolidation with the paddle) and the inside. The paddle was struck against the palm of the left hand, held inside the vessel. The shells were used to rub the rim smooth.

One potter who specialized in making large, round-bottomed vessels worked on a series of ten vessels in sequence, taking a total of three days to shape the neck and body and round out the base.

In the course of this finishing, the potter transforms a flat-bottomed preform into a round-

bottomed vessel through the process of alternating scraping and beating. This process is notably similar to that followed by the Lao potters in the inland villages LO-14 and LO-16. It suggests that Cham earthenware technology might have been transmitted over the mountain range into Laos.

### (3) Firing

The open field to the north of the potters' village is used for firing pots--and also as a general garbage dump and public latrine. We did not witness a firing, but we were told that a layer of pots was placed directly on the ground, base downward. These pot mouths were covered with sticks and a second layer of pots was placed over them, mouth downward. Layers of pots were built until the mound was about one meter high and about twenty-five rows of pots were created. The mound was then covered with rice straw. (Wood for the firing was purchased by the ox-cart load or by hiring someone to cut wood; rice straw came from local rice fields.) This preparation took place in the morning. Around noon, taking into account the direction of the wind (which blows strongly at that time of day), the fire was lit at the "mouth" (windward side) of the mound. The fire was allowed to burn only about twenty minutes, at which point the pots in the row closest to the fire were checked to see that they were ready (had turned red) and were removed using a long pole with an iron tip. Then more straw was added and the firing of the next row proceeded.

We were also told that a special sap was applied to pots immediately after they were removed from the fire. The sap was made of the bark of a tree collected in the mountains. The bark was crushed and soaked in water for several days. The resultant solution was splashed onto the fired pots, using a leafy branch. The sap created dramatic, dark brown splashes on the light brown surface of the pot. We were told "pots with the sap are easy to sell--because such a pot is

more beautiful than a plain one.” No functional reason was given for applying the sap.

#### (4) Marketing

We saw pots from this village for sale in the market in Phan Rang City. The village appeared to contain a number of relatively wealthy households that served as local managers of pot production and marketing. On the highway south of the village we encountered a man riding a bicycle loaded high with pots. He was taking the pots made by his wife and four daughters to sell in a market about twenty kilometers distant.

#### (b) VN-04 (Palay Hamu Trok or Bàu Trúc)

This village is located about eight kilometers south of Phan Rang City. The four hundred households, known as Bàu Trúc (Kinh) or Palay Hamu Trok (Cham) are of mixed Cham and Kinh ethnicity. We were taken to a small "factory" in the corner of a larger courtyard owned by a retired primary-school teacher and his family. Three women worked as employees and were paid by the piece at the end of each day. At least one Japanese group had visited here in 1994,<sup>18</sup> and the establishment was prepared to present itself to foreigners (negotiating a “film then pay” arrangement and making disparaging remarks about VN-03). We were told that other households in the village operated on a household scale, but we had no opportunity to visit them.

#### (1) Preparation

In an open area at the back of the room, clay was prepared by trampled by foot and sand was worked in that way also. (A school-aged girl prepared clay for her mother’s use.)

#### (2) Forming the vessel

In this factory set-up, the women worked on top of three rows of inverted water jars (a total of thirteen) instead of wooden stands. The women used a row of jars to prepare pots in

sequence. One woman used five jars to make a total of thirty pots in a day.

Potters made the preforms into finished vessels using an assortment of rattan and metal rings to scrape excess clay away and burnish the surface. Potters here do not use the wooden paddle that we saw in VN-03. They said they were skillful enough not to have to resort to using it.

The women claimed they made a greater variety of shapes than the VN-03 potters, including a vessel used either for holding drinking water or for cooking rice or pig food (*thap*); the vessel for cooking herbs for the newly-delivered mother (here termed *dzu*); a jar for carrying home water from the well or river (*buk*); and a vessel for boiling pig food or parching soybeans, maize, or peanuts (*klah*).

### (3) Firing

According to custom, firing takes place only on Wednesdays. No other information gathered.

### (4) Marketing

Pots made here are taken by truck to markets in Phan Thiết, Nha Trang, and Đà Lạt. Before 1975, trains stopped at a station nearby and pots were shipped all the way to Mỹ Tho at the end of the line in the Mekong Delta. As the result of this far-flung distribution, the potters make some forms that Cham do not use, such as a round-bottomed pot (*ko*) used by the Ralay in the Central Highlands for popping corn.

## 3. Khmer earthenware

We began seeing Khmer pots of two different sorts in provincial markets south of Sài Gòn in the Mekong Delta. We eventually associated the different forms with two pottery-



making communities in the delta which differed visibly from one another. Those of VN-05 were reddish-brown in color and bore only a band of impressed decoration around the neck--a simple strip of parallel vertical grooves--on otherwise smooth forms. These vessels were remarkably similar in clay body, form, and decoration to vessels made in southern Cambodia in CA-02. Vessels of VN-06 were distinguished by warm red-orange color and richly-textured surfaces, consisting of bands of three different patterns--one on the neck, a second along the body, and a third on the base.

(a) VN-05 (An Lạc commune, Tri Tôn District, An Giang Province)

VN-05 is a large, independent Khmer village of about five thousand households, and our visit was carefully supervised by provincial, district, and local officials. Household based production mingles with small "factories" where several women work for wages.

(1) Preparation

Men usually dig clay. It is dug about one meter below ground surface from a place at the foot of the mountains, about thirty minutes' walk away, and brought back in baskets on a shoulder pole. No temper is added.

(2) Preparation

We watched an elderly woman potter (a widow, with a shaved head) who worked inside a room at the front of her house that also served as a bedroom. She began by working on a wooden board on the floor, kneading the clay, forming it into a thick coil, and flattening the coil into a rectangular slab approximately the dimension of the board. She then stood the slab upright on one long edge, with the aid of a strip of cloth, and joined the two ends to make a cylinder. She placed this cylinder on an upright section of tree-trunk that served as work table

and formed the neck on the upper edge, using several oval, smooth green leaves held together. Once the cylinder had dried, she used a set of wooden paddles to round out the vessel form and stamp the design around the neck, using the carved edge of one wooden paddle. She used a bamboo blade to push in the lower edge of the cylinder, reducing its diameter. When the cylinder had dried again, she used a smooth wooden paddle and a wooden anvil (not fired clay or stone, as we had seen everywhere else) to close the base (adding a pad of extra clay) and round out the lower half of the vessel.

### (3) Firing

Firing was carried out on a very small scale (a maximum of just fifty pieces) and in an open space within the village itself, surrounded on all sides by houses. The basic procedure resembled that used by the Thai-Khorat potters. A woman potter and her husband shared the job of firing. They made a bed of crisscrossed sticks on which they placed the vessels mouth down in stacks of three. They surrounded the pile of pots with more twigs, stood upright, and covered it with a thick layer of rice straw that they dampened before ignition by spitting water onto it. They added straw locally as the firing progressed. They used wooden sticks to remove individual pots that they judged to be finished. The man repaired stoves that had cracked in the firing while they were still hot, using a mixture of ground fired clay and cooked rice.

### (4) Marketing

Outside the immediate production area, the two varieties of Khmer pots were known by the names of the district markets, not of the actual villages where they were made. ISSHO specialists told us that Tri Tôn District had been a major producer of earthenware until the 1970s, sending pots as far as Phnom Penh. Potters said that, in general, the older women make pots and the younger women buy and then market them. Some merchants from Tri Tôn placed

orders with particular potters. We also saw individuals arrive to purchase pots for their own use.

(b) VN-06 (Đầu Doi hamlet, Soc Xòai commune, Hòn Đất District, Kiên Giang Province)

VN-06 consisted of just three households of potters located along the canal outside the busy market town of Hòn Đất. The basic production procedures were the same as in VN-05. The finishing of the vessel was distinguished, however, by the use of wooden paddles elaborately carved in standard designs, made by a carpenter. The neck pattern (parallel vertical lines and zigzag lower edge), joined with the vertical striping of the body pattern, was carved on the half of the paddle nearest the handle, while the lower half bore just the body pattern. The vessel rims were formed with nipa palm leaves.

The potter inverted the pot on its rim on the work table to close the base of the low, wide vessel. She paddled excess clay to the center until just a small central opening remained. Then she opened a separate hole off center, to one side of the base, and she patched the clay from that hole over the center hole. She patched the off-center hole when she then finished the bottom, while seated on the ground with the pot resting between her knees on a hollow ring of plastic-covered straw. We could not elicit why the off-center hole was necessary.

As in other Cham and Khmer communities, large sizes of pots were made in stages over a three-day period, unlike the Thai-Khorat procedure which completes a pot in a single day. (Does this difference relate to differences in humidity of the two environments?) We were told of a very large jar, made formerly, that could hold eighty liters of drinking water.

### C. Southern Thailand

Leedom Lefferts visited sites in southern Thailand (chart 4) with the kind help of Khun

Tharapong Srisuchat, Director of the Archaeology Department's Tenth District, based in Songkhla and responsible for the five southernmost provinces in Thailand, and Khun Amara Srisuchat, Research Archaeologist for the Tenth District.

ST-01 is a Thai-Moslem village in which women made earthenware until three or four years ago.<sup>19</sup> This village presented technology noted for the first time in our survey. The women dug clay from deserted termite mounds.<sup>20</sup> They worked on a fast wheel and threw multiple pot preforms from a mound of clay placed on the wheel, then finished them with wooden paddle and fired clay anvil.

Firing took place in a shallow rectangular pit, where several layers of pots were piled on a bed of firewood and covered with a coating of straw plastered over with a mixture of clay and sand. The firing was a slow process taking two days and described by the term *mok maw* meaning "to bake" or "to roast" the pots.<sup>21</sup>

ST-02 now houses three "factories" staffed by women where earthenware production takes place. One has brought in a male potter from Ratchaburi to design carved decoration for the pots, in an effort to preserve market share. Electrified wheels have replaced an older, hand-spun wheel, used by a woman potter with a male assistant spinning the wheel. The pot preforms are cut off the wheel with the base open. The base is closed with paddle and anvil. Pots are fired in an updraft kiln operated by men, but cross-craft kilns are also present. (In 1999, Lefferts observed firing in a crossdraft kiln.) Clay is dug from land in a neighboring village group, but its use is contested by villagers operating shrimp farms.

One complex gourd-shaped vessel, made as a single form, is said to symbolize marriage. It consists of an undecorated sticky-rice steamer (representing the groom) set on a patterned conical pot for boiling water (representing the bride). Lefferts did not see production of this

vessel until 1999. It is made from one piece of clay shaped on the wheel as a cylinder with open base. The base was then closed by paddle and anvil and the whole vessel was given its final form using paddle and anvil and scraping. This is the first earthenware vessel we have found with acknowledged symbolic associations. It fits with pan-Tai associations concerning sticky rice and marriage. The Southern Thai term for a wedding is *kin nieo*, “to eat sticky (rice).”

#### D. Malaysia

Lefferts benefited from an introduction to the Muzium Nasional of Malaysia, Kuala Lumpur, from Millicent Yeo and Tan Huism, curators at the Asian Civilizations Museum, Singapore, who surveyed pottery production in western peninsular Malaysia in 1992.<sup>22</sup> He visited MA-01 in the east side of the Malay Peninsula through the kindness of the village headman, Ghazali Ben Yusoff. The village is located forty minutes up the Kelantan River by powered boat from the market town of Kuala Krai in Kelantan Province (chart 8).

##### (1) Preparation

The pottery clay is tempered with sand. The potter forms chunks of clay into a mass of the desired size to make a single pot.

##### (2) Forming the vessel

The potter works the mass on a turntable consisting of a flat piece of wood with domed base but without socket, rotated on another wooden piece of the same shape, placed with its domed surface facing upward. She opens the flattened mass and raised its edges with her fingers, sometimes leaving a small “pillar” of clay in the center of the bowl. She adds coils of clay to the inner edge of the rim. Then she forms the rim by rotating the turntable in alternating directions with her left hand while holding a cloth over the edge with her right. The rim is not

completed at once but worked over, alternating with scraping and smoothing the inside of the rim and outside of the preform wall with a bamboo strip. Then the potter makes two distinctive grooves on the rim using her thumb through the wet cloth. Considerable water is used in the forming process and the preform is dried at least a day. The finishing process consists predominantly of scraping (using a metal ring) and secondarily of paddling and sculpts the right-angled join of wall and base into a smooth curve with rounded bottom. (This process seems to resemble that we saw in Lao villages LO-14 and LO-16 and in Vietnamese Cham villages VN-03 and VN-04).

### (3) Firing and marketing

Government initiated development has dramatically affected production: other vessels were made with the use of molds and an oil-fired kiln was used for firing.

## VIII. Sixth season (1999): Northeast, Southern, Central, and North Thailand; Central Vietnam

### A. Northeast Thailand

We visited thirteen sites, five for the first time. We revisited NE-20 for the first time since 1993-94, in the company of anthropologist Judy Volker, who was living and conducting research there. Her introduction to one woman gave Cort the long-awaited anticipated opportunity to try the Thai-Khorat technique of forming the rim on a hollow cylinder. The potter stood beside her, verbally and physically instructing her about the sequence of positions of the fingers. This was a revelation of nuances of gesture that were not apparent through even the closest repeated observation.

## B. Southern Thailand

### 1. Thai-Malay earthenware

Lefferts visited ST-03, where Thai-Muslim women and one man make pots (chart 4). When Lefferts arrived, the women were firing pots in an open field. While the fired pots cooled, several women demonstrated pot production, using a fast wheel to throw a hollow cylinder with a rim and shoulder, but no base, then beating the preform closed and paddling it into the final shape. While these techniques seemed quite similar to those at ST-02, the shapes were decidedly different. They closely resemble the shapes found in MA-01 in Malaysia. The terms used for these shapes are Malay, as is the language used in the village. The techniques, however, are described in both Thai and Malay. This visit confirmed the independence of earthenware pottery production technology from several of those items of culture usually classed as ethnic identifiers, such as language and religion. It also showed conclusively that pottery production technology is independent of final pottery form or decoration.

### 2. Chinese earthenware

ST-04 is a factory producing unglazed earthenware water basins (used primarily for raising fish) and flower pots. It is located on the bank of the Pattani River, convenient to transport by boats that used to go some twenty kilometers inland. The founder, a Chinese immigrant of Hokka ethnicity, built a large “dragon” kiln and produced a range of products, including large water jars finished with paddle and anvil. His grandson, who presently operates the factory with his father and one employee, has restricted production to the two smaller vessel shapes and has built a smaller kiln. Production makes use of an electrically-powered wheel. The

grandson was unfamiliar with the network of overseas-Chinese pottery factories throughout Southeast Asia and said he knew of no relatives who made pots.

### C. Central Thailand

Pottery production in CT-02, on the island of Ko Kret in the Chao Phraya River north of Bangkok, was established by potters of Mon ethnicity resettled from Burma in the late eighteenth century.<sup>23</sup> Potters based here once supplied large water storage jars and highly ornamented drinking-water jars to Bangkok and other markets along the river, until the use of such jars was phased out after World War II by piped water and electrification. Mon technology, including kilns, has been largely replaced by Chinese technology (introduced from Ratchaburi) for making mortars and flower pots. However, this easily-accessible island seems to be benefiting from the increase in Thai tourism. On our weekend visits we encountered many vendors selling pots and some even demonstrating “traditional” pot decorating techniques.

Lefferts visited this village in 1998 to document verbal narrations of past production procedures. According to a man now 80 years old who used to make pots, large jars were formed using a wheel as a turntable, by coiling, then by scraping the wall thin. For scraping, a pointed stick, then a shell and a bamboo ring were used in succession. Finally the wall was polished using a large seed. The forming took place in two stages, with a day of drying in between.

Cort and Lefferts visited CT-02 twice in February, 1999. Both times we were pleased to meet with Khun Pisarn Boonpoog, local historian and director of the Ancient Mon Pottery and Mon Cultural Center, which houses a collection of old pieces from Ko Kret and other Mon potting centers in the Central Plains. Khun Pisarn attaches special importance to the tradition



that the original Ko Kret settlers came from the Martaban area of Burma and brought their pottery production processes with them.<sup>24</sup> Ko Kret potters later established a satellite village further upriver in Nakon Sawan Province (Baan Kaeng, Amphur Muang). This expansion was designed to position potters closer to the North Thai market at a time when transport by river boat was slow. According to Khun Pisarn, whereas in Ko Kret men make the big jars, in Baan Kaeng they are made by women using the same technology.

Khun Pisarn took us to see an “elephant” kiln (*tao chang*), the old Mon type as opposed to newer Chinese kilns which now dominate. The brick-built kiln is shaped with a large hump behind a relatively small front, which consists of a large door (bricked up during firing) and large “ears” sticking out on each side serving as buttresses for the kiln arch. He showed us the niches in these ears in which incense and other offerings are made, once before the kiln is loaded, again just before firing. Each evening during the firing, candles and incense are lit and placed in the niches.

#### D. North Thailand

Lefferts was able to revisit a North Thai site (NT-05) that we had visited in 1995. Visiting in the morning, we had seen preparation of preforms on wooden posts. His visit in the afternoon, at a later point in the daily production cycle, enabled him to observe potters shaping the preforms into finished pots by trimming away excess clay on the sides and flat base, then rounding the form with paddle and anvil. The exterior and rim of the finished vessel were coated with red slip to improve the red color and make the pot saleable.

#### E. Vietnam

Lefferts visited VN-07, located on the Sông Hôi (Hôi River) three kilometers west of Hôi An in Quảng Nam Province (chart 7). This site extended our survey of earthenware production northward along the Vietnamese coast, and it also represented our first detailed research among ethnic Vietnamese (Kinh) people, who form the vast majority of Vietnamese citizens. The village history relates that it was founded some four hundred years ago by people moving south from Thanh Hóa Province, on the southern edge of the Kinh heartland in the Red River Delta. VN-07 villagers produce bricks and tiles as well as earthenware pottery. The size and number of brick kilns suggest that brick making is much more remunerative than pottery production. Seven women currently make pots. Lefferts was told that one man had also produced pots until recently.

#### (1) Preparation

Village men use boats to obtain clay in Quảng Nam Province, at an unknown distance from VN-07. Clay for making pots is different from clay used for making bricks. It is not known if any temper is added to the clay.

#### (2) Forming the vessel

Pots are produced on a fast wheel. While the potter works, a woman assistant (never a man) stands holding onto a bar to steady herself and uses her left foot to spin the wheel clockwise. This woman also does the final kneading of the clay before presenting it as a short solid cylinder to the potter. One cylinder produces one pot. (Lid production was not observed.) The preform produced by the woman potter has a solid flat bottom with mouth and rim formed. The potter uses a string to cut the preform off the wheel, and the assistant lifts it and places it aside to dry.

After the preform dries sufficiently, either a man or a woman scrapes the sides and

bottom to produce the requisite round bottom. (Pots intended to have flat bottoms are not worked in this manner.) The worker inverts the preform on the wheel, onto a chuck of clay shaped to hold the preform, and uses a knife to scrape and shape the bottom and sides into a smooth curve.

### (3) Firing

Earthenware pots are fired in kilns that differ from the brick kilns. The smaller pottery kilns are built of brick with a domed roof. Two large, gothic-arched doors through which pots are loaded are bricked up for firing, leaving small ports through which to introduce wood. The back of the kiln has three openings at floor level which exit upward through ports in the brick buttress. There are no chimneys. Lefferts was told that a ceremony takes place prior to firing, when incense is lit and prayers are said.

### (4) Marketing

Marketing of pots appears to be done by other women and men, mostly residents of this village. Pots are loaded into carts and pushed by hand or pulled by bicycles, or they are carried using baskets and a shoulder pole. Pots are sold in Hôi An, Đà Nẵng, Tam Kỳ, and other cities and villages in the area. It is not clear if potters own their production or if they are hired to produce. Several potters are related to each other. The women who knead the clay and spin the wheel seem, however, to be hired for their work.

## IX. Discussion:

### A. Conceptual issues: the preform and the operational chain

As this research has progressed, we have examined conceptual issues relating to the

diversity of processes that we are recording. As we stated at the beginning of this paper, two major ideas have proved valuable: (1) the concept of the “preform” and (2) the concept of the behavioral patterns embodied in the sequence of production, which we have termed, following French anthropologists, *chaines operatoires* (“operational chains”).

### 1. The concept of the “preform”

The “preform” is the initial stage by which an earthenware vessel is configured, when the rim is shaped but before the body is given its final form. Focusing on the preform in isolation, rather than grouping it with all the successive steps of the process, permits a precise characterization of the initial step by which a vessel is created and allows for clear comparison between different sequences.

This approach also reveals that the commonplace description of most Southeast Asian earthenware pots as “made with paddle and anvil” is misleading. The potter’s use of the paddle and anvil is not definitive. This set of tools is shared by various groups of potters who make preforms in a number of distinctive ways. It is a fallacy to conceive that all pots “made with paddle and anvil” are alike. Focusing on the preform makes this clear.

Focusing on the preform, moreover, makes it possible to distinguish between different applications of the use of paddle and anvil (usually related to variations in the preform) and also to include the earthenware production processes in Mainland Southeast Asia that do not use the paddles and anvil at all.<sup>25</sup>

### 2. The concept of the operational chain

In our survey, we came to conceive of the potter’s behavior as a patterned sequence of

steps of embodied behavior. Particular steps in this sequence could be replaced or varied, and we termed these steps attributes. The final result of our study of earthenware pottery will be the presentation and comparison of the various sequences of steps by which earthenware pottery is produced in Mainland Southeast Asia. This kind of analysis has been undertaken infrequently for other areas of the world.<sup>26</sup> Our results are potentially of interest to archaeologists, in terms of permitting greater precision in documenting the diffusion of technology, as well as in the possible assignment of modes of pottery production to archaeological pottery remains.<sup>27</sup>

In terms of ethnographic studies, we have discovered that our interest in the embodied technology of production is shared by European anthropologists of the *technique et culture* school.<sup>28</sup> Technology as embodied behavior is an insufficiently studied aspect of culture. People learn aspects of technology, like other aspects of culture, from their ancestors, yet they also choose--with varying degrees of consciousness--what they will do. Too little attention has been paid to this aspect of material culture production, while attention has focused instead on less embodied forms of behavior, such as form and decoration ("style"). As our preliminary results show, the most fundamental and enduring aspect of earthenware pottery production is the process by which it is carried out. Vessel shape and external decoration can be modified at the whim of producer or consumer.

#### B. Operational chains in Southeast Asian earthenware production

So far, working with a focus on the preform as the distinguishing element of the larger operation chain, we have distinguished six different sequences by which earthenware production can be carried out (see map). In a preliminary presentation, we have named these processes Type A through Type F.<sup>29</sup>

Type A. This is a “transformative” approach to the pot, in which clay for the whole pot is present from the shaping of the preform. This approach has two variants: (1) a solid cylinder of clay is opened on both ends, then drilled through to form a hollow cylinder without a base or (2) a rectangular slab of clay is stood on edge and joined end-to-end to form a hollow cylinder without a base. Next, the mouth rim is formed on the upright open end of the cylinder. Then paddle and anvil are used to close the other end of the cylinder to form the base and to round out and shape the body.

Type B. This is one variant of an “additive” approach to making the pot, in which the total quantity of clay is assembled gradually. In this variant, a flat base is formed from a lump of clay resting on a bat or turntable (slow wheel). Coils, slabs (flattened coils), or rings (closed coils) of clay are added to form a hollow cylinder with a closed flat base. Or, a hollow cylinder with a closed flat base is opened from a solid cylinder of clay. The mouth rim is shaped on this hollow cylinder with flat base. Then paddle and anvil are used to round the flat base and to thin and shape the body.

Type C. In a different “additive” approach to making a pot, flattened coils are used to build up the upper half of the pot, starting from mid-body. The mouth rim is shaped on this form. The form is inverted onto the mouth rim and the interior is scraped with a loop-shaped tool to thin the walls. More coils are added to the upper edge of the inverted form to complete the hemispherical lower half of the pot. The vessel is smoothed and shaped using a spatula (not, it must be noted, a paddle and anvil).

In a variation of this approach, the upper half of the body is built with coils added to a flat “base.” When the form is inverted onto its mouth rim for finishing, the flat “base” is opened and its edges are raised and supplemented by added coils to complete the lower half of the pot.

Type D In another approach to “transformative” pot production, on a rapidly turning wheel, spun either by an assistant or, in a modern variant, by an electric motor, the potter uses centrifugal force to throw a hollow cylinder from a lump of clay and shape a mouth rim. The cylinder is cut off so as *not* to have a base. Paddle and anvil are used to close the base and expand the wall to form the finished pot.

Type E Multiple spindles from Burma, a single isolated “intrusion” from a cultural area that falls outside our study.

Type F In a “transformative” process, on a rapidly turning wheel spun by an assistant, the potter attaches a solid cylinder of clay to the wheel, throws a hollow cylinder, and shapes the vessel contour and mouth rim. The vessel is cut off the lump so as to have a flat base. The vessel is inverted and the wall and base are scraped with a knife to produce a rounded bottom.

### C. Technological relationships across boundaries

We have “mapped” these six types of earthenware production using geographical coordinates (see map). The resultant map reveals relationships among production processes in various villages that cut across modern political boundaries and also in some cases across commonly perceived “ethnic” boundaries. We perceive that deep-seated and enduring patterns of earthenware technology, centering on the distinctive manner of producing the preform, may endure even as generations of potters change their affiliations to language and other markers of “ethnicity,” change the shape and decoration of the vessels they are making, and change their statehood.

Looking across our map of production types raises many questions. For example, the recently identified potting tradition of VN-07 appears to be different from any other we have

observed so far, and we have identified it as operational chain Type F. It is similar to both Type D and Type E, in that it involves the use of a fast wheel to make the preform. Other aspects differ, however. This procedure suggests a relationship to Chinese stoneware production using the wheel, on the one hand, and, on the other hand, to “Cham-Malay” production (Type C), involving use of scraping to complete the shape. Should it be interpreted as a Type C production altered by the introduction of the Chinese-type fast wheel?

In the Cham communities in Vietnam (VN-03, VN-04), two Lao communities (LO-14 and LO-16), and the pottery community in eastern peninsular Malaysia (MA-01), we found processes of making the preform that closely resembled one another.

In the Khmer communities in Vietnam (VN-05, VN-06), the process of making the preform was essentially the same as what we had seen in Cambodia. Like the Cambodian process, it also closely resembled that used by the Thai-Khorat in Northeast Thailand. We are investigating the implications of this apparent relationship.

The elaborate all-over paddle-impressed designs in Khmer village VN-06 called to mind the textured pots of CA-02 in Cambodia and also of ST-01 in Southern Thailand, as well as older earthenware pots made at CT-01.<sup>30</sup> The historical distribution of this sort of densely paddle-textured earthenware needs further investigation.

The use of a fast-spinning wheel to make the vessel preform (a female potter assisted by a male turning the wheel) in ST-01, ST-02, and ST-03 in Southern Thailand resembled the process found in CT-01, north of Ayutthaya. These sites using the fast wheel also raise the issue of comparison with South Asian earthenware production technologies. The operational chain--using a fast wheel to produce a hollow cylinder preform with lip, paddled shut into its final round-bottomed form--is similar to that widely used in eastern and southern India.<sup>31</sup> The major



difference is one of gender: in South Asia, men make wheel-thrown pottery, while in Southeast Asian sites women are usually in charge. While we have no indication that diffusion of this technology did take place across the Bay of Bengal, other items of material culture and technology have clearly come across. Further research remains to be done on this topic. In particular, a shift in the gender employing such a basic technology as pottery production requires significant consideration.

#### D. Technological style and ethnicity: Thai-Khorat

Today, Northeast Thailand is populated mainly by ethnic Thai-Lao farming households grouped into villages, with a significant number of Khmer villages in the southern half of the region. As we learned in 1993-94, however, the ethnic group that overwhelmingly dominates current production of earthenware in Northeast Thailand calls itself Thai-Khorat.<sup>32</sup> This name associates this ethnic group with the city of Nakhon Ratchasima (often called by its pre-Thai name of Khorat), the Northeast Thai city closest to the Thai capitals of Ayutthaya (to 1767) and Bangkok. Oral histories of Thai-Khorat potter communities describe how their ancestors, who once lived in districts centering around Khorat, have migrated throughout Northeast Thailand in the course of the past two centuries. We hypothesize that Thai-Khorat potters have displaced or replaced older communities/households of potters belonging to various Lao-speaking ethnic groups that had settled in the Northeast.<sup>33</sup> A few such communities still survive on the “edges” of the Northeast--along the banks of the Mekong River (NE-37, NE-64), or in the deep interior (NE-03). A few communities of potters speaking the Mon-Khmer languages of Suay (NE-48) or Khmer (NE-43) are also active.

The Khorat region, including the religious center of Phimai, was a major center of Khmer

population during the Angkor period. After the decline of the Khmer empire, it became an outpost for the emerging Siamese polity. During Ayutthayan and early Bangkok times, Khorat was a significant base for Chinese traders who sold their goods throughout the Northeast. The city played a key role in the defeat of a Lao invasion in 1827; subsequently the whole of the Northeast became part of the Thai Kingdom. Khorat was the first city to be joined by a railroad (in 1900) to the more economically developed region of Central Thailand.

Rapid development and population growth around Khorat resulted in a shortage of farmland. Beginning in the early nineteenth century, Thai-Khorat potter households who faced problems of limited land, drought, or floods moved away from Khorat into less densely populated areas of the Northeast, where they specialized in earning their livelihood as potters. Some villages created by migrants (for example, NE-08, NE-30) are composed entirely of Thai-Khorat potters. Over time, some households left these villages in a process of secondary migration to form additional production centers. In other cases, households of Thai-Khorat potters attached themselves to the periphery of preexisting Thai-Lao or Khmer villages.<sup>34</sup> This migratory process continues today, for example as women potters move with their families from NE-08 to the new village of NE-57, built alongside a main inter-provincial highway in order to capture a new type of customer.

In either circumstance, Thai-Khorat households rarely own farmland. Their major source of income is making pottery throughout the year. Women of the household make pots while men assist full-time in digging clay, firing, and especially in taking pots out to sell. Today many Thai-Khorat potter households own a three-wheel motorcycle or a pick-up truck to sell pots over an area covering several provinces. Interviews have disclosed that the goal of many of these potting households is to amass sufficient income so as not to have to depend entirely on potting

for their livelihood. As Thai-Khorat potting families amass such capital, they use it to buy rice land. Over time, then, their economic base shifts to dependency on rice with its labor requirements, especially for women, which interfere with pot production. Thus, over time, the household becomes economically like its Thai-Lao neighbors and its ethnicity changes to become Thai-Lao also.

In contrast to the Thai-Khorat model, Thai-Lao and Suay villages present a distinctly different pattern of production. Women in these households make earthenware by their own choice as needed (to earn extra income) or as requested (by another villager) as an entirely self-sufficient process, including collecting and processing the clay, shaping and firing the pots, and trading or selling their production. Husbands, who are occupied with farming, provide little or no assistance. These women make pots only during the dry season. Their average production of ten pots per day is strikingly less than the fifteen or twenty pots made daily by many Thai-Khorat women. They distribute their pots only to surrounding villages that they can reach on foot. Given these contrasts, it is easy to see how Thai-Khorat potters have taken over the earthenware market from Thai-Lao potters.

Since all Thai-Khorat potting communities in the Northeast trace their origins, directly or indirectly, to the Khorat vicinity, it was important to visit the Khorat villages still making earthenware (NE-20, NE-23, NE-F). Although the technological style was unmistakably Thai-Khorat, the pace of production in these villages resembled Thai-Lao or Suay rather than that of specialized Thai-Khorat pottery making elsewhere. Only a few middle-aged or elderly women still made pots, and they worked self-sufficiently. They worked only in the dry season, since their households owned some rice land.

The "Thai-Khorat" pattern seen throughout Northeast Thailand, involving intensive,

year-round production by both men and women in landless households, seems to be a response to the situation of landless migrants. One woman, however, said that she recalled much more extensive pottery production during her childhood. Therefore the slow pace of present-day production in these Thai-Khorat villages may be deceptive. Thai-Khorat pottery making may always have been a specialized skill of people with little if any alternative source of income. In the same sense, the present slow and individualized production in most Thai-Lao and Suay villages may reflect the impact of Thai-Khorat competition. Pottery production in such villages may have been much more vigorous when it was the only source of earthenware in the local market.

At the same time, the present intensive pace of activity in Thai-Lao villages dedicated to pottery production, such as NE-34 or NE-64, may also be related to opportunities for expanded transport and larger markets.

While we have focused on individual potters and their households, the existence and growth of potting communities leaves open the question of the synergy that occurs as groups of potters live and work together. These questions will be addressed in future research.

#### E. Significance of the potter's work

Extended contact with pottery producers in Northeast Thailand showed us that pottery (especially earthenware) production is an occupation practiced by the poorest level of society, whether the poorest household in a village or the poorest village in a region. Thai-Khorat potters in particular tend to be without farmland and so have had no alternative to making pottery as a source of income (unless they leave the village to work in Bangkok or overseas). Even in Thai-Lao villages, where farming is the main occupation of all households, those women who make

pots do so out of a demand for cash. They do not make pots if they can find a better source of income, such as working as day labor in cassava production. As one potter told us (NE-34), “If you make earthenware, it shows your family is poor.”

Pottery seems to be viewed by both women and men as a “pick-up technology,” easily learned and easily resumed whenever necessary. In contrast to contemporary Japan, where a long apprenticeship is seen as prerequisite to becoming a capable potter, both men and women potters in Northeast Thailand describe learning to make pots as a simple and straightforward process that could be accomplished within a few weeks. In some households in NE-08, we saw that young women who were still learning did the simple processes to the extent that they were able, while older women did the more difficult process of finishing of the form with paddle and anvil. Although some potters spoke of pottery making as a “skill” belonging to their community, they did not speak of it as an art or a means of individual achievement.

For various reasons, ceramics do not seem to be seen as a precious economic asset of either village or region. We saw various examples, at both village and regional levels, where potters had been displaced by development projects designed for the betterment of the community as a whole. For example, by dredging a bog to create a better store of water for irrigation, village NE-55 destroyed the potters’ source of earthenware clay. The men in village NE-05 stopped making stoneware after a large dam flooded the area where their kilns and clay pits had been.

#### F. Relationships between stoneware and earthenware

Our 1993-94 survey showed that earthenware and stoneware production, in present-day Northeast Thailand, are essentially separate occupations, with women in some villages acting as

producers of earthenware and men in other villages making stoneware. In particular, we found no Thai-Khorat villages where men made stoneware. The only stoneware potters were Thai-Lao men. (We found one village [NE-41] where men make earthenware using wheels, a seeming indication of the adaptation of stoneware technology to earthenware opportunities. In one Lao village [LO-03], men make both earthenware and stoneware on the wheel.)

The sole exception to this sharp distinction was NE-03, the Phu-Thai (Thai-Lao) village described above, where both men and women used to make pots. It may be that, historically, other Thai-Lao villages in the Northeast also made both stoneware and earthenware.

Earthenware production may have been pushed out by the energetic competition of Thai-Khorat potters, even if stoneware production continued. Conversely, the technological pattern of earthenware production we observed in Central and particularly North Thailand appears to be "Lao"--closely related technologically and historically to what we observed among lowland Lao potters. In those areas, "Lao" stoneware production (notably the unglazed stoneware production at Si Satchanalai and elsewhere) eventually ceased, while earthenware production continued. Possibly "Lao" earthenware and stoneware moved together as an ethno-technological "package" during the period when Lao speakers were spreading southward in the peninsula. Whether and how Northeastern stoneware production is related to historical stoneware production in North and Central Thailand remains to be determined by archaeological investigation.

Earthenware and stoneware production in Northeast Thailand have always differed in the scope of their markets. We came to understand different patterns in the distribution and relative spacing of earthenware-making communities and stoneware-making villages. Stoneware production sites typically are located close by rivers or streams that, using shallow draft boats during the rainy season, provided the main means of distribution before trucks became available.

Because of this distribution by boat, a single stoneware village may have served a fairly broad region. By contrast, Thai-Lao earthenware producers once served villages only within the radius of a day's walk. Therefore they were much more densely spaced in the landscape.<sup>35</sup> But we have recognized a pattern of gradual concentration of earthenware makers into villages serving larger areas through access to paved roads and use of vehicles.

Villages of earthenware producers that have dwindled or expired tend to be isolated (NE-03, NE-37), whereas villages located reasonably close to county-seat markets (such as NE-30 and NE-08) have grown larger in recent decades. However, some pottery-making villages situated too close to cities have also tended to die out, as villagers find better employment in the city or as suburban residential expansion claims the village land (NE-06, NE-23, NE-20, NE-F).

At the time as we can describe certain relationships between ethnicity and the diffusion of technology, we also see ways in which the two aspects are somewhat separate. Technology provides a way for people to exist on the (physical and cultural/social) landscape. Often, as we see in the case of the Thai-Khorat, a specific technology permits a specific group of people to migrate and displace others. As we have also seen, however, technologies can be learned by people of differing ethnicities. The question of how these dynamics work is a stimulus to ongoing research.

## X. Preliminary Conclusions

In the course of process of surveying well over one hundred village-based earthenware and stoneware production sites in Mainland Southeast Asia, we have developed a way to characterize and trace a number of different production technologies. We have identified ways of making pots not previously noted in the literature. At the same time, we have discovered, in

people's memories and in remains scattered across the landscape, the fragments of a distribution system essential to these technologies.

Our survey has drawn us into the exploration of complex issues of technology, ethnicity, and gender. The relationship among these issues is more fluid and elusive than it seemed at first. It is complicated by elements of history, location, and opportunity.

In general, pottery production throughout the region is on the decline. Most women making earthenware are middle-aged or older, even in Thai-Khorat villages. Their daughters, following the pattern of regular farming villages, have left for the city or taken up other “cleaner” and potentially more lucrative occupations. Many men who formerly made stoneware have also chosen to take better-paying jobs in the cities or overseas. In addition, much stoneware production has ceased because of shortage of fuel and decline of market demand in the face of competition from factory production.

We are engaged in researching a shadow, a hint of what may have been present in the past. At the same time, however, we are present at one of the most dynamic stages of Mainland Southeast Asian pottery production.



## Notes

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\*. (added 2006) “A Preliminary Cultural Geography of Contemporary Village-based Earthenware Production in Mainland Southeast Asia”, Leedom Lefferts and Louise Allison Cort, IN, *Premodern Earthenware of Southeast Asia*, ed. by John Miksic. Singapore: Singapore University Press, 2003, pp. 300-310

<sup>1</sup>. The research of the multi-year study described here, still in progress, has been funded in part by a grant to Cort and Lefferts from the Nishida Memorial Foundation for Research in East Asian Ceramic History for the research seasons of 1994-95 and 1996-97. We express our deep appreciation for this invaluable support. Cort and Lefferts are also grateful to the National Research Council of Thailand for permission to conduct the research.

<sup>2</sup>. Narasaki Shoichi, Louise Allison Cort, and H. Leedom Lefferts, “Tai tohokubu no dokizukuri,” *Aichi-ken Toji Shiryokan Kenkyu Kiyo* 13, 1994, pp. 2-15.

<sup>3</sup>. H. Leedom Lefferts, Jr., *Baan Dong Phong: Land Tenure and Social Organization in a Northeastern Thai Village* (PhD, University of Colorado, 1974); Mattiebelle Gittinger and H. Leedom Lefferts, Jr., *Textiles and the Tai Experience in Mainland Southeast Asia* (Washington, D.C.: The Textile Museum, 1992).

<sup>4</sup>. Louise Cort, *Shigaraki, Potters' Valley* (New York and Tokyo: Kodansha International, 1979); “Temple Potters of Puri,” *Res* 7/8, 1984, pp.33-43.

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<sup>5</sup>. Samruad Inban, *Survey of Ceramic Technology in the Northeast* (Khon Kaen: Research and Development Institute, Khon Kaen University, 1989) (In Thai).

<sup>6</sup>. A comparable long-term survey of present-day earthenware and stoneware production in Burma is being conducted by Charlotte Reith. "A Comparison of Three Pottery Villages in Shan State, Burma," *The Journal of Burma Studies*, vol. 1, 1997, and "Pottery in the Chin Hills," *The Journal of Burma Studies*, forthcoming.

<sup>7</sup>. A. Leroi-Gourhan, *Gesture and Speech* (Cambridge, MA.: MIT Press, 1993); Pierre Lemonnier, *Elements for an Anthropology of Technology* (Ann Arbor, MI: University of Michigan, 1992); Olivier P. Gosselain, "Social and Technical Identity in a Clay Crystal Ball," in, Miriam P. Stark, ed., *The Archaeology of Social Boundaries* (Washington, D.C.: Smithsonian Institution Press, 1998), pp. 78-106.

<sup>8</sup>. Donn Bayard, "A Novel Pottery-Manufacturing Technique in Western Loei Province, Thailand," *Journal of the Siam Society*, 65 (1), 1977, pp. 239-46 and figures.

<sup>9</sup>. Generally, stoneware production in North-central and North Thailand is assumed to have ceased by the seventeenth century. If one assumes, however, that the basis for stoneware production in those regions, like that of the Northeast, was not the export promoted by the Ayutthaya Kingdom in collaboration with Chinese traders but the domestic and agricultural usage of unglazed stoneware vessels, then it is reasonable to assume that production of utilitarian

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stoneware in the North and North-Central regions continued to a considerably later date, until it was replaced by the availability of vessels made by Mon potters who settled in Central Thailand in the eighteenth century (see CT-02) or by Southern Chinese potters who built factories in Ratchaburi in the nineteenth and early twentieth century, or by the substitution of vessels made in other materials.

<sup>10</sup>. An updraft kiln excavated in Baan Koh Noi, Si Satchanalai, is illustrated in Richard Richards, Donald Hein, Peter Burns, and Pisit Charoenwongsa, “Sukotai jidai no koyoseki to shutsudohin,” *Sekai Toki Zenshu* 16 (1984), p. 199, fig. 108. The authors proposed that this type of kiln was used to bisque-fire stoneware that was then glazed and fired again in a cross-draft kiln. Separately, they described various types of earthenware recovered from habitation sites in the area (p. 201). The use of updraft kilns at Sukhothai is described in *ibid.*, p. 207. A plan of the distribution of crossdraft and updraft kilns in the Sukhothai complex appears in Don Hein, Peter Burns, and Dick Richards, “An Alternative View of the Origins of Ceramics Production at Si Satchanalai and Sukhothai, Central Northern Thailand,” *SPAFA Digest* vol. 7, no. 1, 1986, p. 30. Production of earthenware at the Baan Tao Hai kiln in Phitsanulok is presented in Don Hein and Prachote Sangkhanukit, *Report on the Excavation of the Ban Tao Hai Kilns, Phitsanulok, Thailand* (Adelaide, Australia: University of Adelaide, ca. 198[?]).

<sup>11</sup>. Another earthenware-making village north of Ayutthaya was documented in Morimura Ken’ichi, “Taikoku Ayutaya no dokizukuri mura (Ban Puu Moa),” *Kansai Kinsei Kokogaku Kenkyu* 2, 1992, pp. 353-56. That village was scheduled for demolition so that the land could be used for a housing development.

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<sup>12</sup>. H. Leedom Lefferts, Jr., “Contemporary Burmese Earthenware,” *Crossroads* vol.4, no.1, 1988, pp. 121-27.

<sup>13</sup>. Visiting this community in 1960, Wilhelm Solheim had met women potters who came seasonally from Thailand to Laos to make pottery (personal communication).

<sup>14</sup>. This process was documented by Madelaine Colani in LO-06. M. Colani, “Procédés de décoration d’un potier de village (Cammon–Laos),” *BEFEO* 31, 1931, pp. 499-501.

<sup>15</sup>. We subsequently found that Khmer potters in Cambodia also described the decorating of their pots as “tattooing.”

<sup>16</sup>. Andre Souyris-Rolland, “La Poterie dans le Sud-Cambodge,” *Bulletin de la Societe Indochinoise*, n.s., vol. 25, no. 3, 1950, pp. 307-13; Jean Biagini and Roland Mourer, “La Poterie au Cambodge,” *Objets et Mondes* vol. 11, no. 2, 1971, pp. 197-220.

<sup>17</sup>. This special pot is burned for one month then discarded by breaking it against a particular large tree used for this purpose by all the village households. The vessel cannot be reused, and a new one must be bought at the time of birth. A second vessel of the same shape is used to collect the afterbirth. That vessel is also broken.

<sup>18</sup>. Aoyagi Yoji, Morimoto Asako, Ogawa Hidefumi, and Tanaka Kazuhiko, “Archaeological

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Research in the Middle Vietnam,” *Journal of Southeast Asian Archaeology* no. 15, 1995, pp. 63-65.

<sup>19</sup>. Khun Amara Srisuchat. “Ancient Pottery Making at Ban Yansue, Satun” (ms., ca. 1984-85) (in Thai).

<sup>20</sup>. A termite mound is also the clay source for the sole potter still working in NE-37.

<sup>21</sup>. This procedure is strongly reminiscent of the firing procedure used in Eastern India, observed by Cort during field work in Orissa in 1979-81. See B. N. Saraswati and N. K. Behura, *Pottery Techniques in Peasant India* (Calcutta: Anthropological Survey of India, 1966).

<sup>22</sup>. Millicent Yeo and Tan Huism, “A report on Observations made during the Field trip to Malaysia (23rd Feb ‘92 to 8th Mar ‘92” (ms.).

<sup>23</sup>. The history of Mon pottery production on the island is presented in a pamphlet produced by the Ancient Mon Pottery and Mon Cultural Center, Ko Kret, written by Pisarn Boonpoog. Extensive research has taken place on issues of Mon and Thai ethnicity and its perpetuation. See Brian L. Foster, “Ethnic Identity of the Mons in Thailand,” *Journal of the Siam Society* 61 (1), 1973, pp. 203-26.

<sup>24</sup>. Discussions with Charlotte Reith concerning Mon production, which she saw during her February 1999 trip to Burma, indicate that Mon production in Burma is quite different from that

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practiced and described for Ko Kret.

<sup>25</sup>. Louise Cort, Leedom Lefferts, and Charlotte Reith, "'Before' Paddle-and-anvil: Contributions from Contemporary Mainland Southeast Asia," presented at the conference on Ceramic Technology and Production, British Museum, November 1997.

<sup>26</sup>. For example, Reuben E. Reina and Robert M. Hill III, *The Traditional Pottery of Guatemala* (Austin, Texas, 1978); W. A. Longacre, "Kalinga Pottery: An Ethnoarchaeological Study," in I. Hodder, G. Issac, and N. Hammond, eds., *Pattern of the Past*, pp. 49-66 (Cambridge, UK: Cambridge University Press, 1981); Owen S. Rye, *Pottery Technology: Principles and Reconstruction* (Washington, D.C.: Taraxacum Press, 1981); Mohammad Shah Jalal, *Traditional Pottery in Bangladesh* (Dhaka: International Voluntary Services, 1987); Carol Kramer, *Pottery in Rajasthan: Ethnoarchaeology in two Indian Cities* (Washington, D.C.: Smithsonian Institution Press, 1997).

<sup>27</sup>. This latter interest remains problematic. See Pamela Vandiver, "The Implications of Variation in Ceramic Technology: The Forming of Neolithic Storage Vessels in China and the Near East," *Archaeomaterials* 2, 1988, pp. 139-74.

<sup>28</sup>. See note 7.

<sup>29</sup>. (amended 2006) Leedom Lefferts and Louise Cort, "A Preliminary Cultural Geography of Contemporary Village-based Earthenware Production in Mainland Southeast Asia," in Miksic, J.

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N., ed., *Studies on Early Southeast Asian Earthenware*, Singapore: Singapore University Press, 2003, pp. 300-310.

<sup>30</sup>. Earthenware sherds with this dense and complex paddle patterning have also been excavated from the historical kiln site of Ban Tao Hai, Phitsanulok Province, Thailand. See note 10.

<sup>31</sup>. See Saraswati and Behura, note 20.

<sup>32</sup>. Leedom Lefferts and Louise Allison Cort, "Women at the Center of an Industrializing Craft: Earthenware Pottery Production in Northeast Thailand," *Museum Anthropology* 23 (1), 1999, pp. 21-32.

<sup>33</sup>. After the decline of Angkorean influence in the fourteenth century, the region lay within the sphere of the Lao kingdom of Lanxang with its capital in Vientiane. After Vientiane was sacked by the Siamese army in 1828, additional groups of Lao were forcibly settled in the Northeast and elsewhere in Thailand.

<sup>34</sup>. In NE-34, we came across an unusual case: Thai-Khorat potters introduced earthenware production to the village, but resident Thai-Lao farmers later took over this production and drove the Thai-Khorat households out of business.

<sup>35</sup>. Thai-Lao villages are characteristically dispersed across the landscape. Thai-Khorat earthenware producers settled in places convenient for distribution, in a pattern similar to that for

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stoneware, but more densely.