The Palm-Sugar Pots of Phetchaburi

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Just a few years ago, on both sides of the section of Petchkasem Road where it enters Phetchaburi Province, fresh palm sugar packaged in jars appeared for sale at stands under plastic umbrellas set up at regular intervals. This stretch of paved road is long and straight, as if it had been cut through with a ruler. If a traveler is not just passing through for the first time, he or she will likely notice wideopen fields behind the row of umbrella-shaded stands. When harvest season arrives, they turn into a rich golden expanse glittering brilliantly yellow with stalks of grain waving playfully in the wind and dazzling the eyes. On the right-hand side appears a landscape of mysterious mountains towering in the dark background, lying in a row at the foot of a horizon adorned with fresh and damp fluffy white clouds on an intense blue ground as if in a painting.... The fresh air, the warm sunlight, the scenery, and the strong breeze that blows steadily invite one to park and experience that pleasantness. They say that not a few tourists who visit Phetchaburi for the first time are fascinated by the fragrance and sweetness of the fresh palm sugar that hides its hot, warm flavor and fragrance within a compact jar. Be on guard when that sweet fragrance slips down the throat.

There are people who say that the sugar-palm tree is such an important part of the past that it continues to be a symbol of the city of Phetchaburi. The hundreds of thousands of sugar-palm trees that rise in an orderly fashion from the paddy dikes on both banks of the Phetchaburi River attest clearly to how much the activities of the people of Phetchaburi rely upon the sugar-palm tree or its sugar products.

Palm sugar is not the only product of the sugar-palm tree. The fronds of the tree can be used to thatch a roof. They can be plaited and sold as fans. The rind and soft parts of the young nut can be used to make delicious curries. The young palm fruits are delicious. These products can be taken and sold in a number of provinces.

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The fresh sugar-palm sap that flows from the very top of the tree trunk can be collected in a bamboo cylinder and made into a fermented drink to be enjoyed in place of beer, or the fresh sap can be chilled for drinking. If there is fresh sugar-palm sap left over, it can be boiled to make a concentrated syrup that can be stored for a long time or marketed as a product. Earlier inhabitants of Phetchaburi thought of selling stacks of caked palm sugar, but they could only market them in nearby areas. If they took such cakes far away, when exposed to heat they would melt, become soggy, and spoil. People thus thought of making small ceramic containers, boiling the sugar-palm sap into a concentrate, and dripping it into the ceramic containers until it was about an inch below the mouth rim of the pot—low enough that pots could be stacked without sticking together. They called these jars "palm-sugar pots" (*maw tan* in Thai).

The palm-sugar pots of Phetchaburi were a sort of cottage industry. It is not known when production first began. It is clear such pots were made from ancient times, and their production ended completely only just before World War II.

Before There Were Palm-Sugar Pots

The shape of one kind of prehistoric ceramic container excavated at Ban Chiang in Udon Thani has a curved bottom and inclines inward as it rises so that one can insert contents as one might do with a coconut shell. The original idea for so shaping such clay pots likely came from the imitation of natural shapes, but pot forms were developed so they could be used more conveniently—that is, so they could be grasped more easily. In the same way, the palm-sugar pots of Phetchaburi are likely to have been modeled on natural prototypes.

Possibly for that reason, the earliest palm-.sugar pots of Phetchaburi had a curved bottom resembling a coconut shell. The neck narrowed to create a mouth that could be grasped and carried comfortably. The mouth was wide because the pot was formed using an old potting method. This method used a shaping stone (called in the local dialect a "blunt stone," elsewhere referred to as an "anvil") held inside the pot, while the potter struck the outside of the pot with a wooden paddle. Thus, the mouth had to be wide so the pot could be turned and paddled comfortably. The wide mouth also made it easier to pour the liquid sugar concentrate into the pot and helped the liquid dry faster. Beyond that, the shape facilitated the stacking of pots and kept the stacks stable.

Prior to 1892 (year 111 of the Rattanakosin [Bangkok] Era), many sizes of sugar-palm pots were made. Some were likely used to store other things, such as onions or garlic. Pots made to be used by the villagers themselves were large enough to store a lot of palm sugar, but those made for sale were smaller and uniform in size, so that each contained about a liter of palm sugar.

Only two or three of these old-style palm-sugar pots remain. Some are kept at Wat Koh in Phetchaburi City (Fig. 5, top). Another belongs to Grandmother Sin Ninpradab, age 83 (Fig. 5, bottom). She said her grandmother preserved this pot to ensure that her children and grandchildren would know what palm-sugar pots were like before the government took over production of the pots as a state enterprise. This pot illustrates the original shape of palm-sugar pots prior to government control of the industry. It also establishes the age of the surviving pots at about 120-130 years, which would place them approximately in the reign of King Rama III (1824–1851). Teacher (Khru) Thim, Grandmother Thui, and Uncle Koy Wanakhiri, three related villagers who had been in charge of earlier production of palm-sugar pots, explained the technology involved in producing these pots as follows:

Preparation of the Clay

The clay used to make palm-sugar pots comes from the last pit in Tambon Ban Maw (District of the Pot Villages) (Fig. 2). It is mixed with fine sand from the Phetchaburi River. (The clay to be used for forming pots has to be dug from a depth of about 50 centimeters so that the surface layer of earth does not adhere to it.)

The clay is brought to the village and piled onto the smooth gravel floor (like a rice-threshing floor) of the courtyard of a house. This pile of clay is called "repeated clay" (*din nieuw sam thab*). Fronds from the sugar-palm tree are used to cover the pile, so that the clay does not become too dry and hard.

When ready to use the clay for making pots, the potter uses a thin piece of bamboo called a "scraping wood" (*mai khnawdt*) to fold the clay back upon itself and break it up into small pieces. This is called "cleaning the clay" (*kan yai din*) (Fig. 8). This "cleaning" is done to obtain clay that has a fine, even texture without pieces of extraneous matter mixed in. The clay as dug usually contains small bits of broken clam shell which must be picked out during cleaning.

The cleaned clay is sprinkled with water, the water soaks in, and the potter kneads the clay by hand to make it smooth and even in texture. It is then left to sit overnight.

The next morning the clay is kneaded again. This time it is flattened on ground on which finegrained sand has been spread. The potter treads the clay with bare feet repeatedly to spread out the clay into a thin slab. The slab is then rolled up and trodden one more time. After that a wooden knife is used to cut the clay into segments. These are piled together and covered with a cloth.

The potter uses a board laid out with the far side higher and the near side sloping downward. While kneading the clay fine sand is added to it. This addition of fine sand into the clay must be done in the right proportion so that the clay will have the proper internal cohesion and will stand up to high temperature during firing. If the clay body contains too much or too little sand, the pot will break or will be defective.

When the clay has been thoroughly kneaded and is free of unwanted impurities it is formed on the potter's wheel into a tapered cylinder about 50 centimeters high and about 25 centimeters in diameter. Clay like this that is ready for shaping into pots is called "budding clay" (*din tum*) because it resembles a flower bud.

Shaping the Pot

A potter's wheel is used to shape the initial form of the palm-sugar pots (Fig.3, middle). Two people work together. An operation of this type is called "centering the pot" (*sun maw*). The prepared "budding clay" is brought and fixed onto the wheel. One person turns the wheel by hand. The other person centers the clay. The person centering the clay must grip the clay firmly and use the fingers to shape the damp clay into a form with a thin, round mouth that has a raised edge, which is then

compressed so that the neck becomes narrower. The foot of the pot is left tall enough to contain sufficient clay for beating and closing the bottom. A small cord is used to cut the pot loose. It is then set out to dry until it is leather hard.

There are two methods of drying, one in the shade and one in the sun. For drying in the sun, it is necessary to turn the pot so that all parts are exposed to the sun to ensure that the pot dries evenly. If the pot has not dried uniformly, when it is paddled the unevenly dried clay will result in a distorted shape.

After drying for two or three days the pots are leather hard and can be brought for beating to close the bottom of the pot. This is done by inserting a smooth anvil or a rounded stone inside the pot to support its weight while the outside of the pot is beaten with a wooden paddle or, as it is called locally, a "shaping wood" [*mai katam*]), so that the resulting pot has a beautiful shape (Fig. 3, top). During the beating the pot must be turned continuously. It takes about five minutes to beat one pot. Thereafter a smoothing paddle, which is a thin piece of wood, is used to even out any edges so as to make the pot smooth and rounded.

Making the Impressed Designs

The most popular designs are impressed patterns. The tool used to impress them is called an embossing paddle (*mai mai*). Decorative designs are added only to the body of the pot. The people of Phetchaburi call this impressing of patterns "embossing" (*kan mai*). The design used is one of overlapping lines. The reason for impressing designs on the body of the pot, in addition to beautifying it, is so that the body of the pot will be rough and will not easily slip from the hand when being used.

Final Drying

Once forming is complete the finished pots are placed in the sunlight or in the shade until they are completely dried. Then they are prepared for firing in the kiln.

Firing

Uncle Goy and Khru Thim recalled the history of this process. They said that previously firing had been carried out using a bonfire in a courtyard, but because the coconut-husk fuel used for such firing often became scarce, firing in a kiln was developed. The kiln used for firing was built of brick and was cylindrical in form [without a roof]. It had a diameter of about 1 *wa* (approximately 2 meters) and a height of about 4 *sawk* (also approximately 2 meters). On one side, an opening about 1 *sawk* (50 centimeters) above the floor and about 1 *sawk* and 1 *khyb* (total of 75 centimeters) wide was used for stoking the fire. This kiln was called a "portable stove" (*chyng kran*). An iron grate positioned inside above the opening for firing was used for supporting stacks of pots during firing. (Translator's note: This type of kiln is termed an updraught kiln.)

A kiln was constructed on earth piled about 4 *sawk* (2 meters) high above the old brick floor. A piece of wood was used to beat the earth into a domed shape to prevent the mound from collapsing. An opening in the front of the kiln above the earth mound was used for stoking fuel. The fuel used consisted of large pieces of wood about 3 *sawk* (1.5 meters) long which were burned in the opening. A thatched roof built above the kiln could be opened and closed. During firing the roof was opened.

Firing began by lighting a flame at the bottom of the kiln. The fire was made hotter and kept going until it "awakened" the pots. The fire was stoked until it was red in color. Then when the kiln was completely hot the pots were watched to see that they were maturing and turning red. The fire was gradually stoked with small sticks of mangrove wood and husks were inserted into the small spaces between the pots. Previously fired or broken pots were used to cover the top of the piles of pots, leaving openings. The fire was allowed to burn bright red for about 3 hours, and then the stoking was stopped. During the firing the workers watched the thatched roof and splashed water onto it, wetting it thoroughly to keep it from catching fire. Altogether the firing took three to five days. When the firing was finished, the kiln was left to cool one or two days. After that the pots could be taken out and used.

The steps involved in the firing were extremely important. One had to be careful and control the firing well. If material other than wood fuel and husks was in the kiln during firing, it would keep the pots from maturing properly and losses would occur.

Uncle Goy related that one time a group was drinking near the kiln. One member of the drinking group unexpectedly threw cockle shells into the kiln while the fire was burning furiously. As a result, all the pots in the kiln had to be discarded. Even though the kiln had been fired for three days, upon opening the kiln it was found that not one of the pots had matured completely.

If the firing goes on too long the pots will be over-fired: the clay will turn purple, the body will be very hard, and the shape will be contorted. These are called "squeezed foot" (*maw chung krad*) pots.

About 12,000–13,000 pots would be fired in each firing. Of these about 200–300 would be broken or otherwise lost in the firing.

The Commercial Network for Sugar Prior to 1892

Sugar from Phetchaburi was famous for its sweet, piquant flavor. It was known throughout the country. For this reason, a commercial activity involving palm sugar developed in Phetchaburi that was second in importance only to rice. Palm sugar could be produced in great quantities. Marketing of the sugar required containers. The Phetchaburi ancestors therefore thought of using ceramic pots as containers for the palm sugar. They produced these pots as a cottage industry. Production of the palm-sugar pots took place following the rice harvest. All the households in Tambon Ban Maw (District of the Pot Villages), now known as Tambon Khlong Krachaeng (District of the Canopied Canal), participated and everyone, beginning with the children, was familiar with making palm-sugar pots and the open areas beneath the raised houses were filled with kiln materials, pots prepared for firing, and fired pots being readied for sale, for filling with palm sugar, or for sale already filled with sugar.

The trade in palm sugar developed a large customer base and the business became increasingly lucrative. Shipment of sugar for sale in other cities resulted in standardization of the clay pots used as containers. Each contained about 1 liter of sugar and was of a size that was easy to handle. The cargo boats used to transport pots for sale were large river barges that could go out to sea. A large boat could carry a lot of cargo and made transport cheap; small boats could not compete. The merchants of Phetchaburi therefore collectively built only very large river barges during that period. (These river barges have now disappeared from the Phetchaburi River.) The barges transported

sugar by way of the Phetchaburi River and Bang Ta Bun and would enter the estuaries of the Mae Klong River, Tha Jin, Chao Phraya River, and Bang Pa Kong. Bandits abounded along these isolated routes, so men worked as merchants and women were not able to go with them. Each ship engaged in commerce had to prepare long guns called "Bostons" to protect themselves. Before the reign of King Rama V (16 November 1873–23 October 1910), no railroads or long-distance roads were yet available and travel by boat was the only option. Bandits often waited to waylay merchants bringing money home by boat. All the merchants were afraid of this, but they were prepared to resist.

This commercial route was used continuously until the production of palm-sugar pots ended before World War II.

Eventually the national government realized that it could collect tax on the sugar that the merchants were taking for sale in different districts and use the money to administer the country. It therefore set up a checkpoint to collect tax on the goods being taken out. This was the Ban Chak Tax Checkpoint, which was set up on the bank of the Ban Chak canal next to the railroad line and near Ban Chak station.

From "Sugar" to "Palm-Sugar Pots"—Emergence of a State Enterprise during the Reign of King Rama V

The amount of administrative revenue produced from sugar can be seen from the reports of Rachaburi Monthon [County] for 1898 (Rattanakosin Era 117), which detailed various goods shipped from Phetchaburi that generated substantial revenue. Tax collected on the palm sugar sent for sale in Bangkok, on which the government checkpoint collected a public tax at the rate of 2 baht and 32 *adt* [an old coin worth 1/64th of a baht] per hundred, yielded 188,717 baht and 33 *adt*. This was higher than the amount for paddy rice, which yielded the second highest amount of revenue.

Thereafter the government became directly involved in the production of sugar pots rather than simply collecting a tax on sugar. They did this by having the villagers make the sugar pots and send them to the government for firing. Some elderly villagers remember that several government kilns were established, such as those at a pot factory with four kilns, one in front of the temple Wat Yang with two kilns, and those that still exist near the school of Wat Don Kai Tia.

In 1892, during the reign of King Rama V, the government promulgated the Internal Tax Law, under which the government became solely responsible for buying unfired sugar pots and firing them. No one else was allowed to do so. This control included a requirement that people had to purchase clay from pits specified by the government for use in making pots.

This monopoly on the kilns transformed the production of sugar pots from a home-based industry into a state enterprise. In form, the sugar pots began to appear in a single shape about 6 inches tall. Larger pots, which the villagers had used to make for domestic use, disappeared because the government would not buy them for firing.

Villagers who made unfired pots for sale to the government worked on the west bank of the Phetchaburi River, from a point opposite Wat Mahathat all the way to the Tha Song Bridge. This included the villages of Ban Rai Raw, Ban Rai Phak, and Ban Pa Cha Hua Suan (also known as Wat Don Kai Tia), all the way to the villages beside Wat Yang, Ban Thanon Nowk, and Ban Trowk Klang. Together these villages were known as Tambon Ban Maw.

During the era when the government made the transition to democratic rule in 1932, Tambon Ban Maw was abolished and, together with parts of Tambon Thongchai, was merged into Tambon Khlong Krachaeng. As a result, the area where the potters of Ban Maw resided is now part of Tambon Khlong Krachaeng.

When the government established its monopoly over production of palm-sugar pots, officers and staff were appointed to manage the activity. Provincial officials in Phetchaburi provided another level of oversight. The tax checkpoint for the pottery, set up in the city, collected the tax. People who wanted to use the railway to take palm sugar for sale had to bring their sugar to this checkpoint for weighing and payment of the tax before they could leave. If they did not, they could be arrested. With promulgation of the Internal Tax Law of 1892, the pottery tax checkpoint became the place that purchased unfired sugar pots from the villagers for firing in the government kilns. The pottery tax checkpoint then sold the pots to merchants for filling with sugar for onward sale. The manager of the pottery checkpoint was responsible for ensuring that the villagers' sugar pots were of uniform size so as not to make tax collection difficult. The law also specified that potters producing unfired sugar pots for sale to the government pottery had to live in the vicinity of the kilns—not more than 300 *wa* (600 meters) away—so as to facilitate transport of the sugar pots.

Workers known as *jap kang* (laborers) transported the pots. They were Chinese from Chaozhou in Guangdong province. Laborers were hired to use a shoulder pole to carry unfired pots from village homes to the kilns and from the kilns to the state warehouse. Thereafter they carried them from the state warehouse to boats or vehicles for sale to buyers. In those days it was hard to find Thai laborers willing to do this hard work, so Chinese workers had to be hired to do it.

Approximately ten workmen were employed. One of those was the boss. The workmen were required to reside in a house that the government set aside as their quarters near the area of the kilns, so they could easily be called when there was work to do. They received three meals a day. One Chinese kitchen worker known as Chom Pho was hired on a rotating basis to do this work.

One official was in charge of the work of firing the sugar pots. He had to check the houses making pots to learn how many pots were nearly dry and whether they were of the proper size. Then he had the workmen go to transport the pots using woven bamboo baskets and shoulder poles. Next, he had to oversee loading the pots into the kiln. Beyond that he was also responsible for obtaining sugar with which to fill the fired pots. He had to hire workers to move the pots. He was in charge of buying and selling everything having to do with sugar so as to obtain the greatest revenue possible.

The pots were stored in tall stacks to make them easy to count.

The kind of warehouse for storing government pots was called Kumphaphan (February Building). It had a zinc roof 6 *sawk* (3 meters) high and was 2 *wa* (four meters) wide and 8 *wa* (16 meters) long. It had no doors or windows. The front opening was 2 *wa* (4 meters) wide. During that period there were six warehouses and eight kilns. When someone came to buy, workers from the pottery carried the wares to the buyer's boat or vehicle while the checkpoint manager controlled the process and ordered clerks to issue receipts and record the income in the ledgers. Another supervisor checked

the bearers' tallies. If a bearer brought one basket of pots, he recorded one tally in the presence of the buyer to make sure everything was proper.

Failure of the Enterprise Due to "Corruption"

To ensure control of the pottery tax checkpoint, in 1922 the government transferred Deputy Minister Prince Arun Siriphan, previously the administrator of the tax checkpoint at Bang Jaak, and made him administrator of the checkpoint. He served as administrator of the checkpoint until 13 September 1927, shortly after the government issued the special order of 28 August 1927 lifting of the tax of 1892 and ending the government purchase, firing, and sale of sugar pots. The reason for this termination order was probably the same as it is for state enterprises at present—either losses or minimal profit. Another factor involved was embezzlement. Reports in the National Archive regarding the commerce in government sugar and sugar pots in Phetchaburi show that those investigated ranged from the level of the governor on down. The report describes the business losses as follows:

During the period of 1897 (Rattanakosin Era 116), the revenue of the pottery was 33,628 baht, 42 adt and expenditures were 36,566 baht, 5 adt, with a loss of 2,937 baht 63 adt. For 1898, revenue of 41,083 baht, 40 adt and expenditures of 41,821 baht, 48 adt, resulted in a loss of 738 baht, 18 adt...

Several reasons accounted for the losses, including cheating by government personnel themselves. For example, some posted warnings that forbade people to make sugar pots; those who made them for sale would have their houses burned and they would be hacked to death. There was coercion to purchase sugar at a low price. Similarly, low prices were paid for sugar pots when they were made, but after firing the pots were sold back to the public at high prices. In addition, the price reported to the government was lower than the actual sale price. For all these reasons the public was unhappy. After complaints and a preliminary investigation, only low-ranking officials were puished.

In the end, state-administered commercial activity involving sugar pots lost money and was terminated.

Even thought the government terminated its involvement in the purchase and firing of palm-sugar pots, merchants who sold palm sugar still needed pots to fill with sugar. As a result, some local people took over production. This included Grandmother Sawong (ancestor of Grandmother Sin), who purchased the business from the government. After a few years she had to close because she lost money and did not have business skills. The same thing happened to Prince Arun Siriphan, who was persuaded to invest in shares with Mynsuk Prasanraat (nickname "Ban") in order to set up a commercial kiln to fire sugar pots on the west bank in the area at the base of the Monastery Pier Bridge (at present within the area of Tambon Khlong Krachaeng). As a result, he resigned his official position. Prince Arun oversaw the firing and sale of sugar pots for about five years, at which point he stopped because merchants switched to using kerosene tins and *thanon* (round-bottomed) pots made by Mon potters along the Chao Phraya River. These two types of container could hold more sugar and were more convenient for shipping, especially since the kerosene tins did not break if dropped and would last longer.

The sugar pots from different periods had different shapes, as follows:

- 1. Before 1892 sugar pots were made in many sizes. The uses to which they were put were important in this respect.
- From 1892 to 1927 the government administered the production of shallow sugar pots. This regulation of depth was done so that the pots would hold only a small amount of sugar. For the most part, the pots of this period were of the same standard size.
- 3. After 1927, during the years leading up to World War II, according to Grandmother Sin, who took over production of sugar pots from the government, pots had an even shallower shape. Even though they held only a little sugar they could be sold for a high price. For example, a so-called "annual" sugar pot (*maw nam tan pbee*) was smaller than an ordinary pot. Sugar collection begins in April or May and is brought for sale in December, a month in which sugar is not available for sale. The "annual" sugar is very expensive.

Not long afterwards palm-sugar pots disappeared from Phetchaburi because the use of kerosene tins became popular.

Even though people were free to produce sugar pots there was no demand for them in the marketplace; no one wanted to use sugar pots any longer. Production of sugar pots gradually ceased. Palm-sugar pots, which were both an art and a local handicraft specific to the residents of Phetchaburi, have entirely disappeared from the area. What does remain is the sailor's hat in the shape of a sugar pot and the reminiscences of the villagers that Ban Maw was the place where the industry that produced the palm-sugar pots of Phetchaburi originated. The pots disappeared at the same time as the river barges from the Phetchaburi River.

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Acknowledgments

Persons who were interviewed and provided various information:

- 1. Khru (Teacher) Thim Wanakhiri, former headmaster of Wat Don Kai Tia School, Phetchaburi
- 2. Province.Grandmother Thui Wanakhiri, older sister of Khru Thim, formerly a maker of sugar pots.

- 3. Uncle Koy Wanakhiri, older brother of Khru Thim, member of a potting family, responsible for firing the pots and transporting them by river barge for sale.
- 4. Grandmother Sin Ninpradab, formerly a maker of sugar pots and owner of the kiln that took over from the government.
- 5. Aajarn (Professor) Lowm Phengkaew, Thai Language Department, Phetchaburi Teacher Training School.

Persons who participated in interviews and provided data:

- 1. Obduan Khocharint
- 2. Kawbkanud Drakunwaree

Data collection and photography took place 11-13 September 1987 (B.E. 2530).

Figures



คุณขายพุย วรรณต์รี กำลังทำท่าการไทม่ลายลงบนหนัดกาล (ส่ายที่บ้านคุณขายพุข ห้างไรงเรียนวัดคอนได้เตี้ย ดำบล ลองกระแหรง เพรรบุรี Mai mai, a tool for embossing decorative motifs on pottery.

Fig. 1: Grandmother Thui Wanakhiri using a mai mai [carved paddle) to emboss patterns on a palm-sugar pot. (Photograph taken at the house of Grandmother Thui next to Wat Don Kai Tia School, Tambon Krachaeng, Phetchaburi.)

English caption: "Mai mai, a tool for embossing decorative motifs on pottery."

Fig. 2: The area behind Wat Yang, Phetchaburi, previously the source of potting clay.

English caption: "The area where potters got their clay."

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"ถูกกะเท่อ" (หินดุ) ขุดได้ตรงบริเวณที่เคยเป็นเตาเผาหน้อดาล ปัจจุบันเป็นบ้านของครูทิม วรรณคีรี อดีต ครูใหญ่โรงเรียนวัดดอนไถ่เตี้ย ตำบลกลองกระแชง (หรือบ้านหน้อเดิม) เพชรบุรี



"แป้นหมุน" สำหรับปั้นหม้อตาล พบที่บ้านยายสิน นิลประดับ.



Fig. 3, top: Ceramic shaping anvil (*luk kather* or *hindu*) excavated near the area of former sugarpot kilns, now the home of Khru Thim Wanakhiri, formerly headmaster of Wat Don Kai Tia School, Tambon Khlong Krachaeng (or Ban Maw Din), Phetchaburi.

(No English caption.)

Fig. 3, middle: *Paen mun* (potter's wheel) used for making sugar pots. Found at the home of Grandmother Sin Ninpradab.

(No English caption.)

Fig. 3, bottom: *Mai mai* (embossing tool) for impressing patterns or *mai* designs on sugar pots.

English caption: "Mai mai, a tool for embossing decorative motifs on pottery."

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ถังไม้สำหรับเก็บน้ำตาลที่ซื้อเก็บไว้ก่อนที่จะเคี่ยว แล้วจึงหยอดลงในหม้อตาล พบที่บ้ายยายทุย วรรณคีรี.

Fig. 4: Wooden tanks for storing sugar-palm juice before it is boiled down and poured into sugar pots, found at Grandmother Thui Wanakhiri's house.

(No English caption.)

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หม้อแบบต่าง ๆ ซ้ายสุด: หม้อทะนนซึ่งมอญผลิตเข้ามาตีดลาดหม้อตาลพื้นเมือง กลาง: หม้อตาลยุคทลัง 5.ศ. ๑๑๑ ขาาสุด: หม้อตาลยุคก่อน ร.ศ. ๑๑๑ ปัจจุบันอยู่ที่พิพิธภัณฑ์วัดเกาะ เพชรบุรี Different periods of palm sugar pots, Wat Ko Museum, Phetchaburi. (Left) An example of tanon pottery made by the Mons which took over the local market. (Centre) A palm sugar pot of the later period after the government's monopoly in 1892 A.D.. (Right) An early palm sugar pot before 1892 A.D. **Fig. 5, top:** Various styles of sugar pots. Far left: A *thanon* pot produced by ethnic Mon potters, who took over the local market. Middle: A sugar pot from the period after 1892. Far right: A sugar pot from before 1892. The pieces are in the Wat Koh Museum, Phetchaburi.

English caption: "Different periods of palm sugar pots, Wat Ko Museum, Phetchaburi Museum. (Left) An example of *thanon* pottery made by the Mons, which took over the local market. (Centre) A palm sugar pot of the later period after the government's monopoly in 1892 A.D. (Right) An early palm sugar pot before 1892 A.D."

Fig. 5, bottom: Evolution of the palm-sugar pot: comparison of half a coconut shell on the far left with, in the middle, a [prehistoric] pot excavated at Ban Chiang in Udon Thani and, on the far right, a [Phetchaburi] sugar pot from the old group (property of the grandmother of Grandmother Sin Ninpradab), which dates back approximately120-130 years or to about the reign of King Rama III.

(No English caption.)



วิวัฒนาการของหม้อดาล เปรียบเทียบกับกะลามะพร้าวทางด้านซ้ายสุด หม้อใบกลางกือหม้อที่ขุดพบที่บ้านเซียง อุดรธานี ขวาสุดกือหม้อตาลรุ่นเก่า (สมบัติของกุณยายของคุณยายสิน นิลประดับ) ซึ่งนับย้อนไปได้ราว ๑๒๓-๑๓๐ ปี อยู่ในราวสมัยรัชกาลที่ ๓



หม้อแบบต่าง ๆ ข้ายสุดและใบทางด้านหลังก็อหม้อลาล อุลก่อน 3.ศ. ๑๑๑ ก่อนที่รัฐบาลจะเข้าดาบคุมการผลิต หม้อดาล ขาาสุดและใบทางด้านหน้าก็อหม้อตาลยุค หลัง 3.ศ. ๑๑๑ เป็นขนาดที่รัฐบาลกำหนด และมีขาย แพร่หลายมากในช่วงนั้น ปัจจุบันอยู่ที่พิพิธภัณฑ์รัดเกาะ เพชาบุรี Exaple of palm sugar pots, Wat Ko museum. The one on the left and the big on at the bottom are believed to be pre-1892 A.D. The small ones at the front and on the right are post 1892 A.D.



หน้อดาสบุกก่อน ร.ศ. ๑๑๏ ยังไม่มีการกำหนดขนาด โดยรัฐบาล (สมบัติของคุณยายสิน มิลประลับ) อายุ ราวสมัยรัชกาลที่ ๑ A palm sugar pot before 1892 A.D., that is before the government's monopoly affected the form of the pottery.

เวลาเผา

การสร้างเตาใช้ดินพูนให้สูงจากพื้น อิฐเดิม ๙ ศอก แล้วใช้ไม้ตีเป็นคอก ภายนอกกั้นไม่ให้ดินทลาย หน้าเตาเจาะ เป็นช่องเหนือพื้นดินไว้ใส่พื้น โดยใช้ พื้นไม้ ๓ ศอก ขนาดใหญ่ เผาจากช่อง ล่าง เหนือเตามีหลังคามุงจากปิดเปิด ได้ ขณะเผาจะเปิดหลังคา

การเผาจะใสไฟก้นเตา สุมให้ร้อน ไปก่อนเป็นการ "รุม" ไฟให้หม้อรู้สึกตัว แล้จจึงเร่งไฟให้ลุกแดง เมื่อร้อนทั่วกัน มองเห็นหม้อเริ่มสุกเป็นสีแดง จึงค่อยใส่ พืนไม้โกงกางดุ้นเล็ก ๆ และแกลบแทรก ตามช่องเล็ก ๆ ที่เป็นช่องว่างระหว่างหม้อ เอาหม้อสุกแล้วหรือหม้อแตกหักเรียงทำ เป็นช่องไว้ให้รอบรวมทั้งบนยอด ปล่อย ให้ไฟลุกแดงราว ๓ ชั่วโมงจึงหยุดใส่พืน ขณะเผาคนงานจะคอยเอาน้ำสาดหลังคา จากให้เบียกโซก ไฟจะได้ไม่ติดไหม้ ใช้ เวลาเผาทั้งหมดประมาณ ๓-๙ วัน เมื่อ เผาเสร็จแล้วจะทิ้งไว้ให้เย็นราว ๑ หรือ ๒ วัน จากนั้นจึงหยิบหม้อออกมาใช้งาน ได้

สำหรับขั้นตอนการเผาถือว่าเป็น ขั้นตอนที่สำคัญมาก ต้องระมัดระวังและ ควบคุมอย่างดี เพราะถ้ามีเศษวัสดุอื่นใด ที่ไม่ใช่พืนหรือแกลบอยู่ในเตาเผา ก็จะ ทำให้หม้อไม่สุก เกิดความเสียหาย

ลุงโกยเล่าว่า มีอยู่ครั้งหนึ่งตั้งวง เหล้ากันอยู่แถวเตาเผาหม้อ แล้วขาเหล้า คนหนึ่งก็อุตริสาดเปลือกหอยแครงเข้าไป ในเตาขณะไฟกำลังลุกคึ่ก ๆ ผลก็คือหม้อ เตานั้นต้องทิ้งทั้งเตา เพราะเผาถึง ๓ วัน แต่เปิดเตาออกมาหม้อยังไม่สุกลักใบ

ในขณะเดียวกันถ้าเผานานเกินไป ก็จะทำให้หม้อแก่ไฟมากกลายเป็นสีม่วงเนื้อ แข็งมาก รูปทรงบูดเบี้ยว เรียกว่า "หม้อ เชิงกวัด"

การเผาหม้อในแต่ละครั้งจะเผา ประมาณ ๑๒,๐๐๐-๑๓,๐๐๐ ใบ และจะ **Fig. 6, top:** Examples of different palm-sugar pots. The pots on the far left and in the rear are from the period before 1892, before the government took control of sugar-pot production. The pots on the far right and the pot in the front date after 1892 and are of the size specified by the government. Such pots were widely sold during that phase. These pots are now stored in the Wat Koh Museum, Phetchaburi.

English caption: "Exa[m]ple of palm sugar pots, Wat Koh Museum. The one on the left and the big on[e] at the bottom [sic] are believed to be pre-1892 A.D. The small ones at the front and on the right are post[-]1892 A.D."

Fig. 6, bottom: Palm-sugar pot from the period before 1892. At this time the government had not yet decreed a standard size (property of Grandmother Sin Ninpradab); approximately from the reign of King Rama III.

English caption: "A palm sugar pot before 1892 A.D., that is before the government's monopoly affected the form of the pottery."



Fig. 7: The remains of a kiln for palm-sugar pots. It is located behind a house in the area opposite Wat Don Kai Tia, Damnern Kasem Street, Tambon Khlong Krachaeng, Phetchaburi.

English caption: "The remains of a kiln for sugar palm pots."

ร่องรอยเตาเผาหม้อตาล ปัจจุบันอยู่ท้ายบ้านหลังหนึ่งบริเวณตรงข้ามโรงเรียนวัดดอนไก่เตี้ย ถนนดำเนินเกษม ตำบลคลองกระแขง เพชรบุรี The remains of a kiln for sugar palm pots



ยายทุย วรรณที่รี่ กำลังทำท่า "ใช่ดิน" โดยใช้ไม้ได่แทนไม้ขนอด. Yai din, or cleaning the clay by scraping the clay into thin slices with a flat bamboo stick then removing any odd bits of splinters.

Fig. 8: Grandmother Thui Wanakhiri describing the process of *yai din* or cleaning clay, using a thin piece of bamboo in place of the *mai khanod* (a larger bamboo tool for cleaning clay).

English caption: "Yai din, or cleaning the clay by scraping the clay into thin slices with a flat bamboo stick then removing any odd bits of splinters."



ยายสิน นิลประดับ อยู่ในครอบครัวช่างปั้นหน้อเมืองเพชร เป็นที่ยอมรับว่าฝีมือปั้นหน้อตาลประณีตมาก ที่สุดคนหนึ่ง Yai Sin Nilpradab, widely recognized as on of finest potters.

Fig. 9: Grandmother Sin Ninpradab, member of a potmaking family of Phetchaburi. Her potting skill was recognized as being among the finest.

English caption: "Yai Sin Nilpradab, widely recognized as on[e] of [the] finest potters."



อุปกรณ์การทำหม้อตาล ที่บ้านยายสิน นิลประดับ Some of the tools for making palm sugar pot

 ไม้ขนอด 	 เป็นไม้ไผ่ผ่าซี่ก ยาวประมาณ ๑ ฟุต ตรงกลางเหลาให้บาง สำหรับการ "ไย่ดิน" ปลายไม้ทั้งสองข้างค่อนข้างหนา มีไว้สำหรับจับเพื่อให้ถนัดมือ
ษ. ไม้กะต่าม หรือไม้ตี	 ลักษณะเป็นแผ่นเรียบมีด้ามจับ ลักษณะคล้ายไม้ตีปิงปอง แต่เป็นสี่เหลี่ยมใช้ตีด้านนอกของหม้อ คู่กับลูกกะเท่อ เพื่อ ให้หม้อได้รูปทรงสวยงามได้สัดส่วน
๓. ไม้ลบ	 ลักษณะคล้ายไม้กะต่าม แต่เป็นแผ่นบางกว่ามาก ใช้สำหรับลบเหลี่ยมต่าง ๆ ของหม้อหลังจากหม้อได้สัดส่วน ดีแล้ว เพื่อให้หม้อมีลักษณะเรียบ กลมกลึง
๔. ไม้ใหม่	 - เป็นไม้ที่แกะสลักไว้เป็นลวดลาย มีด้ามจับ ใช้สำหรับ "ใหม่" หรือ การประทับลายลงบนหม้อดินที่ยังไม่ได้เผา
 ๕. แป้นหมุน 	ไม้ใหญ่ที่ดีต้องมีลวดลายคมชัด เป็นร่องลึก ถ้าสึกกร่อน ไปมากต้องนำไปแซ่น้ำแล้วแกะลายใหม่ - เป็นแป้นกลมทำด้วยไม้ หนาราว ๑ คืบเศษ กว้างประมาณ ๑ ศอก/ด้านกันหรือฐาน เจาะเป็นรูให้เรียวแหลม
	ยาวประมาณ ๖ นิว/เสียบกับหลักแกนปลายเรยวแหลม ใช้หลักแกนบักลงในดินให้แน่นเวลาบักลงไปให้แป้นโผล่ พื้นดินขึ้นมา เพื่อจะได้หมุนได้
 ลูกกะเท่อ หรือหินดุ 	 ทำจากหินชนวนหรือ ดินเผา มีรูปร่างกลม มีด้ามจับเล็ก ๆ เหมือนฝาจุก (คอคอด) ใช้คู่กับไม้กะต่าม เพื่อรับน้ำหนัก เวลาตีหม้อสอดไว้ด้านใน

Fig. 10: [above photo] Tools used in making palm-sugar pots.

[below photo] Tools for making palmsugar pots, from the home of Grandmother Sin Ninpradab.

English caption: "Some of the tools for making palm sugar pot[s]."

1. *Mai khanod* (clay cleaning tool). This is a cut section of bamboo, about 1 foot long. In the middle it has been cut to a thin, sharp edge for the process of *yai din* or cleaning clay. Both ends of the wooden tool are somewhat thicker to make it easy to handle.

2. Mai katam or mai tii (shaping paddle). A flat piece of wood with a handle, resembling a ping-pong paddle but with four sides. Used to paddle the outside of a pot. It is used together with a stone or ceramic anvil to give the pot a beautiful shape and proportion.

3. *Mai lob* (smoothing paddle). Similar in appearance to the *mai katam* but made of a much thinner piece of wood. It is used to remove edges or ridges from the pot after it has been shaped to the proper proportions, so that the pot has a smooth, plump appearance.

4. *Mai mai* (embossing tool). This piece of wood has been carved with a design. It has a handle by which it is held. It is used to emboss a design onto the outside of an unfired pot. To be effective, the design must be carved clearly with deep grooves. If the groove depth deteriorates badly the tool must be soaked in water and recarved.

5. Paen mun (potting wheel), The circular wheel is made of wood, about 1 *khyb* [25 centimeters] thick and about 1 *sawk* [50 centimeters] wide on the bottom or base. A slender, pointed hole about 6 inches is drilled into the base so that the wheel fits over a stabilizing axle. This axle is planted firmly in the ground in such a way that the tip protrudes above the ground and the wheel can revolve freely.

6. *Luk kather* or *hindu* (shaping anvil). This tool is made of slate or fired clay. It has a rounded body with a small handhold like a bottleneck. This tool is inserted inside the pot while it is being paddled. It is used in combination with the *mai katam* (shaping paddle) to support the weight of the pot.