

# An Alternative View on the Origins of Ceramic Production at Si Satchanalai and Sukhothai, Central Northern Thailand

*by Don Hein, Peter Burns and Dick Richards.*

## Abstract

"The prevailing opinion concerning the origins of ceramic production in Central Northern Thailand is that in the late thirteenth century Chinese potters established kilns at Sukhothai and later moved to Si Satchanalai. On the contrary this article suggests that production of glazed stoneware began at Ban Ko Noi near Si Satchanalai about 1000 years ago and continued in the region for more than five hundred years in an unbroken chain of technical and artistic development which predominantly came from within the industry, and that a high level of quality was reached".

## EARLY KILNS AND WARES AT BAN KO NOI

There is a strongly entrenched view that the historic ceramic industry at Si Satchanalai and Sukhothai was established in the thirteenth century with the arrival of Chinese potters. Although some authors have argued whether they were brought back by King Ramkhamhaeng or an envoy, or came via Vietnam, there is a general consensus that the industry was introduced suddenly, first at Sukhothai and later, due to the presence of better clays, at Si Satchanalai. An important variation is given by Phra Ram<sup>1</sup> and Spinks<sup>2</sup> in suggesting the existence of earlier kilns at Chaliang, although the opinion on where Chaliang was, varies greatly. Usually it is placed in the area of Wat Phra Si Rattana Mahathat (Phra Prang) within the big bend of the Yom River about three kilometres south of

the old city of Si Satchanalai. However there is little evidence to support that location as Chaliang and recent finds<sup>3</sup> of very old structures below Wat Chang Lom within the city of Si Satchanalai, suggest that Chaliang may well be an earlier name of that place. In any event there are no kilns of any date known to exist at the first location and only later kilns exist at the second. Nor are there any kilns of an early date known to exist at Sukhothai. The only place where early kilns have been found is at the village of Ban Ko Noi, located on the banks of the Yom River six kilometres north of the old city.

At Ban Ko Noi the presence of more than two hundred kilns has been confirmed and the existence of between six and eight hundred is conservatively estimated. About half of the kilns were dug into the ground as bank or slab kilns and these are scattered for more than three kilometres along both banks of the river, with many extending several hundred metres inland of the actual embankment. One isolated group is more than a kilometre away from the river. The various forms of these in-ground kilns indicate a long period of development. The earliest are three or four metres long and are true bank kilns, having been dug into the terrace slope. Most of the shards found in association with these kilns are unglazed or flyash glazed jars of various forms and sizes, the most common being flared mouth and wide mouth jars.

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Fig. 1 Regional map of Central Northern Thailand.

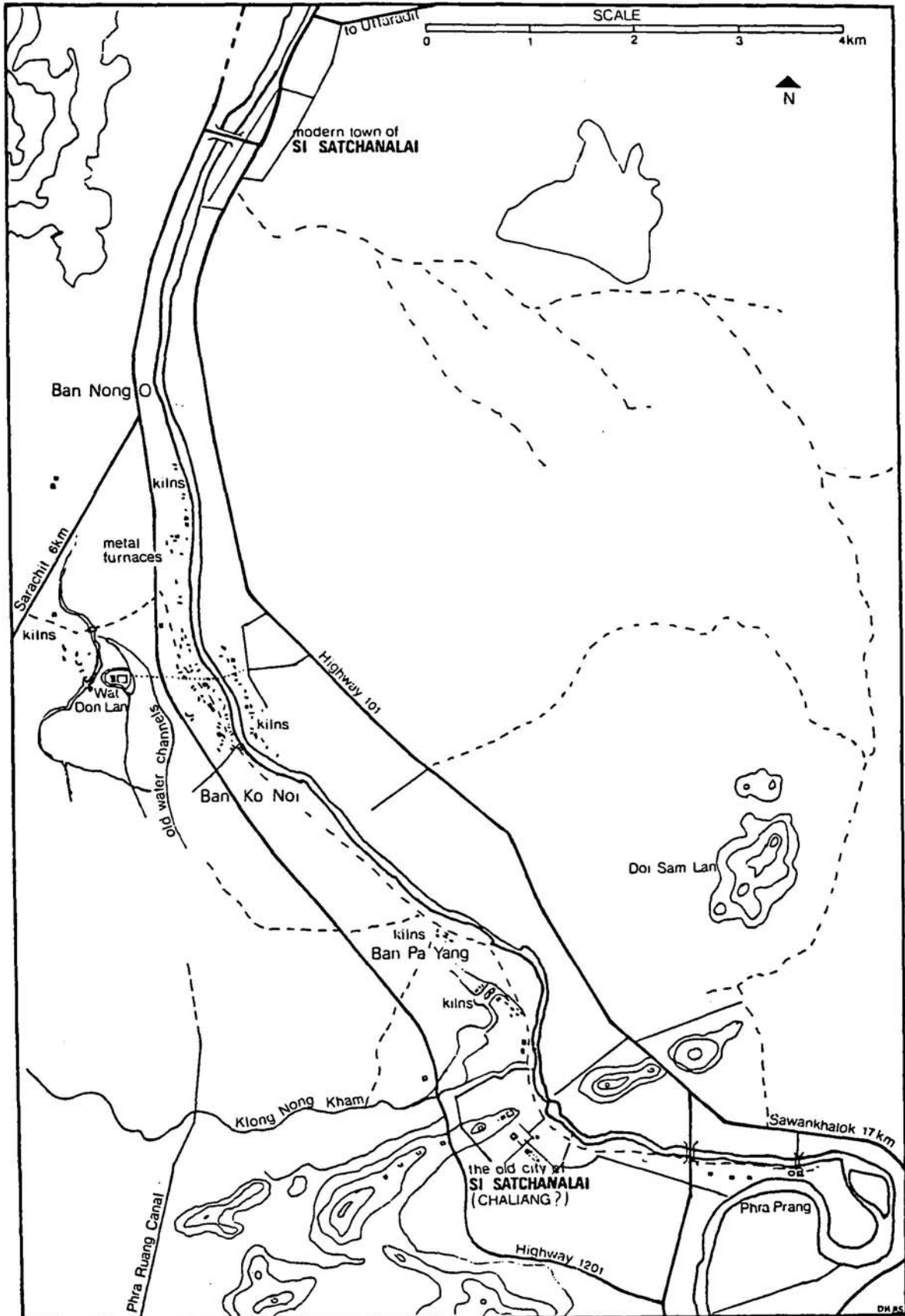


Fig. 2 Map of Si Satchanalai and Ban Ko Noi.

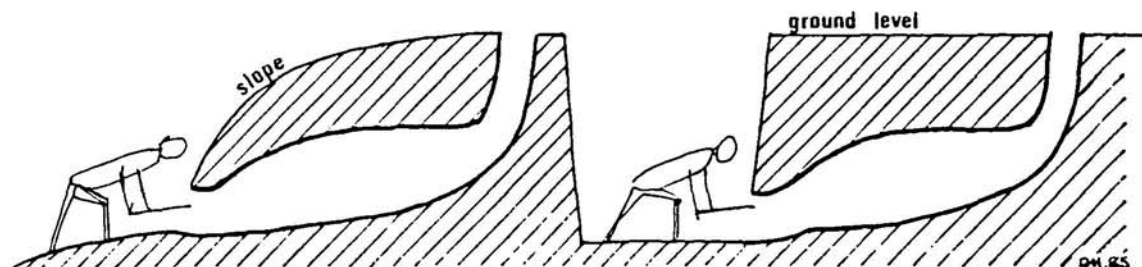


Fig. 3 Comparison of slope and pit type bank kilns.

The same jars are also found with opaque black and dark green glazes. These appear to be the earliest glazed ceramics. Dating<sup>4</sup> has yet to be completed on these kilns but it is thought they are earlier than the next type of kiln which have been dated to the tenth century. These are in-ground kilns which have an offset firebox, the development of which appears to have occurred at the site. An example of this type is kiln KN110 which is the lowest kiln in a seven-metre stratigraphic sequence of eleven kilns at Ban Ko Noi<sup>5</sup>. These kilns are more numerous than the true bank kilns and they produced the wares usually referred to as "MON" by local people and many authors. While it is quite possible an oral history has survived, evidence of the ethnic identity of the potters is limited to an early Thai-like script on some pots, cremation burials within the kiln site and habitation sites containing ceramic, bronze, iron and stone artefacts of local kind. In view of its wide currency, the term MON is used by TCAP, but to mean "Most Original Node" (with no ethnicity implied) and should be understood to mean early Thai.

MON wares have been inadequately described as plain bowls of poor quality, glazed only on the inside and stacked base-to-base, rim-to-rim for firing. In fact the typological

variety of MON wares is great, with most of the forms being present which were to be produced in later periods. The range includes the flat bottomed bowls with a trimmed base already mentioned, bowls with an "S" shaped wall, trimmed foot and glazed inside and outside, bowls with an outward angled rim with the rim often cut decoratively in various ways, lidded bowls of many kinds, pedestal bowls, small dishes, bowls with an inward curved rim, globular jars of various sizes with both a trimmed and untrimmed foot and with or without lugs (ears), large jars with raised neck or flared mouth rim with or without 3 or 4 lugs, wide mouth jars, mortars, tall narrow jars with two opposite vertical lugs, animal figurines, model boats with wheels, roof tiles, lamps, votifs etc. The most common glaze on the MON wares is dark green but a large range of green glazes were used, some very light and difficult to discern from celadon glazes of later periods. Commonly a white slip was used under the green glazes and geometric, parallel, crosshatched or wavy line designs were drawn into the wet slip to reveal the dark body underneath. A glassy glaze was then applied. This sgraffito technique was well developed with some pots being extensively decorated in this way. No figurative designs are known in MON.

Fig. 4 Excavation of MON kiln, 1985 (left). MON shards (right)





Fig. 5 MON toy boat (note axle hole) (left). Ko Noi fish design (right).

Brown and black glazes were also used but mostly on jars and only rarely used with a slip. Multiple colour glazes were also on some pots. Applique decoration appears on MON wares as buttons or coils, which are similar in character to the well known coiled applique designs on grey unglazed jars of later periods. Incised designs appear in MON and there is a gradual development from designs drawn through wet slip, to designs incised into the body of the pot. Finally some examples of underglaze painted designs have been found on MON jars, these being similar to the sgraffito patterns.

Various clay qualities were used, all containing a high percentage of iron (up to 8%) and bloating and slumping were common firing faults. However the potting and form quality of the best of the wares was extremely high, with glaze and design being excellent<sup>6</sup>.

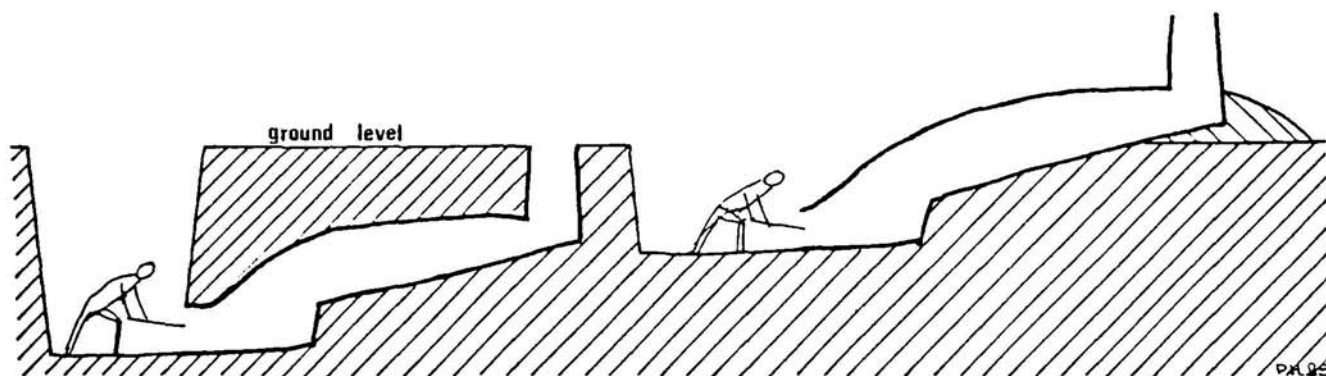
### A TRANSITION TO LATER STONEWARE

About two hundred years after the beginning, a near-white clay was used for the first time and pots of the new clay were made identical in form to the bowls and small jars already being produced as MON. These near-white bodied wares

with a particular celadon glaze, are identifiable and in TCAP they are known as MON ASSOCIATED STONEWARE (MASW), because they were first found fused to MON wares and always in association with MON. The appearance of MASW wares comes at about the time when kilns were being built on the ground surface rather than being dug into the ground. Some explanation is necessary.

At first, around the tenth century, kilns were small holes a few metres long dug into the terrace bank. Later larger kilns of the same type were dug into the flat ground away from the actual bank and a pit was used to fire the kiln. In the next development stages, offset fireboxes and walls of slab clay were introduced, then some kilns were built with slab walls and a brick chimney. It is believed some of these kilns were not burrowed out, but that a large pit was excavated, the kiln constructed in it, then the earth replaced. All of these kilns are generally called in-ground crossdraft kilns. There are no confirmed in-ground kilns completely made of brick, but some that have been reported are yet to be excavated. The first surface (above-ground) kilns which appear about the twelfth century were built partly below ground

Fig. 6 Comparison of late in-ground and early surface kilns.





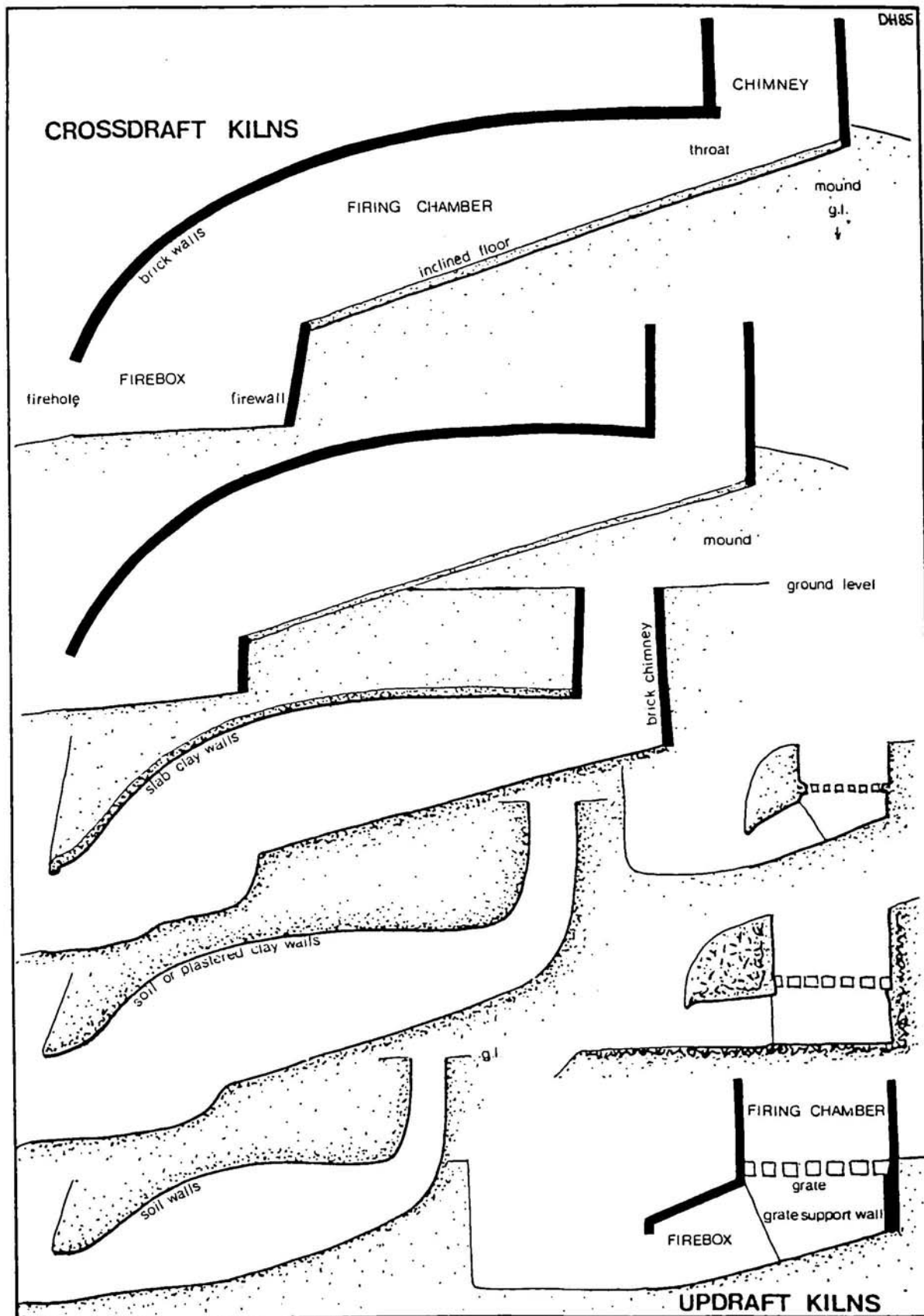


Fig. 7 Kilns of Ban Ko Noi shown in sectional profile.

level, that is, the firebox and part of the firing chamber were dug into the ground. Kilns of part slab, part brick construction and kilns entirely of brick are found placed in this position<sup>7</sup>.

It is not certain if MON or MASW ceramics were ever made in above-ground kilns, but it is very likely. Underglaze painted wares are found in association with the first of these above-ground kilns although it is believed underpainted wares were produced in in-ground kilns of perhaps an earlier date. Similarly the first figurative designs can at present, only be positively related to the above-ground kilns, but it is believed figurative designs were also made, that is, perhaps first fired, in in-ground kilns.

Early figurative underpainted designs are of flowers and fish although further study of this matter is being undertaken. At the moment it is known that rather crude, realistic pictorial designs of fish, birds and some animals, date to this time but it is uncertain if they are prototypes of the more advanced fish and floral designs. Figurative incised designs are different in subject to the underpainted ones and are thought to have come at a slightly later period and generally to have been made in different kilns.

A degree of specialisation is evident at Ban Ko Noi with some kilns being used mainly to fire jars, and these have a firehole big enough to admit the largest of the jars. Others are mostly associated with underpainted wares, white or brown glazes, incised wares etc., but it is known that at times various kinds of wares were fired together. Generally kilns firing glazed wares would also include unglazed jars to help fill the kiln and contain smaller pots.

### KILNS AT BAN PA YANG

Between 1200 and 1300 AD a new kilnsite was established at Ban Pa Yang just north of the old city of Si Satchanalai

which by this time was of some size and importance. The location and specialisation of these kilns in producing domestic and architectural material suggests that they may have been set up especially to serve the city and about a century later, to produce material for the export trade, which began in the fourteenth century at the latest<sup>8</sup>. It is important to note that the kilns, ceramic forms, glazes and characteristics of early Pa Yang ceramics are identical to those of Ko Noi five kilometres to the north. It is most probable that some of these kilns produced a wide variety of wares including lidded containers (boxes) mostly with underglaze painted designs, which are not common at Ban Ko Noi.

The kilns of Ban Ko Noi are thought to have ceased production by the middle of the fifteenth century. There appear to have been a number of contributing factors. Firstly the location had become isolated because of the growth of the city and commercial management from the city would have been difficult. While the variation of size and placement of early kilns suggest an individual or family based system, later production appears to have been organised on a broader level. Secondly it is known that at that time the river was cutting into the west terrace bank<sup>9</sup> such that some kilns were undermined and fell into the river. There might well have been the fear that the whole site was to be eroded. Therefore it may be significant that the new Pa Yang kilns were not built on the terrace bank of the Yom river but on the banks of an old stream (Klong Nong Kham) and later on the elongated mounds of an artificial quay, which linked to the upper end of the man-made Phra Ruang Canal<sup>10</sup>. Furthermore the best clays appear to have come from pits close to Ban Pa Yang and as the transportation of clay was difficult this may have encouraged the move. Finally, while the overland trade to the west continued for some time, the opening of the southern routes and especially of the export trade through Ayutthaya might have obliged a reorganisation of the industry



Fig. 8 Burial site excavation, 1985 (left). Kiln 61 jars in situ. (right)



*Fig. 9 Jars from river Yom, 1985 (left and right)*

to meet that demand.

### SUKHOTHAI KILNS AND WARES

There are fifty-one kilns<sup>11</sup> recorded at Sukhothai of which only eleven are of a crossdraft type. Most are updraft kilns. All are brick built. Existing evidence indicates a limited stratigraphy, suggesting a shorter term than Si Satchanalai. To judge by the wares and kiln types, production of glazed stoneware commenced at Sukhothai about 1200 AD or later, that is several hundred years after ceramic production had begun at Si Satchanalai. As with Ban Pa Yang initial production seems to have been concerned with domestic wares and architectural fittings of many kinds and purposes.

Nearly all of the wares of Sukhothai have a parallel variety at Si Satchanalai and the kilns and potting techniques are very similar to those of the early above-ground kilns at Si Satchanalai. There are fewer variations of potting style and mannerism evident at Sukhothai, which is consistent with the small number of potters and the fewer kilns. The forms and glazes on present knowledge appear to have undergone very little change. Furthermore, in general, the kilns are nearly identical to those of the thirteenth century at Si Satchanalai in design, construction method, size and operation. However they are slightly narrower, which is a curious, unexplained difference. While the updraft kilns of Si Satchanalai were used to make earthenware roof tiles, the updraft kilns of Sukhothai, again of a slightly different design, are surrounded with glazed wasters and so may have been used to fire glazed wares.

At Sukhothai there appears to have been little or no developmental period and that a rather complete system was introduced. In fact the complete order of ceramic production at the beginning of Sukhothai could have been, and probably was, drawn from Si Satchanalai. All of the designs and forms were being produced at Si Satchanalai at that time. The potting methods were the same, as were the firing techniques. Even the kind of tubular supports and spurred disc supports used at early Sukhothai kilns are identical to those of Ban Ko Noi, as were the stacking methods. Descriptions of the two sites using different methods in this respect are wrong. Use of white slip and underpainted designs of fish, floral motifs and the chakra were common at Ban Ko Noi at the time and indeed some pieces from both sites of this period are difficult to tell apart, especially as the range of forms including the trimming of the footrim, are identical.

### ORIGINS

The fundamental question of sources of technology and expertise has previously been resolved by concluding that Chinese potters set up the kilns. If Sukhothai is taken as the starting point, it is plausible to assume foreign potters were responsible for starting the industry, but if the hundreds of years of pre-Sukhothai production at Si Satchanalai is taken into consideration, the dominant presence of foreign potters becomes unnecessary and in fact very unlikely. The matter of kiln development leading to those of Sukhothai has already been described, so let us illustrate this point of sources and development with the example of supports.

Unglazed wares can be stacked on each other and no sup-



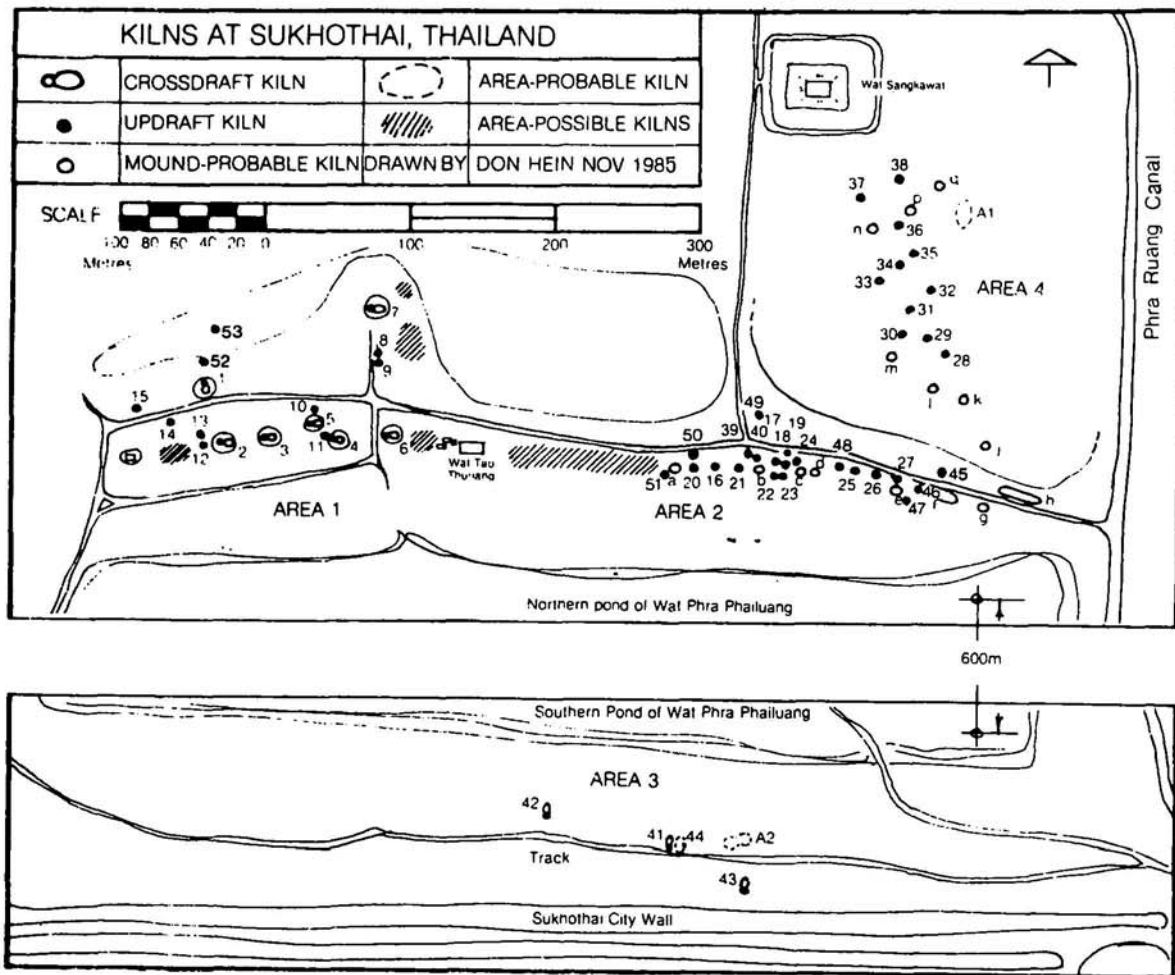


Fig. 10 Map of Sukhothai kilns

ports are needed. Glazed wares can also be placed inside unglazed jars and so no supports need be used. But the apparent demand for glazed wares obliged their being stacked and separating supports were therefore required. Apart from pieces of brick and shard being used to level jars, the first disc supports at Ban Ko Noi were flat pieces of clay grooved on one side. These were then followed by handbuilt flat discs with three to six spurs<sup>12</sup>. These spurs sometimes tipped with a silica powder, rested on the glazed centre of one bowl to support another above. The resulting scar was either admitted or camouflaged by the design. Tubular supports also show a line of progression and appear to have

developed from ordinary bowls being used as a support, to short, relatively thin walled tubes made especially for the purpose. The types of support used with the underpainted fish and foral plates at Ban Ko Noi, are identical to those used at Sukhothai, although later at Sukhothai, thicker and stonger disc supports were made in press moulds, a feature not found at Si Satchanalai. With the concentration on quality glazed wares at Si Satchanalai being fired in bigger kilns, taller, thicker walled tubular supports were developed which do not appear at Sukhothai. There are ten different types of support found at Si Satchanalai, which matched to chronology, form a logical development from the earliest

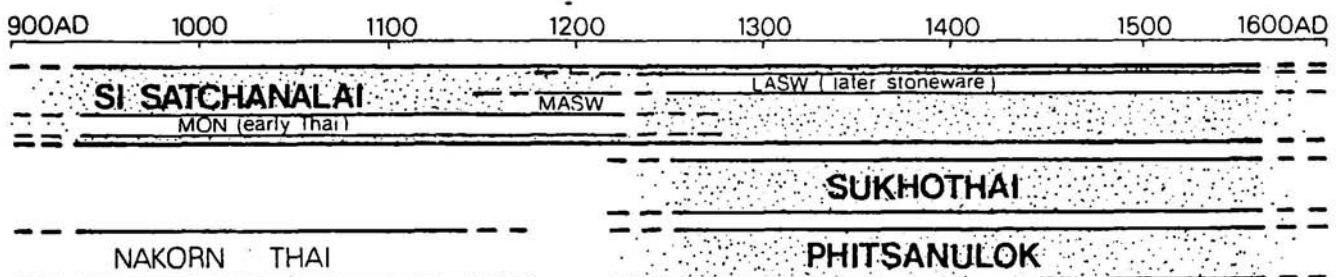


Fig. 11 Periods of ceramic production in Central Northern Thailand



Fig. 12 MON jar with vertical extended Lugs (left). MON tubular support (right)

production to the latest. Such development is inconsistent if a major transference of technology occurred at the mid point of production.

Further to this argument, the MON glazes are identical to some of those found on later stonewares and the Mon Associated Stonewares (MASW) provide the link from MON to Later Stonewares (LASW). In summary of this point, the continuum of kiln design and use, ceramic forms, glazes and designs, is too intact to allow more than minor participation by anyone other than the indigenous potters. All available evidence suggests whoever the potters were at the beginning, they ethnically were the potters at all other points of production, in all of the known production centres in Central Northern Thailand. In general the foundation of technical knowledge and artistic skill on which later Si Satchanalai and Sukhothai production was based, is clearly demonstrated in the several hundred years of ceramic activity prior to the thirteenth century.

A reasonable interpretation of the existing evidence is that early settlers of the Yom valley set up a rural community and the making of pottery was a seasonal activity of those people. They probably brought the basic knowledge of potting with them and the raw materials of clay, water and wood abounded in the area. To judge by the finds in the region and to the west, trade in ceramics became an important element in the viability of the society, which would explain

the large scale of production and the rapid improvement in it. While evidence of extensive early production has been observed by us at the kiln sites for some years, a concomitant use of products could not be illustrated until the finds of tens of thousands of pots from these kilns, was made along the Thai-Burma border last year. The early MON, MASW, and early Later Stoneware had not been found in Southeast Asian export locations and reasonable doubt existed as to the significance of such production. All of these wares have now been found in quite large numbers in the Tak Province burial sites. It can now be proved that early production was concerned with a sizable inland trade, which may even have had some export facet through Martaban.

The siting of the Ban Ko Noi kilns is often wondered at. As previously implied it was not selected as a ceramic centre at all, but as a farming location with the capacity to use the river to travel north, hence the siting above the rapids at Kaeng Luang. Certainly the presence of clay was not a deciding factor, as clay of the same poor quality as that used for several hundred years, is to be found almost anywhere in the Yom valley<sup>13</sup>. So the theory so often put forward that the kilns at Si Satchanalai were located to take advantage of superior clays is utterly wrong. The seasonal capacity of the in-ground Ban Ko Noi kilns further indicates that ceramic production there is best seen initially not as a commercial industry, but as adjunctive to an agricultural economy.

## INFLUENCES

At present there is little to suggest any major influence from Cambodia. While some zoomorphic shapes are common to both areas, the majority of early forms are different, and different production techniques were used. The Khmer kilns of Ban Kruat and Ban Ba Ra Net, appear to be of a later date than the MON period. Little is yet known of Vietnamese kilns. Some Sukhothai wares are very similar to some Vietnamese bowls and a few shards of Vietnamese ceramics have been found at Sukhothai. However it is with China that the closest parallels can be drawn. In this a common error arises. Repeatedly in publications in describing the obvious copying of Chinese designs by Thai potters, a Thai example is illustrated with a Chinese piece of a later date. The early twelfth and thirteenth century date of many designs appearing on Thai ceramics is an embarrassment to the Thai-follower China theorists because the earlier Chinese examples necessary to prove the argument, are very much harder to find.

While it must be reasonably allowed that Thai potters did adopt some Chinese designs it is equally reasonable that Chinese copied Thai designs, if only for the purpose of making their wares more attractive as trade goods in Thailand. It is also possible that Chinese artists or decorators rather than potters were actually present at Si Satchanalai or Sukhothai, which would help explain the effervescence of pictorial underglaze painted designs that appear in the twelfth and thirteenth centuries. This could explain why incised designs commonly done by the potter as an extension of the trimming process, are different from the painted designs involving artistic skill, which might better be done by artists, as a separate process. However it should be recalled that no evidence of foreign workers has been found, when it could reasonably be expected, especially in regard to potters' marks. It is therefore our current view that no foreign potters were involved in production either at Si Satchanalai or Sukhothai.

Potters' marks are only infrequently found on MON wares but are commonly used on Later Stoneware (LASW), generally as painted marks on painted wares and incised marks on incised wares. A large number of different marks have been found and as yet the purpose of these is not fully understood. For example the same mark is found at different kilns so some apparently are not an individual potters' mark. Others appear to be unique, only one of that kind or all of that kind being found in a particular area. Figurative marks sometimes reflect the design being used and sometimes are quite different. Letters of an early Thai-like script are also found, but have not been positively identified. Recently we have found inscriptions in a similar script, one incised on the neck of a jar and another painted on an upward facing edge of a pot stand, but again these have not yet been studied. Of the hundreds of potters' marks we have found, not one appears to be Chinese. Virtually no Chinese shards have been found in our excavation of the kilns at Si Satchanalai, except in the upper levels. Many are to be seen on the ground surface at habitation sites and in the environs of the old city. Most of these appear to be middle to late Ming period or after. A few shards of northern kiln sites such as Haripunchai and San Kamphaeng have been found in excavations and burial sites. After consideration of all of these possible influences, the balance weighs in favour of a predominantly indigenous industry.

## QUALITY AND RECOGNITION

The quality of the late Pa Yang wares is extremely high and at best might be judged to be as good technically and aesthetically as any others anywhere in the world of the same type and of the same period. Only recently with the finds along the Thai Burma border and finds at the kiln sites, can the full range and quality of wares be realised, but other factors are relevant to what we see as the unfortunate general depreciation of Thai ceramics. Unfairly, an inferior status



Fig. 13 Underglaze painted plates from kiln 42 excavation Ban Ko Noi





Fig. 14 Burial jars in situ. (left). Script on Ban Pa Yang base (right)

is often accorded to Thai ceramics as imitative, unoriginal and predominantly dependant on outside sources for their creation and existence. We hold that view to be a misjudgement of the true value and achievement of Thai ceramics.

Some cause can be attributed to the preoccupation with the study of Chinese ceramics. The impact of Chinese ceramics on the western world from the sixteenth century during the colonial period, resulted in a great deal of research and appreciation of them as pre-eminent. At that time Thai ceramics were virtually unknown, as production had either ceased or was in advance decline. Even in later study Thai wares were often (and sometimes still are) given a Chinese or Vietnamese attribution. Furthermore only recently have major collections been established which allow a full appraisal and most of these are not publicly available.

## CONCLUSION

The historical study of this major area of Thai ceramics has been inhibited by a serious shortcoming, in that, only the second half of the production period, that is, that part concerned with the southern trade, was in focus. Now that we are aware of a much broader historical context, involving about three hundred years of pre-export activity, and at least five production sites<sup>14</sup> in the region, a more valid consideration can be given to the historical questions. The basic questions are; "Who were the potters?", "Where did the technology come from?", "What were the stages of development?", "What is the complete typology and the full chronology?" and "What were the processes of trade?" These questions and the thesis of this paper, imply the need for a closer examination of prehistoric pottery and northern Thai ceramics. The roots of the early historic ceramic production are quite likely vested in earlier indigenous sources. There is no reason to believe the long ceramic tradition so wonderfully represented by the thousands of years of Ban Chiang, disappeared with that culture. It is more reasonable to think that the knowledge and skills of it, and other cultures like it, survived and led to Si Satchanalai.

In a recent paper<sup>15</sup> Khun Pisit Charoenwongsa, writing

on a related subject said, "we know much less now than we thought we did thirty years ago". In echoing that sentiment I think we have to reassess our position on Thai ceramics, both in regard to the credit for their existence and in our aesthetic judgment of them.

## NOTES

1. Prah Ram, Phaya Nakon, 'Thai Pottery', *JSS*, XXIX, 2 (August ; 1936). In This paper Ram expressed very perceptive insight into the origins of Thai ceramics.
2. Spinks, Charles Nelson, *The Ceramic Wares of Siam*, The Siam Society, 1981.
3. Excavations were conducted by the Fine Arts Department in early 1985.
4. A number of dating techniques are used by TCAP. Thermo-luminescence (TL) dating and research is undertaken by Prof. John Prescott and Dr. Gillian Robertson, Physics Department, University of Adelaide. Radiocarbon (C14) and Palaeomagnetic (PM) research dating is done by Dr. Mike Barbetti, MacIntosh Centre for Quaternary Dating, University of Sydney.
5. Excavated by TCAP in 1984; report in preparation.
6. A full statement and typology on MON will be published by TCAP in early 1985.
7. A brief description of some kilns at Ban Ko Noi is given by Don Hein in, "Sawankhalok Kilns-A recent Discovery". Vol. 38, 1980, pp. 10-17, and by Hein, Burns and Richards in, "Sawankhalok Kilns-Further Discoveries". Vol. 39, 1981-82, pp. 37-47, Bulletin of the Art Gallery of South Australia.
8. Abu Ridho, "The Meaning of Ceramics Found in the Sea of Tuban East Java, For Tracing the Route in the Archipelago". *SPAFA Consultative Workshop*, Indonesia, November 20-27, 1984 p. 11. Anthony Reid, "Trade Goods and Trade Routes in Southeast Asia" c 1300-1700, *SPAFA Workshop*, November 20-27, 1984 p. 13.
9. The structure of the Yom River has been studied by Dr. Paul Bishop and reported in an unpublished paper titled, "The Geomorphology and Stratigraphy of the Ban Ko Noi Kilnfields, Thailand", Department of Geography, University of Sydney, 1985.
10. Thiva Supanjaya, *Data About Phra Ruang Road*, University of Chulalongkorn, Bangkok, 1984 (in Thai).
11. Don Hein estimates that there are about 100 kilns at Sukhothai.
12. The variation of spurred disc supports found at Ban Ko Noi is large. Most are circular though some are square. Three distinct types are defined by outward curved spurs, spurs on the circumference and spurs that are set back from the disc edge. Some four and five spurred supports have centre spurs.