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TREASURES
OF THAILAND

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Cover :

A mural painting of the Rattanakosin Period depicts a gathering of devata-s from all the universes of the Buddhist cosmology to celebrate the Victory of the Lord Buddha over Mara. The mural is now at the ordination hall of Wat Khongkharam in Photharam district of Ratchaburi province in the central region.

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Foreword

Since the first publication of Treasures of Thailand in 1982, individual readers, libraries, institutes of learning and other organizations all over the world have been in search of more copies. In response to frequent and numerous public requests, the National Identity Board now presents the revised sixth edition. We hope that the readers will enjoy learning more about Thailand's rich cultural heritage.

National Identity Board
November, 1988

The Rites of Homage to the Teachers

The Thai arts, or the crafts of Thailand, have a long tradition dating back into the distant past. A part of it is the customs followed in any study, tuition or training of, or in, these arts and crafts conducted either by a workshop or studio, or by an arts and crafts college in Thailand. The head of the workshop, or the college principal, is held in high respect and revered by his student apprentices. One aspect of special interest is the annual rite of paying homage to one's teachers. This rite is commonly called in Thai "*phithi khrop*", and is a long-standing practice that is one unique aspect of the Thai cultural identity.

One theme running through Thai culture and traditions is the holding of certain things to be holy and sacred and the complementary belief that prosperity and good fortune is bestowed upon those who pay homage to the holy and the sacred. In the particular area of concern here, Thai arts and crafts, there are held to exist some gods who bestow in addition expertise and skill. Two of the more important of these gods are Vighanesvara (in Thai, Phikhanet, identified with Ganesha) the deva god of the Fine Arts, and Vishnukarma (Witsanukam, identified with Visvakarman) the patron god of the manual arts, of craftsmen and of artisans; and one or other of these two will be chosen to be depicted in a sculpture which is placed on a shrine-shelf on the premises for all who work or study there to worship.

During the annual rite of Homage to the Teachers of the arts there is an invocation addressed to many divinities (*daivyada*) inviting them to partake of the feast provided for them before the altar. All these gods and demigods are those held in high respect by those who have the faith, that is to say by all who take part in the rites, including the novices who wish to become the teachers' students. Also included are those divinities worshipped by the teachers who are themselves demigods, as well as by the living teachers who are the students' art instructors. The rite is presided over, or led by, an elder who in most cases is the most senior teacher in the workshop or the principal of the school. The day chosen for the rite is an auspicious one. The president of the rite must purify himself in mind, word and body, keep Buddhism's Five Precepts, and wear all-white clothes (or at least a white coat). The site or premises where the rite will be held must have a set of altar tables on which are placed an image of the Lord Buddha together with the flowers, tapers and incense sticks traditionally required to pay respects and give honour to Buddhism's Triple Gems, and at least a symbol of some sort of one of the more important Indian gods that will be invoked. Also needing setting up is the table of food offerings which include pig's head, folded-leaf arrangements, duck, domestic fowl, cooked rice, popped rice, flowers, alcoholic beverages, etc.



The rite of paying Homage to the Teachers held for students at the College of Fine Arts of the Fine Arts Department in the ordination hall of the former Wat Bowon Sathan Sutthawat, now part of the college campus.

The rite begins with the president leading in the paying of respects to the Triple Gems (everyone else participating in the rite repeats the words after him), so as to set the occasion and make for its being propitious. That done, the divinities are invoked to partake of the feast laid out on the table. There is Isvara (i.e. Aisvara, or Siva), Uma (Parvati), Narayana (Vishnu), Brahma, Vighanesvara (Ganesha), Vishnukarma (Visvakarman), and so on.

The text of the president's invocation that is used today was composed by Krommakhun Phetchabun Intrachai. If there is a Thai piphat orchestral accompaniment then there are some particular musical scores that must always be played as each divinity is invoked and called down, and again when each is assisted in his departure. These melodies are still played at arts and crafts colleges today.

After the deities have quit the scene a third ceremony may be performed, one that actively involves all who are present. Everyone is asked to come together in a circle and a lighted taper that has been set in a holder with a grip to hold it by is then passed from hand to hand, beginning with the president, around the circle for three complete circuits. The rites conclude with the president marking the forehead of each of the students and sprinkling them with lustral water. Finally, each new student is formally accepted for tuition (Thai : khrop) when the president takes his right hand and guides it into describing a rough figure.

Actually there are two quite distinct rites in which a person can be accepted by the teachers :

1. Accepting a candidate for instruction and giving him student status, which is the rite described above and the one performed annually in arts and crafts colleges throughout the country, and
2. Accepting a well-advanced student and conferring upon him teacher status, which empowers him thenceforth to be able to accept an invitation to serve as president of the rite of Homage to the Teachers held for student candidates. In this special rite the president and all those participating must be of an advanced age and with appropriate standing in the art; they must have the skills and expertise that win acceptance, respect and honour from others.

The Thai rites of Homage to the Teachers bestow good fortune equally upon everyone who participates. Students are instilled with a feeling of pride that they have now become the students of teachers both living and divine. They are inspired to perform well and do their best work during tuition and training in the Thai arts and crafts. Such people must have a love for their work, and must always be dedicated and industrious in their exercises over a long period of many years before they can expect it to be said of them that they have acquired the skill, and many more years afterwards the expertise essential for mastery in their field. Those older workers who are highly expert and of distinguished age are made teachers and it then becomes their duty to initiate the younger generations of students in sufficient numbers to ensure that the craft will be passed on. This is therefore a rite of particular importance to the artistic and cultural components of the Thai Identity.

THE DIVISIONS OF CRAFT

A Review of the Manual Arts in Thai Tradition

The traditional arts and crafts of Thailand have not received as much attention as other aspects of Thai culture. One contributing factor is that the craftsmen of old themselves showed little concern for the recording of their activities or for writing up their work. This subject therefore has hitherto remained known to only a small circle of hereditary practitioners yet even within this circle today there is little concern for some wider publicity. Furthermore Thai society in general regards its craftsmen as little more than manual labourers most likely because of the claimed extreme conservatism of the state of the art which allows for little or no individual expression in the modern sense.

Existing models of craft work, it is generally thought, are simply taken and reproduced anew with little or no creative effort. But what very few people today are aware of is that each and every one of today's craftsmen must of necessity pass through a lengthy training period before his hand and his eye can even become capable of carrying out his commissions to the required public standard of the art. That this is so is because the Thai manual arts are founded upon a demanding standard of craftsmanship of old in which beauty and intricacy of detail go hand in hand. Yet the mere meeting this standard is widely viewed by outsiders as the be-all and the end-all of the commission. Thus the popular attitude is to recognize in these works only the evidence of painstaking labour faultlessly executed and to be satisfied with this evaluation alone. Questions concerning the kind of creative thinking and designing appropriate to craft are seldom ever raised, the more is the pity.

In the old days when Bangkok was very young, that is in the early years of the Rattanakosin (Ratnakosindra, or Bangkok) Period, the words we use today for Art, artist and the Arts (silpa, silpin, silpakarma) were little known and rarely used. The only word in popular usage then was the Thai word *chang*, roughly equivalent to the English words "craft" and "craftsman". Today the *silpin* (Thai: sinlapin), or "artist" is seen as belonging in a somewhat different category, one that stands apart from all the many branches of craftsmanship and skilled manual work. When as it is today the craftsman is disparaged and it is the "true artist" who is attributed with intelligence and creativity there is a very real possibility that the modern reader will regard any study of the crafts as being somehow demeaning and in most ways vastly inferior to the study of Art.

The truth however is that these Thai craftsmen of old were men of superior intellect, full of culture and wisdom. It was they who were the most imbued with the capacity to create and produce works of art which can but rarely find their equal in execution today. They were artists in every sense of the word — it is just that they were not called *silpin* then. If today's Sanskrit coinings had been in general currency a hundred years or so ago, we would have found references to these men and their works replete with words for Art, artists and the Arts.

We shall now turn away from common misconceptions and the misleading current distinction between craftsman and artist and look instead at the traditional divisions of craft

A five-headed naga serpent cast in metal at the foot of a flight of steps on the approach to the Buddha's Footprint Shrine at Wat Phra Phutthabat, Phra Phutthabat district, Saraburi province. From the Early Rattanakosin (Bangkok) Period.

(or Art) that were in force of old. The Thai phrase then for this was *chang sip mu*, a phrase whose real meaning remains a matter of scholarly dispute and which the present writer is at a loss to resolve definitively. The first word of the phrase, *chang*, has been met with already and the last word, *mu*, is a designatory particle (sometimes called a numerical classifier) of the sort commonly found in many Oriental languages. Here it means simply "a group, or a division". The real difficulty in comprehension lies in the middle word, *sip*, which some have said is really just a typically Thai shortened form of the Pali word *sippa*, the cognate of the Sanskrit word *silpa* already mentioned above. Others however have said it is actually the ordinary Thai word *sip* meaning "ten", not they say meaning ten exactly, but in the sense of *sip 2*, meaning "tens of", and that it was used because the number of traditional Thai crafts are many, i.e. that the Thai traditional crafts could be counted in their tens.

When in doubt in such matters it always pays to take a look at what Somdet Phra Borommawong Thoe Chao Fa Krom Phraya Naritsaranu Wattī Wong (Prince Naris) has written on the subject. We therefore take the liberty to repeat now his views on the meaning of the phrase *chang sip mu*, as will follow.

Chang sip mu he claimed was just the name of a government department comprising craftsmen assigned to ten departmental divisions. The term should not, he wrote, be taken to mean that there are only ten branches of craft workers established in this country. Quote,



"Phra Worawong Thoe Phra Ong Chao Pradit Worakan (Prince Pradis), the one who was given charge of the Chang Sip Mu Department in the Fifth Reign (that of King Chulalongkorn), composed a few lines of verse giving the names of the different craft activities over which he then had control. They were:

'Draw, paper, engrave, figure, model;
plaster, lacquer, beat, and
Turn, mould, timber, sculp:
carpenter, ...' " (21st August, 1936)

When we convert this list to give us the names of the craftsmen's trades we have: drawers, paperers, engravers, figurers, modellers, plasterers, lacquerers, metal beaters, turners, moulders or founders, timberers, sculps and carpenters, which gives us 13 divisions of craft, or 13 trades, and not the 10 divisions commonly read into the phrase *chang sip mu*. That this should be so can only mean that the phrase is no longer a precise or specific one, and in particular one that limits the number of divisions of craft to exactly ten, and no more. The quotation does however suggest that when this government department was still young and only recently established it might well have been organized into ten divisions while at some later date additions were made to the original divisions to facilitate the work undertaken by the department. Furthermore, we cannot neglect the distinct possibility that some of the craft activities listed were only staffed with actual craftsmen when there was work for them to do so that some were really seasonal workers only, and not craftsmen on the permanent staff.

We would like to think that the grouping together of *chang sip mu* craftsmen to staff a government department would have been a fact ever since Ayudhya Period* times. However clear evidence for this is lacking and so the matter is disputable. During the following Thon Buri (Dhanapuri) Period the country was still on a war-time footing and the government may well have temporarily lacked a proper *chang sip mu* department. It is only when we come to the present Rattanakosin Period that incontestable evidence of the existence of this department can be found. It had a departmental head who was in real control and clearly oversaw the work of his skilled staff. There are, for example, old laws prescribing the *sakdina* measures of rank for the different division chiefs. In one old treatise on the subject of government offices coming under the Palace to the Front, or the "Deputy King", there is a list headed by the departmental director

whose title is given as Phraya Thewa Rangsana, with a *sakdina* of 500. This list continues with a further 13 lesser offices, as follows:

	<i>sakdina (rai)</i>
1. Sculp on the right <i>Luang Rotchana Phimon</i>	400
2. Sculp on the left <i>Luang Phaichayon</i>	400
3. Drawer on the left <i>Luang Phrom Prakasit</i>	400
4. Drawer on the right <i>Luang Nimit Wesu Kam</i>	400
5. Modeller on the left <i>Luang Konlamai Banchong</i>	400
6. Modeller on the right <i>Luang Wichit Sopha</i>	400
7. Moulder <i>Khun Phitak Akkhani</i>	300
8. Figurer <i>Luang Nimit Sanphakon</i>	400
9. Engraver <i>Luang Wichit Rotchana</i>	400
10. Plasterer on the left <i>Khun Thep Amphon</i>	300
11. Plasterer on the right <i>Khun Phaichayon Amarinthon</i>	300
12. Turner <i>Khun Phamon</i>	300
13. Red Painter (?) <i>Khun Sakon Phon Chat</i>	300

It follows that these 13 offices had for their normal divisional responsibilities the supervision of the specified craftsmen that came under them. However whenever there was special work to be done, such as the erection of a royal funeral pyre or the building of a royal monastery etc., which was work done in the King's Service, craftsmen from other departments would have been seconded to this department in order to speed up the work to completion, for even though there was this Craftwork Department there were also many other craftsmen in the government service who were on the specialist staff of other departments and who worked with some degree of professional independence.

Bearing the above in mind, the term *chang sip mu* should be taken as meaning specifically the palace craftsmen, the team of craftsmen whose special job it was to carry out the King's commissions. A list can be drawn up of all the "royal craftsmen" (Thai: *chang luang*, a term that is documented for the first couple of reigns only) that are referred to in the old documents by their craft specialisations. They provide us with a total of 29 different craftsmen:

* The Ayudhya Period (1350-1767 A.D.) had for its capital, the City of Ayutthaya, for in Thailand today, geographical place names are written according to the Royal Institute system.



2

A typical living-room interior decoration, Lan Na Thai style, from the early Rattanakosin Period of about 100 years ago. In the background is a "modern" table-dresser, already without the traditional legs of lion's feet, but still very low and had to be used while seated. The setting includes a *khan tok* or a low round dining-table, a clay drinking water vessel still standing in its turned wood container and a round container for sticky rice.

Sawyer, builder, pyrotechnician, junk-builder, armourer, clothier (Chinese), clothier (Thai), altalist, lacquerer, pearl-inlayer, joiner, boat-builder, *chang thamru* (?), drawer, engraver, sculp, turner, moulder, modeller, figurer, (metal) beater, (stucco) plasterer, glass-maker, mosaicist, jade carver, *chang chat si suk* ("red painter (?)"), tinsmith, ship-builder, and goldsmith.

This list of craftsmen was culled from early legal works, the Royal Chronicles of the Fourth Reign, the Royal Acts of the Fourth Reign, the "Three Seals" Body of Law, and the Offices of Government in the Palace to the Front, all of which are highly reliable documents. Some of the names given for these craftsmen are strange to the modern Thai ear. These include the altalist, *chang thamru*, the "red painter" and the clothiers. Some worked in crafts that today are no longer practised, while others are but rarely practised. Because of the strangeness of many of the names arising from them being quite old-fashioned, a rather fuller explanation of at least some of them is due to the reader and will be made when the craft is introduced. Here a brief explanation of a few of the rarest and most puzzling will be given.

The altalist, which is our translation of *chang Khun Phrommathet* (Brahmadesa), is also mentioned in some of the Ayudhya

Period's Royal Chronicles. He was the craft-worker in charge of making flowers, folded leaf and food offerings for shrine-altars and for various formal sacrifices and celebrations, or feasts, associated with the Brahministic or Hindu rituals practised by the Thai Court. In early times they were overseas Brahmins, from India, who made these preparations and officiated at the court ceremonies, hence the name given. Later, although the altarists were men born in this country their profession was still called by its old name.

Chang thamru is a term whose meaning is now lost. Some writers have said that it is a variation on *pru* or *chalu* and that it therefore means a fretworker or perforator, while others explain it as referring to wreckers, men who dismantled or pulled down structures, be they temporary erections, prefabricated houses or permanent constructions. Even dismantling demands skilled workers if it is to be followed by the re-erection of the old on a new site. It would not do to just tear the whole thing down so that it collapses in a heap. The structure has to be dismantled in the right order, step by step, and the fabricated parts stored in a systematic fashion so that they can be transported safely and easily and later successfully re-erected.



3

The Lord Buddha figured in baked clay, a votive tablet from the Srivijaya Period showing the Great Miracle of his multiple appearances that were displayed simultaneously. It is kept in the Bangkok National Museum.

The "red painter" (Thai: *chang chat si suk*) was most likely a builder's painter. In the olden times other house-paint colours were never very fashionable. It was even common enough to paint some hand tools, and boats, a bright homely (*si suk*) red (*chat*). "Chat" is a Thai word that was once in general use to mean red as can be seen in some old Thai puns and sayings. This bright red colouring came as a powder that had to be mixed very generously with wood oil before it could be used. It was used then to paint not only tools and houses, but also furniture and other kinds of buildings. When mixed with crude lac dissolved in oil, which is a dark brown colour, the red loses much of its brightness but becomes far more weather-resistant than with other paint bases. There were two other *chat* reds once in common use. *Chat cho sae* came in a hard dark lump which had to be reduced to a fine powder in a mortar or on a grinding stone. The powder was scarlet in colour and when mixed with either an animal or a vegetable glue was the red used by the painters of monastery murals, etc. The third *chat* was *chat horakhun*, a vermilion pigment made by combining quick-silver with flowers of sulphur. The result was a powder that adheres to gold as firmly as any goldsmith's enamel.

The clothier, *chang sana*, was a man who worked with cloth but his duties also included leather-work, only in the old days leather was not nearly as common as it is today. The few leather goods there were included saddles for horses and ponies, sheaths for knives, and belts and straps of various kinds. That there were both Chinese clothiers and Thai clothiers was because there was both new work to be done and old work that needed to be repaired. The repair or renovation of even a single piece of old work was a job that was usually more than any one man was capable of doing without some kind of assistance. In modern terms, we would have to call these people "clothiers", seamsters, darners, and embroiderers.

In the divisions of craft that is the subject of the remainder of this work, the manual arts of traditional Thailand have been reviewed craft by craft, but some of these divisions will include more than one craft in the usual sense under the one heading. A further complication is that one craft may reappear under another divisional heading. The actual division into ten crafts used here follows, with three omissions, the crafts enumerated in Prince Pradit Worakan's list but in the following order:

1. Drawing:

done by craftsmen in general, drawers, draughtsmen, illustrators, pictorial gilders, lacquer craftsmen, painters, muralists, cloth painters, and manuscript illustrators, as well as the engraver, modeller, figurer, and lacquerer.

2. Engraving:

includes the woodcarver, the seal-engraver and the wood-block cutter; engravers in metal, silversmiths, goldsmiths and jewellers; enamelling, precious metal inlay, and embossing; ornamental woodcarvers, architectural woodcarvers, and sculptural woodcarvers.

3. Turning:

is the work of lathe-workers, carpenters and joiners, ivory carvers, cabinet-makers, and barrel drum makers; and it also involves working with lacquerers, gilders, glass mosaic workers, engravers, woodcarvers, handymen, and painters.

4. Sculpting:

is divided up among paper sculps, decorative fruit and vegetable carvers, and plantain and banana stem sculps; and is assisted by assemblers and paperers.

5. Modelling:

there are bee's wax moulders and bronze casters, figure modellers, mask and puppet makers, stucco sculptural and architectural modellers, clay figure modellers, stag-head trophy makers; while others who do modelling include the versatile craftsmen, plasterers, the mason and the artisan.

6. Figuring:

seems to have included making dummies and prototypes, animal and bestial figures; possibly puppet and mask makers; certainly figure assemblers and lantern-makers; and in practice it also included working with drawers, painters and modellers, as well as carpenters, timberers, sawyers and joiners.

7. Moulding:

is a part of the work of bronze and metal casting in general, of clay and bee's wax modellers, and of mould-makers and engravers; and only indirectly of founders and metallurgists.

8. Plastering:

involves bricklayers as well as plaster craftsmen, lime-burners, lime plasterers, stucco workers and sculptors, architectural sculptors, stucco modellers, and putty manufacturers; and also involves as well as sculpting and moulding in stucco, the making of Buddha images out of brick, plaster and stucco.

9. Lacquering:

is involved in a cluster of finishing crafts that includes lacquerwork, gilding, glass mosaic encrusting patterns, and mother-of-pearl inlay-work; is used by makers of Buddha images, carvers of wooden panels, and masters of pictorial gilding and mother-of-pearl inlay panels; and it directly involves lac-tappers, lac traders, Khoen-ware manufacturers and others; while the surface to be lacquered can range from papier mache, bamboo basket weave and wooden panels through to plaster, pottery and bronze.

10. Beating:

in this context is done by metal beaters only, but this can still involve melting down metals and making alloys, beating out household utensils into shape, and polishing the final article; and it is closely related to, if distinct from, monk's bowl makers, makers of small Buddha images, jewellers, silversmiths and metal embossers.

The above 10 divisions is not a natural one. In fact it is a forced division of these different and varied crafts into a round ten divisions. Nor is it meant to imply that the real meaning of *chang sip mu* is just these 10 divisions of craft for there is no evidence in support of this line of speculation. All the enumerations recorded that have survived are either more or less than ten. None is exactly ten divisions.

By way of postscript, there is another traditional craftsman, the goldsmith, who does not properly belong to any of the above

divisions because his work belongs by itself and carries different responsibilities. Not only must the goldsmith be a craftsman of considerable skill and expertise, he must also be scrupulously honest to boot because of the high value of the precious metal with which he works. His work also involves working with diamonds and other precious and semi-precious stones of rarity value. In traditional Thailand his office was in a unit that was often called the *Suwannakit*, or "Working in Gold". This unit held the commissions for creating the King's table-ware and other royal utensils.



Drawing

4

Part of the celestial assembly mural done in coloured pigments at Wat Yai Suwannaram, Phetchaburi. From the Late Ayudhya Period. Although the celestial figures have been lined up between narrow bands, the mural treatment is rather free, especially in all the linear detail.

Drawing is the mother of the arts for craftsmanship and drawing's role in Thailand is no exception. It hardly matters which of the craft jobs we consider, the job will almost certainly require some drawing or marking out to establish the positions of key points for the work. From this initial step the rest follows. In traditional Thailand this stage was not called designing (Thai: *ok baep*), or draughtsmanship (*khian baep*). The craftsmen of old called it "estimating the (ornamental) panel" (*ka phaen*), "drawing in the outline" (*wat baep*), "giving form" (*hai baep*), etc., the crucial difference being in the provisional nature of the first step with "measurements" being determined by the eye rather than with a graduated rule. It did not matter then what was being made, the important thing was to mark out first the most satisfactory intervals and leave measured proportions and all that to look after themselves.

Whenever measured parts were specified in a commission its requirements were met by marking out using rough measures and this was always subject to refinement or adjustment as determined by the requirements of the job and the materials at hand. The basic measures were the ancient ones of the span (*khüp*), the cubit (*sok*) and the fathom (a spread arms' breadth; in Thai: *wa*). Thus a length of timber might be described as being "3 fathoms, 2 cubits and a span" long, or in modern terms three times two metres plus two times half a metre plus a quarter of a metre i.e. "seven and a quarter metres approx."

Instead of placing reliance on standard measurements and previously determined proportions, the craftsmen of old acquired the skill of firmly marking off a job to a suitable size without mechanical aids initially through long practice with crayon and paper. With the drawing firmly under control a craftsman knows that marking up the job at hand can be done "by eye". A skilled craftsman does not tailor the dimensions of his job to suit his art. He can take up an original work by a past master and he does not need to measure and transfer its every dimension to be able to create something that accurately mirrors it. His precision is not in the accurate reproduction of the work's measurements but in the significant proportions and intervals where the scale of the work may well need considerable modification to meet the specific requirements of the job at hand. It is these fine eye judgements that distinguish the skilled and highly knowledgeable craftsman.

The training of drawers in the past, "designers" is too modern, and a misleading term, was founded upon establishing skills through intensive practice over a long period. A novice at his first lesson will be tested for his native ability in making lines to join and flow. If he can draw a long continuous line by smoothly joining up a number of short lines, and do the same for curves, spirals and dead straight lines, then he is said to show "promise". This elementary lesson is aimed at drawing the pencil "curved to make a circle, straight to make a line" and subsequent lessons are an extension of this to the elementary ornamental forms of Thai designs, patterns and ornament. A



5

An incised stone slab with pictorial ornament recovered from the roof of a secret tunnel at 14th century Wat Si Chum, Old Sukhothai. Now in the Bangkok National Museum. The inscription identifies this scene as one belonging to the Bhojadhaniya Jataka.

novice without the patience for these tediously repetitive drills will simply drop out, and so this kind of basic training also serves as a screen for aspiring artists of real talent. Conversely, a novice with promise is quickly recognized for his talent in drawing lines and with some help from his teacher is soon taken on to the next stage which is to closely copy the best of the lines his teacher can draw. Only those who can produce fine copies of their master's work are accepted as apprentice drawers. Few however survive their full apprenticeship and this is why there never have been many Thai drawers of excellence alive at any one time. The work of an apprentice is tedious, repetitive and conducive to boredom. To pass right through one's apprenticeship requires unusual patience and endurance, and a healthy measure of self-restraint too. The survivors are those who have an abiding love for their work and it is this love really that is all they have to inspire them and drive them on.

The intermediate stage, as we have already seen, is copying one's master's work. At first the teacher supplies his students with simple line ornament. One learning aid that was widely used to relieve the boredom of repetitive drill to train the hand was the perforated paper tracing. Small holes in the paper follow the teacher's lines faithfully. Granulated carbon tightly packed in a cloth bag or compress was then dusted onto the tracing paper to mark the clean sheet of drawing paper backing it. When this latter sheet was removed the teacher's "lines" could be seen as charcoal dots. The task set the student was to draw in the lines

smoothly himself. The tracing was not a perfect image deliberately and memory played an important part in completing the student exercise satisfactorily. Learning to draw is not just being able to finish each assigned exercise one after the other, it requires a good memory of what has been seen and done earlier on and it is this that forms the basis of creativity in traditional Thai ornamental art. It was not the master's intention that his apprentices remembered only how to produce copies of his handiwork when required, but rather to teach them eventually how to draw both conventionalized ornament and stylized figures. The subject matter of the apprentice's course in advanced training comprised exactly four fields: highly-ornated designs, stylized figures of feminine beauty, wierd hominoid creatures, and fantastic beasts of legend and myth, a course summarised by the catch phrase, "arabesques, females, simians and pachyderms"

Taking the "arabesques" first, these are typically conventionalized flamboyant ornament (Thai: kanok) in a very distinctive style. The trainee must study and thoroughly familiarize himself with a small number of basic types of flamboyant formal elements out of which the full-blown free-style flamboyant is compounded. In the Early Rattanakosin Period the basic morphological types were the tripartite flamboyant, the exotic vine-leaf arabesque, the licking tongues-of-flame flamboyant, and one or two others. All three when developed have a roughly similar silhouette, frame, or over-all shape yet the interior structure and detail is different and is characteristic of each type. This

7

Door gods supported by Mara devils on the back of a central double-leaved door hung in the ordination hall of Wat Yai Suwannaram, Phetchaburi. During the Late Ayudhya Period, Thai painting became rather conventionalized, as can be seen here with the supporters.



6
Mural paintings on stucco
in the lower crypt of the
main reliquary tower at
Wat Ratchaburana,
Ayutthaya ca. 1424 A.D.



still leaves a lot of room for the drawer to improvise and to exercise his talent for satisfactory proportions and rhythmic spacing. Indeed the Thai flamboyant is so ornate in various individual ways that it will generally carry the characteristic signature of its creator's distinctive working style.

Thai flamboyants are as characteristic of their creator as his handwriting. Each of these basic flamboyant types served as a starting point for extensive elaboration and ornamental development of the elementary ornamental forms of Thai designs, patterns and ornament. The traditional drawer called this process "tying up ornament" (Thai: *phuk lai*) i.e. ornamental composition. The training that goes into learning how to draw a flawless flamboyant is a stage removed from the earlier training in mastery of the curved line which itself was a big step up from the initial training in making smooth, continuous lines. For all their differences of degree, however, training in these increasingly more difficult tasks remained firmly rooted in trial and long, determined practice until the point was reached where the line seemed to lead the hand. The flamboyant for example could only be said to have been mastered when the apprentice drawer was able to draw it fluently in any and all sizes and in any and all orientations of its uppermost part.

"Females" came after "arabesques" Here however the word is not meant to be limited to pictures of Woman alone, for the traditional Thai art term "females" (*nari*) refers to pictures of the human figure, be it male or

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A mural scene from the Vessantara Jataka in the ordination hall of Wat Suwannaram, Bangkok Noi district, Bangkok. Painted by an anonymous muralist of the Third Reign. This is the last of the last ten Jataka Buddhist birth-stories. The scene shows a part of King Sanjaya's army on its journey to Mount Vamka to bring the exiled Prince Vessantara home.



15

A mural detail in the Wihan Lai Kham, Wat Phra Sing, Chiang Mai, from the early years of the Fifth King's reign by an unknown muralist. Sang Thong, the Golden Prince of the Conchshell, is shown here sitting in the branch of a tree after having flown away from his foster mother, the ogress.

14

A mural scene in the Wihan Lai Kham of Wat Phra Sing, Chiang Mai, by an unknown painter. Thought to have been executed during the early part of the Fifth King's reign, it illustrates an episode from the Jataka, "The Golden Prince of the Conchshell". He is shown here after having dipped himself in the ogress' gold and silver wells. He has assumed the appearance of a negrito with a disguise stolen from the ogress along with her magic staff and slippers, in order to escape from her clutches.



16

A mural scene in two registers in the wihan assembly hall of Wat Buak Khrok Luang, Chiang Mai. Executed by unknown Shan painters of Chiang Mai early in the Fifth King's reign. The upper register has scenes from the Life of the Lord Buddha : the Great Departure and as a forest ascetic. The lower register shows a part of King Sanjaya's army moving through the forest to recall Prince Vessantara back from his long exile.



The "simians" is just a classifying term and like the others it is not meant to mean monkeys alone; rather it includes all the hominoid figures of the Thai imagination including the ogres and the giants (Thai: "yak", from yaksha) and the apes and monkeys. The explanation for the importance given to this group of figures can be found in the frequent representations of the Thai version of Indian epic, the Romance of Rama, or the Ramayana, which is about an alliance of humans and monkeys rescuing a princess (Rama's wife) who has been abducted by an ogre king. Training in this class of figure studies also commences with detailed sketches of the face. Here the two major types of face are the ogre and the monkey, but in this study there is a serious complication. Because the ogres and the monkeys are only hominoid, they are "low" and lack the serene blandness of expression and uniformity of features that the "higher" *nari* figures possess. Instead, most of the Ramakian characters of art and the masked drama have a formal set of distinguishing features that allows one, in most cases to pin-point and actually identify the particular figure depicted. These features are fixed by an established tradition and the system must be learnt and stored away in the memory. Some of these fixed, identifying features centre around the mouth's grimace, the eyes' ovaloid shape and the iris, the kind of nose, whether the ears are human or not, and such like. When all else fails look-alike figures can be further distinguished by the type of crown that is worn, the weapon carried, and even, in a few cases, by some details of costume ornament and, in



painting, by their skin colour too. Nor is it only in the faces that the "simians" differ from the "females" and the ogres from the monkeys, for after studies of the hominoid faces comes studies of their characteristic and highly diverse postures, again strongly influenced by the classical theatre, only more so here than with the sedate regal male and female figures.

"Pachyderms" similarly means much more than just the common Asiatic elephant, and it includes all the beasts of the forest other than the primates, and goes even further to include the fabulous beasts of Indian mythology popularly believed to reside in the Himavant (i.e. the Himalayan) Forests. The beasts of the Himavant Forests are depicted in art as legendary animals quite unlike the animals found in Nature. Even studies of the Asiatic elephant, Arab horses and Chinese ponies are done in ways that distinguish them from their real-life forms. These real and mythical beasts are almost always shown side on, in profile. Thus are depicted the heraldic regal lion (*rajasimha*), the composite elephant-lion (*gajasimha*), the goose of Indian art (*hamsa*), the heraldic eagle (the Garuda of fame) and the swan-maiden (*kimnari*). Others include composite beasts whose upper halves are humanoid, i.e. either a human or an ogre, and whose lower halves are the heraldic lion (*simha*), the deer, the wild fowl, etc. This heterogeneous group of figurative subjects is therefore yet another group or class that the aspiring painter must study and put to memory until the time comes when he is able to introduce them into his pictorial works and narrative scenes.

17

A mural bay in the ordination hall of Wat Matchimawat (Wat Klang), Songkhla. Painted by an unknown Fifth Reign muralist in 1863. This bay depicts scenes from the Mahaummagga Jataka. We are shown King Culani's army beneath the Mathila's city walls. Standing upright on the parapet is Mahosadha, the King of Mathila's wise counsellor, challenging the massed armies.



18

A mural in the ordination hall of Wat Matchimawat (Wat Klang), Songkhla. Painted in 1863 during the Fifth Reign. This section of the mural illustrating the Life of the Lord Buddha shows the Lord Buddha taking his alms bowl into the City of Rajagriha. There he is received by King Bimbisara who becomes a lay follower there and then.



19

A mural in the ordination hall of Wat Matchimawat (Wat Klang), Songkhla. Painted in 1863 during the Fifth Reign. This section of the mural illustrating the Life of the Lord Buddha shows the Lord Buddha's return to Kapilavastu where he began the conversion of his father.



A section of the mural paintings in the ordination hall of Wat Na Phra That (Wat Trakhu), Pak Thong Chai district, Nakhon Ratchasima province. Probably from the Third or Fourth Reign. This section illustrates an episode from the Vessantara Jataka in which Vessantara and his family take leave of his parents prior to their going into exile where he will become a forest hermit seeking omniscience at the foot of Mount Vamka.



The equipment employed is a matter of no little importance because the success of both a pictorial work and a figure ornament is not to be found only in the use of a pencil or charcoal stick. These lines so produced are commonly regarded as only appropriate for suggestive preliminary sketches. A finished work is one that has been brought to conceptual life with a firm, clean outline certainly but also with well-defined conventional interior detail. These are the lines that must be drawn with certitude, quickly, confidently and with skill. They are not of uniform thickness generally and their vitality lies in the last resort with their drawer's brush technique. The drawer has a number of brushes with which he is equally at ease in manipulating to create the vibrant line that is valued. The illustrator usually goes further to apply a colour fill to his figures, parts of which may be gilded instead by selectively applying gold leaf. In these cases no part of the preliminary sketch can be allowed to remain visible in the finished work. The best way to achieve this is to dispense altogether with the preliminary sketch work and rely solely on the master's unaided skill in drawing freehand the final lines with no guiding lines apparent at all.

The pictorial gilder employs a special gilded lacquer technique and is his own drawer and, usually, his own lacquerer. Thai gilded lacquer work therefore belongs to this division. This is gilded work done using a "washed design" (lai rot nam) technique that creates a fairly permanent work and, being monochromatic, provides a demanding test of a craftsman's skill. The straightforward work of laying down

the dull black lacquer ground and finishing it with a final smooth, shiny surface coat can be assigned out to the lacquerer, or it may have been prepared in advance by him. The pictorial gilder's job begins with the drawing in of his flexing lines using brushes dipped in a lemon-yellow water-soluble dye or painter's pigment known as ground orpiment (a mineral trisulphide of arsenic, finely powdered). He paints in all the areas that are not to be gilded with this fluid colouring. The lacquerer may now be called in again to apply a sticky, absolutely clear lacquer over-coat evenly, all over the panel. When it dries and is tacky, gold leaf is carefully applied to completely cover and hide the earlier work i.e. over the total working area of the lacquer panel. On the following day when the clear lacquer over-coat is bone dry the painted panel is washed down. All the gold leaf adhering to the lacquer on the yellow pigment parts comes away along with the soluble yellow pigment revealing the desired pot-black ground beneath. The rest of the panel remains gilded of course, hence the term "washed design".

The painter, and the muralist, must have a thorough grounding in the use of flat colour for filling in the pictorial figures and other techniques for creating settings for them. Also, perhaps, backdrops and broad distant vistas as well. The traditional Thai painter had five primary pigments, the close equivalents of scarlet lake, yellow ochre, ultramarine blue, pipe-clay white and pot-black. With these he was of course able to mix pigments together to produce many other colours. There was however only one traditional way of preparing his colours. It had been passed



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down over the centuries from master to disciple. All the pigments were tempera colours, finely ground powders that were stirred into bowls (or half-shells of the coconut) containing a glue binder using short sticks and worked to the desired strengths and consistency. It was in this way that they were made ready for use in colouring.

The Thai muralist painted on either plaster or stucco wall surfaces and had to leach the salts from the painting surface before commencing his work. To do this he pulverized the leaves of the *Cassia siamea* (*Leguminosae*) in a stone mortar and painted every part of the painting surface with it. It was then left on for some time to do its work. In order to test whether the leaching action was fully completed yet or not he prepared a mash of tumeric and splashed the orange juice onto the parts he wanted to sample. If the liquor turned red it was still too soon and the wall had to be left alone for some time more. When the tumeric no longer changed colour he washed off all the *Cassia* mulch and the mural surface was made clean and almost ready for painting. To "temper" the surface the muralists of old used the seeds of the tamarind pod. They were first roasted in a pan and then pulverized in a mortar. Pipe-clay and glue were added to provide the tempering preparation. This was painted onto the wall surface and left to dry coat by coat for a very smooth, bone-white ground. The old masters then thoroughly polished the wall and only when this was done did they set about making their first guidelines and preliminary pencil sketches.

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A detail from the mural paintings in the ordination hall of Wat Na Phra That (Wat Trakhu), Pak Thong Chai district, Nakhon Ratchasima province. Observed lower centre are commoners betting on the outcome of a cock-fight.

24

A scene from a Third Reign mural in the ordination hall of Wat Suthat Thepphawararam, Bangkok, by an unknown artist. Pacceka Buddha-s, that is Silent Buddha-s, have gathered for a monastic service in the Himalayas. They are attended by a royal race of elephant in idyllic surroundings enlivened by many types of legendary beasts.

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A detail from the mural paintings in the ordination hall of Wat Na Phra That (Wat Trakhu), Pak Thong Chai district, Nakhon Ratchasima. This is a detail from a mural showing Buddhist monks contemplating the ten kinds of offensive objects that begin with a corpse mauled by dogs, a corpse that vultures have abandoned, etc. to finally the scattered bones of a human skeleton.

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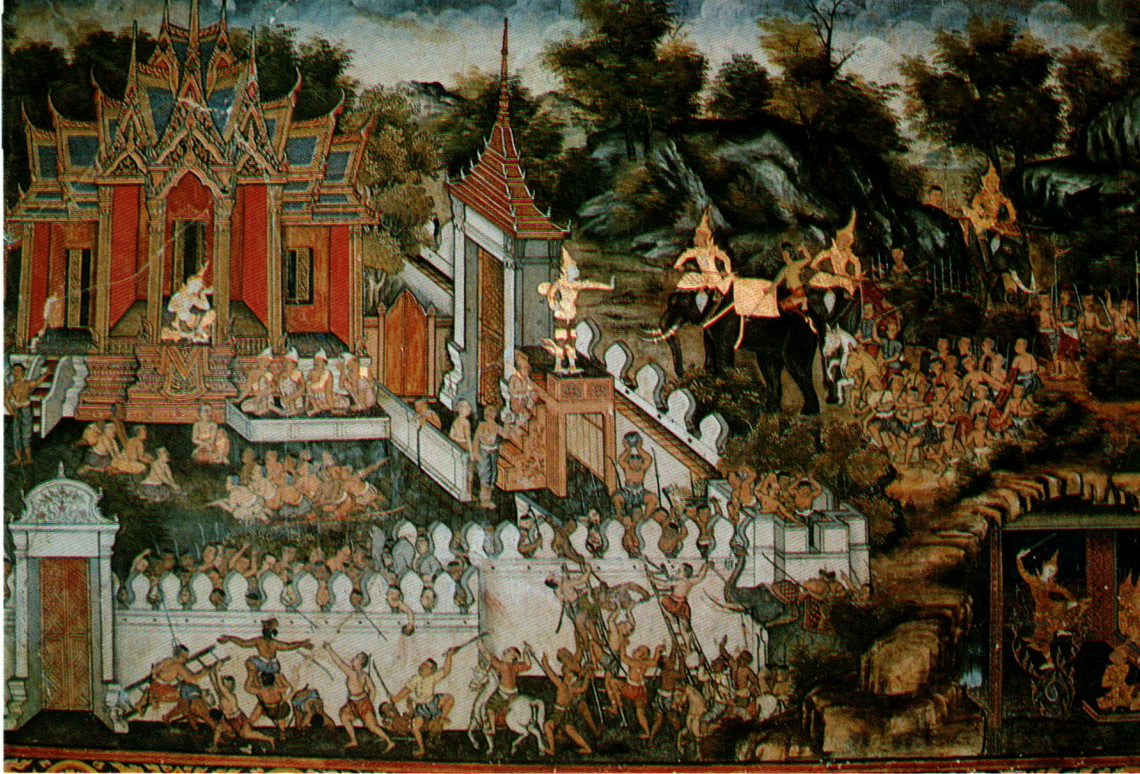
This Fourth Reign mural from the cruciform ordination hall of the former Wat Bowon Sathan Sutthawat (on the north wall of the west wing) shows an attempt to work with perspective while yet retaining much of the character of Thai painting.

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A scene from a Third Reign mural painting in the ordination hall of Wat Phra Chettuphon Wimon Mangkhalaram (Wat Pho), Bangkok. The mural gives the biography of the Younger Kassapa Thera. His mother was pregnant with child when she was ordained into the Buddhist Order and she gave birth to the Younger Kassapa in the nunnery, as is shown here.



26

The story of Mahosadha in the Thai Thotsachat Chadok (Dasajati Jataka) in the ordination hall of Wat Suwan Dararam, Ayutthaya. Fourth Reign workmanship.

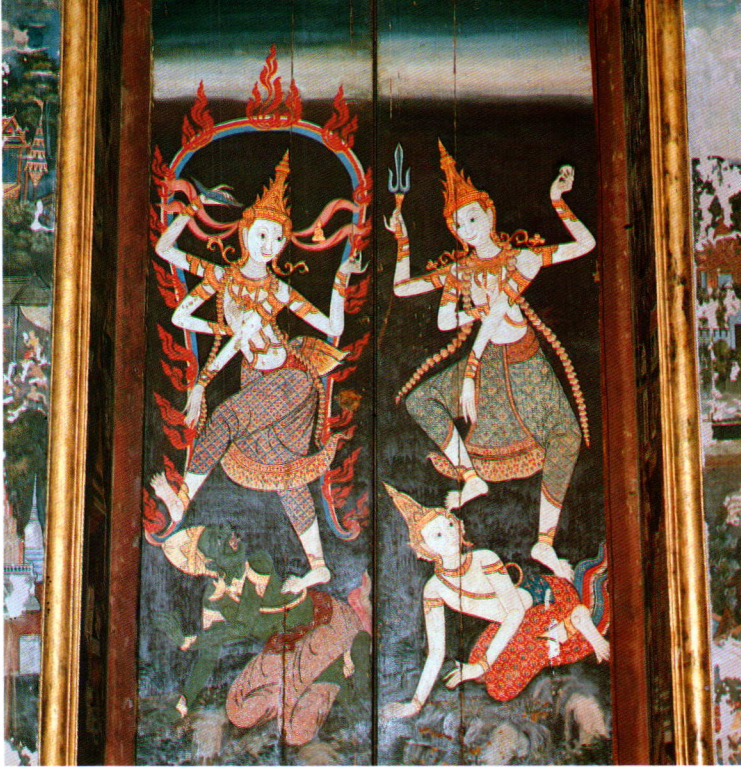
Old Thai painting and mural art in particular employed a special technique of pictorial composition. It was called "apportioning areas" (rawang phün thi) and the overall effect has been described as comparable to the "bird's eye view" of Western painting. The positions of the key scenes were the first to be assigned. Once located each was closed off with "space transformers" (sen phlaeng) that effectively isolated it from considerations of perspective by doing away with any surrounding intermediate or middle ground. "Space transformers" could be simply the background architectural silhouettes and have no other independent existence, or they could be dense bushes, trees and other scenic properties, and even looming cliffs or distant hills and mountains. They could also be purely decorative. One often finds flat colour ribbon-edges or zig-zag bordered backdrops serving in this way. Further out from the centre of each key scene therefore came overlapping multi-spined palace roofs or thickly wooded forest and jungle edges with perhaps tumblers of rocks and boulders. These were rendered very flat and "floating depth-less" invariably merged in with the adjacent key scenes' similar environs.

The over-all layout established, the muralist could commence to sketch in the actors in their proper places. With much still left to be decided upon later, the muralist now took up his brushes and applied flat colour washes to the larger, less detailed planes. Some areas were given a tint undercoat, others a shade, the allocation being one that not only followed the mural sketch content appropriately but also was the basis for a balanced and satisfying over-all impression of colour design. Thus where dense trees and bushes would be appearing later was first prepared with a flat shade wash. This would then be later worked up with shade colours for trunks, heavy branches and tree crown profiles. Finally the painter took up a large, thick brush, or even a fibrous stick of the *Michelia champaca* (*Magnoliaceae*) that had been pounded at one end to open out the fibres, dipped it into a brighter colour and scraped or splattered the colour where light-touched foliage needed it to produce the illusion of a stippled leafy crown.

Muralists however were not the only Thai painters. Some painters worked on chalk-sealed wooden panels, others on clay-impregnated cloth. Manuscript illustrators worked on a somewhat smaller scale than the others and there are many folding cardboard books and treatises to evidence their work.

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A mural from Wat Suwan Dararam, Ayutthaya, painted by an unknown artist from the Fourth Reign, depicting a lively scene from the Vessantara Jataka. Although all the Jataka stories were supposed to have taken place in the Indian sub-continent, it is clear that the setting and characters in this painting all belong to the contemporary Thai scene.



27

Fourth Reign paintings of Brahmanical deities on window leaves in the former Wat Bowon Sathan Sutthawat adjacent to the Bangkok National

Museum. An attempt was made to clothe these deities in a Hindu way. Thus the strange head-dresses and the fiery halo frame.



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A "washed design" lacquered and gilded scripture cabinet from the Late Ayudhya Period. Although there is still some freedom of line and composition, the design is already somewhat conventionalized as if the

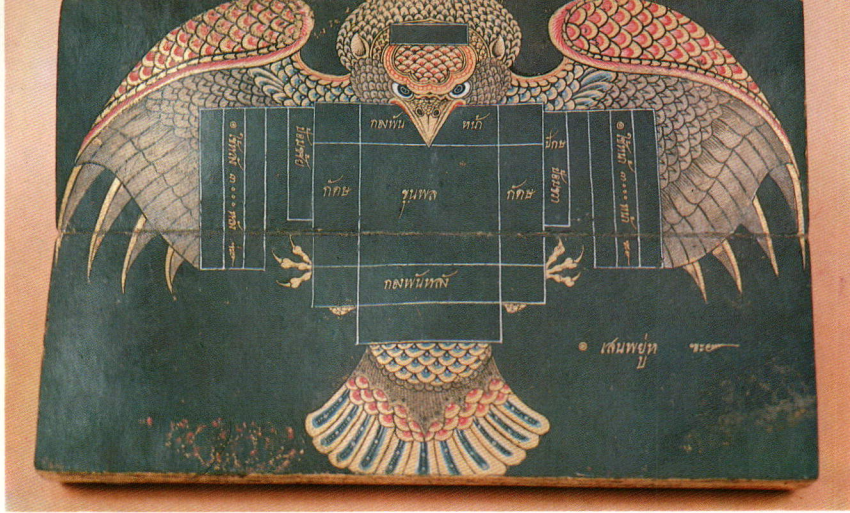
painter had been dulled by repetition. Both the celestial figures are portrayed in exactly identical posture and ornamented details. On display in the Bangkok National Museum.



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A Thai illustrated manuscript entitled Great Victories in Warfare. This double-page shows an Early Rattanakosin (Bangkok) Period military formation diagrammed as a hawk. The MS. is kept by the Bangkok National Museum.

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A gilded lacquer scripture cabinet from the Late Ayudhya Period in Prince M.C. Piya Rangsit's private collection. The ornamental design is one of heavy flamboyant floral bodies pressed close together and packing the panel. The black spacing is reduced to very fine paths through the ornament.

31

A painted screen from the Second Reign illustrating one of the Javanese Panji Tales with a hero called Inao in the Thai verse translation, a masterpiece of Thai literature. This screen stands today in the Bangkok National Museum.

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One leaf of a gilded lacquer cabinet from the Late Ayudhya Period in Prince M.C. Piya Rangsit's private collection. The celestial devata being stands supported on a bent yaksha ogre. The tongues-of-flame flamboyant vines and tendrils are expertly created but there is perhaps too much freedom in the ground ornament, for the black spacing trails do not proceed any distance, so confusing are the cross-currents of the design.

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A scene from the Inao, a Thai literary translation of one of the Panji Tales, done in coloured lacquer by craftsmen of the Second Reign. Now in the Bangkok National Museum.

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Gilded lacquer chests. This type of chest is called "pig's jaws" (Thai : khang mu) because it is wider at the top and tapers slightly to the base. Featured on the face of one is a pair of royal siha (simha) lions on the floor of a fabulous forest. The free hand of a master is apparent throughout. On show at the Bangkok National Museum.

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This coloured lacquer scripture cabinet from the Late Ayudhya Period is in the private collection of Prince M.C. Piya Rangsit.

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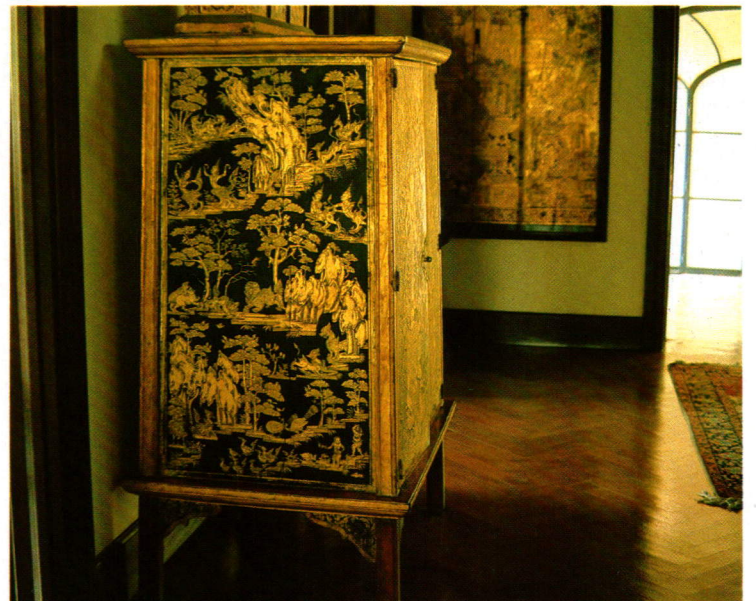
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Tiers of pedestals and seats on a pulpit at Wat Phra Si Rattanamaha That, Phitsanulok. The special interest of this pulpit lies in its superb woodcarving. It is among the very best in this country. The carving expresses expansiveness, grace and beauty, while the tips of all the flambo-

yant borders flicker and shimmer. This tall base is composed of two lion-footed pedestals, followed by an interval with alternating supporter figures comprising the heraldic lion and the mythical *garuda*. Both of these are treated flamboyantly.



Engraving

In the engraving division we have placed among others the seal-engraver, the ornamental woodcarver and the sculptor in wood. Although today we tend to lump all this work together as "carving" the surviving works of the engravers of old fall naturally into these different craft subdivisions. However, before the engraver could become a specialist in one or other of these specific crafts he had to begin somewhere with a more general training. Simple tooling jobs were given at the outset. These required making incised lines of various kinds with a small carpenter's chisel on a flat wooden surface. The teacher would demonstrate first the proper way to put the chisel down, the proper way to pick it up, the ways to hold it, and the correct technique for engraving a short line. He would then continue his demonstration with two or three more lines. Pushing the sharp chisel blade's edge forward so that it bites into the wood in a neat straight line is not at all easy to do. Newcomers can quickly become discouraged with the ordinariness of the exercise and their lack of mastery just as the novice drawer did with his smooth line exercises. It is gut persistence alone that aids the beginner in persevering on, firmly applying himself to the mean task at hand until the knack at last comes and he is ready to move on to the next step in training. Long, firm straight lines can now be done easily one beside the other in a parallel series. This achieved, curved lines provide the next few exercises. There are slightly curved lines and strongly curved lines, and these are followed by spirals and whorls. Both hands are needed to make good curved lines, the right to drive the chisel and the left to turn the wood panel smoothly to just the right degree.

When his students have succeeded with the engraved line in all its varied forms the teacher compares their work to determine which of his new students have the finest touch. By "finest" is meant a line that is deep but narrow, and uniform without any wavering from one side to the other. Only students who have chiselled the finest lines in their wooden exercise surfaces are now invited to take up training in seal-engraving or metal sheeting. The usual metals were silver, gold and "gold bronze" (Thai: nak, a popular alloy of copper, silver and gold, and sometimes tin). By sending his best students to take up engraving in these materials he set them on the road to becoming goldsmiths. Those with a heavier hand and a line less fine were kept on in the class and put to carving ornamental panels with large figures of ornament, with good prospects of becoming professional woodcarvers.

The aspiring seal-engraver has to have the lightest hand of any of his erstwhile fellow students because his craft is not merely that of carving wooden panels, rather it involves engraving on a piece of ivory that has been sawn to shape so that it can be made to serve as an ink stamp for official documents. When book printing was first introduced into Thailand early in the last century wood-blocks were needed in large numbers to illustrate the published material, and also for fancy lettering because the metal-block technology had yet to be developed locally. Some of the first children's readers used in Thai schools were illustrated with wood-cuts that were done by one Nai Daeng, a member of the Samakyachan (Free-lance Masters') Craft Guild. The circumstances were rather different for seal-engravers because the Royal State

An ornately carved wooden gable-end panel at Wat Na Phra Men, Ayutthaya, depicting Vishnu mounted on his vehicle Garuda set amidst a crowd of angelic devata figures. The architectural style of Wat Na Phra Men belongs to the Early Ayudhya Period.

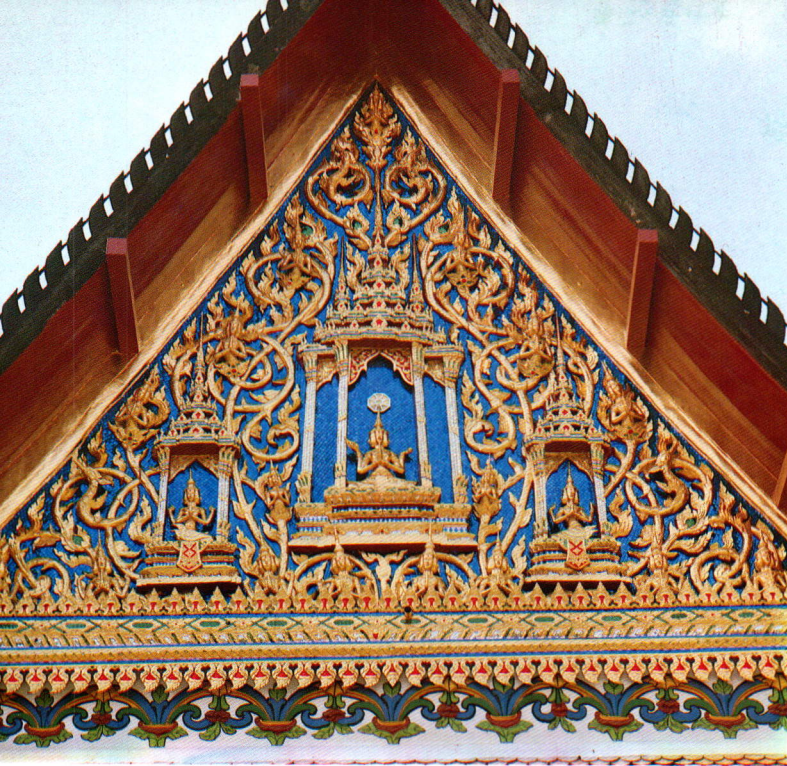


Government needed full-time seal-engravers employed permanently to produce all the seals required by royal decrees. Only the best ivory craftsmen however were admitted into the King's Service and some of their top-quality, though anonymous, work has survived both in the seals themselves as well as in their stamped ink impressions (which are mostly in red ink). Thus we have collected together today many of the royal seals of office and the official seals of government bodies. The well-known "Three Seals" Body of Law is stamped with a royal heraldic lion (rajasimha) seal, a composite elephant-lion (gajasimha) seal and a "precious lotus" (Thai: bua kaeo) seal (only the third is actually a goddess seated frontal and holding lotus blooms in either hand).

The seal-engraver would have had to have been able to draw line ornament too, or if he was not proficient at this himself to have had a drawer at his side watching closely what he was doing to see that he never departed from the ornamental motif of the commission. The primary reason seal-engravers were made permanent government officials was because when an ivory seal is used regularly in the course of everyday business it will wear out and the stamp will lose its sharp definition and will blur. It then has to be sent back to the seal-engraver to renovate by deepening the carved incisions in the ivory head. We today would call this process "recutting" but the seal-engravers of old called it "infiltrating the ornament" (ruk lai). If this job were given to another seal-engraver he might not make as good a job of it as could be done by sending it back to the original seal-

engraver who cut the seal the first time, for he was the only craftsman already familiar with the pristine line. Even so, if the seal could in fact be sent to its creator for recutting it was counted as very fortunate for only too often the seal-engraver had already passed away. One ivory seal takes a few decades of constant use before it can be said to be badly-worn.

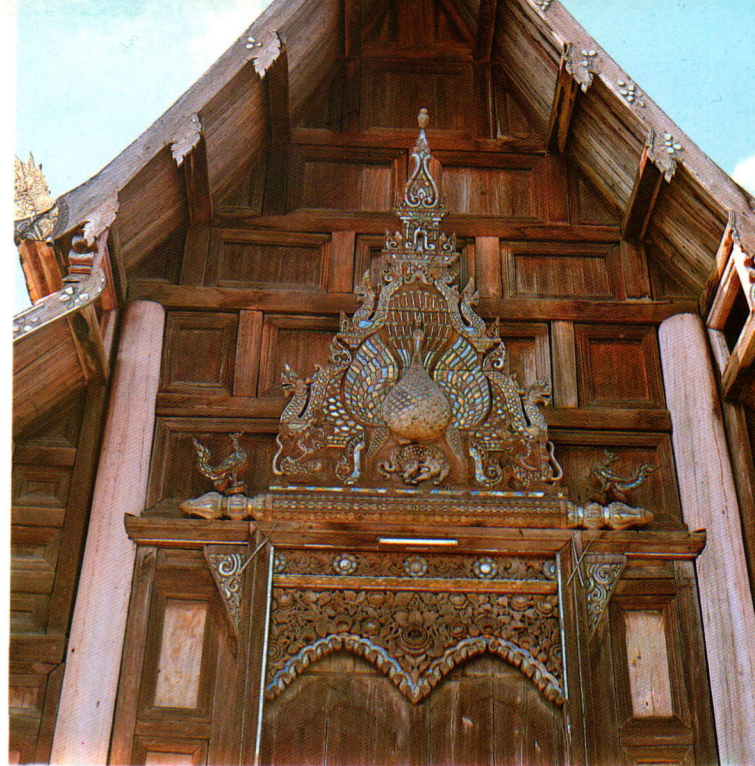
Metal engravers worked hand in hand with silversmiths and goldsmiths because the making of jewellery, and such body ornaments as rings and bangles as well as the making of decorative pieces in gold and silver, such as niello ware articles and enamelled utensils, for the King's use, all usually involved engraving. The engraving of fine ornamental detail in these precious metals was so as to generate a sparkling effect in the raw metal as a contrast to the rich, but less highly-detailed, applied surface ornament. And there is another kind of ornament in metal that requires the services of the metal engraver, namely metal inlay. This is achieved by first a combination of engraving and beating or hammering line ornament into a base metal such as bronze or iron and then filling the incisions and depressions with gold or silver wire of the right thickness. To keep the inlaid threads in place an iron rod is used like a hammer to flatten out the wire to tightly fill the incised lines and at the same time to take up any slack in the wire. If gold wire is used this is gold inlay (khrom thong) and similarly if the wire used is silver one has silver inlay (khrom ngoen).



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Gable ornament on the Buddhasawan Chapel in the grounds of the Bangkok National Museum. Four-faced, four-armed Brahma-s are shown seated in their heavenly vimana abodes. The background ornament of

leafy vines extending into linked spirals comes from Ayudhya Period art but their treatment here already includes some early developments in the history of the design of Rattanakosin (Bangkok) Period ornament.



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Part of the facade of the large, well-preserved wihan assembly hall at Wat Phan Tao, Chiang Mai. Before being given over to the monastery and reassembled there, this wooden building had been the audience hall of the

fifth king of recent Chiang Mai, King Mahotraprathet (r. 1846-1854). The pediment over the central entrance portal is in a Chiang Mai style that popularized the figures of the local culture rather than follow the belief

system embodied in the traditional ornament of the earlier Lan Na style.



41

Ornately embellished, carved ceiling panels enclosing an ornamental design called "Stars Encircling the Moon" inside elaborate frames. The rabbeted angles and corners of the outer and inner frames respectively, along with the spandrels and lozenges, all add to the cosmological symbolism contained in this ceiling ornament.



42

A finely-carved, Sukhothai Period style, ceiling panel from the inner sanctum of the presiding *prang* reliquary tower of Wat Phra Si Rattanamahat, Si Satchanalai district, Sukhothai province, its ornamental composition is one of an annular lotus bloom of immense size. The spandrel panels in the corners are called "bats" in Thai art terminology because bats are often figured in this position in Chinese and Sino-Thai art. Here however angelic half-figures with hands raised palms together can be found in the spandrel ornament. One of the very few examples of wood-carving to have survived from the Sukhothai Period.

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The ceiling ornament here in the Early Rattanakosin Period Buddhaisawan Chapel standing within the Bangkok National Museum, too, is "Stars Encircling the Moon" contained within a rebated square frame with the rabbits grouped in threes. Taken together, these frames and the lotus rosettes contained within them (Thai : *bua krop waen*, "lotuses (within) mirror-frames"), are symbolic of the numerous island universes of Buddhist cosmography.

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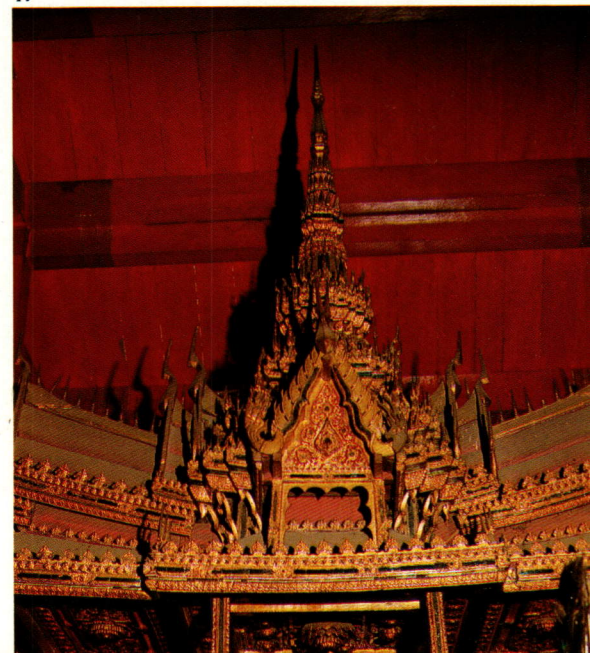
A monastery pulpit, art of the Late Ayudhya Period, originally of Wat Khang Khao, Nonthaburi province, but now kept in the Bangkok National Museum. Around the circular pedestal base are carved panels depicting "Chinese door gods" trampling lions underfoot. Each is in the act of drawing his creese (*keris*) from its scabbard. This is a Thai adaptation of the Chinese theme.



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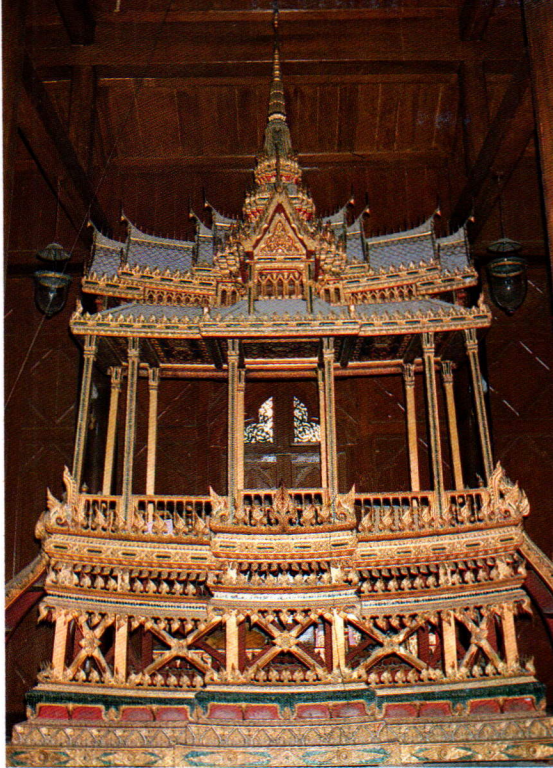


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A pulpit with seating for four monks. The sermon is delivered from another (single-seat) pulpit and these four monks provide a kind of chorus. When the sermon is completed all five come together to form a complement of monks. This pulpit comes from Wat Yai Suwannaram, Phetchaburi, and is now kept in the Bangkok National Museum. Notice the sway-back dip of both the seat line and the overlapping roofs and how they relate to each other. The false facade of the telescoped saddle roofs is of a type that was popular in architecture during the Late Ayudhya Period.



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An important extension of the ivory and metal engraving techniques described above is in the cutting of the metal dies used in gold and silver embossing. A block of iron or bronze carries the die which is engraved in the ordinary way. When this has been done to satisfaction a sheet of gold or silver is placed on top and a lump of lead is melted down, poured into a mould and allowed to cool into a block of similar size which is then placed on top of the precious metal sheet. A third matching block, of iron, is now placed over the lead making a thick sandwich. One now takes up a large forging iron or a heavy blacksmith's hammer and beats the sandwich down flat. The lead filling is the softest of the three blocks and helps to press the precious metal sheet into intimate contact with the die. In more recent times even with the introduction of the die-press the old die-cutting technique has undergone but very little change mainly due to the special linear character of Thai ornament. Nevertheless the wax-and-acid method of cutting a die was found to be of some help in some special kinds of work, but only as an adjunct to engraving the traditional motifs with chisels and gouges.

The other major branch of this craft is woodcarving. Carvers in wood are the engraving craftsmen who are given jobs on the largest scales. Nevertheless they too have an attitude towards their work which it is only fair to describe as fine and detailed. They received widely different commissions to apply carved ornament to various parts of halls and buildings inside the palaces and the monasteries, and outside, as well as to various artifacts and equipment in



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common use. These woodcarvers needed to be well-founded in the various Thai forms of ornament because most of the assignments that they were given involved carving ornament on wooden panels of very different sizes. Those that come most readily to mind are the gable-ends to palace and monastic halls, door and window leaves for these and other buildings and narrow window sill panels on traditional teakwood houses, in addition to centre tables, cabinets and folding screens, etc. Should the woodcarver be especially knowledgeable in line drawing as well his carved panel ornament would in important jobs reveal considerable originality. Furthermore if he is also good at figurative drawing and introduces pictorial objects and figures into his ornamental ground the impact of his carved panels will be very much enhanced. As has been said in the opening to the essay on drawing, drawing is the mother of the arts for Thai craftsmanship, and the important role that drawing plays in the engraver's, and the woodcarver's, crafts has now been amply illustrated.

When the ornamental woodcarver has obtained a full-scale drawing of the ornament that has been commissioned he can begin his work. First he traces the drawing, or cartoon, onto the fresh wooden panel. He then compares the two and makes any necessary additions or alterations to the preliminary work. Satisfied, he takes up a chisel and taps out the ornamental lines fixing them in the wood. In this way he can mark out those parts that must be carved out to provide the ornamental panel ground, those areas where there will be some overlap of parts, parts

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A detail of the base of a pulpit for four at Wat Phra Si Rattanamaha That, Phitsanulok.

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A detail of the superstructure of a pulpit for a small group of monks at Wat Phra Si Rattanamaha That, Phitsanulok.

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A Rattanakosin Period multiple-seat pulpit from the Fifth Reign (1868-1910) at Wat Rachathiwat, Bangkok. This is a copy made of one of the multiple-seat pulpits still to be seen at Wat Phra Si Rattanamaha That, Phitsanulok.

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A pushpaka styled pulpit in the sala kanparian teaching hall of Wat Rachathiwat and a copy of a Late Ayudhya Period pulpit at Wat Phra Si Rattanamaha That, Phitsanulok.

which will be later rendered as plant growth, and those parts where major ornamental and figurative bodies and motifs will be found that may later be worked into relief sculpture. One has really to see some examples of Thai carved wood panels to appreciate the possibilities for confusion, especially at the commencement of the job and particularly so near the base of the panel from which so much of the ornament "grows" If the drawing has a number of repeated details of identical size, as it well may have, especially in the middle or upper registers, then these are traced onto rice-paper rather than directly onto the wood and multiply reproduced. Then the disposable rice-paper tracings are laid on the wood panel and destroyed as the chisel taps out their ornamental lines.

With the ornament's lines having been marked into the wood by the taps of a light chisel the next step is to carve deeper into the wood with gouge chisels. No matter how deep or shallow this needs to be done what is important is to keep the depth of the ornamental panel ground uniform throughout the panel. If the ornamental panel is a large one and is set up high off the ground then the depth is somewhat greater than it would otherwise be. All the gaps between parts must be clear and sharply edged and in most cases extend right down to the ornament's ground so as to achieve the desired deeply hollowed-out look. Seen from a distance under the strong tropical sun with its harsh shadows the illusion of real depth is really quite striking. The Thai craftsmen of old called this illusion "the penetration of space" (Thai: *akat kin*, literally "space bites (in)"). This same principle applies to all carved ornamental panels that are to be installed above eye-level and the architectural woodcarver must always keep the final effect in mind as he works.

The very best of the carved wood ornament belonging to the Rattanakosin Period would have to be the set of carved door leaves hung in the grand forehall of Wat Suthat Thephawararam (next to the Giant Swing) in which the Phra Si Sakyamuni image of the Lord Buddha is installed. The hand of King Phra Phutthaloet La Naphalai (King Rama II) is to be found here. A passage in the Royal Chronicles of the Second Reign runs as follows:

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Casement steps leading up to a pulpit at Wat Phra That Lampang Luang, Ko Kha district, Lampang province. An example of the old Lan Na art style and itself dating back about as far as King Tilokkarat (r. 1442-1488) of the Meng Rai dynasty. Note particularly the fretwork masking the inner side of the posts. A single, opening leaf shape, its internal parts are tripartite flamboyants. Carved out from the casements are foliated openings below, and curled-up arabesques above. These are all distinctive ornamental forms belonging exclusively to Lan Na Thai art.

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A *prasada* styled pulpit in the Chiang Mai art style of about 80 years ago, of a type that belongs specifically to the art of Lan Na. The upright screen boards are not the originals which were double-leaved and carried carved ornament. In northern Thailand when a monk seats himself in a pulpit he draws flower-bedecked curtains across to close him off and only his voice is heard. This pulpit is at Wat Pa Chi, Tambon Mae Hia, Muang district, Chiang Mai.

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This King's *rajendrayana* roofed palanquin with footrest is constructed of wood, carved and gilded. It has a backrest and arm rails for extra comfort. Around its base are *garuda* supporters with wings outspread. These *garuda* supporters seem to be reaching ready to take flight. Early Rattanakosin Period art from the First Reign. The design of a Siamese roofed palanquin is masterful for its clarity of elements and their liveliness. Indeed there is a Thai saying, "as beautiful as the King's roofed palanquin".



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The form-fitting, flamboyant, frame-housing on the Phutthachinarat (Buddha Jinaraja) image at Wat Phra Si Rattanamaha That, Phitsanulok. Made of carved wood and gilded, its ornament belongs to the Sukhothai Period. The shoulder "wings" are spewed from the toothy jaws of a *makara* sea-monster and themselves contain Sukhothai Period style fretwork ornament of the tripartite flamboyant type.

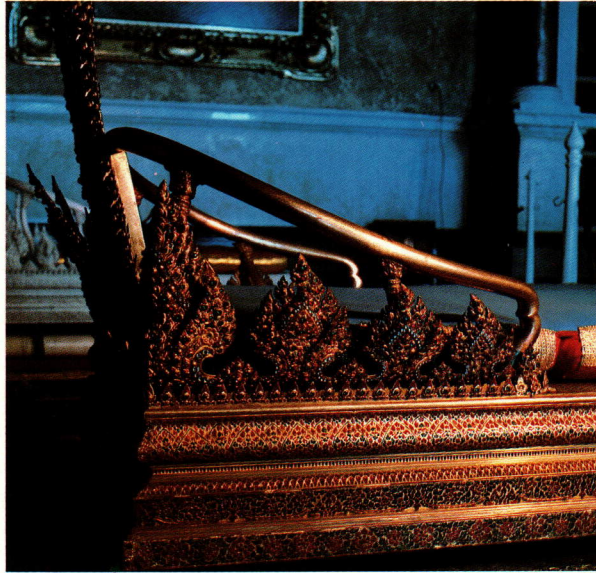
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A Sukhothai Period *makara* sea-monster at the foot of the Phutthachinarat image's "jewelled" frame-housing. Beneath it is a *yaksha* demon cast in metal of a younger age than the gilded wooded frame.



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A gilded litter with back and arm rests for either the King or a prince with a government appointment. Made of carved wood and gilded. The seat is mounted on parallel poles at the ends of which are shoulder-yokes harnessed to the poles by cloth-covered cordage. By these means eight men could carry it.



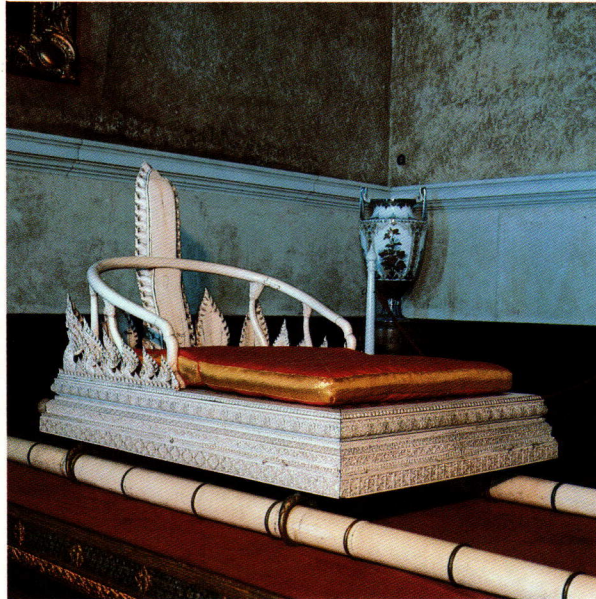
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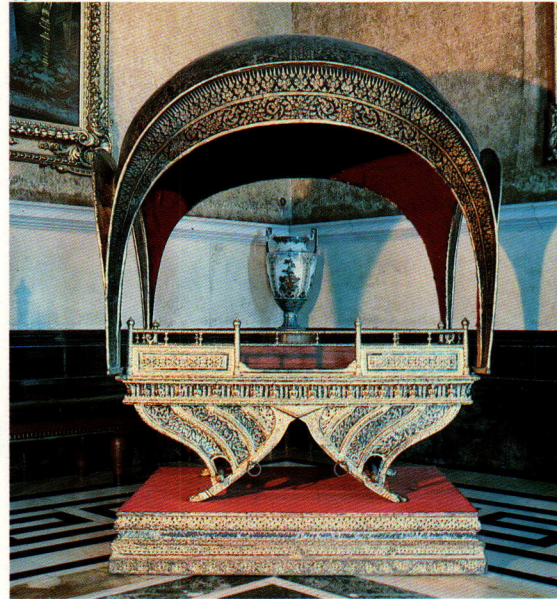
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A Fifth Reign ivory litter for the King's use constructed entirely of elephant ivory, much of it carved in dense detail. A free-standing border of deeply carved leaf-shaped elements rings back and sides. Prince Khommamun Prap Porapak, a naval officer and a palace ministry official in charge of both the Elephant Guard and the Craftwork Department, and Nai Rot Rattanasinlapin created this litter in 1889 A.D.



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This royal ivory litter is crafted entirely from elephant ivory. The work of ivory carving and engraving here is of a superior quality. Krommamun Prap Porapak, besides his other positions the Responsible Officer of the Craftwork Department (Krom Chang Sip Mu), had this litter built for the Fifth Reign King. The craftwork was done during the year 1889-1890 and its principal craftsmen were the Krommamun himself and a commoner, one Nai Rot Rattanasinlapin.



58

A *pushpaka* seat for royalty with the four-faced head of a Brahma as a part of the spire. From the First Reign's Prince of the Palace to the Front's workshop and now on display at the Bangkok National Museum. Its design follows that of a cruciform *prasada* palace hall and it was made to seat three : the Prince of the Palace to the Front, his close associate Chao Kaeo Rotcha or Chao Si Anocha, and this Prince's daughter, Princess Phikun Thong. The ornament is carved, gilded, and embellished with chips of coloured mirror glass. The craftwork is very fine.



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Carved pictorial ornament on a door leaf from Wat Suthat Thepphawararam, Bangkok, now in the Bangkok National Museum. There are four levels of carving which includes mountain forest scenes and animal life. From the Early Rattanakosin (Bangkok) Period, work of King Rama II.

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A covered elephant howdah for the King to use in times of peace, but not during a military campaign. The cover is made of basket weave bamboo for lightness and has been lacquer-coated and gilded with ornament of the "washed design" type.

"...Incidentally, the door leaves of this royal *wihan* hall were commanded to be made each from one single panel of wood. Krommamun Chittraphakdi was made the foreman. When the door leaves motifs were designed, and the panels built, and all was ready for the carving, the leaves were carried to the audience hall and set up inside so that the King would be the first to lend his hand to the carving. The craftsmen were later allowed to take up from there to continue the work." Somdet etc. Chao Fa Krom Phraya Naritsaranu Watt Wong (Prince Naris) who was very knowledgeable in these matters of craft graciously provided in his extant writings the following commentary: "...The door leaves of the Phra Si Sakyamuni *Wihan* hall carry complex overlapping designs many layers deep. This exquisite work is really quite amazing. I have heard it said that there was once a pair of carved door panels that had been brought down from the north. The King was struck by their beauty and commanded that two new pairs be made and that all three be hung in the royal *wihan* hall permanently. Some time later it became apparent that the King's own hand had carved them. This announcement was printed in the Royal Adjudgements (Phra Ratchawichan). Our interpretation which draws in part upon reasonable speculation, is that once there really was a pair of carved door panels that had been brought down from the north because a few "carved" door panels of this kind can still be seen in the north—in the Phra Thaen Sila-at *Wihan* hall (in Uttaradit province; they have since been destroyed in a fire) and at Muang Fang (in Chiang Mai province), two outstanding ex-

amples. At that time there must have been a strongly competitive spirit among the leading woodcarvers. It is right to call them "carved" because they have really been carved quite freely and deeply into the thick wood. The wood was hollowed out with great subtlety. There are bridges and overpasses, tunnels and underways in the many overlapping layers of ornament, a veritable maze of internal carving. So complex is the work that chisels and gouges alone could never have achieved the final result. Much of the work must have been done with finely-honed knife blades. When such a beautiful pair of door panel carving was shown to the King it must have provided him with a real challenge for Rama II was already an expert woodcarver of note (from his younger days at Wat Rakhang Khosittaram)..."(19th August, 1915).

Prince Naris' written works take us on a little further. In them we learn that the use of tools does not always mean that they are the tools with which a craftsman priorly provides himself in order to carry out his professional commissions. In some cases tools are acquired, or specially made by their user for employment on one particular job, and then when that job is finished and over, this special set of tools may never be put to use again. Records of cases when this has occurred lead us to the knowledge that craftsmen have in fact thrown their tools into the river after the job was done. If there is a practical reason for why they did keep them for later use on other jobs it would be because an ordinary woodcarver's tool kit is his own personal idiosyncratic collection of

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A king's howdah with carved ornament, gilded and glass inlaid, and equipped to carry gifts. When used in royal state ceremonies, or to supplement one, a parasol was mounted over it, usually one with five tiers.



62 chisels and gouges of the various types and sizes that he himself has gathered together because he has found that they best suit his particular technique and the tasks he is usually given. With a perfect technique and a unique job the King might well have thrown his tool kit into the river after carving the doors.

Furthermore, it is important that each and every one of the tools in the woodcarver's kit be kept sharp and in good working order. Each variety of chisel has its own special function and the craftsman must keep them separate in his mind if he is to avoid mistakes. The same kind of light flat chisel that he uses to tap out the ornamental lines is used to increase the depth of the ornamental ground by hollowing. He can also use a flat chisel to finish off the ornament by carving in its sharp fine detail and giving it the edgy, cut quality that is so highly valued. A gouge is rather different from a chisel because it has a sharp, curved cutting edge although both are usually struck with the same round, wooden mallet. There is however a class of woodcarver's chisels in common use in Thailand where the chisel handle is held in the hand and pressed down firmly to trim and even off the ornamental bodies with a sharp slicing action. This is a technique requiring a lot of skill. One side of the ornamental feature will be trimmed on the vertical while the corresponding face on the other side will be trimmed at an angle, that is on the oblique. By correctly balancing the two and alternating the strokes he can bring up the detailed features of the ornament quite remarkably. This however is one of the last steps in woodcarving done



63 as the job is approaching completion and if his roughhewn ornament (klon lai) leaves something to be desired, no amount of light hewing at the end, be it as fine and crisp as one can make it, will overcome the early faults.

Carving large panels for architectural wood sculpture normally involves wooden panels much the same size and shape as the ornamental relief panel, so the architectural woodcarver must also know the basics of carpentry and joinery as well. The woodcarver of a monastic hall's gable-ends faces the special problem of having wide rectangular boards that must be fitted together to make the very large triangular panel required. He must somehow knit these boards together vertically first by bonding them firmly in position and then with hatchets and adzes he can block out the desired triangular panel. When the sculptural woodcarving is all but complete the panel is dismantled and its boards put into place under the verge one by one in the original order and position. Now with wood rasps, or coarse files he trims the joins so that they fit home together snugly and the panel now appears to have been constructed all from a single piece of wood. With the gable-end firmly set and bound in place the builder's bamboo scaffolding is modified for the convenience of the craftsmen. First the woodcarver goes up and goes over the details of his carved ornament for the final time. When his work is finished the lacquerer takes his place, and he is followed by the coloured glass mosaic layer. Last of all comes the gilder. The job is now complete.

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Details from a leaf of a pair of carved double-leaved doors hanging in the Wihan Noi side-chapel at Wat Na Phra Men, Ayutthaya. Late Ayudhya Period art. Notice the strong lateral symmetry in each, the details, and the confident carving in depth. The design is regular, but not excessively so. It is one of spiralling vines and leafy tendrils with heavy floral bodies at the extremities much intertwined.

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The central door-opening on the sala kanparian teaching hall at Wat Yai Suwannaram, Phetchaburi. A Late Ayudhya Period design with carved ornament. The carved ornament comprises a pattern of spiralling vines with large heavy floral bodies. Within the spirals, at their extremities, are various flamboyants and animal half-figures such as heraldic lions, etc. These flank the central connected band of heavy floral bodies.



There are in the Thai tradition some examples of true sculptural woodcarving including the carved figureheads (*khon rua*) on the Royal Barges and some (freestanding) Buddha images of various sizes, but mostly quite small. Such works have a clearly-defined intermediate stage involving a roughhewn sculptural form (*klong rup*). To reach this stage the sculptural woodcarver favours for his tools, axes, or rather hatchets, and adzes. The timber-saw has never been popular among the traditional craftsmen, being regarded as a labourer's tool.

Really economical roughhewn ornament and roughhewn sculpture both require a master's hand if they are to be at their best and most effective. Anyone less than a master must make up the difference with a great deal of talent and, more importantly, extensive experience with a goodly number of outstanding successes already behind him. Today at Chiang Mai in northern Thailand there is a flourishing trade in working elephants carved from teak-wood blocks. The roughhewn sculpture is purely functional and has no aesthetic appeal. What it does do however is fix the animal's posture and essential proportions. A craftsman can easily see when things are "not quite right" even at this early stage. From this point on, the chisel and the gouge take on their full importance and the real shape emerges. The final step is bringing out the surface detail.

What has been said above about engraving followed by woodcarving, about the engravers and carvers in the Thai tradition, may serve as a rather inadequate introduction to this division of craft for those readers who are more interested in knowing the mechanics of how it is all achieved. All that the writer has to offer in his defence is that the main purpose of this review is to point out how the craftsmen, in this case the engravers and carvers, of traditional Thailand have been responsible for much of the past artistic creativity that is still to be found in this land, while the lesson the writer hopes to have conveyed is that it is right and proper for the up-and-coming generations to follow in the footsteps of their forefathers and build upon this very visible aspect of the Thai cultural identity.

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A detail from the Ayudhya Period sculptural relief carving on a leaf of the well-preserved double-door leading out onto the circumambulatory around the Phra Borommathat relic monument at Nakhon Si Thammarat.

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Eaves brackets on an exterior wall angle. Work of the Palace to the Front's school of craft during the First Reign. On the Buddhaisawan Chapel in the grounds of the Bangkok National Museum. These are not at all typical of eaves brackets generally, for they are almost fretwork, such is the delicacy of the climbing vine ornament entwined around their looms.

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Carved wooden eaves brackets on the *sala kanparian* teaching hall at Wat Yai Suwannaram, Phetchaburi. Ayudhya art from the 18th century. This timber hall from the Ayudhya Period is still in good condition. The monastery's history reveals that this was formerly a residential building for nobility standing within the Grand Palace at Ayutthaya and that a King gave it to his Supreme Patriarch who had it reassembled in the monastery where he had spent his childhood.

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This lotus capital pillar with beam brackets is square with rebated faces (three rabbets per angle). The capital has long, narrow, pointed-tip lotus petals while the shaft carries coloured mirror glass mosaic. Early Rattanakosin Period art at Wat Phra Si Rattanasatsadaram (the Chapel Royal), Bangkok.

69

Solid panel-type eaves brackets of the Early Lan Na Period style in which the *naga-makara* serpent features prominently. The curled spirals contained within the borders above and below at times resemble the tripartite flamboyant but on the whole they indicate an influence from Chinese art for they can be also viewed as being rather like Chinese storm clouds.

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One of the carved wood eaves brackets on the *Ho Trai* scripture repository and reading rooms at Wat Rakhang Khosittaram, Thon Buri. This complex was formerly the home of the First Reign King before he was crowned King. On becoming king he gave over his family home to the monastery where the original curtain walls of palm thatched lathes were replaced by the teak panelled ones we see today. The eaves brackets were therefore most likely fitted to the triple-unit building at the same time.



71

Front entrance to Prasat Hin Phimai or Phimai Sanctuary, in the north-eastern province of Nakhon Ratchasima (Khorat). This 12th - century A.D. edifice was built entirely in sandstone, decorated with delicately carved panel throughout.



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The head of Brahma sculpted in sandstone, Lop Buri Period (11th-13th century A.D.), now at the National Museum, Bangkok.

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Sculptured soapstone post ornaments on a sacred retaining wall around the Buddha's Footprint Shrine in Saraburi province. They are models taken from the two different architectural traditions found in Thailand, the Hindu *sikhara* tower and the Buddhist *caitya* (cetiya) or stupa monument. They belong to Ayudhya Period art however and date from the reign of King Prasat Thong (r. 1630-1655)

75

Sculpted stone ornament at the 12th century A.D. Phimai Sanctuary, Phimai district, Nakhon Ratchasima (Khorat) province. This was a Mahayanist Buddhist temple and today is one of the most beautiful ancient stone sanctuaries in this country.

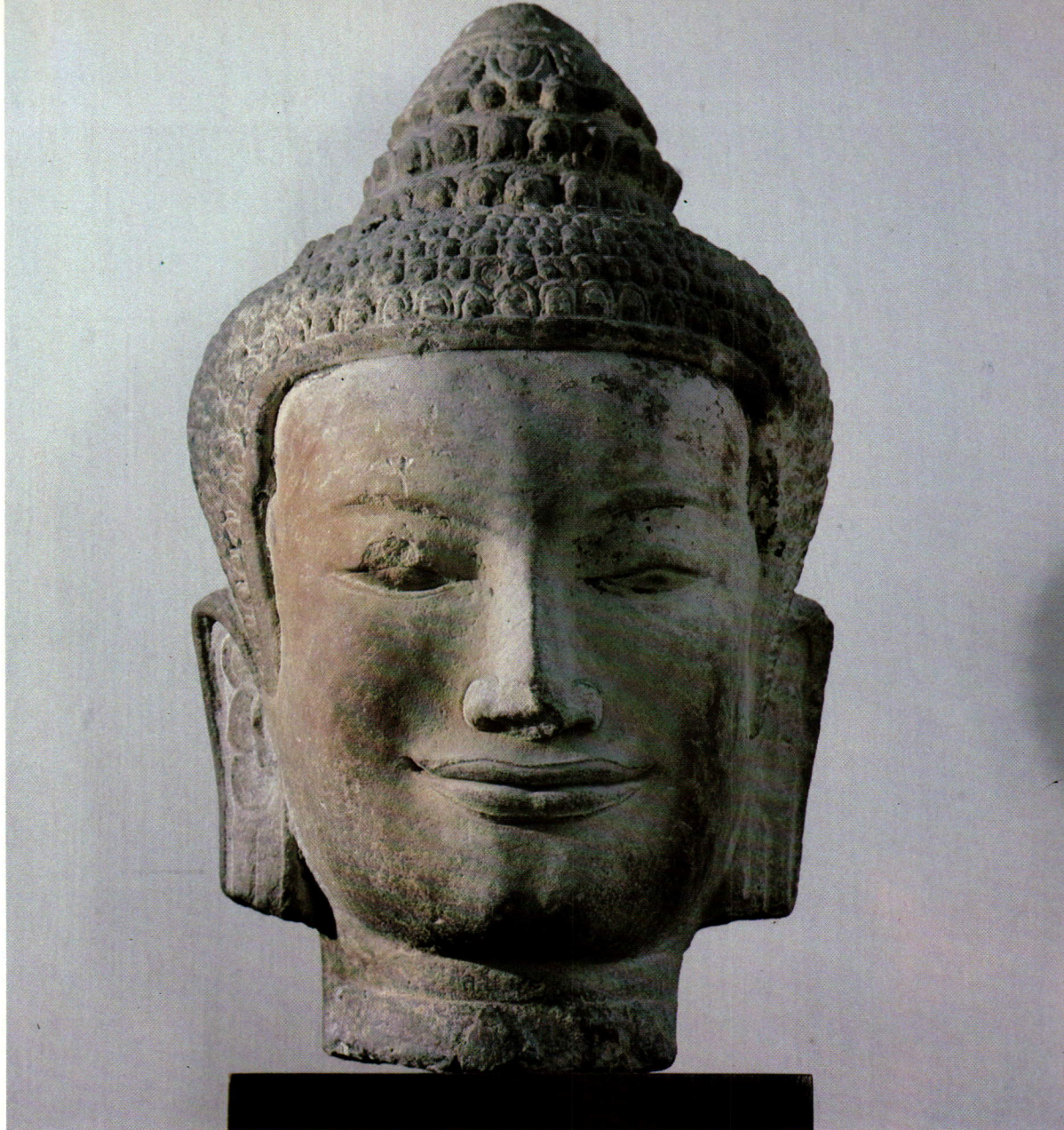
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An 11th century sculptured head of the Lord Buddha in stone from the Lopburi Period at the Bangkok National Museum. Note the sweet, soft smile, one of the expressions shown in the ancient arts of Southeast Asia.



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A carved, double-leaved door from the Early Ayudhya Period. The postures of the two door gods, or guardians, are mirror symmetrical, but even so their dress is properly worn, and the panel ground above their haloes has not been left plain, for an old, primitive type of arabesque has been carved there. Despite this we can still say that this is one of the better works of art from the Early Ayudhya Period. At present it is on display at the Ram Khamhaeng National Museum, Old Sukhothai.

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A book-rest for palm-leaf scriptures. Lan Na Thai art from the 18th century. Called a "silver staircase" (Thai : bandai ngoen), it is a comparatively plain work with only some woodwork elaboration at the top. This saddle-roof type board, lacquered red and gilded, has been added to lend lightness to the book-rest. On display at the Chiang Mai National Museum.



79

A carved Thai cabinet carrying Chinese ornament featuring figures of Chinese dragons and climbing vines. In the private collection of Prince M.C. Piya Rangsit Rangsit within his family's palace on Wireless Road, Bangkok.



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A Sukhothai Period walking Buddha carved into a schist slab and found on display at the Bangkok National Museum. Notice how the flowing line of the image's left side is paralleled by the loose-hanging right arm, and also the relationship between the tilted head and the bent-back left arm. The rounded vertical frame's relationship is with the figure as a whole.

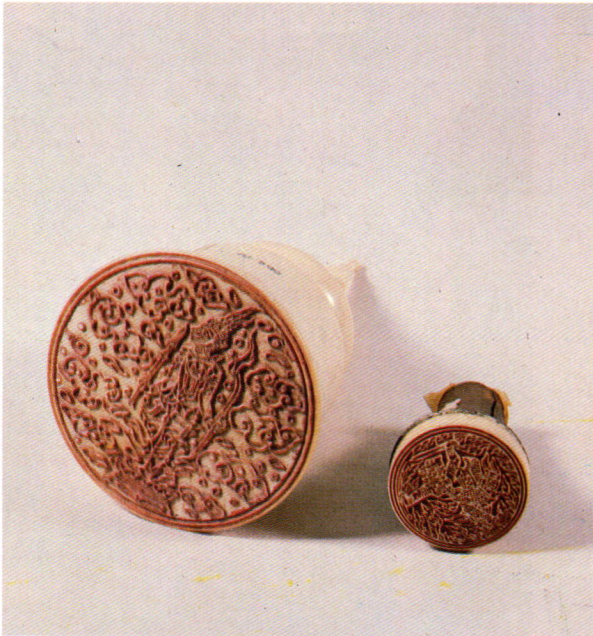
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Carved red-inked seals for use as chops on government documents or seals on official orders. The two shown were for endorsements only on matters involving communications between upcountry towns or between the Capital and the upcountry provinces. The face of this type of seal is curved rather than flat, being raised on the central axis for rolling. A large number of varieties were once in use because in the old days the signing of a document with one's signature in ink was not the normal practice and it was the seal or chop that gave legal force. Carving seals was then regarded as an art, or a craft, one that was recognized by the Royal Government.

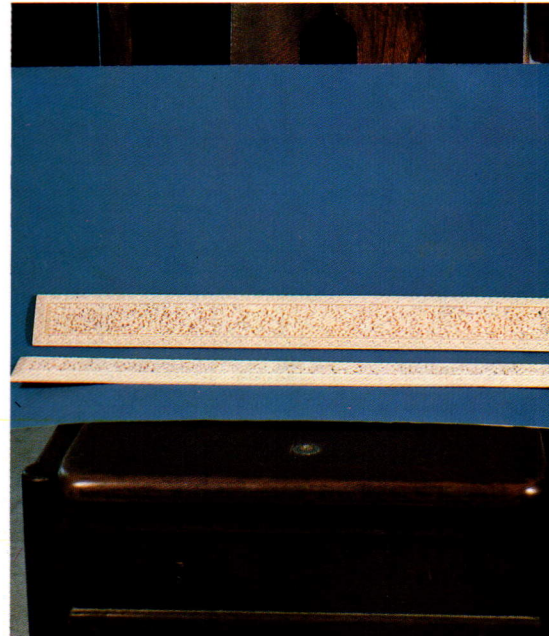
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A pair of palm-leaf scripture covers of carved ivory from the Early Rattanakosin Period and now to be seen on display at the Bangkok National Museum.

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An open hall at Wat Ton Kwen, Hang Dong district, Chiang Mai province. It is in the Lan Na Thai architectural style of the Chiang Mai Period and is some 150 years old. All the wood is teak and the roof is made from local red clay tiles. No restoration has ever been made to it.



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The Wihan Lai Kham or "gilded hall" of Wat Phra Sing, Chiang Mai, is an example of Lan Na Thai monastic architecture from the reign of Prince Phraya Kawilla (the founder of Chiang Mai's Chet Ton Dynasty of seven rulers) and is about 200 years old. It has however been renovated and restored a number of times since then. The last major restoration was done during the Fifth King's reign, or about 100 years ago. The Buddha Sihing image (of Chiang Mai) is still housed inside this building. All four walls inside carry murals. Those on the two long walls tell the stories of Sang Thong and Suwannahong and were painted early in the reign of the Fifth King.





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The timber *sala kanparian* teaching hall at Wat Rachathiwat, Bangkok. Its architect was Phraya Chinda Rangsang who was active during the Fifth Reign.

Engraving plays a major role of all forms of traditional Thai architecture.



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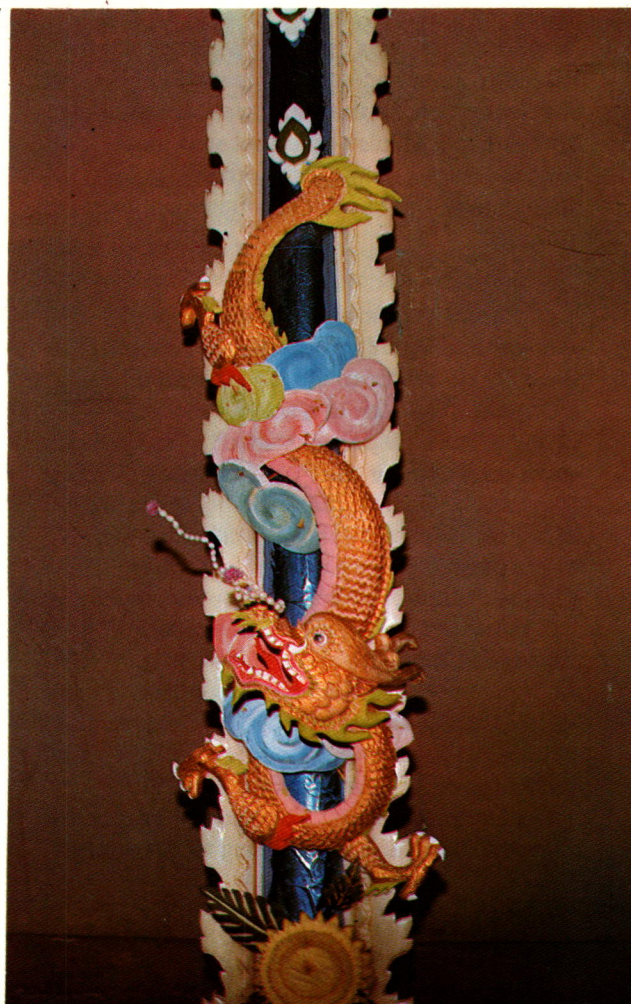
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The art of sculpted perishables is one of the Thai art crafts. It demands of its practitioners considerable initiative, skill and native ability. They must also be observant and experienced in the ways of Nature. Their skill lies not only in the drawing of ornament, but also in an ability to give their raw materials the appearance either of a variety of tropical fruits or

of fabulous beasts and floral and plant figures and motifs. Their raw materials were pumpkin, marrow, egg-plant, cucumber, papaya or paw-paw, water melons, and suchlike. The end product was only used for a single day, at a cremation for example, to decorate the pyre with sculpted banana or plantain trunks and sculpted perishables for the figures, or at a

monastic reading of "The Great Life" (Thai : Thet Maha Chat, i.e. the Vessantara Jataka) to decorate the place, or even at a party or dinner where sculpted fruit adorns the food table. A skilled sculp can take a whole pumpkin and reduce it to a flat shape some six or seven metres long but, incredibly, still in one piece.

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A selection of exquisitely
sculped fruits, ready
for a grand banquet. In
the old days, most court
ladies excelled in this
highly specialized art.

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The Large Shadow Play's projected leather cutouts. This is a distinctively Thai theatrical entertainment from the Ayudhya Period for which shadows are cast onto a white screen. Alternatively, the puppet holders pranced about in front of an illuminated screen. There were therefore two kinds of leather cutouts, one for day-time use, the other for the night-time when a wood fire cast its light. The night cutouts are black ornament with white spacers. Day-time leather cutouts are painted in various colours and even sometimes gilded as well, using exactly the same painter's technique as mural paintings on white plaster walls. These two leather cutout figures, or puppets, are shown on display at the Bangkok National Museum.



accomplished worker in each and every part of both kinds of work and has the respect and affection of all the team's members, many of whom will call him their "Mom".

The leader's prior planning of the work is of no little importance to the outcome. He begins with an intimate knowledge of the capabilities and limitations of each of his team's members so that he can assign to each of them upon arrival the work that best suits him or her. Special abilities and skills are his first concern and he must match these with the more difficult aspects of the assignment. By "the more difficult aspects" is meant those skills and aptitudes which not every sculp of perishables will have; some will excel at unvarying repetitions of simple ornamental motifs, some at creative ornament, and a few at figurative themes. The sculps of figurative themes can be further separated into what set of figures each is best at doing. Some have specialized in the classical figures of warriors, ogres and monkeys from the Ramakian (the Ramayana); others in the Chinese figures featured in the *Romance of the Three Kingdoms* (*San Kuo*); while others still are expert at depicting key scenes from the *Dāsajati* (the *Thosachat*, or the *Ten Lives of the Lord Buddha*) Jatakas, or even more selectively, the key scenes of the canto divisions of just the last of these ten Buddhist birth-stories, the *Mahajati*, which tells of the story of Vessantara (Sudana). There are several "incomparable masters" of perishable sculpting whose excellence in one or other of these figurative themes has become indeed a part of their names as we know from their having been handed down from the past. Thus we hear of Ta (Grandfather) Aep Rammakian, Ta Waeo Sam Kok (i.e. the *San Kuo*) and Ta Phan Wetsandon (Vessantara).

When the leader has chosen the star members of his team for a particular occasion, he assigns to them the more difficult parts of the work each in accordance with his special abilities. It is usual for the team to come together and begin work only 30 or 40 hours before the job must be completed and ready. As a consequence none of the delays in work that so often characterize the other crafts can be permitted to occur on this one. To make the most out of the limited time available to complete the job these 30 or 40 hours are 30 or 40 hours of ceaseless work going on day and night without rest or sleep until it is all done. To keep the team awake and active the host provides an



unlimited supply of liquor and spirits, high protein snacks, and tasty rice meals every four or five hours around the clock for the entire duration of the work. There cannot be even a hint of a possible let-up in the generous supply of food and refreshments for fear of eroding the sculp team's enthusiasm for its work. This whole scene of light work demanding uncommon skills and continuous performance without the luxury of sleep or rest from early morning all day and right through the night well into the second day is in fact the type of peak experience sought out by many well-trained people working within the Thai social and cultural world.

The training of new sculps is usually something that is done in a family setting with the older generations providing instruction and example to the younger generations, as in fact is the case in most of the traditional Thai crafts. If there is someone from another family this will have been a consequence of a long, intimate acquaintance and so usually someone living quite close by. No sculp team likes the

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Gilded stencil ornament produced by using paper cuts and gold leaf in a *wihan* assembly hall at Wat Pong Yang Khok, Hang Chat district, Lampang province. About 200 years old, these stencils depict repeated figures of pots of plenty overflowing with leafy plants or vines of some exotic type. The name for this design is *puranakalasa* and it is symbolic of growth and prosperity, of peace, sufficiency and happiness.



Modelling

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Figures of Avalokitesvara and Sri Maitreya (Aryamettaya), two bodhisattva-s, modelled in stucco, were found at Wat Khlong, Tambon Khu Bua, Ratchaburi province, a Dvaravati Period urban site, ornamenting the faces of this monument's basement. Notice that the waist and hips are flexed in contrary directions indicating that they were possibly formerly flanking figures with Sri Sakyamuni (the Lord Buddha) shown occupying the central position.

The work of the modeller's craft in former times in Thailand is not known with any certitude even though there are surviving modelling jobs that exist today for study. This paradox can readily be explained by pointing out that much of this work has been incorrectly attributed solely to the art of moulding for the easily understandable reason that the successful outcome of modelling generally lies in the moulds made for casting. The modeller's work is therefore merely implicit in all the works of moulding or casting that have survived or have been recorded.

Three lines from an old extant verse of the invocation from the Homage to the Teachers make mention of some teachers of the craft of modelling (*chang pan*) whose works assured their renown:

*"Homage to Chao Chom Phetchawakan,
Khun Thep the Diligent,
And too, Rak, Phumin and Kanlama,
..."*

Somdet Phra Chao Barammawong Thoe Chao Fa Krom Phraya Naritsaranu Watt Wong (Prince Naris) provided the following commentary in *Tamnan Sang Phra Phuttharup*, a history of Buddha image casting and one of his major works:

"...Just who this Khun Thep was is a real problem. I have heard mention made of three masters of renown with the title "Thep" in this

context. (1) Thep Yon (Devayantra) whose position was that of head of the Department of Figuring (*Chao Krom Chang Hun*) and who was responsible for the models of ogres guarding the front of the Ho Phra That Monthian (now the Phra Mondop of Wat Phra Si Rattanasatsadaram, standing beside the Royal Chapel *trans*) as well as countless classical *Khon* masks and the heads of some figures and puppets. It is not known what his original name was, nor is it known whether his rank was Khun or Luang. He was so well-known that people simply called him Thep Yon for short. He excelled in modelling monkeys and fierce ogres with strongly-marked expressions. All of his extant work dates from the Second Reign so it is rather unlikely that his life extended into the Third. (2) Thep Luang is the only part of his title of which I have heard spoken but I believe the reference is to a Thep Luang Rotchana (Rocana) whose original name too is not known today. He was a real master of the "regal male figure, the ogre and the monkey". His craftsmanship can be seen standing in front of two doors in the stately gallery around Wihan Yot (somewhere in the main enclosure (?) *trans*) of Wat Phra Chettuphon. There one can find two pairs of tin models of ogres. Other works of his include some classic *Khon* masks now in private homes. Most of these masks are on the small side for female dance-drama players. In the early days the only theatre that was performed by women players was *lakhon luang*, the Grand Palace's popular theatrical entertainments. *Lakhon luang* however was suspended during the Third

Reign. This leads us to propose that this “Luang Thep” was already a prominent craftsman in the Second Reign and that he remained active during at least a part of the Third Reign, during which Wat Phra Chettuphon was extensively restored and rebuilt. (3) Another Luang Thep was responsible for the pair of ogre models at Wat Arun that have now fallen down. He was called Luang Thep Kan and since his original name, Kan, appears at the end we know that he is not the Thep to which reference is made in the invocation rites from the Homage to the Teachers. The most likely candidate is in fact the second because his title is the closest of the three. The difference lies in the rank given, which is Khun in the verse but Luang in people’s memory, a difference readily explained if he was elevated in later life. He is also by far the most widely and best known of the three and is a byword in craft circles, which neither of the other two is, and so we should conclude that he is the person invoked.

“ ‘Kamlama (Kalama)’ is another name or title rather than I have heard. He was Palat Kan’s father. A modeller of ogre heads, he was active during the Third Reign. In order to discover his original name I once approached Palat Kan and was told, but I am angry at myself for having forgotten what he said. However I do not think that it was “Son” and so he must have come after Kamlama Son...”

We learn from having seen the Prince’s commentary that in the past if a modeller was an expert in his craft and had made a name for himself then he would be honoured as a Teacher. We are also led to regard the real work of a modeller as being found in stucco sculpture (pan pun). In modern Thai the same word, *pan*, is used for modelling in plasticine, or for that matter modelling in plaster. That this is the real nature of a modeller’s work can be seen for example in how Buddha images are cast and belongs therefore to a quite separate division of craft and a very important one too.

It has been said before and it will be repeated again here that drawing is the mother of all the crafts in Thailand and that it hardly matters what work is being contemplated, we shall find that a drawing of the job made by a craftsman in this “first” division in every case provides a model or a basis for the work. And modelling itself is no exception. It will normally rely for the details of appearance and posture on a drawing of the subject. This is not at all a



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A 14th century baked clay Buddhist votive tablet at the Bangkok National Museum in a style from either the Late U Thong Period or Early Ayudhya. The tablet is about four inches long.

straightforward process of copying from the drawing for the transition has to be made from a depiction in the flat to a free-standing model. This is not as large a step as one might at first think, however, for models, i.e. sculptures, in Thailand even if of the free-standing type are generally designed to be viewed from one angle only, and in most cases this is from directly in front. Nor do models of figures in Thailand have musculature or any other form of realistic surface modelling, and nor does Thai drawing either.

The division of modelling can be readily divided further into innumerable subdivisions. In many cases the subdivision is simply determined by the nature of the commission. Some jobs are done in clay alone, but some of these must then be finished with a papier mache coat in order that the clay might be protected from damage. Other examples of modelling jobs include a roughshaped wire frame over which papier mache is laid.

In the olden days the firing of clay models was never at all popular, sun-drying being the standard method. One of the few exceptions even today is the clay Buddhist votive tablet or amulet which is produced from a small mould. Firing these tablets is actually a very ancient tradition and it was practised so as to preserve these tablets down the centuries without excessive damage being done to them. Modelling in clay and drying out the job in the tropical sun requires one or two special techniques if one wishes to prevent the clay from being marred by ugly cracks. Ordinary clay is used but the trick here lies in kneading it thoroughly so that it is made completely uniform throughout. The secret ingredient is some straw paper that has been left to soak in water until it becomes a mulch. This is added to the clay. The clay must be kneaded for quite some time, that is until the paper mulch is so thoroughly blended in with the clay that it cannot be distinguished from the clay's components. Even so, some modelling jobs are thought to require collecting clay from seven different burial grounds so that when, with a lot of faith worked in as well, the modelling is finished and the clay model is put out to dry in the hot sun, it will dry out really well. The dried clay model may then be touched up or painted in various ways.

The modelling of a classical Maharishi Teacher's "mask" for use in the Homage to the Teachers rites is not really a mask at all for there



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An 18th century baked clay votive tablet in the Bangkok National Museum depicting the Lord Buddha giving protection. He is dressed in the royal attire of a Universal Emperor. From the Late Ayudhya Period. The tablet is about four inches long.

are no holes for the eyes. It is made from paper in exactly the same fashion as a usable classical *Khon* mask, or even hand puppets for that matter, but much of the interior core is left in place so that it is quite impossible for any person to actually wear it. When the new Teacher's "mask" has dried out thoroughly it too has ornament applied to it and is painted, just like actual masks, and all is done in strict accordance with traditional practice.

Another kind of modelling is making stag-head wall-hangings. Real antlers are used, but not real skin. Instead, Chinese yellow bamboo, preferred for its light, uniform colour, is left to rot in a trough of water until only its fibrous mass remains. A wire-mesh frame is now bent into the appropriate shape. The fibrous mass is then mixed with rice-flour paste for strengthening and to provide adhesion. After this has been carefully applied to the wire frame and modelled to shape, the whole is put aside to dry and harden. Now fine strokes can be made in the model's surface to bring up the fibrous texture of the head. The eyes are realistic glass eyes that can be purchased in specialist shops. Visitors to old Thai homes both here in the Capital and upcountry will have frequently seen these mounted antlers used as wall-pieces.

Some modelling craftsmen work in conjunction with other craft divisions. Just how closely in conjunction depends of course on the job. The King's modellers who were royal government officials in the Craftwork Department (Krom Chang Sip Mu) also found themselves in a similar situation. Their work often led them to work in close conjunction with the moulding craftsmen. Phra Ong Chao Pradit Worakan, the Prince who was in charge of this department in the Fifth Reign was an accomplished modeller even though he is best known as an expert in moulding. (His most impressive works that still survive today are the collection of composite animal statues depicting denizens of the Himavant Forests which stands on the raised platform around the Prasat Phra Thepphabidon i.e. the Royal Pantheon, in the grounds of the Royal Chapel, Wat Phra Si Rattanasatsadaram. These statues emerged from moulds but were brought into existence by modelling having been conceived as drawings.)

Modelling, figuring and moulding are very closely related activities. Some times the one craftsman is responsible for all three. At other times work is separately allocated by position and responsibilities, or by special expertise. Nor is the modeller restricted to clay and stucco for his modelling materials. Bee's wax is also used, as is *rak samuk*, a "black lacquer" mixture of pulverized charcoal and lacquer resin from the *Melanorrhoea usitata* (*Anacardiaceae*) or the Burmese varnish tree. It can be agreed upon here however that when it comes to work in these three divisions, be it creating relief sculpture or free-standing sculpture, the modeller is right up there second in line after the drawer who supplies him with the job's specifications. Today any craftsman who is a drawer, a modeller, an engraver and a sculp all in one is thought to have been very fortunate indeed, but in the old days this was a fairly frequent cluster of skills and expertise and so there is a phrase in the Thai language to describe this cluster, *saraphat chang*, or the "versatile" craftsman, meaning that when one piece of his work was finished, work in one or more other divisions of craft had still to be done on it by him before his job could be said to have been completed. The versatile craftsman is more than a handicraftsman for he can follow his workpiece through all craft stages to the completion of his job. This is hardly strange for even in the West a similar situation formerly prevailed. Michelangelo was a drawer (a painter), a carver and a modeller (a sculptor), and an architect as well. It would seem that in earlier times the division of work and responsibility was not as rigid as it tends to be today in so many fields.

Thai modellers of the past created a wide variety of craft works over the years and their productivity was prodigious. They were in particular demand for building monastic halls and royal palaces but the demand in more recent times is in the construction of other types of buildings, and so the mantle has been inherited by the modern construction worker. Yet in the past the modeller was the man who was responsible for all the cement, stucco and plaster work done in construction, whether it was as intricate as architectural ornament, the mason's job, or as straightforward as plastering and whitewashing, the artisan's.

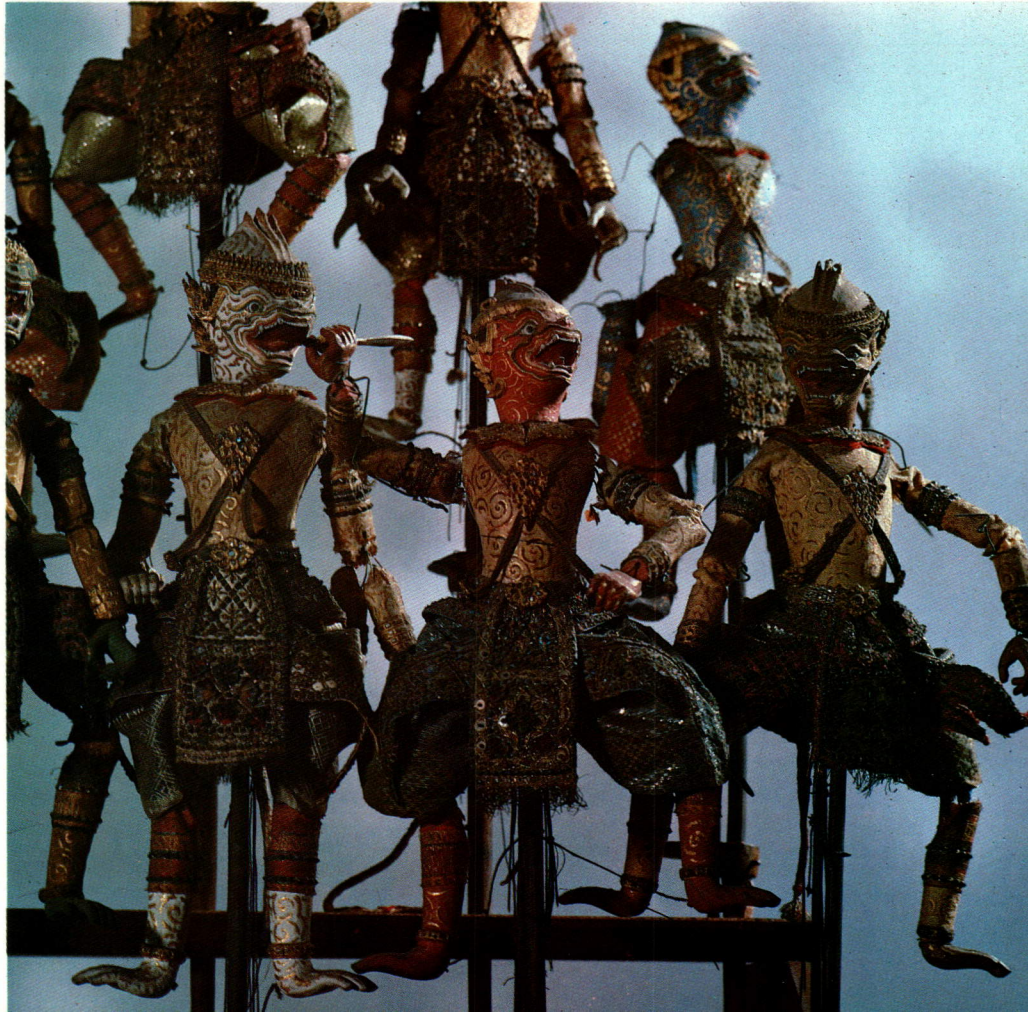
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Crafted stucco moulded figures of female musicians. Art of the Dvaravati Period (7th - 11th cent. A.D.), this group was found at Khu Bua, Ratchaburi province.





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Figuring

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102 (following page)

Small rod puppets belonging to the Grand Palace and used to perform episodes from the Ramakian, the Thai Ramayana. Designed and created by King Chulalongkorn's Prince of the Palace to the Front, Prince Wichaichan.

This division of craft is called in Thai *chang hun*. "Hun" is a Thai word meaning "a shape, or object" as in the Thai phrase "*phuk hun*" which means forming something into an object or shape. Nothing is more appropriate to form than an object or shape that is either human or animal in form, although there are nevertheless some exceptional cases where utensils can be permitted inclusion. The exceptional case shall be dealt with first. Once Krommaphra Ratchawong Bowon Surasinghanat, the Prince of the Palace to the Front during the First Reign, wanted a large regal betel-tray pedestal made to present to Phra Bat Somdet Phra Phutthayot Fa Chula Lok (Rama I). He had a craftsman build him a "*hun*" made of wood first. As we shall see, he must have wished it to have a temporary use. Some time afterwards he had some other craftsmen make a regal betel-tray pedestal of pure gold by carefully copying the wooden "*hun*". When this job was completed however wooden "*hun*" still was not discarded, for at a later date the Prince had it lacquered and inlaid with mother-of-pearl shell making it, now, a valuable royal utensil. Now that it had been lacquered and inlaid it was no longer a "*hun*", for it was now "a royal pearl-inlaid betel-tray pedestal (that had formerly been a '*hun*')", a rather long and ungainly way of referring to it, but one that is nevertheless a precise and accurate description.

It would seem to follow from the above that figuring should properly be limited to work that is not of a particularly permanent kind. A further example perhaps will make this point a little clearer. For the larger of the royal funeral pyres there was always the work of "*phuk hun*" in the form of the legendary denizens of the Himavant Forests. Of relevance here is a passage in the Royal Chronicles of the Second Reign treating with the cremation of Phra Bat Somdet Phra Phutthaloet La Naphalai (Rama II); a brief mention appears of "housings with animal figures that were set up all around and which were in turn enclosed by a ritual railing of wood peaked with five-coloured five-tiered parasols." Further mention is made of this set-up in evidence cited in the Thai Encyclopaedia Volume 3 (under the subject heading "*Kilen*" pp. 1363-1366) and consisting of reproductions of the Himavant Forests' beasts of legend from an old folding sketchbook (with black pages), indexed as MS. No. 21, and titled "Concerning the Animals of the Himavant Forests, for use in '*phuk hun*' (as part of) the royal funeral cortege for the King, from the Third Reign". This was formerly the property of the Vajirayana Library but now it belongs to the Fine Arts Department's National Library. The drawings in this book have been done in white crayon. They are pictures of Himavant beasts carrying on their backs small models of peaked tiered shrines that



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served as lantern housings. Taken together these two citations point firmly to the conclusion that the work of this division of craft did indeed once include the creating of fantastic animal figures, but what other jobs were included in this traditional craft's division is far from being at all clear through lack of any further evidence.

Be that as it may, the work of this craft division could not have been exclusively the making of these animal figures and must have included other jobs or why would there have been an important government officer occupying a position rated at *sakdina* 400 in charge of the work? The materials needed for the work of figuring in any case were rather straightforward: just light wood (bamboo?) and paper, with timber and pigments in the way of necessary embellishments. No names of any master figurers have come down to us. Apparently none of them was sufficiently famous enough which may well have been a direct consequence of their works' not being of a permanent kind. They might have looked fairly permanent at the function for which they were built, but when the day was over there was no interest in preserving the figures for another occasion.

There is a traditional Thai theatrical entertainment that is also called "*hun*". Thus there are the *hun yai*, the large court puppets, and *hun krabok*, Thai rod puppets. Puppets too must be formed into human and animal shapes even though they are radically reduced in size. Nor does their size prevent them from being made into very fine works of craft art. Among the very best are some court puppet heads made by Krommaphra Ratchawang Bowon Wichai-*chan*, the Prince of the Palace to the Front in the Fifth Reign. These are now part of the Bangkok National Museum's enormous fine arts collection. Thai rod puppets not being a part of court culture, and smaller in size than those that are, are always a little less fine, but there are some that are as beautiful as could be hoped for such as some in the private collection of Khun Thewa Prasitthi Phatthayakoson. Some of these puppet heads are indeed beautiful even though the rod puppet is only a little over one foot high. The puppet figures (*hun*) for a puppet theatre must be made by someone, but it is not at all easy to say what this kind of craftsman should be called. Should he too be called a *chang hun*, or should the distinction be made between the figurer (*chang hun*) and the court puppet-maker

(chang hun yai) and the rod puppet maker (chang hun krabok)? One of the difficulties is that rod puppets at least are almost always built by their puppet masters (nai rong hun krabok). Mention is made of this fact in the "*Correspondence of Princes*" (San Somdet) dated 17th September B.E. 2479 (1936).

Chang hun may also include perhaps within its scope of work and responsibilities the craft of making classical *Khon* masks. The principles involved in making these masks are in no significant way different from those involved in the way the figurer makes his models. Both kinds of craftsmen take strips of paper soaked in flour-paste and lay them on the roughmodelled figure (hun) to build up the whole to sufficient thickness after which the workpiece is left in the sun to dry out and harden. The differences only emerge when the *Khon* mask maker picks up a sharp knife and makes a long incision down both sides so that the papier mache layer can be peeled from his reusable wooden dummy. The join is now papered over, dried out again, and the papier mache figure (which is never called a "*hun*") then becomes the workpiece of the subsequent stages involving lacquering, encrusting with applied ornament and painting, which is strictly the preserve of the *Khon* mask maker. It has been remarked that the mask, although a figure of sorts, is never called a "*hun*", while the dummy on which it is made is so called, even though it is much the more permanent of the two. Most *Khon* mask moulds are handed down through two or three generations of mask makers.

Figurers need to know at least something about several other crafts in the course of their normal round of work, namely modelling, drawing and painting, and the assembling of the figures they make. This last mentioned activity formerly involved the assembly of a bamboo basket-type frame that became the interior support for a large figure. This is the reason why it has been said that success or failure in forming figures lies primarily in the assembling of the frame. The correct proportions and the right posture of the final figure will only be achieved if they can first be found in the frame. The art of figure assembly is therefore a very important one. Students and apprentices must observe their teacher intently and remember his every step whenever he permits them to come forward and provide him with some assistance. Afterwards when the frame is papered over they must observe just as closely how he is able to

preserve the surface modelling and even add to it to some extent, and remember all this for future use.

It was in the Second Reign that Phra Bat Somdet Phra Phutthaloet La Naphalai (Rama II) inaugurated the celebration of Vesakha Puja (in Thai, Wisakha Bucha) in Thailand. Elaborately designed and decorated lanterns were prepared for the night-time festival and court figurers (chang hun) were made responsible for assembling the structural frames of these lanterns that were to be gifted by the King to the abbots of the royal monasteries in the Capital City for hanging out in the front of their monasteries. The lanterns that were hung out in the grounds of Wat Phra Si Rattanasatsadaram have become legend. It has been passed down that these lanterns when lit on that full moon night turned the Royal Chapel's grounds into a fairy-tale setting. Nothing quite like it had ever been seen before or since and the lavishness of the spectacle was truly a wonder to behold. The shapes of the lanterns themselves were not a novel departure from the usual. They were cylindrical in shape and were crowned with a tiered pinnacle while the base was a little wider and ornamented to resemble a lotus flower in full bloom. They were hung from tall bamboo poles. Four such lantern-bedecked poles were gifted to each of the City's royal monasteries. The structural frame of the lanterns was made of light wood, and transparent paper was used in place of glass. Light was provided by a wax candle burning inside.



Moulding

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The Avalokitesvara Bodhisattva cast in metal from the Srivijaya Period (8th - 13th cent. A.D.) that was found at Chaiya, Surat Thani province, and is now with the Bangkok National Museum. Like the Srivijaya Sri Maitreya image also in metal, this has the Indian torso flexion. Most of the images such as these are smaller and are standing. They were cast to flank images of the Buddha Si Sakyamuni. This image's two associated images of Sri Maitreya and Si Sakyamuni, needed to make up the trio, have not turned up but as they may never have existed it is quite possible that this fine, but broken, image once stood alone in its own right.

The moulders of Thailand have had a long history of metal casting. Some of the earliest examples of metal artifacts in this country are "rain drums" (klong mahorathük). These are large bronze drums of considerable age. The drum head is very thin bronze plate and it is this that allows the drum to actually be sounded in certain royal state ceremonies with a timbre more like that of a gong than a skin-headed drum. There are also extremely large bronze Buddha images such as the image re-named Phra Si Sakyamuni that came from Wat Maha That in old Sukhothai and is now in the grand fore-hall of Wat Suthat Thepphawaram. There is also another very large image, the Phra Si Sanphet, that was destroyed during the Fall of Ayutthaya in 1767. This image stood some 16 metres (8 old fathoms) high and was completely covered with gold sheet. Another very large Buddha image is the one at Wat Phanan Choeng, also at the former capital of Ayutthaya, but widely held to have predated the founding of this city by King U Thong. It is therefore indeed quite believable that metal casting, and in particular the casting of bronze Buddha images, is a technology, or rather a technological tradition, that Thai craftsmen have passed down since earliest times, have passed down from generation to generation right to this very day.

The Thai bronze casting technique is one that in the West is now called investment casting, although it is still frequently referred to as the lost-wax (cire perdue) method of casting by students of art. In this process a roughshaped

dummy or die is coated with an investment of wax which is further modelled, or moulded, into the desired form which then in turn is coated over to make a composite mould. When heat is applied the wax melts and is drained off (for it can be reused over and over again) and a cavity is left behind inside the mould. When this cavity is filled with molten metal and the whole is left to allow it to cool, the mould can be broken open to reveal the finished article which is of exactly the same shape and thickness as the original wax model.

Phra Ong Chao Pradit Worakan, as has been stated earlier, was given charge of the Craftwork Department during the Fifth Reign and was himself both a modeller and a moulder of rare excellence. His father had been put in control of the Moulding Department (Krom Chang Lo) during the previous two reigns of Phra Bat Somdet Phra Nang Klao Chao Yu Hua (Rama III) and Phra Bat Somdet Phra Chom Klao Chao Yu Hua (Rama IV) and deserves primary credit for mastering the traditional process and passing it on successfully to younger generations. Phra Ong Chao Pradit Worakan (Prince Pradis) is best known for his composite Himavant bestiary statues on the elevated platform around the Prasat Phra Thepphabidon (the Royal Pantheon). This work was done by royal command during the reign of Phra Bat Somdet Phra Chulachom Klao Chao Yu Hua (Rama V) as part of the restoration and renovation of Wat Phra Si Rattanasatsadaram (the Chapel of the Emerald Buddha) on the



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A pair of Garuda-s cast in metal by Rattanakosin Period craftsmen of the Sixth Reign (r. 1910 - 1925). The Garuda (Thai : khrut) in Thailand is usually either a flat heraldic design or is shown with two naga serpents caught in its talons; only here at the Bangkok National Museum we have a pair in the round that seem about to take flight.



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A Buddha image, modelled and cast in metal, depicting the Lord Buddha Descending from Tavatimsa Heaven. From the 7th - 11th cent. On display at the Bangkok National Museum. This posture requires the thumb and fore-finger to make a circle at level with the chest. It will be seen that this is a Late Dvaravati Period image because it is designed motionless and lacks the triple-flexure of the torso found in earlier Dvaravati Buddhist sculpture.



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This metal-crafted Sri Maitreya, or Sri Aryamettaya, belongs to the Srivijaya Period (8th - 13th cent.) and was found at Chiya in Surat Thani province. Now it is on display at the Bangkok National Museum. It stands triple-flexed (tribhanga) with the hip tilted at an angle, the body's weight centred and the right thigh thrust back under tension. The left leg is slightly bent to take up a relaxed position. The little dance

movement exhibited by this image is therefore one of grace and suppleness, though the image when it was whole was probably somewhat stiffer than it now appears. Observe that in amongst the locks of long bound-up hair there is a framed niche in which can just be seen a caitya, or stupa relic monument. This is a distinctive feature of Sri Maitreya's images while Avalokitesvara's has a niche to house Si Sakyamuni.



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An image cast in bronze of Trailokyavijaya from the Lopburi Period (11th - 13th cent. A.D.). This Mahayana Buddhist image reflects the belief of that school that Sri Sakyamuni's greatness (vijaya) extended over all three worlds (trailokya).

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A Dvaravati Period Buddha image cast in metal from the 7-11th cent., at the Bangkok National Museum. The Lord Buddha is bestowing blessings. The left hand is raised to chest level while the right has been dropped a little and is turned down, palm facing outwards. The weight of the body is being taken on the left leg. The thighs are in a relaxed state and are not tensed. This is art with very human qualities and realistically depicts calm repose. It is therefore an Early Dvaravati Period image sculpture.

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A Dvaravati Buddha image hewn from stone (8th - 11th cent.) shown bestowing blessings. Found at Wat Ro, Muang district, Ayutthaya province, and now on display at the Bangkok National Museum. A fully local product of Dvaravati Period art. If it is compared with the metal image of the same posture type it will be seen to be a distant copy with the relative lack of flexing movement the cause of the separation.

occasion of Bangkok's Centennial in 1882. He was also the creator of the bronze image of Phra Sayam (Siam) Thewathirat, the tutelary deity of Thailand that is installed in a hall inside the Grand Palace. This image was modelled and moulded in accordance with the wishes of King Mongkut (Rama IV)

The moulders of old did not provide only the moulds for casting Buddha images, they also made moulds for many other yellow metal artifacts including incense stick sand pots, candle-sticks, cuspidors, bells and so forth. Nevertheless it would appear that it was chiefly in connection with the casting of Buddha images that this craft received wide recognition for its standard of work. This is not simply because bronze image casting provides a real test of the moulder's skills, rather it is because the casting of Buddha images is a meritorious act especially encouraged by the Buddhist religion. It was the centrepiece in fact for a special religious function, one that attracted to it a large number of officiants and willing helpers, as well as a large, devout audience of onlookers. With such broad support from the church and the laity one does not need to go any further to explain why the casting of Buddha images should be given the importance it has. Those craftsmen who are the most closely involved with the casting of Buddha images can be separated out into their craft specialities depending on what contribution they are best fitted to make in the process. Thus the modelling of the wax investment is work that is best done by a modeller. This modelling done in wax is done on a roughmodelled dummy or core made of common clay liberally mixed with plenty of fine sand. It is this that forms the



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This Bodhisattva Avalokitesvara image crafted in bronze during the Srivijaya Period (8th - 13th cent.) is now kept in the Bangkok National Museum. The left hand holds a lotus bud while the right bestows blessings with a traditional gesture of the hand.



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A standing image of the Lord Buddha in Royal Attire crafted in bronze, now with the Bangkok National Museum. The particular crown or headdress here is called in Thai a "chibo" meaning that it comes to a conical point at a crown that is partly hidden by a broad

raised frontal peak facing. This was the traditional form of crown worn by the rulers of ancient Lop Buri (Lopburi, or Lavapura) during the 11th - 13th centuries. The same can be said of the other details of dress.



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This Buddha image, so beautifully cast in bronze, seated under Naga is a prime example of the art of the Lopburi Period from the 11th - 13th cent. A.D. It can be disassembled into its component parts. Now in the Bangkok National Museum.



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A bulbous bronze long-necked vessel from the art of Lopburi now in the Bangkok National Museum. It was used for keeping the holy water of either Brahmanism or

Buddhism, and in the former religion became an auspicious symbol of peace and prosperity, one called puranakalasa.



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A bronze cast Garuda that fitted onto the upcurved shaft of a carriage. 13th century A.D. Lopburi Period art on display at the Bangkok National Museum.



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A bronze crafted hamsa goose from Chiang Saen Period art of the 13th century.



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A Buddha image cast in bronze from the Chiang Saen Period (11th - 18th cent. A.D.). The Lord Buddha is seated cross-legged in the full lotus and is Calling the Earth to Witness. Chiang Saen Period Buddhist sculpture, as can be observed here, gives expression to human physiology and presents in contour an out-line that is both dynamic and forceful. The sculptor has played a number of little tricks such as cocking the right hand's little finger. King Rama VII graciously presented this image to the National Museum having received it as a gift during his journey of inspection to the North in 1925-6.

interior half of the composite mould. Before the wax investment is made however steps must be taken to provide passages inside the mould. These passages, called in Thai *rang kaen*, or "core drains" will assist significantly, when the time comes, to allow the molten metal to reach every part of the cavity and fill it smoothly without forming unwanted bubbles of trapped air. These "drains" are gouged out and painted with a mixture called in Thai *mom*, a mixture of clay and wood ash, in order to further strengthen the inner core.

The next step now is to apply the wax investment. Whether the end product is an ordinary article or a Buddha image it is the wax that will provide the transition to the metal figure or image and so this stage is the most demanding of the craftsmen's skills and the wax modelling must be handled expertly. The modeller's wax is actually a light red-brown mixture of pure bee's wax and powdered rosin or dammar for added strength. It is the amount of bee's wax that is used that controls the

plasticity of the modelling material. Oleoresin is another ingredient, mixed in because it helps dissolve the dammar. The surface of the inner sand-clay core is first primed with another wax mixture called in Thai *thüak* which is painted all over the surface next to be covered by the modeller's wax. "Thüak" is made by blending bee's wax and oleoresin in a large deep-bellied pan over an open fire until the mixture thickens sufficiently to be applied with a brush like paint. Modeller's wax can now be applied. It should be made ready in sheets of the desired thickness remembering that the thickness of the wax sheets now will be the thickness of the metal in the end. These sheets are laid onto the inner core and modelled or otherwise pinched and pressed to provide the surface moulding. Blunt knives can also be used to give sharper detail. If intricate ornament is needed in quantity a reverse impression is carved into a small block of marble or soapstone and the modeller's wax pressed down into the resulting mould. It can then be peeled away immediately and added to the wax investment as the ornament that is



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A Buddha image cast in bronze that has been assigned to the U Thong art period style, or even more specifically to the Muang San School of Sankhaburi district, Chai Nat province. From the 11th - 13th century. This bronze casting is only egg-shell thin and although large is quite light. The U Thong style possesses a dual heritage from the Late Dvaravati and Lopburi periods and it later became the foundation for the Early Ayudhya Period art style. It is on display in the Bangkok National Museum.

required. The many tight sharp curls on a Thai Buddha image's skull are produced in this manner as can be seen by the fact that most are identical. Shallow beds are cut into the thickness of the wax sheets to hold this moulded ornament.

When the modeller's wax figure-mould has been modelled to the required standard of beauty for each and every part and all is now in good order, it is painted with a slurry slip made from kaolin perhaps, or at least a good potter's clay, and cattle pads, the two worked in together and strained for smoother consistency. It is this slurry that will later preserve the impression of the modelled wax investment and form the inner side of the outer half of the mould. Once this coat has been applied the whole is left to stand until quite dry. Tying nails are now driven (tok thoi) into the mould at this stage all over the surface, spreading them out at suitable intervals. Their function is, later on, to maintain the separation of the inner and outer interior surfaces of the double mould and keep them from shifting out of alignment, or worse, from touching each other. The tying nails usually used are large sturdy Chinese nails something like Western hobnails and are very strong.



When used in large numbers they are quite sufficient to hold the mould surfaces apart and support the weight of the mould.

The next coating is a "soft clay" which is the same fine quality clay that was used before to make the slurry but is now mixed instead with a fine-grained sand temper. Lumps of this clay are now smoothed out onto the mould to only a roughly uniform thickness. Afterwards the whole is left to dry, this time overnight. Next a "hard clay" coat is added. This is common clay mixed with a grainy sand and is not really a modelling material. However it is smoothed onto the emerging mould virtually burying completely the contours of the modelled figure underneath. Again the whole is left out to dry thoroughly. Now, for extra security, extruded steel wire or iron strips are wound around and around the mould (plok lek) and a second coat of the same hard clay is again smoothed out over everything, immersing completely not only the iron mail but any protruding long Chinese hobnails as well (thap plok). When this outer coat is dry the completed mould is ready for the next station in the casting process.

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A metal crafted image of Narayana (Vishnu) from the 14th 15th century A.D. now on display at the Bangkok National Museum. This is a Sukhothai Period Hindu sculpture given a completely Buddhist form. Although a powerful deity in Brahmanical Hinduism, the head, arms and body are full, soft and graceful, and the image as a whole while standing is clearly in calm repose.

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A bronze Buddha image from the Sukhothai Period in the National Museum, Bangkok, that was given to the National Museum by the Grand Palace. The Lord Buddha is depicted seated cross-legged in the half-lotus position Calling the Earth to Witness. This image belongs to Early Sukhothai Period art and has been assigned to the Majority Group of highest aesthetic expression. The head is oval, the face brought to a point. Its creator succeeded in imparting emotion to his work. Thus the toes of the right foot have been modelled slightly flexed, and the right hand resting on the knee is natural and unforced, or in other words, relaxed and peaceful. Inspection shows that a lot of the beauty in this image sculpture is found in the contours of the silhouette. It strikes the mean between being plump and being slender. It has been caught at rest in peace and it is curiously sexless. This neutrality, or "middle-ness", gives expression in art to a Buddhist principle of moral practice.

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An Ayudhya Period Buddha image Calling the Earth to Witness on display at the Bangkok National Museum.

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122
A Buddha image seated cross-legged in meditation under the Bodhi tree, thus figuring the Lord Buddha's Supreme Enlightenment. The work of Ayudhya Period craftsman and now with the Bangkok National Museum.



123

123
Cast model figurines for the sideboard. A popular household item during King Chulalongkorn, the Fifth King's, reign and also used in festive displays at cremations. The

arrangement shown here is a scene from the Thai Ramayana showing an ogress transformed into a likeness of Sita.



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125
A detachable metal lock from the Ayudhya Period in the Bangkok National Museum. The mechanism is that of locks in China.



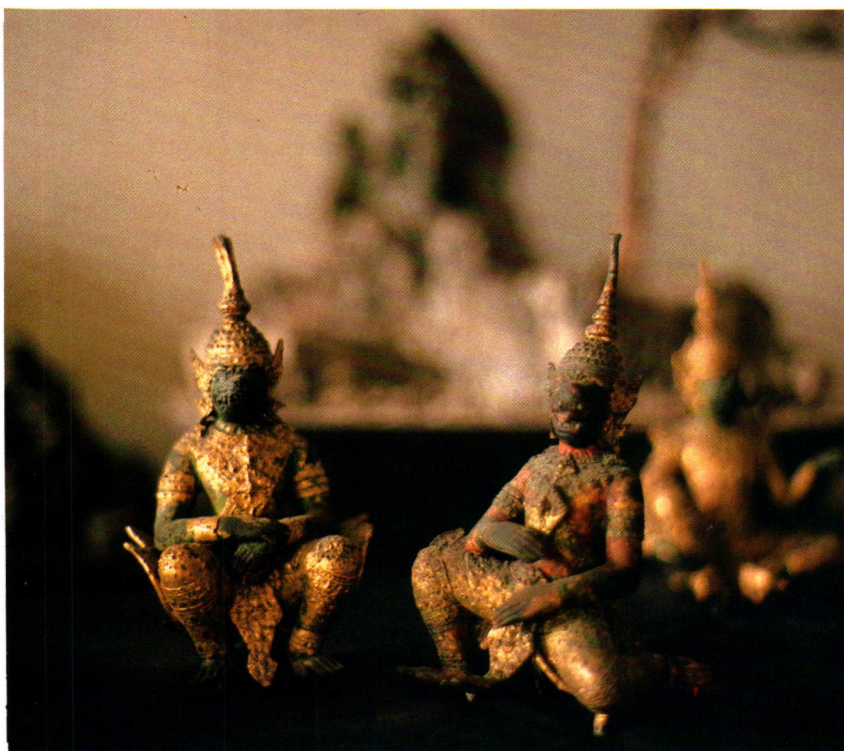
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126
A cast metal image of a savaka disciple of the Lord Buddha going by the name of Maha Kaccayana in Thailand. From the Early Rattanakosin (Bangkok) Period. It symbolizes overflowing bounty, peace

and joy. There is a common belief that the worship of this image will bring good fortune to the supplicant. On display at the Bangkok National Museum.



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124

A tableau of metal cast figurines from the Rattanakosin Period. Such tableaux were generally placed around cremation pyres as decoration. This one is a scene from the Thai **Ramakian** (the Rama Kirti, or Ramayana) and belongs to Prince M.C. Piya Rangsit Rangsit who keeps it in his palace collection on Wireless Road.

127

A cast metal image of one of the Lord Buddha's disciples, Maha Kaccayana, in the Bangkok National Museum from the Early Rattanakosin Period. The robe has been knotted over the chest and the right hand is raised in a gesture of beckoning. This probably means that he is calling down luck and good fortune.

The job must now be turned upside down. A beam frame is put together and mounted on the back of the multi-layered composite mould which then is eased over onto its back supported by the frame on log rollers. The face of the base is now exposed and available for working on. It is cleaned, smoothed over and trimmed (sang din). The rotation in space is now taken to the next step where the "head" becomes the base and the base raised up over it (khün thon). Heavy iron rods are planted in the ground around it to provide the necessary support. Iron wire ties the inverted mould firmly in place against these iron supports. Clay is modelled into small cup or tumbler shapes to provide the "mouths" (pak chok) into which the molten casting metal will be poured and from which this molten metal will enter the mould's drainage passages. Drainage outlets (krabuan) must now be made so that the wax can flow out from the mould's interior. They are of course made very low down near the ground. Seals of clay mixed with a binder of rice husk are now applied to all the vents—those inside the clay "mouths" above and the drainage outlets below, as well as those in the furnace that melts the casting metal so as to hold in its heat.

The wax now has to be removed. A small fire is built under and around the base of the upturned mould and the wax runs out through the drainage outlets. There is no hurry and the

workers wait until the last drop of wax falls. Now the fire under the mould can be fed and built much, much bigger, and made blazing hot, to bake the entire clay mould into brick. Since some of the wax has seeped into the clay surrounding the "core drains", as well as the mould's cavity, when the blaze is burning strongly a ghostly flame (luk duang) can be detected emerging from the interior parts of the mould and dancing on the broad upper surface (the base). When this flame vanishes entirely (dap duang) the fire built around the mould can now be allowed to die down, but only very gradually. This is to ensure that all the clay inside right down to the centre of the core is turned to brick. When no traces of any soot can be found in any of the cup-mouths the casters know that the mould is brick all through and that the molten metal can now be poured into it. But first the wax's drainage outlets must be permanently closed to prevent any metal leakage later. The metal for casting is placed in a large crucible and heated in the furnace until it melts. When the mould is all-brick and the first of the metal molten, the fire-place around the mould—it looks very like a large incinerator—is completely dismantled and its bricks removed to some distance. Water is thrown onto the remains of the fire to put them out more quickly, but this must be done with great care as no water can be allowed to fall on the still hot mould. The fire removed, a wooden framework is built up around the clay mould so that workers can walk or reach up to the top without difficulty. Then each and every one of the vent seals at the top are broken open and the molten metal is poured carefully but speedily into each of the mouths from crucibles at the end of long arms. When sufficient metal has been poured in to fill the mould's cavity thick muddy water is sprinkled onto the full mould to cool down the iron used inside and out in order to make it all strong enough once again to hold the heavy weight of the clay mould and, now, the additional considerable weight of the metal casting contained inside it. Cracks in the outer mould invariably develop at this stage and they must be sealed off promptly. Many hours later the mould and its metal cast will have cooled down sufficiently to work with safety again. The outer brick coat is now broken open and the metal sculpture inside is revealed for all to see and admire.

Moulders, when they can, divide up the work of metal casting and assign it out very effectively to the various sections. There are



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This Lord Buddha seated under a hooded multi-headed naga serpent is an image cast in bronze from the Lopburi Period (11th - 13th cent. A.D.). The serpent's tongues are lopsided. From Prince M.C. Piya Rangsit Rangsit's private collection.

people with different skills such as the furnace-keepers, the metal pourers and the sculpture finishers and these are three skills that require uncommon physical strength and quick reaction times as well as a little training and some practical experience. These people usually form a team and work together with each other so as to become familiar with each other's section requirements. During the ceremony of casting a Buddha image they cannot be shouting instructions or orders back and forth to each other! They also must have a healthy respect for fire and heat, and the hot molten metal, for a single error can have very serious consequences.

The moulders of traditional Thailand studied their craft, and in particular the casting of Buddha images, from written texts, treatises that were held with almost as much respect as the scriptures. There is in one a passage concerning the composition of the molten metal once used in casting.

"Supposing that 'nine metals' is required, take 1 part (by weight) of tin, 2 parts borax soldering flux, 3 parts iron, 4 parts native vermilion, 5 parts quicksilver, 6 parts zinc,

7 parts copper, 8 parts silver and 9 parts gold.

"If 'seven metals' take 1 part borax flux, 2 parts iron, 3 parts quicksilver, 4 parts zinc, 5 parts copper, 6 parts silver and 7 parts gold.

"For 'five metals' take 1 part iron, 2 parts quicksilver, 3 parts copper, 4 parts silver and 5 parts gold."

There is also a long detailed text on the proper proportions for a Buddha image that was studied intensively and provided a lesson in the special royal terminology used (but which will not be brought out in this translation).

"If you are to create a (Seated) Buddha image with a lap width equal to or greater than three cubits (equivalent to about a metre and a half), then use that interval as the proper interval from the lower (left) foot up to the hair-line. If (the image is to be) elongated just a little then (this lap width interval) is made to stop between the eyebrows. In smaller Buddha images it just touches the nose for this gives them the appearance of being larger. Take the interval of the (height of the) face as the interval across the chest between the left and right nipples. Two and a half times this face interval is the actual length of either forearm. Then make every effort to have the face interval also that of the horizontal curve from the (flat) back around the side to the front at the level of the nipples, just touching the same. Then use the same interval for the three segments of the upper and lower parts of the arm and the hand. Take the face interval and place one end on the navel and it must reach out in front to the foot. Then place the face interval upright on the foot and it must reach up to the level of the (left) hand.

"Again. Regard the face as being three units of distance and take one of these units as the width of the mouth. Again. Find the interval from the nose to the jut of the chin and make it the length of the hang of the folded shoulder robe. With the face still being made three units, one unit is the interval from the hair-line lying over the haircurls and you make that interval the long circle of the crown (from front to back). Also make just a little more than the face interval that (interval from the hair-line to the tip of) the flame-like radiance. Make the slit eye-opening

four parts and give the inner corner one part, the pupil one part and the outer corner two parts. For a foot shown in full view from the heel to the toes make this length the face interval. The ear-lobe also takes the face interval although in this case it is reduced appropriately.

“Further. The Master prohibits placing an upright elongation (of the image) where lap width interval makes a bad proportion by reaching to the eyes. He calls this ‘defeated by craft’. He also prohibits the point of the nose being found directly over the chest calling this ‘the abbot of the monastery is indisposed’, for it should be over the palms of the hand if (the image) is to have proper aesthetic restraint.

“Again. Divide the face interval into three units and one is the (height of) the forehead (from the hairline) down to the eyebrows, while from the angle of the (meeting) eyebrows down to the undertip of the nose is (also) one (such) unit.

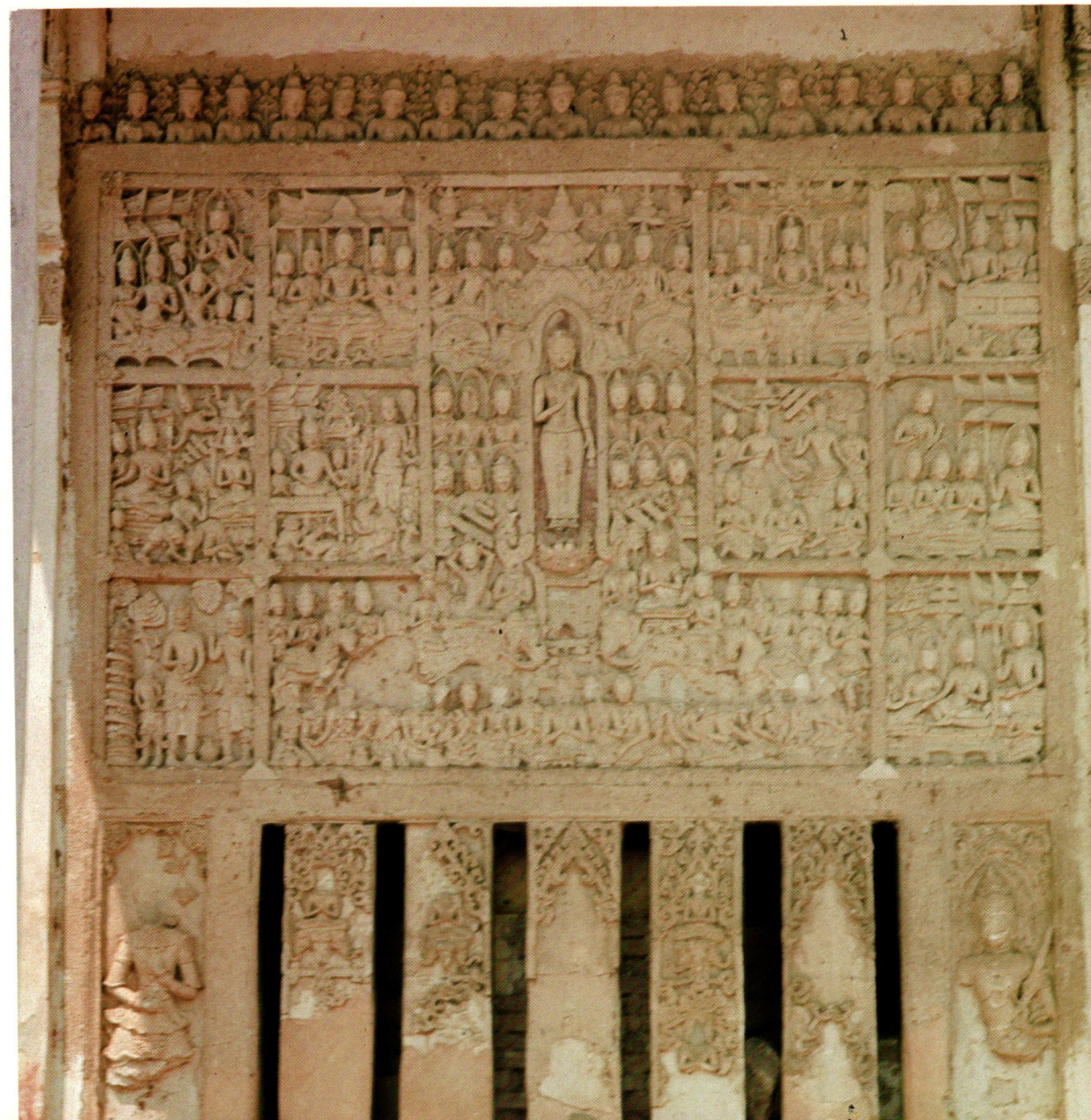
“It is true (too) that Reclining Buddha images—and Standing Buddha images—have similar proportions to these, only the orb of the face is in both cases lengthened and brought forward. Take the orb of the face (as one unit) and the straight line from under the chin down to the soles of the feet is made to be six such units only it must be brought forward and lengthened somewhat. If the image is dressed in Royal Attire then this is extended to seven units, which is much greater than (the usual interval) for triple-robed (images). This is to give this (kind of image) height and bearing.”

Although there were these texts prescribing the correct proportions, the texts still left the craftsman with many opportunities to apply his skills and creative abilities at different points. This was particularly so with very large Buddha images where much more initial planning, division of work, and determination of proper proportions were necessary and had to be done to a greater degree. It cannot be said therefore that these texts were the last word on the subject.

Moulders of Buddha images were craftsmen possessing more prestige than moulders of other objects, for Thailand is a Buddhist country and in the building of durable Buddhist works and structures it is the creating of Buddha images that is one of the major meritorious activities with great spiritual rewards.

From the year in which Phra Bat Somdet Phra Phutthayot Fa Chula Lok set up Bangkok as the Capital and founded the Royal Line of the Chakri Dynasty onwards, down to this day, there have been many such important occasions when Buddha images were cast. Large numbers of skilled manual craftsmen such as modellers and moulders have lent their expertise to these meritorious productions. One such craftsman was Phraya Thewa Rangsan, the modeller of the presiding Buddha image in the ordination hall of Wat Maha That. Phra Bat Somdet Phra Phutthaloet La Naphalai, himself, modelled the figure for the face of the presiding Buddha image in the ordination hall of Wat Arun Ratchawararam. In the Third Reign many additional, new, postures for Buddha images were approved and given publicity. Two reigns later, in Prince Pradit Worakan’s prime working years, still more Buddha images were modelled by the Thai nobility. This Prince for example alone modelled many Buddha images for which he is justly famous. One such image is the presiding Buddha image in the ordination hall of Wat Niwet Thammaprawat at Bang Pa-in upon which King Chulalongkorn bestowed the name “Phra Phutthonnarūmon Thammophat”. This is a metal sculpture that was gold-plated all over. It was completed in 1876 A.D.

It is certainly very true that the moulders attached to the Krom Chang Sip Mu (the Craftwork Department) performed in the King’s service at His Majesty’s pleasure extremely satisfactorily throughout each of the Dynasty’s reigns right up to the abolishment of the department of this name within the Royal Government Service.



Stucco ornament on a gable-end at Wat Yai Suwannaram, Phetchaburi, depicting Vishnu trampling an *asura* demon underfoot against a background of regularly-spaced flowering vines and tendrils. The heavy flowering bodies are found both on the stems and at the extremities. Late Ayudhya Period art.

Plastering

A stucco mural panel on the facade of a *wihan* assembly hall at Wat Lai, Tha Wung district, Lop Buri province, depicting the Lord Buddha flanked by crowds of angels descending from Tavatimsa Heaven. He is also being worshipped by kings. The lateral square panels each contain a key scene from one of the ten Buddhist birth-stories of the Thai Dasajati Jataka (the Thotsachat) believed to have been the ten lives, or births, prior to the Bodhisattva being born the prince who attained Supreme Enlightenment and Buddhahood. One of the oldest truly Thai pictorial works surviving from the 13th - 14th century A.D., that is, it belongs to U Thong Period art.

The part that plastering played in the work of the Craftwork Department included both construction and repair work. It was also a craft of recognized importance of old in the construction of religious establishments because Buddhism requires that its buildings be in most cases permanent and secure so as to have a long life and thus be in a better position to uphold the religion. Plasterers have therefore been active in Thailand for many centuries, and not just in the Rattanakosin Period alone. Evidence for this is contained in a stone inscription from the Sukhothai Period (13th - 14th centuries A.D.) that was found at Wat Si Chum. In this stone inscription (Sukhothai Inscription No. 2) there is a passage that describes the construction of Wat Maha That at Old Sukhothai. It runs as follows:

"Somdet Phra Maha Then Si Sattha Ratchachula Muni was made the head... Our head chose to enlarge a great royal reliquary (Maha That Luang) of distinction. This Phra Maha That was 95 fathoms in height not...and above this great royal reliquary's (main stage were stages) two and three fathoms round. Phra Si Ratchachula Muni as the head exerted much effort towards its completion and was solely responsible for the (next additional) brickwork (stage) of seven fathoms and the "mixed" plaster there that finished it. Both the old and this new part of the Phra That Luang were included (in being finished with this one kind of stucco) and it was thus that the monument came to be 102 fathoms in total height which is what the Khmer

call "tall". It stands halfway to the front of Krishna's City (i.e. Old Sukhothai). When the time came to make (Thai: *sathai*, literally "to mix") the plaster in the groves...lime proved very hard to obtain and so there was none of the needed plaster available for use. Phra Si Ratchachula Muni (solved the problem alone by making) the following solemn vow...'I vow that through teaching I shall do my utmost to put all sentient beings on the path to Buddhahood should I be led to where (a native source of) plaster can be found...' Having made this declaration, and in the very same afternoon, a source of plaster was found in the area, a veritable mother lode of lime. It was used in the manufacture of all the plaster for both the old and the new parts of this distinguished reliquary and (there was even enough in excess to use) in a major restoration of numerous broken stone Buddha images with still a lot of usable plaster left over at the end." (Face 2, lines 19-28).

We can see from this passage that the "mixing" or manufacture (Thai: *sathai*) of plaster is quite difficult if it has to be done in a wooded place where the sundry materials necessary for its manufacture are not available, and especially so if the plaster required is needed for a brick construction or for facing a wall. Still, Phra Si Sattha Rat was able to succeed in doing so through the power of the vow he made. Without plaster, it is clear that construction cannot be carried out. Even the restoration of the many Buddha images required a large share of plaster. We have learnt then that the

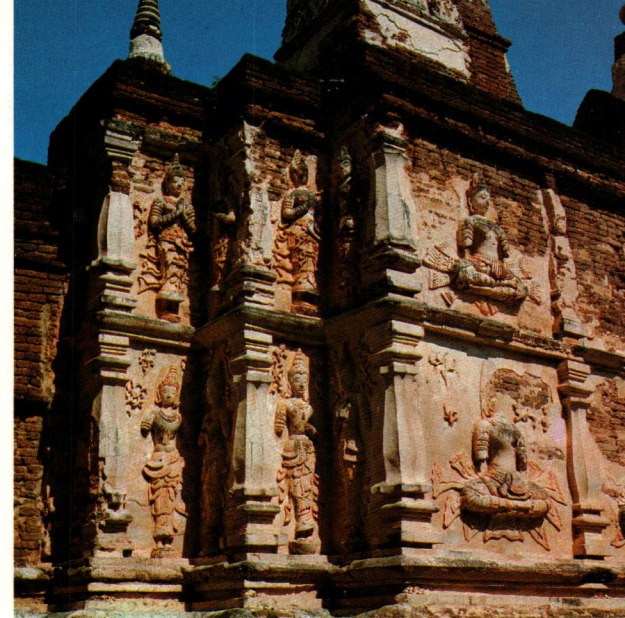


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A Late Ayudhya Period stucco mural at Wat Phai Lom, Phetchaburi province.

3. Stucco (pun pan) : a modeller's plaster made from slaked lime that had been sifted in a fine sieve and with only a little clean, fine-grained sand. Decomposed rice straw was also added. The pounding in a mortar in this case was done much more thoroughly to a very fine consistency and this required a team of men doing just this one job. Otherwise the stuccoworkers modelling the architectural ornament and sculpture would not have had a constant working supply on hand. Stucco, too, needed priming just before use. Sufficient sugar-cane juice and glue were kneaded into the initial preparation to render it nicely plastic for modelling.

Plaster craftsmen were therefore subdivided into three major groups by the plastering material with which they worked, and a plastering team would have to include some workers from each of these subdivisions or specialities. As should be apparent each of these three groups had a different working technique. The bricklayers were workers who applied mortar rapidly and roughly. Their main concern was simply that the bricks were laid evenly in a horizontal beds with a generous mortar binding to hold them in place. Their only special qualification was in knowing how to follow the architectural requirements of the building. Lime plasterers had only to be a little more careful because their job was to cover over the exposed faces of the brickwork with a smooth white plaster surface.



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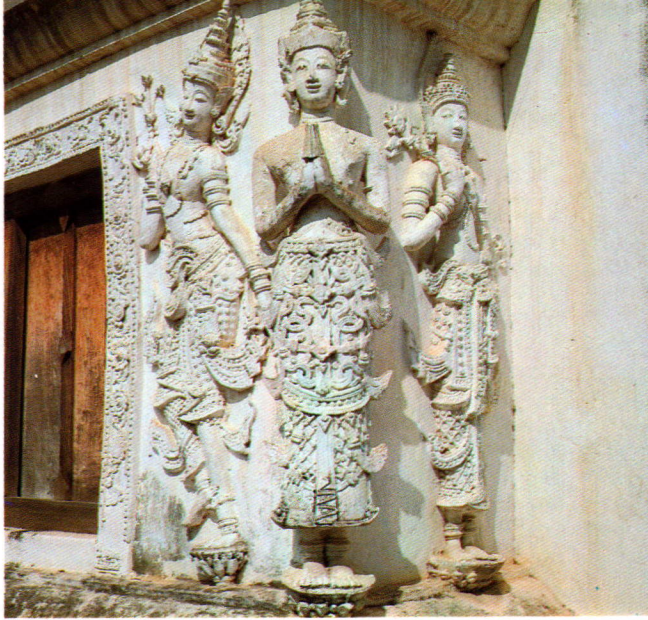
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A stucco mural panel on the rebated faces of the ancient monument at Wat Maha Photharam (Wat Chet Yot), Chiang Mai. From the reign of King Tilokkarat.



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Angelic *devata* figures in stucco sculptural relief on the angles of the lower storey of a well-known scripture repository at Wat Phra Sing, Chiang Mai. The one backed by the angle is the original figure and was probably created during the reign of King Muang Kao (r. 1495-1525). King Kao Naowarat (r. 1909-1939), the Ninth King of recent Chiang Mai, restored this *ho trai* repository during the reign of the Seventh Reign King of Bangkok for the latter's tour of inspection of the North in 1925.

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A Lan Na (northern Thai) arched portal and Lan Na mural ornament. The influence from nearby China is plainly evident in the Chinese meander pattern with its repetitive swastika crosses.



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A round arched portal of some age at the Regional Forestry Office in Lampang exemplifies the architecture of the later Lan Na Thai period art style.

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An arched gateway at the entrance to Wat Maha Photharam (Wat Chet Yot), Chiang Mai. It was built in the reign of King Tilokkarat (r. 1442-1487).



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The alcove that houses the Phra Kaen Chan "sandlewood image" at Wat Maha Photharam (Wat Chet Yot), Chiang Mai. From the reign of King Tilokkarat. Notice that the architectural ornament over the alcove still preserves some of the flavour of Chinese ornament from the Yuan and Ming Dynasties.



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A rounded true arch at Wat Chomphu in Chiang Mai. In appearance this resembles the Lan Na (northern Thai) rounded arch such as is found at Wat Phra That Lampang Luang, for example. This rounded arch is believed to have been derived, either directly or indirectly, from the false portals of Hariphunchai (Haripunjaya) Period architecture of around the 11th century A.D. which is evidenced on the baked clay votive tablets of the time. The rounded arch here is therefore the Lan Na end-product of a long line of architectural development leading finally to the true Lan Na art period style.



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A stucco mural depicting the Lord Buddha Descending from Tavatimsa Heaven. Sukhothai Period art from the 13th century. This is one of the niches on a monument at Wat Traphang Thong Lang just outside Old Sukhothai. It reveals the slow, stately steps taken with fine grace that the Lord Buddha took in his gradual descent from heaven.



The stucco workers however were craftsmen rather than artisans, and the best were art craftsmen or architectural sculptors. All the fine stucco panels and stucco ornament on our rich collection of historical monuments and ancient buildings stand witness to the inventiveness and creativity of these workers and their skills in modelling, from the Sukhothai Period down through the Ayudhya periods to the Early and Middle Rattanakosin Periods. The best of the stucco workers were actually modellers, in stucco. The principal difference between the two crafts was that the modeller had a lot of freedom in how he went about his work and could make any changes he wished and correct any faults that occurred for as long as his moulding material remained plastic. The stucco worker however had much less leeway for after the primed stucco had been modelled and left for a while it was difficult, if not impossible, to alter. Any removals or extra modelling had to be done during the short time that the stucco was still plastic.

There is another lime construction material known in Thai as "oil lime" (pun nam man). Its ingredients are the slaked lime type of hydraulic cement mixed with a special kind of oil known only by its Chinese dialect name *tang-iu*. Only a little is ever made up at any one time and no special expertise is really needed to make it. But because its users are rather secretive about their trade it has not come into widespread use. Sometimes a green colouring is mixed in with it resulting in a dark green jade colour that attracts some wonder in certain circles. Clearly however both are just some kind of glazier's putty and more than likely its origins are to be found in mainland China. Its first appearance in Thailand coincided with the Early Rattanakosin Period so it is not at all old.



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A rounded Lan Na arch at Wat Phra That Lampang Luang, Ko Kha district, Lampang province. From the reign of King Tilokkarat (r. 1442-1487). Still in a good state of preservation.



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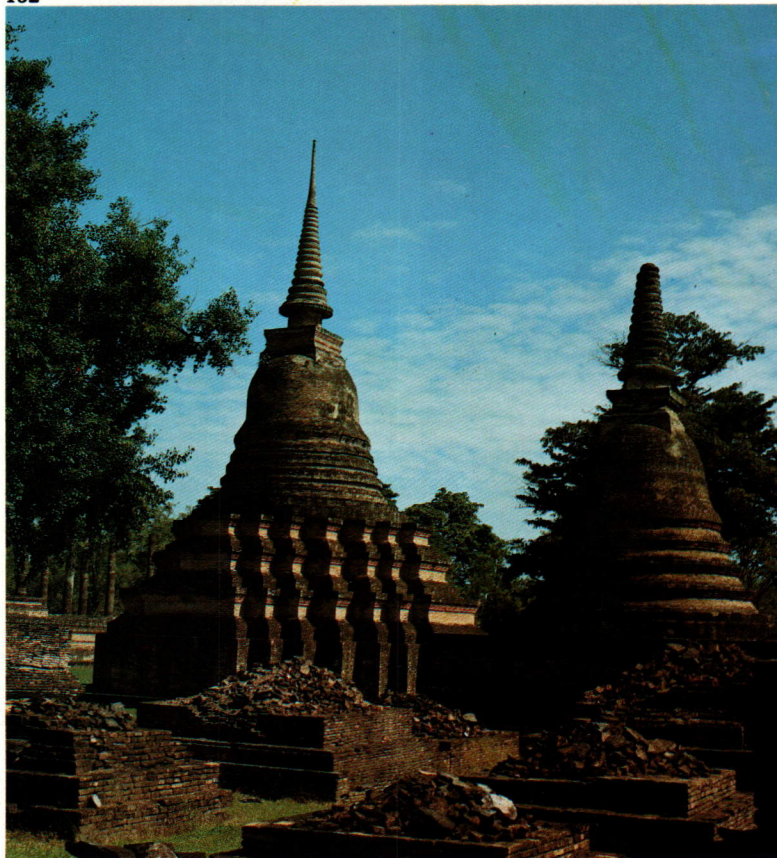
A large reclining Buddha image in Ayudhya Period art and architecture, built of brick and stucco on a grand scale. It is found in Pho Thong district, Ang Thong province.



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Chedi Phra Nang Chammathewi, or Chedi Ku Kut, an ancient relic monument at Wat Chammathewi (Wat Ku Kut), Muang district, Lamphun. The belief is that interred inside are the relics of Queen Chammathewi, a ruler over Lamphun (Hariphunchai) in the 8th century A.D. The monument has been renovated many times in the ensuing centuries, the last important occasion being in or around the 13th century. The evidence for this is to be found in an inspection of the stucco architectural ornament and the standing Buddha images of brick and stucco in the niches covering the tower.

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Chedi Liam, or the "square relic tower", at Wat Chedi Liam, Muang district. Chiang Mai province. Built after the Chedi Phra Nang Chammathewi (Chedi Ku Kut) of Wat Chammathewi, Lamphun, it dates from about the 14th century. This monument too has been renovated many times, the most recent of importance being one carried out by Burmese traders during the Fifth King's reign less than a hundred years ago. These traders provided the financing and Burmese craftsmen did the work. This explains why the stucco architectural ornament and the Buddha images also of stucco are in the Burmese art style.

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The relic tower complex that is the presiding monument of Wat Maha That, Old Sukhothai. It can be dated to about the 14th century A.D. The central tower, the tallest of them all, is a "lotus-bud" tower, an architectural type of reliquary monument that is thought to have been unique to Sukhothai Period art.

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Two satellite relic towers in the southeast corner of the enclosure of Wat Maha That, Old Sukhothai. These are round cetiya relic towers from in or around the 14th century A.D.



The craft of plastering flourished during the reign of Phra Bat Somdet Phra Nang Klao Chao Yu Hua (Rama III) for it was during the Third Reign that the King expressly favoured and personally encouraged the building and expansion of many Buddhist monastic establishments in and around Bangkok. A long descriptive poem composed by Chao Phraya Chai Wichit (Phuak) contains the following passage on the subject of the construction of Wat Racha-orotsaram:

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A Sukhothai Period stucco sculptural panel from the 14th century figuring *devata* angels with hands raised palms together and now in the Bangkok National Museum. The style is not very different from that of the incised stone slabs on the secret tunnel roof at Wat Si Chum just outside Old Sukhothai.

*Our monasteries once were built in strange ways
With halls of wood and perishable parts,
Finials and gable-ends it is said were so so
Fragile, short-lasting and easily broken;
But this monastery, Ratcha-orot by name,
Has a sturdy pediment in the Western style
instead,
Brightly glazed tiles are everywhere, and the
thick walls,
Sleek, sharp and smooth, too are foreign.*

*There are also Chinese-built pavilions
With upturned ridges, the work of Teochiu
artisans
From nearby Sam Pheng and hired for the job,
Who made through tallies and fortune papers*

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Stucco ornament at Wat Khao Bandai It, Phetchaburi province, featuring a Garuda standing fully upright against a background of flamboyants and heavy flowering bodies. Notice how the stucco has been moulded with the help of the blade of a mason's trowel to give a sharp, crisp treatment of edges to the elements of ornament. This is a distinctive feature of the Phetchaburi School of moulded stucco craftsmen that flourished during the Late Ayudhya Period.



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A *mandapa* shrine-building at Wat Phra Chettuphon, Bangkok. This is a masonry building with glazed ceramic tile encrustment. The tiered roof-tower is in the form of a Thai king's crown and the roof registers below it descend in a step-wise manner. Architecture from the Third Reign of the Rattanakosin Period.



*The belfries, a large refectory and travellers' rests
Which, along with their verandahs, were all
strong
And sturdy, all lime-plastered trowelled on
generously;
Only its image gallery lifts in the way that is Thai.*

This shows that when the wooden ridge-end finials, the carved bargeboards and the timber gable-end panels ceased to be found on royal monasteries, plastering was necessary to replace the woodcarving. Plaster was used to build pediments onto the gable-ends instead of wooden panels and stucco ornament, modelled in various novel forms, was now there in the place of the old carved finials and bargeboards. Plastering was therefore a very active pursuit during the Third Reign. Of some interest is a special way of modelling in stucco on a wooden panel rather than on the more conventional stone or brickwork surface. This technique is known in Thailand as *kraae pun* and by applying this technique the stucco can be made to adhere firmly to the wood. The panel ornament in this case is usually beautiful intertwining flowers and foliage with some of the climaxes gilded to provide highlights. There are some very nice examples at Wat Ratcha-orotsaram that were referred to in the poem. Another site is Wat Khemaphiratararam between Bangkok and Nonthaburi, a monastery restored and enlarged during the reign of Phra Bat Somdet Phra Chom Klao Chao Yu Hua (Rama IV) which the King dedicated to his late Queen, Somdet Phra Si Suriyen. The window leaves of the ordination hall carry detailed floral ornament composed of quite small flowers which amazingly enough is stucco-on-wood in very good condition today with the stucco firmly adhering to the wood in the same way that it does at Wat Ratcha-orotsaram. The technique can be reconstructed. The pattern would have been drawn, or traced, on the wooden panel first. Stucco would then be modelled, sculpted, or moulded appropriately and pressed onto the panel where required. These ornamental elements included leaves that wrapped, leaves that pointed, and leaves that curled, just like the leaves in Nature.



Large stucco Buddha images can also be made using basic plastering techniques. Chinese dragon jars, pickling jars or any other kind of large earthenware jar, and bricks, are the construction materials. The roughshaped image is built of brick with the jars making hollow cells to lighten the mass and at the same time providing sufficient support for the structure. The large Reclining Buddha of Wat Phra Non in Sing Buri and the famous Reclining Buddha (Phra Non) of Wat Phra Chettuphon (Wat Pho) here in Bangkok would not be what they are without the contribution made by the work of the men in the plastering craft. Strangely enough, apart from Buddha images, very little else has been modelled into free-standing stucco figures. Even with Buddha images, if the image that one requires is not too large to cast in bronze it is very unlikely that people will agree to its being modelled in prosaic stucco. This may be because it is not as easy to model as finely in stucco as it is possible to do in modeller's wax and Buddha images should be both beautiful and durable.

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The original *prang* reliquary tower presiding at Wat Phra Si Rattana-maha That, Muang Chaliang, Si Satchanalai district, Sukhothai province, was in a Sukhothai Period architectural style and is believed to have been first erected in the 13th - 14th century when Sukhothai was still an independent Thai kingdom. However King Borommakot (r. 1732-1758) of Ayutthaya had it rebuilt in the Ayudhya Period architectural style we see today.



Lacquering

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A detail of some pearl-shell inlaid door ornament first designed in the Late Ayudhya Period but restored following a fire in the Early Rattanakosin (Bangkok) Period. Centre, we see Indra on his mount Airavana. The ground ornament is leafy, spiralling vines with human and bestial half-figures at their extremities. At the Buddha's Footprint Shrine in Saraburi province.

In the group of craftsmen involved with lacquerwork their might be no lacquer craftsman proper other than the preparer of the lacquer and who having prepared it applies it to the workpiece thus providing the basis for any further work that may be done on it as part of the process for making lacquer wares. This same lacquer craftsman might also be called upon to lay down simple coloured glass mosaic patterns or to apply gold-leaf to tacky black lacquer surfaces, for these lacquer applications are as much his duty as the preparation of lacquer for use. There are also lacquer craftsmen who work with mother-of-pearl inlayers for in Thailand this latter craft involves the laying down of a mosaic of pearl-shell chips on a black lacquered workpiece. In many other Thai art productions too the lacquerworker may be found making some kind of contribution. The ornamenting of a Buddha image with apparel and jewellery involves the lacquer craftsman, and when the carving of a wooden panel is done lacquer craftsmen, and glass inlay craftsmen, are usually called in to finish off the job with an embellished and weather-proofed surface. With a small number of exceptions it is generally true to say that in the Thai art crafts the application of lacquer and subsequent gilding is the last stage in the work of producing a fully-finished job.

The divisions of craft in the former Craftwork Department, it would seem, did not include among them lacquer craftsmen who, it appears, were freely assigned to particular jobs, for there is no evidence to suggest that the lacquerer was formally attached to any one of

these divisions or offices. With lacquering simply being one stage in a number of different production processes, the place for the lacquerer was to be a specialist craftsman working as a member of one of the many craft teams attached to their respective craft offices. His usefulness lay in the way in which lacquering preserves a crafted article and gives it an extended life, as well as to prepare it for gilding. In the latter case, a tacky lacquer coat supplies the adhesive surface for the gold-leaf which, because of its extreme thinness, requires just such a hard, smooth, receptive surface if the intention is for it to remain in place for any prolonged length of time.

Lacquer is a natural tree resin obtained by tapping a Burmese varnish tree, *Melanorrhoea usitata* (*Anacardiaceae*), of its milky sap which turns yellow-brown and then black upon exposure to the air. However tapping the sap of a varnish tree is a much more difficult task than tapping latex from a rubber tree because it takes so much longer. It can take several weeks in fact before enough sap has trickled out to make its collection worthwhile. Nevertheless there is a profitable trade, even today, in buying up this lacquer and storing it for eventual resale. To gather the lacquer one must go off into the jungle because the tree is never found growing close to human habitation. The sap can cause an allergic reaction in some people which is one obstacle to becoming a lacquer craftsman. The vapour coming off a vessel containing lacquer can bring on a serious attack of hives, but have no effect at all on people who are not allergic to it. The treatment for lacquer-induced hives is to



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Pearl-shell inlaid double-doors hanging in the Ho Monthian Tham at Wat Phra Si Rattanasatsadaram (the Chapel Royal), Bangkok. These actually belong to the Late Ayudhya Period and date from the reign of King Borommakot (r. 1732-1758) who had them made

and hung in a hall at Wat Borom Phuttharam, Ayutthaya, in 1752. Two centuries later, in 1931, Prince Damrong had them removed to the Chapel Royal and rehung here as the central doors on the west face of the Ho Monthian Tham.

boil teakwood chips in water, constantly adding more water as it boils off, and bathing the affected parts with the resulting liquor a number of times, or better, making a hot poultice from the same. This danger however has not led to any diminution of the lacquer trade which flourished in the past and today is still in good health.

Lacquerwork in Thailand is probably an ancient art but the earliest evidence we have for it is in Ayudhya times, or perhaps the Late Sukhothai Period that overlaps with the Early Ayudhya Period. In the North of Thailand, in Chiang Mai, there is a "Lacquerware Village" inhabited by a Thai tribal group known as the *Khoen*. Their particular type of lacquerware is known as Khoen-ware (Thai: *khruang khoen*) and is for the most part covered bowls and cups. Their traditional lacquer technology has only recently gone into fairly rapid decline and today new lacquering processes introduced by Japanese rural development workers have almost completely replaced it. The Khoen-ware craftsmen rely very much on the services of the lacquerer. The basis for their lacquering is a loosely woven bamboo container the shape of the final piece. When this is lacquered properly the gaps in the weave are all sealed providing a completely water-proof container. Just how this is done and what is the full range of the application of this principle requires a fuller, more detailed description of some of the operations involved.

Before applying made-up lacquer to a workpiece it is advisable to know something about its composition and in particular its concentration. A simple test is all that is usually needed. A drop of the lacquer preparation is allowed to fall on a square of straw paper or some other kind of absorbent paper. If an oily ring appears around the lacquer stain it means that too much oleoresin has been used as a buffer and that the lacquer is not of a sufficient quality suitable for craft work. Lacquer that passes this test can be further made-up in at least three different ways, as follows:

1. Lacquer varnish (*rak rong phuñ*): This is simply prepared lacquer that has been properly filtered. It is applied to a clean surface with a brush and acts as a seal or an undercoat. Before applying it to a wooden surface the wood should be well sanded down and made as smooth as possible. Plaster and pottery surfaces require slightly different treatments. Newly-fired

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A twin footed tray set in the style of the Early Rattanakosin Period. The detailed surface ornament is moulded lacquer resin.



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An Early Rattanakosin Period round lacquerware vessel with close fitting lid for carrying dry foods. The lacquer is applied to a basket weave of bamboo or rattan strips which is then ornamented. The fascia band on the body is composed of spiralling vines and tendrils, while that around the lid is an alternating band that includes the tablet flower rendered as a lozenge. On display at the Bangkok National Museum.

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A long octagonal lacquered clothes box for a man. It is covered with painted lacquer ornament. A woman's clothes box would be rounded. When the bridegroom takes up residence in his bride's parents house he must bring along with him one clothes box of this type, a sword, two lengths of cloth (to give to his new father and mother-in-laws) and a long sleeve tied at both ends which is his money belt (and it must have some silver in it when he comes).

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A footed tray of the Rattanakosin Period crafted from the wood of the dadap or coral tree, for its lightness, and rattan, and which was then lacquered and pearl-shell inlaid. Exotic vine leaves provide the theme in this criss-crossed vine pattern. Now in the Bangkok National Museum.



pottery can be lacquered straight away but plaster surfaces have to be primed first by leaching them of their salts. The technique used here is the same one that is used by the Thai muralists (see above under Drawing).

2. Black lacquer (rak samuk) : This is a black plastic lacquer made from lacquer and fine vegetable ash, either made from banana leaves or lalang grass (*Imperata arundinacea*). Sometimes black earth is used instead after drying it out and pounding it into a fine dust. The plant ash, or its substitute, is used in considerable quantities as the lacquer is only a binder. The two have to be kneaded well together until just the right thickness is obtained. This is done on a wooden board with a rolling-pin. The right thickness is when the black lacquer can be modelled easily. Only the amount actually needed for the work at hand should be made as any left over at the end cannot be kept for later use because it hardens into an unworkable lump. One of the applications of black lacquer is in moulding for repeated surface ornament and embellishments. A soft stone mould is made of the ornament needed in large quantities and freshly-prepared black lacquer is pressed into the mould and removed to apply it to almost any lacquered surface at all from papier mache to bronze. Black lacquer is also called *rak ti lai* or "punched ornament lacquer".

3. Lacquer glaze (rak nam kliang) : This is a fast-drying lacquer. One of its ingredients is a small amount of oil of turpentine which helps it dry out rapidly. Prepared lacquer must first be filtered thoroughly and only then is the turpentine added. After black lacquer has been applied to a surface and has been allowed to dry thoroughly it is ground down and polished smooth. If it is then given a uniform coat of this lacquer glaze, the result will be a glazed surface at least as shiny as any ceramic glaze.

These three lacquer preparations have many applications in Thai art and crafts especially the first two, the lacquer varnish and the plastic black lacquer, for they are the basis for most of the gilding that is done. Thus black lacquer is spooned onto a lacquer varnished surface and spread out evenly. When dry it can be ground absolutely smooth and brought to a good polish. It therefore provides a second, better surface than the first merely varnished one because it is denser and harder as well as much smoother. It is this latter slate-like black lacquer



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Khoen ware nesting trays. This is a lacquered bamboo ware with painted ornament from northern Thailand. Painter's pigments and mineral colours mixed with lacquer are applied with a brush. Basket weave provides the shape which is then sealed with the juice of the varnish tree mixed stiff with pulverized charcoal made from banana leaves or thatching grass. This must be polished smooth first before the pure lacquer coat can be applied to provide a suitable painting surface. It is a ware indigenous to northern Thailand. The Burmese call it northern Thai styled ware and Japanese lacquer experts call it Kin-me, or Chiang Mai styled.



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A pearl-shell and mirror glass inlaid food tray with cover from the Early Rattanakosin Period of a type that can be regarded as the most highly respected of traditional household wares. This particular tray was formerly used both for presenting food to high ranking ecclesiastics and at marriage ceremonies, either with another one to carry the traditional bridal gifts, or alone to carry food to the bridegroom's house. It is now with the Bangkok National Museum.



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A monk's eating bowl cover, ornamented with pearl-shell inlay. From the Rattanakosin Period. A concentric arrangement of lotus bloom petals, each enclosing a network of exotic vine leaves and stalks.



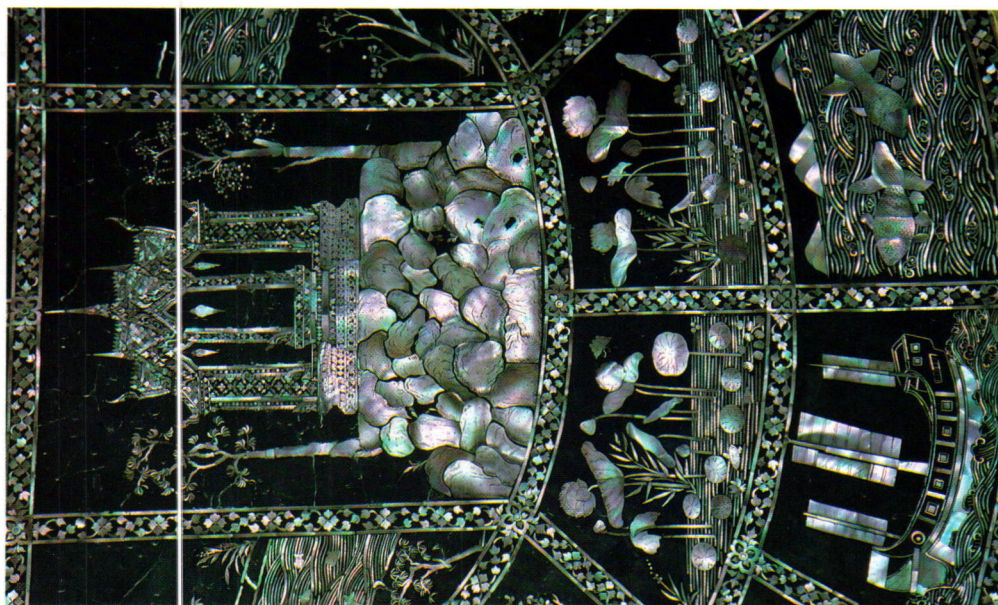
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Small round, lidded, dry food containers from the Early Rattanakosin Period carrying pearl-shell and glass inlaid ornament.

surface that provides the right basis for the Thai pictorial gilding technique called *lai rot nam* or "washed (gilded) ornament". The steps in this operation are briefly as follows.

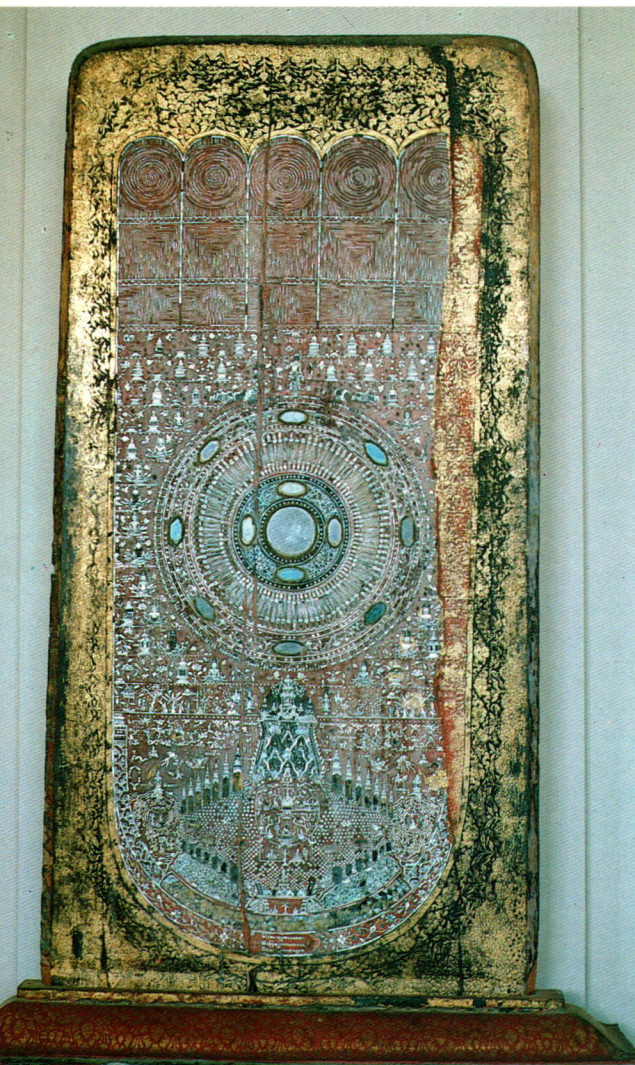
With the polished black lacquer surface ready, the drawer transfers his line ornament to the surface with a chalk-dust stencil. This is a perforated paper drawing that is laid on the surface and tapped lightly with a chalk-dust bag to transfer the perforated ornament onto the surface in chalk dust or alternatively, rice flour. The ornament can now be drawn in without too much difficulty by following the chalk-dust dots. This drawing is made with a fine brush dipped in a suspension of finely ground orpiment held in thin glue. It is both a drawing and a painting operation in one because the brush is used around the ornament to fill in the empty ground

completely with this lemon-yellow dye. The ornament, required gilded for the job, now appears as the unpainted black lacquer areas of the panel set against a dull yellow "ground" which later will have to be made black again. When the painting out is done for the full panel a single thin "smear" of another, thinner, lacquer glaze made with a light, clear wood resin is given and left a short while to become tacky. Now thick gold leaf is deftly applied in large squares to every part of the panel entirely covering it with a single sheet of gold leaf. When this is done, and no black can be seen in among the gold, the panel is washed with clean water (Thai: *rot nam*). The orpiment in glue swells a little and then dissolves into solution and is washed away along with the gold leaf that covered it. What was formerly the unpainted black lacquer is now gilded and what was painted over in yellow has reverted to the



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A detail of the pearl-shell inlay soles of the Reclining Buddha at Wat Phra Chettuphon Wimon Mangkhalaram (Wat Pho), Bangkok. Third Reign craftsmanship showing some of the 108 auspicious signs found on a Buddha's Footprint.



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A Buddha's Footprint modelled in wood, gold leaf and glass mosaic. Rattanakosin Period Lan Na Thai art. On display at the National Museum in Chiang Mai.

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A better view of the ornament on the Rattanakosin Period Buddha's Footprint in the Lan Na Thai art style at the National Museum, Chiang Mai.

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A cabinet with short, plain, straight legs. The sides taper inwards to the top. The inlaid ornament is of brittle glass, brittle because it is so thin. A Chinese pattern of packed circles is the result.

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A less common type of Thai Buddhist pulpit. This one has large leaf-shapes at the wings and is pearl-shell inlaid over the entire surface. It was one of a set made by the Grand Palace and gifted to various monasteries on the occasion of the Fifth King's cremation in 1910.

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Makarakarna, with a naga serpent crest to his crown. His face is blue-green here, but it can also be gilded.

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Indrajit, with gilded face and wearing a crown of the type used when travelling on land. Crafted during the Sixth Reign and now kept in the Bangkok National Museum. Only Indrajit's fangs grow straight and point down. When the face is blue-green the Khon mask is given a second name, Ranavakta.

unadorned plain black lacquer ground. It is because it is washed after gilding that this operation is called *lai rot nam*, a washed design or ornament, and now a readily understandable phrase.

The other contribution that the lacquerer can be expected to make to allied craft operations is in the work of gilding and laying glass mosaic ornament. The steps in this group of operations are briefly as follows: first, gilding followed by glass mosaic, and finally pearl-shell inlay.

With freshly carved wooden panels that require gilding the surface is first sealed with an undercoat of gamboge paint (*Garcinia hanburyi* (*Guttiferae*)), which is a bright yellow emulsion of the dried latex of this tree suspended in plain water. This is followed by a thin lacquer varnish undercoat. When this is dry two or three more coats of lacquer varnish are painted on, each time being left and allowed to dry properly, and the woodcarving is not bare wood any longer. Next the thinned out lacquer glaze (Thai: *rak chet*) is "wiped" over the relief carving and while it is still tacky the gold leaf can be applied. The hollowed out parts of the woodcarving that have not been gilded are not usually left untreated. Instead they are painted with either a coat of bright crimson or bright vermilion the better to bring up the gilded parts in front. Because *chat* is the old Thai word for "red" this step is called *long chat*, or "go down in red".

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With bronze Buddha images gilding is usually achieved by first covering the yellow metal surface with black plastic lacquer and then modelling or moulding whatever applied relief ornament is desired, if any. This surface can be made just as smooth as the metal and perhaps even a little more so. It is now given a coat first of lacquer glaze and then when gilding is ready, of the thin lacquer glaze which is covered with gold leaf while it is still tacky.

Coloured glass mosaic ornament is another of the embellishments so strongly favoured in Thai art and crafts. The most frequent applications are to religious halls and other buildings, and to the furniture inside them such as chests, bedsteads, pulpits, frames, etc. The operation begins with a lacquer varnish undercoat followed by however much black plastic lacquer is needed. This is made adhesive whenever the mosaic pieces are going to be placed by using another lacquer preparation we shall call "liquid lacquer" (Thai: *nam rak*). This has been boiled in a deep pan to reduce it to the extra thick consistency needed for this job. The coloured mirror glass mosaic pieces have to be cut into squares and lozenges and laid out in the right order ready for encrusting. The different colours are either scrambled or systematically arranged for carefully contrived colour matches and contrasts. The coloured glass is cut with an ordinary glass-cutter and, initially, the pieces that are of the same shape, colour and quality are kept together in sets. Various different types

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Rama with a crown of a type worn when travelling on land.



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Sukhrip.



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Lakshmana and Rama, crowned.



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Ravana, the "Ten-headed", with gilded face.



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Another version of the gilded face of Ravana.





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Akasatalaya.



181
Kumbhakarna, with black
lacquered face. His
upturned fangs and teeth
are pearl-shell.



182
Hanuman, bareheaded.

of glass can be used. There is one that has milky colours and comes in rather thick panes. It is sometimes called "brittle glass" and, despite its crudeness, is very easy to cut. Before the diamond-pointed glass-cutter was introduced glass mosaic workers had to use large iron scissors and they "cut" the glass underwater, a technique that worked fairly well because the surrounding water helped to stop the glass from shattering.

The lacquerer is needed to assist the mother-of-pearl inlayer but only after the latter has laid down his pearl-shell mosaic with the help of some ordinary glue. The lacquerer then spoons on his black plastic lacquer forcing it in between the gaps in the mosaic and building up the surface until it covers over the pearl-shell inlay completely. After drying thoroughly, the new surface is then ground down with a whetstone until the pearl-shell shines out once more. To give the black lacquer a final polish it is now given a single coat of lacquer glaze and allowed to dry slowly.

Pearl-shell inlayers are specialist workers working in their own field. Their most time-consuming work is cutting the pearl-shell pieces to shape. Each piece must be dealt with separately, carefully matching it against the corresponding element on the master drawing. They are fixed in place on the wooden panel either with glue or with the "liquid lacquer". This means that the upper surface of the shell and the original surface of the wooden panel are on two different levels. It also means that there are large "gaps" where pearl-shell pieces are not found. That is why the panel has to be filled in with the black plastic lacquer up to the level of the pearly surface. The best way to achieve this has already been indicated above. One squeezes on the black lacquer to build up the panel ground without air bubbles until it covers the pearly surface and later, with a soft, coarse-grained honing stone, one grinds back down carefully until the pearl-shell inlay can just be seen as a yellow shadow beneath the black lacquer surface. Pitting and other faults in the lacquer can now be dealt with by adding more of the plastic lacquer and letting it dry. Last of all a fine-grained whetstone is taken up and the whole panel is "polished" so that the pearl-shell only just breaks through. It can now be polished again with a non-abrasive to finish the job and give it a good bloom.



Beating

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A First Queen's crown headdress in the Rattanakosin Period. Now kept at the Bangkok National Museum. It is crafted out of wood, leather and papier mache and is gilded. It is completely covered with ornamental mouldings of lacquer resin, gilded, which are the bezels for chips of coloured mirror glass.

In the matter of beating there is not a lot to be said since everything is fairly clear and straightforward. The only difficulty is of course in acquiring the practical technique to a sufficient degree of expertise. There is also a need to know something about alloys and forging casting. The yellow metal that is beaten, for example, can be of a number of different kinds. The yellow metal used in beating to make ordinary quality utensils is a metal called in Thai *thong long hin*, literally "stoned gold". The process involved is to obtain Chinese gongs or war-cymbals, which provide the yellow alloy, melt them down and hammer and beat them out in the shape required. That done, a fine-grained whetstone is taken up and rubbed vigorously all over the metal to grind it quite smooth and give it a polish. The strange name can thus be seen to refer to a brass that has been stone-polished.

Beating (Thai: *chang bu*) means hammering out (Thai: *ti*) into thin sheets of various shapes from being quite flat to making elaborate bowls. Beaters are therefore needed in most traditional types of work involving malleable metals, such as copper and other base metals, silver and gold, as well as their common alloys. On Khlong Bangkok Noi there was once a sizable neighbourhood called Tambon Ban Bu centred around Wat Suwannaram (Wat Thong). Even today it is still known as a place where some metal beater families are still actively plying their trade. In former times it was a metal beaters' village where all kinds of utensils and

household vessels were made, including wide, deep basin-shaped frying pans (Thai: *Kratha*) and large household trays made of beaten brass. Also very popular was a set of "stoned gold" drinking vessels comprising a large central bowl, smaller handle-less cups and a supporting tray often set on a footed pedestal. Another class of beaters is those who make the monk's alms-bowl (Thai: *bat*). They are not called *chang bu* however, but rather *chang ti bat*. Their "monk's bowl village" is an urban enclave near the Golden Mount next to Wat Sa Ket in the city precinct called Tambon Ban Bat. And there is another class of beater that specializes in making small gold and silver Buddha images by covering a figure, a shaped wooden core, with worked metal sheet and then tooling in all the surface detail that is required. Sometimes more metal is used on the job and then no core is needed. The workers in this last-mentioned group are the fine craftsmen. Nevertheless, all the royal utensils and many kinds of jewellery are either made by beating or involve a step in their manufacture that requires the services of a skilled beater on a temporary basis.

Beating in silver and beating in gold are not the same trade. The silver used in beating is not absolutely pure and contains a little copper for malleability. If not, when beaten it would develop flakes. Gold on the other hand has to be "toned" with red gold or "gold bronze", an alloy of gold with either copper or silver. The actual proportions used depend very much on what the job is and so cannot be given here.

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The Royal Regalia of the Thai kings today comprises the Crown of Victory, the Sword, the Staff, the Fly Whisk or the Fan and the Slippers. Another traditional grouping is the Great White Umbrella of State, the Crown of Victory, the Fly Whisk or the Fan and the Slippers.



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The King's Sword named *Jayasri* (Thai : Chai Si) has an ancient blade of old Khmer workmanship. King Rama I had the hilt and scabbard crafted in gold, enamelled and encrusted with jewels and it was included among his royal regalia. The blade is double-edged and near the hilt it has been chased with gold inlay to depict the double figure of Narayana (Vishnu) and his vehicle *Garuda*.



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The King's Fly Whisk or Chowry crafted from the tail of a chamara or yak, mounted on a cut-glass handle covered with ornamented and enamelled gold sheet. King Rama I had it included in with his royal regalia.

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The King's Fan is crafted from the talipot palm and gilded over. The shaft and the fan mount are gilded over too but they are also enamelled in red and green.

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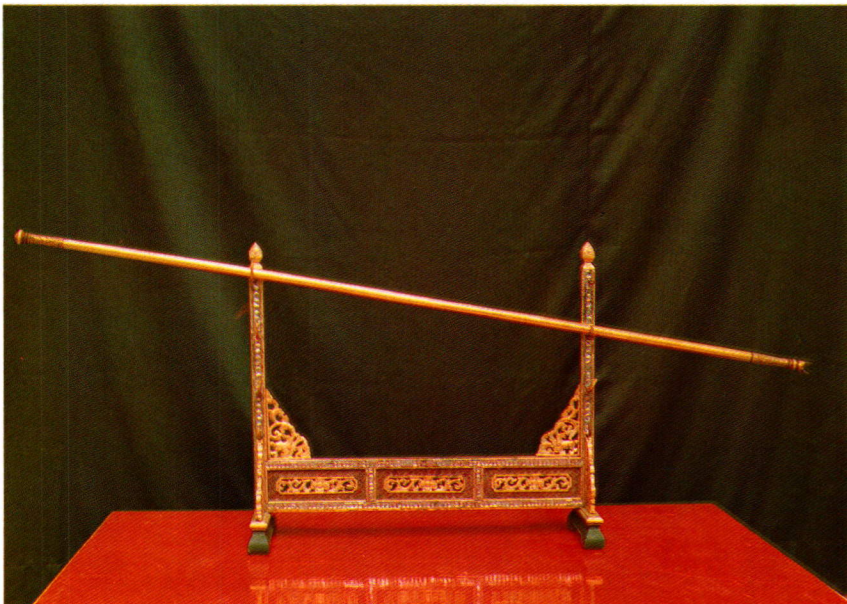
The King's Staff of Cassia wood enclosed in gold has a knob at one end and three tines at the foot



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Turned-up King's Slippers crafted entirely in fine gold of the First Reign. One view has it that because they are of gold they were only to be worn for a king's coronation. The carved ornament includes large flamboyant tail-tufts and artificial four-petalled flowers enamelled in red and green. The shoe tip is a lotus-form button, or a floral knob. Ornate "seams" run the length of the sides and another makes a rib down the centre. The former are conical figured borders, the latter a connected floral band with vine leaves and stems of a particular kind (*but nam phet*) That Thailand includes such slippers as a part of the

King's five-piece Royal Regalia today is believed to have been a custom introduced from Early India. One story goes that when Bharata, Rama's younger brother born of a different mother, invited Rama to return to rule over Ayodhya, Rama gave him instead a pair of royal slippers of his of bleached white straw, which were placed on a footed tray and set on the throne of Ayodhya as a symbol of royalty. This story was known in Thailand in Ayudhya Period times and the earliest Royal Siamese slippers as a part of the royal regalia would date from that time.

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A round cakra discus of iron with a round centre. The edge is rimmed with gold while the face ornament is gold inlay depicting eight wheel teeth turning clock-wise.

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An iron trident (Tri) with hilt. The hilt and the base of the three tines are enclosed in ornamented gold and jewel-encrusted. The central tine is further ornamented with a figure of Narayana (Vishnu) whose attribute the trident is, mounted on his vehicle Garuda. This icon is also made of iron with gold inlay.

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The Crown of Victory is an item of regalia of the royal honours kind. It was crafted during the First Reign and has been enamelled red and green and set with diamond chips. The large diamond on the pinnacle had the name Maha Wichian Mani bestowed upon it, and was added to the King's Crown by King Rama IV.

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The First Reign King's crown for use on public occasions is crafted of enamelled gold and encrusted with diamonds. The pinnacle takes the form of a smooth, ridged, but truncated, stem with four attached bracts. It has a "gold flamboyant" type side-piece worn on the left.

The First Reign King's Five Pinnacle Crown is composed of a crown surmounted by a double crown and has a side-piece instead of the earlier plume of a song-bird. It is crafted of jewel-encrusted gold. The pinnacle finishes with "bract-like" sections similar to those found on a bamboo shoot. The side-piece should at this date have been a gold flamboyant but here it takes the form of a bird's plume, while the pinnacle, although referred to by Thai craftsmen as a flamboyant with wavy elements, is bract-like as has been said, each of the five bracts being given the form of a tongues-of-flame flamboyant, and it is the tip of the pinnacle only that is a flamboyant, or an arabesque, with wavy elements, as the craftsmen say. There is a single bloom of diamonds pinned to the tip. All three connected bands (the raised rings) on this crown carry ornament that is an arrangement of stalks and flowers.

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The Fifth Reign King's Five-Peaked Pinnacle Crown is crafted in gold, enamelled pink and set with diamonds. It is commonly called "The Grand Pink (Crown)". Its side-piece is the plumes of the "Windeater" bird.



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The Sixth Reign King's Five-Peaked Pinnacle Crown was designed for King Vajiravudh, or Rama VI, and is crafted in gold and enamelled in one colour, a blue-green. It is also set with diamonds. In this case the five-tiered pinnacle's tip does have literally the five peaks of its name. It is stem-like and is enclosed within overlapping bracts.

Similarly peaked pinnacle crowns are found in old Thai paintings. A side-piece is lacking here and instead there are the plumes of the "Windeater" bird.



197

The Seventh Reign King's Five-Peaked Pinnacle Crown is crafted in enamelled gold and encrusted with diamonds. Again the pinnacle's tip is actually five-peaked and instead of a side-piece there are the plumes of the "Windeater" bird (Vayubhaksha).

Still the variety does show that the metal beater must be fairly knowledgeable in melting and the refining of metal too. The most important factor in the metals and alloys used by the beater is their malleability or workability. He is unable for example to work with the "bronzes" that are used in the casting of Buddha images. Nor does he know anything about the smelting of metallic ores. Beaters in Thailand have therefore a keen interest in alloys that are already workable when they obtain them. In northern Thailand for example the silver beaters, for preference, buy old sterling silver coins, melt them down and use this type of silver for beating out the embossed silver bowls for which they are most famous, primarily because it is not pure silver, rather it is a malleable silver alloy already prepared.

The old pagoda or stupa towers of northern Thailand such as are found in Chiang Mai, Lamphun and Chiang Rai are usually covered with metal sheeting that has been beaten out thin and flat. Each sheet, or square, will usually carry some simple ornament. The early history of the main brick tower at Wat Chedi Luang in Chiang Mai was outlined in the "*Jinakalamali*" (2nd Ltn. Saeng Monwithun's Edition). In part, it relates how the King "had the main stupa tower covered with copper sheets that had been 'washed in gold' from the pinnacle down to the main base at ground level. It was then gilded again, this time with gold leaf." This religious monument was built in the 15th century A.D. during the reign of King Tilokkarat. Today the main relic towers of Wat Phra That Hariphunchai in Lamphun and the Buddhist monument on Doi Suthep overlooking Chiang Mai are both entirely covered with copper sheeting.

In the Middle Ayudhya Period when the 8 fathoms tall Phra Si Sanphet image was installed in a hall at Wat Phra Si Sanphet at Krung Si Ayutthaya (Ayudhya) it was entirely covered with gold sheeting. One of the Royal Chronicles of Ayudhya records the "celebration of the Lord Buddha Phra Si Sanphet, the greatest of the Buddhist image sculptures in the City measuring (as it does) eight fathoms from the feet to the top of the flame-like skull protuberance, four cubits from the chin to the hair-line, three cubits across the face, and ten cubits across the chest. Thirteen thousand catties of metallurgist's gold went into the casting of this great image and two hundred and eighty-six catties of real gold were used in covering it. In front, the gold covering both legs was of grade 7 and at the back they were covered with grade 6 gold..." (Grade 9 was fine gold in this context, and grade 4 the lowest grade for pure gold *trans*). We learn here that after the image was cast from "gold bronze" it was then enclosed in a second skin of pure gold. The gold sheeting was therefore very much the work of beaters and not moulders.

Coming now to the Rattanakosin Period, when Phra Bat Somdet Phra Nang Klao Chao Yu Hua (Rama III) had made two Buddha images in honour of his royal grandfather and father, he had them both covered with pure gold. These two Buddha images are the Phra Phutthayot Fa Chula Lok and the Phra Phutthaloet La Naphalai standing in front of and beneath the Emerald Buddha in the Royal Chapel. A book about the Grand Palace written by S. Thanapradit has this to say: "These two images made in honour of the first two reigns were created by Phra Bat Somdet Phra Nang Klao Chao Yu Hua (Rama III) to be standing Buddha images three metres high. They were cast in bronze and covered with 38.64 kilogrammes of pure gold each. These images are dressed in Royal Attire like a king or emperor. This ornament is enamelled gold encrusted with gems and precious stones." Even the tall housing for the Emerald Buddha image is covered with gold sheeting. This was stated in an account of the restoration of Wat Phra Kao (Wat Phra Si Rattanasatsadaram) during the Third Reign; "The magnificent image housing is deeply rebated with three rabbets per corner and is eight cubits and one span high. Beaten sheets of native gold cover it from the lotus pedestal stages upwards to the very tip of the pinnacle." All this goes to show that beaters in Thailand have been active from early historical times down to the Rattanakosin Period.

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The King's broad-brimmed Hat of felt is surmounted with a miniature Siamese crown of pure gold. The hat-band too is of pure gold, enamelled in red and green and with the appropriate gold ornament. The latter comprises delicate connected ornament with lotus-leaf borders above and below, enamelled as has been said in red and green. This connected band is composed of four-petalled flowers. There is also a tall side-piece mounted with diamond halves, an ancient jeweller's cut, and a chin strap of plaited gold so done that an alternating band of tablet flowers with and without "crab's claws" was effected. The miniature crown at the peak is also enamelled in red and green and mounted with diamond halves. The side-piece carries the plumes of a small bird with a beautiful song and two additional floral pieces.

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Royal utensils comprising a set of four for the King's private use. The set contains (clockwise from top) : the Betel Nut Set ; the flared lotus - form Spittoon; the small spouted Receptacle; the Water Urn. The set was crafted during the First Reign under the supervision of the Prince of the Palace to the Front. It is of this Set that it has been said that, before the gold Betel Nut Set was made, a wooden prototype was first made.



198 199



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The King's Helmet of leather has four black, tufted balls around the brim and another ball at the top. Its form is bulbous. The front is marked by a rectangular cloth flap coloured in red and gold. Circling the crown and set on the band are seated Buddha images, made of beaten sheet of pure gold, the sole standing Buddha being placed above the flap.



200

A royal military sword. The scabbard is enclosed in gold ornament for its full length, while at the bottom it carries a double layer. The ornament is composed of the exotic vine leaf. Close inspection shows that this scabbard had at one time been embellished with blue *rajavati* enamelling but this has since come away. The hilt is embellished with two raised bands, a feature of the older Siamese swords. The point of the hilt has been given a rounded lotus

form found on Ayudhya Period swords. The blade and its pointed tip are quite ordinary for this is a comparatively recent sword having been crafted in the First Reign to resemble older types. Only the hilt however actually follows an Ayudhya type. The ridge of the blade carries inlaid gold ornament or chasing while the faces are quite smooth and plain. The predominant ornament on both the scabbard and the hilt is a Thai floral pattern.

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202

A small set of royal utensils was crafted during to Fifth Reign for the Queen Mother, Somdet Phra Thep Sirintharamat.

203

A large betel-set for royalty. The rebated faces of the double-tiered set carry four rabbits per angle. Included are a purse for folded betel-leaf, a pair of scissors and a matching pair of square containers with tiered covers.

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204

A small betel-set for royalty. The rebated faces of the footed pedestal along with its base, carry four rabbits on each angle. The betel-leaf is folded in a purse and the betel-nut is kept inside small round covered bowls. The third and smallest covered bowl is for the lip wax that prevents quick-lime burns.

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207



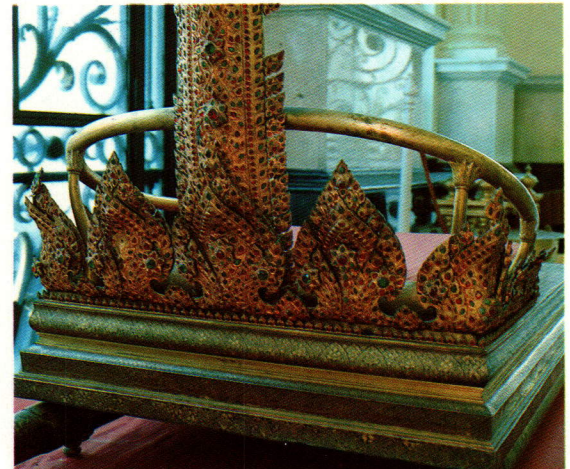
205

This nielloware sacrificial altar set is for a reduced-sized mixed vow offerings. The low, footed table is niello silverware treated with gold for the ornamental ground and has three rabbits per angle. The holders and the footed trays behind are gold too; each enamelled a different colour. The set was for use within the Grand Palace.

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206

This altar set of enamelled gold is a medium-sized mixed offering set of enamelled gold utensils in sets of five like in the large set for major functions. The difference between the two sets lies in the type of the footed trays used: those of the large set are stacked in sets of two.

209

An ancient northern Lan Na Thai sword and scabbard, mounted. The highly ornate hilt and scabbard are crafted from ivory and gold sheet.

209



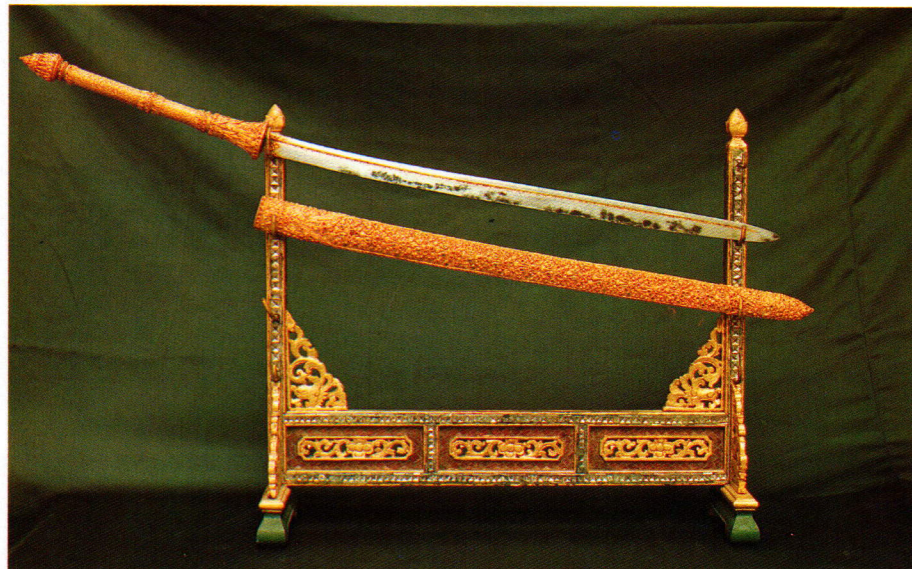
207

A major gold worshipping set, this is an altar offering set for use at important functions. The large table placed on the footed pedestal is gilded wood. On it are holders for candle and incense sticks, footed trays of gold for popped rice and footed trays of floral offerings, in sets of five. In the last case the footed trays are stacked in sets of two.

210

The hilt and scabbard of the royal sword Dap Mon Thon ("regional", as this sword was given to each of the regions by the King) are encased in ornamented gold sheet. This is a sword from the Fifth Reign. Its hilt is encrusted with precious stones. The hilt has also been enamelled. The enamel's red and green-blue ground with light blue spots is an old colour scheme known as *Rachawadi* (Rajavati) enamel.

210



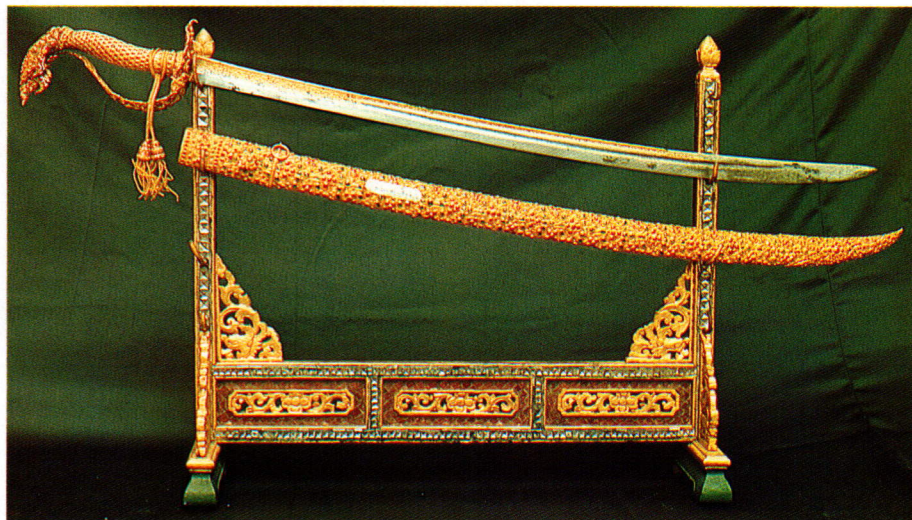
208

The rear of a golden nielloware royal palanquin seat crafted in the Third Reign. The back rest and the large lotus-form border elements are enclosed in ornamented gold and enamelled in various colours instead of being encrusted with coloured gem stones.

211

This First Reign royal sword with a three-headed naga serpent hilt is encased in ornamented gold. The scabbard carries floral ornament.

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This First Reign royal sword with a naga-headed gold-ornamented hilt has a scabbard bearing an intricate floral pattern; the top and end of the scabbard are encased in enamelled gold sheet.

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213 , 214

Fifth Reign three-headed naga royal sword. The fretwork carving is made along the rivet towards the blunt edge with gold inlaid ornament known as the Elephant Creese (Gajakeris). The scabbard, gold-ornamented, carries the profusion of floral patterns and eight blessed markings.

213



214

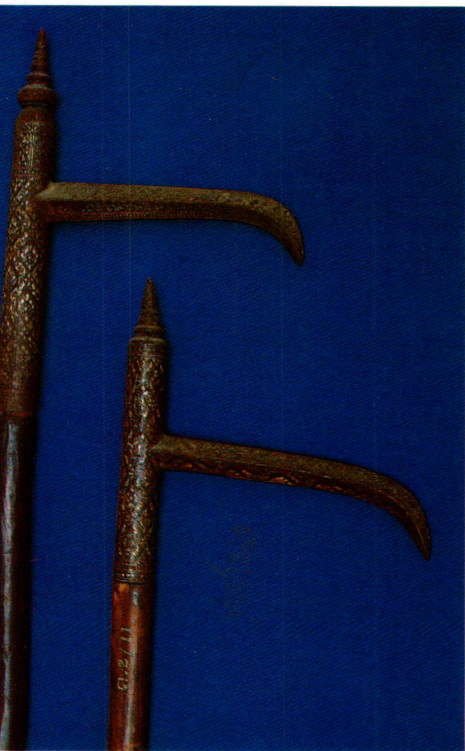
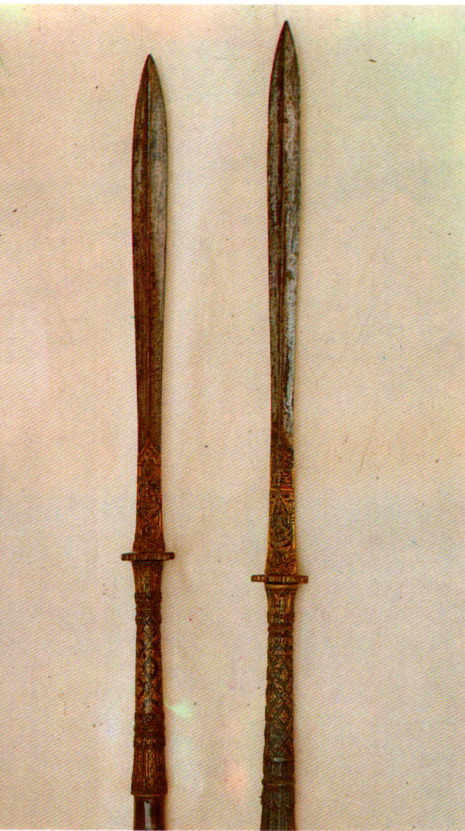


215

Early Rattanakosin spears; one is made of iron with gold inlay, while the other is with silver inlay. They are on display at the Bangkok National Museum.

216

Two elephant goads, an instrument also called an ankus, of the one type. Note how the turned pointed tip of the shaft is in a straight line with the body of the shaft. The other type has a shaft tip that bends away from the angled hook. The working ends of these two goads are crafted in iron and inlaid in silver and gold in the manner of the Thai craft of precious metal inlay, that is, with gold and silver forced into the engraved pattern and beaten flush.



217

A kneeling elephant made from hammered gold with extensive encrustation of the gold employing precious stones and serving as the harness, base border and seat. From the Early Ayudhya Period. Notice that the trunk holds a flamboyant figure thus reinforcing the meaning of the kneeling posture, namely of paying respects. From the crypt of Wat Ratchaburana, Ayutthaya, which was sealed off in or around the year 1425-6 A.D. This elephant which was found in the crypt was therefore crafted at some date prior to this.

218

An angelic devata figure cast in metal and covered in gold. Its creator was Prince Pradit Worakan, the Fifth Reign royal craftsman, and it stands next to the King's Coronation Throne inside the Chakri Throne Hall of the Grand Palace, serving as a supporter for the royal sword.

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Armlets recovered from the crypt of Wat Ratchaburana's presiding reliquary tower. The craft sequence was first to create the raised bezels and only afterwards to set the stones. The only other goldsmith's technique in use in olden times was to embed flat-cut stones in the base material.

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Early Rattanakosin Period barber's scissors and a betel-nut cutter. The former have inlaid silver ornament.

221

A face-bowl supported on four legs of lion's feet and mounted on an overturned tray that is on display at the Bangkok National Museum. This is a fine example of gold nielloware. Previously such vessels were actually used to wash the face but today a vessel of this type would be used principally at weddings either to carry auspicious offerings, or, filled with floral blossoms, to catch the lustral water poured from the conch shell.



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222

These utensils of gold from the Early Ayudhya Period include two carved betel-set bowls. From the crypt of Wat Ratchaburana, Ayutthaya.





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A beaten silver bowl of the Lan Na Thai style, depicting the Vessantara Jataka.

The technique used by beaters invariably requires an anvil, or at least an iron rest, and a kit of iron hammers of graded sizes. When the working metal is first struck to flatten it, one of the largest hammers is used because they are the heaviest. When the metal has been flattened out somewhat, a medium-sized hammer is brought into action, or one of the special-purpose hammers should the work require it. When the job requires beating out the bottom of a vessel or some similar kind of bulge, many soft, even taps delivered in a regular fashion are required, and so on. Embossed silver bowls are made on a block of hardened dammar. The roughshaped vessel is filled with the dammar and turned over. The outer surface is then beaten into a closer approximation of the final shape.

The beating of the outer surface is only to achieve a better shape, it has nothing to do with embossing ornament on the vessel. That is the work of another craftsman, the silversmith. The silversmith prefers not to handle a workpiece that has not first been brought to the desired preliminary shape by a silver beater. The embossed silver bowls of northern Thailand must therefore first be beaten into a bowl-shape of the right size and only then are they sent on to the

silver embosser, along with the dammar filling if the two are close. Having a silver beater who is also his own silver embosser is of course a great time-saver and makes for smoother work.

If we were to compare the quality of objects that have been hand-beaten by craftsmen with similar objects punched out by a mechanical press we would find that the hand-beaten objects are much stronger and that also they are even dent-resistant to a degree, which the mechanically pressed-out vessels certainly are not, especially at the angles. This is because hand-beating works the metal evenly even while it is thinning out the metal and stretching it by the force of the hammer's taps since in doing this the integrity of the metal is preserved. The real reason why beaters are not as active today as they were once not so long ago is that machine-pressed articles are now so prevalent; they come in many widely-different shapes and sizes introducing variety where variety was once of a very limited kind, and very large numbers can be produced in a factory in no time at all. Beaters today are therefore concentrating on providing quality work for ornamental pieces so elaborate that machines are not capable of imitating them.

Turning

Thai works of art include a great deal of turning work because turning is a form of creativity resulting in an easy achievement of the fine and the delicately beautiful. It is one artistic expression of the simple delight in seeing and touching certain classes of shapes. In this case it is because round shapes are pleasing to the touch, be it to hold in the hand or to grip firmly or even simply to pass the hand over the curved form. So people of almost all the human races and tongues have ways of turning a wide range of artifacts from hand tools to the component parts of buildings. The only differences to be found in all these circular-section works are in their characteristic national and cultural forms.

In Thai art the turning of a workpiece is not always the final stage of the work. It may be followed by lacquering and gilding, by encrusting in coloured glass mosaic, or by some other applied surface treatment, or some combinations of these, to give the surface an ornamental quality, a gleam or a sparkle, and all this is in addition to the circular cross-section shape and the Thai cultural forms. Before a turner can begin his work on any particular job he must first be given a sample, an example of the real thing, so that he can take his measurements of the over-all shape and form and see for himself the particular type of secondary surface ornament. From an inspection of this sample the turner can also determine how much of the job will require, in addition to the turning, some supplementary ornamental carving. To

take a concrete example, in northern Thailand they have a large barrel drum called the *klong ae* or the *klong aeo* which is turned from one tree trunk. It is commonly five or six metres (ten feet or so) long with a mouth opening for the drum head that is some two metres wide. It is not carved but it is beautifully turned and it is rather amazing that this is possible at all for something so large and long.

Turning should of course be thought of more as a technology than a fine art, or handicraft, but it can be described as a form of technological art. This is because of the reliance the turner must place on machine tools and an appropriate physical system of mechanical advantage, specifically, the turning-lathe that he uses that is in addition to his kit of cutting tools. Today lathes come in many shapes and forms but the craftsmen of old in Thailand had already solved the mechanical problem in a number of ingenious ways. Some indigenous lathes have only a rudimentary driving unit, some show appropriate technological development in this area, and in some places traditional primitive lathes have by now been almost completely replaced by power-driven lathes of the much more modern types, or even by the modern lathe. The two essential specifications of a horizontal lathe are that, firstly, it holds and supports the workpiece firmly in some kind of work-holding device without any significant spacial displacement, and secondly, that it permits

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A turned lacquered wooden vessel, Lan Na Thai style, used to contain food offerings for monks.

the work-piece to turn or rotate freely along its longitudinal axis on some kind of rotary horizontal spindle. These are simultaneous specifications and the lathe must be able to perform both functions together smoothly without any difficulty and continuously over extended periods of time. The cutting tools for use with the wood lathe are a kit of chisels and gouges of various sizes mounted on handles that are especially long, because they are hand-held and are manipulated without any support from a tool rest such as is found on speed lathes and the machine lathes used for turning operations in metal, the last of which holds the chisel bit firmly in a moveable vice.

Turning jobs in traditional Thai art and the associated crafts are work that involves engraving, carving, sculpting, trimming and touching up, in a word fine work that must be done as surely and confidently as the work of other crafts. Nor is the work confined to wood carving alone, for elephant ivory is also a popular material that was, until very recently, often turned. The creamy whiteness of ivory made it a particular favourite both on its own and in combination with wood for small articles of personal use. Ivory turning was work that was many times more demanding of a craftsman's delicacy and skill because, so valuable is ivory, any mistake or even just poor workmanship was simply not allowed. While the two materials, wood and ivory, were turned with a somewhat different set of cutting tools, and perhaps in different lathes as well, what work in these materials do share is the necessity for always working with cutting tools that are kept sharp just as was the case with engraving and carving.

Traditionally the lathe itself fell within the area of responsibility of the turner and no other person. He had either to provide one or, more often than not, build one himself from scratch at the source of his materials. This was not usually a difficult thing to do however. A simple frame was set up by burying the ends of two strong posts in the ground and tying their top ends in position with a light cross-beam. For the simplest type of wood lathe, called in Thai a *khan dit*, or "spring beam", a full-length bamboo pole was lashed to the foot of one post so that the flexible whip end arched freely next to the cross-beam. The free end of the pole could therefore spring up and down. One end of a length of rope was tied to this free end, was pulled down under tension, and taken a full turn around the turning



unit of the lathe. The free end of the rope was now, in the typical case, hitched to the end of a simple bamboo rod foot-pedal. When the foot strikes the bamboo pedal below it pulls down on the rope turned around the spindle and turns the lathe with a speed determined by the pedal-power. When the foot is released the bamboo pole overhead drags the rope back up and in doing so reverses the spindle's direction of rotation. To turn the workpiece a chisel is selected and the sharpened edge held against the workpiece. When the pedal is pressed down the workpiece rotates and the chisel bites into it. The pedal lathe turns backwards and forwards alternately but because it is so simple, and cheap, it is the most popular kind of lathe in upcountry rural areas. However, whatever is saved in investment in the primitive lathe must be more than made up for in skilled handling and most turners find that a really fine job just cannot be achieved with this kind of machine.

The other kind of wood lathe in current use has a similar frame of posts and tie-beam only with no flexible bamboo whip pole. Instead a conveyor belt ties in together the circular motion (Thai: *mun*) of a large wooden disc or wheel (*kong*) with that of the lathe's spindle. This second type of lathe is called a "rotating wheel" (*kong mun*). The large fly wheel has a collar from which it is turned by a wooden rocking treadle. This treadle works with a see-saw action in exactly the same way that a treadle sewing-machine does. The "rotating wheel" wood lathe is the more recent and is able to handle much larger jobs than the truly indigenous type. Neither lathe however is a permanent structure usually. They are made for the job and torn down afterwards. If the job is a medium-sized one and does not require fine work, a "spring beam" lathe is erected. If the job is rather larger, say a small round post or a number of staircase balusters, a "rotating wheel" lathe is put together.

There are a couple of modifications to the simple wood lathe that do away with a foot pedal but require either one or two helpers in its place to operate. When he has even a single helper the turner works sitting on a low bench. He does not have to stand because there is no pedal on which to tread, nor can he stand up because the flexible bamboo pole bends down much further in this case. The workpiece, and the spindles on which it is turned, are therefore set a little lower down and nearer the earth floor. The lathe shakes less as a consequence. The helper can

also sit down, either in front or behind the turner, whichever is the more convenient. If however two helpers are available the flexible pole also is dispensed with and the rope is turned once around the spindle at mid-length. In this latter case the two helpers sit on opposite sides and take it in turn to pull the rope towards them. There is a knack to doing this because as one helper eases off pulling the other one must pick it up smoothly with his end of the rope, never allowing the rope to go slack and jump. Other modifications and improvisations are being made all the time both to the stability of the frame and in the effectiveness of the turning operation, but they have not received much publicity because there is no way of doing so. Lathes are built by turners who use them in the way their operations determine them to be made. It is every man to his own devices in the Thai (freeman's) way of getting things done.

Turning is a craft that is found in conjunction with almost every other creative art craft. Thus in some cabinets we may find turned legs below and in others, such as scripture cabinets, turned knobs above often with some additional decorative treatment such as lacquer and gilding. Before the Second World War the betel-chewing habit was still prevalent in Thailand and betel-trays could frequently be seen with tiny turned wooden bowls and lidded cups in pleasant, almost spherical shapes as convenient containers for lip wax, rubbed tobacco and other betel wad ingredients. Most were examples of wood turning but some of the better class ones were turned in ivory. They involved both kinds of turning, namely:

(i) turning that only alters the exterior of the workpiece, such as post knobs and other ornamental knobs, Thai chess pieces, tool handles, monk's fan handles and tips, pegs on stringed musical instruments, children's spinning tops, naves on ox-carts, and so forth; and,

(ii) turning that alters both the exterior of the work piece and the interior as well (i.e. boring), such as the above mentioned bowls and cups, funeral urns, some betel-trays, and simple flutes which are made from either wood or ivory, the sound-boxes on Siamese fiddles, etc.

This however does not exhaust all the possibilities for turning if we also include work that is first turned and then is tooled in some other way to completion. This brings us now to

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A Rattanakosin Period betel-tray set with the utensils turned from elephant ivory. Included in this set are the betel-tray, four lidded cups and a purse for the folded betel-leaf. Having one's betel-containers turned from ivory to resemble a freshly-peeled nutmeg fruit was very popular in Thai society during the Fifth Reign, especially among well-to-do ladies. Similar sets with three and five lidded cups were also in common use.

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Turned ivory lidded cups designed to resemble the nutmeg fruit even to the depression for the attached stalk. The "broken-off stalk" on the lid was commonly made from gold bronze, or even pure gold. One of the uses to which these were put included providing a container for the lip wax. They were kept well polished by a brisk rub with this wax in a liquid form. During the Fifth Reign of the Rattanakosin Period contests were held for the most beautiful lip wax containers.

Lip wax was an important adjunct to the betel-chewing habit in good society, not only as a protection against lime burns, but because it also kept the lips free of betel-juice and excessive staining. Turning ivory was once an important branch of Thai craftwork and a fine hand indeed was needed to turn these shapes that were neither spherical nor flat, but always something in between.



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Tiny turned ivory boxes with round lids and bottoms. The lids are carved with artificial floral ornament lightly engraved on the flat face so as to give the illusion of a floral form.



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A betel-tray set with the utensils turned from elephant ivory. In this case there are four round, lidded boxes and to turn them required a different technique. Often the bowl-like tray too was itself a product of the turner's workshop. This, and the flat disc that fits snugly into it so as to provide a firm stand for the tiny boxes, must be made to fit together just so, and again this was commonly a part of the turner's job.



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A set of turned ivory boxes, round in shape and with fitting lids, both having raised edges rounded smoothly. This is a set of three.



the point where we can discuss the *klong ae*, the northern Thai barrel drum. From a distance it looks more like a big gun and, like a cannon, it is normally mounted on a wheeled carriage. It is however made of turned wood and provides a truly strange example of the turner's craft. Because it is so large, and heavy, it is turned in the water! A large teak log is hewed into "rough shape" with adzes and hatchets and then rolled back into the river where it floats weightless. It is then manoeuvred in between two posts that have been planted in the river bed as firmly as is possible, and is fitted into place and tied in with a cross-beam. One of the projecting ends that have been left on is now s'otted and the mid-length of a thick rope threaded onto the "spindle". The rope's two free ends are run out one on either side where they will be alternatively pulled by the turner's two assistants in the usual way. The turner can hardly be expected to have total control over the work and his end-result is not the finished product by any means, but he nevertheless approaches quite close to it and so when he is satisfied that nothing more can be done in the water the near-finished drum is rolled out of the water and onto the river's bank. The remainder of the work will be left to be done by others on another day. The turner's job is finished when he finds a handyman nearby who will saw off the rough spindle left at either end but now no longer needed.

The head of the turners' office in the Craft-work Department was given in the opening essay as Khun Phamon, or in the Pali language of Theravada Buddhism, Bhamara, a word related to the Sanskrit word "Bhramara" of indeterminate meaning but related in some way to the humming and the spinning of a wheel or a top. In Thai this name is derived from *ruan phamon* or the phamon "housing" which is a mechanism that functions to rotate or spin in the turning operation. This *ruan phamon* is that part of the lathe which the rural craftsmen call *na phra mon*, literally the "face of the Mon (Talaing) dignitary", but in fact a corruption of "phamon". The part in question is a heavy wooden disk of some thickness mounted true centre and carrying a toothed tenon dead centre that when inserted

into the workpiece makes the workpiece turn with the wheel, and the lathe's spindle. In the old days the workpiece was fixed to the lathe spindle by means of a lac and wax pad packed around the lathe's spindle. When a large object was to be turned, the spindle with its pad were heated over a flame to soften the pad so that the workpiece could be fitted. When the pad hardened, turning the workpiece would rotate the lathe, and vice versa. The workpiece however would have to have been of some thickness and size for this to work well. Smaller workpieces were therefore turned mounted directly on the wheel's tenon.

Turning relies heavily on reference to a full-scale model or example of the job required. Rough estimates of the job's measurements will not do in this case for they will not produce the desired end-product. In turning too it is often advantageous to make a roughhewn workpiece off the lathe so that when it is mounted in the lathe the turning operation is made easier and quicker than it would otherwise have been. The hewing of a workpiece for turning is as important a technique as it is in woodcarving. The only difference, and it is a small one, is that in roughhewing a shape for carving one does not have to take into special account the central axis of symmetry, while in roughhewing a workpiece for turning this symmetry is quite relevant.

A job that has been turned may then be sent on to a carpenter, or if the turner himself is also a carpenter, passed on to another step in the work, namely, fitting the turned piece to an artifact, or to a building or some other structure. Because of this the turner and the carpenter must be on close terms. We could even be justified in placing the two kinds of craftsmen in the same division on the grounds that their respective works overlap. Other turned pieces might be sent on to the lacquerer and the gilder, the coloured glass mosaic setter, or the painter, depending on the job's further specifications. All these however are craft divisions that are quite unrelated to the turner, for all the help and assistance the turner is to these craftsmen is to provide them with a shaped piece with a smooth fresh surface that is immediately ready to be lacquered, painted or whatever, if so required.

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