

The Recreation of the Mother-of-Pearl Inlay Door Panels of the Temple of the Emerald Buddha¹

Weeraya Juntradee

Background

The recreation of the Thai masterpiece of lacquer arts, the 263-year-old mother-of-pearl inlay door panels of the Scripture Hall of the Temple of the Emerald Buddha (*Ho Phra Montien Tham*, see Figs. 1, 2), was initiated by HRH Princess Maha Chakri Sirindhorn in 2007, after she observed that the doors had been worn out from years of exposure to sunlight and rain. The princess said restoration must be conducted to ensure that the artistic beauty of such national treasures will be seen by future generations of Thais. The Office of Traditional Arts (OTA) of the Fine Arts Department (FAD) was assigned to make a new pair of door panels of similar artisanship to replace the old door panels, which will be repaired and kept in the Bangkok National Museum (Office of Traditional Arts 2012: 5).

These mother-of-pearl inlay door panels are a cultural heritage of both historical and artistic importance. They were originally installed at the ordination hall of Wat Borom Buddharam in Ayutthaya in 1751, as part of a renovation made during the reign of King Boromakot. Wat Borom Buddharam is a small royal wat, built during the reign of Phra Phetracha (1688-1703), in the centre of Ayutthaya to the south of the palace. According to the evidence found as a note inlaid in mother-of-pearl on one side of the door panel (Fig. 3):

In 1751, Saturday of the fourth waxing period of the moon of the twelfth lunar month in the year of the Goat (the eighth year of the Thai animal cycle) of the third year of the decade, the King had mother-of-pearl designs drawn for the decoration of the door panels of the ordination hall of Wat Borom Buddharam. Two hundred craftsmen started working on Wednesday of the ninth waxing period of the twelfth lunar month in the year of the goat of the third year of the decade. The work lasted for 6 months and 24 days. The king granted clothes, silver and gold ornament and a large sum of money to all the craftsmen. As well, the craftsmen were served two meals a day and this was not deducted from the payments. On the contrary, the craftsmen were rewarded with payments of 30 pieces of currency for each panel they finished. (Julathusana 2001: 13)

¹ This is an adaptation of an article which originally appeared in Thai. We are grateful to Mr Anandha Chuchoti, Director-General of the Fine Arts Department, for permission to reproduce the article and many of its illustrations. Except where shown otherwise, illustrations are courtesy of the Office of Traditional Arts, Fine Arts Department.



Fig. 1 (left). The old mother-of-pearl inlay door panels (Julathusana, *Thai Mother-of-Pearl Inlay*, p. 13. Courtesy of River Books, Bangkok)

Fig. 2 (above). The Scripture Hall of the Temple of the Emerald Buddha (*Ho Phra Montien Tham*) (<http://kanchanapisek.or.th/kp6/sub/book/book.php?book=30&chap=2&page=t30-2-infodetail03.html>)

Fig. 3 (below). Part of a note inlaid in mother-of-pearl on one side of a door panel (photo by author)



Prior to the loss of the capital to the Burmese in 1767, these doors were removed and stored for more than 100 years in a number of unidentified locations before being installed in 1939 as the middle entrance on the west side of the Scripture Hall of the Temple of the Emerald Buddha. HRH Prince Damrong Rajanubhab, who is widely regarded in Thailand as the ‘Father of Thai Art History’, wrote a letter, dated 10 October 1939, to his brother, HRH Prince Narisara Nuvattivongse, who was himself a renowned designer and architect, in which he provided the following account of the history of the door panels:

The three pieces of mother-of-pearl inlay belonging to the Ayutthaya Period that were found at Wat Salapoon in Ayutthaya included a large pair of door panels and two Buddhist manuscript cabinets. It is known that Phra Thammaraja, an abbot in the reign of King Rama III, brought them from Wat Borom Buddharam. Some parts of the panels were damaged by fire. It can be concluded that they are the original door and window panels of the ordination hall of Wat Borom Buddharam. This hall caught fire at some point and many mother-of-pearl inlay window and door panels were damaged and lost. These remaining ones were restored and moved to Wat Salapoon by the abbot, Phra Thammaraja. The history of each piece differs as follows.

A large pair of mother-of-pearl inlay door panels with flame motifs (*kranok*) were in good condition, only some portions were lost. They were made into panels for the window in the middle of the front side of the ordination hall, which was the same position as it was at Wat Borom Buddharam. The window has a *prasat* spire. This pair of mother-of-pearl panels was moved to Bangkok during the reign of King Rama V and was not restored but kept in the museum until the reign of King Rama VII. One day, when I went to Hor Phra Montien Tham in the Emerald Buddha Temple where the mother-of-pearl inlay cabinets from the Library Hall were stored during the restoration of the temple, I found that a large window space in front of Hor Phra Montien Tham Hall would be a perfect fit with the pair of mother-of-pearl inlay panels which were kept in the museum. I told Chao Phraya Worapong about this idea and he agreed to manage this project. I saw that they were being repaired in Hor Phra Montien Tham. I think that they would have been already installed by now. (Julathusana 2001: 14)

Prince Narisara wrote a letter, dated 20 October 1939, in response to Prince Damrong, in which he advised: “I would like to report that the mother-of-pearl inlay panels have been already installed and well-fitted to the front aperture of Hor Phra Montien Tham.” (Julathusana 2001: 14).

Almost eighty years later, HRH Princess Maha Chakri Sirindhorn had the old doors removed to be preserved as national heritage, and assigned the Office of Traditional Arts, Fine Arts Department, to make a new pair of door panels for the Ho Phra Montien Tham in the same pattern as the old in every respect. (Office of Traditional Arts 2012: 50).

Implementation

During the implementation of this project that lasted almost six years from 2007 to 2012, the OTA artisans and academic artists studied the traditional processes of mother-of-pearl inlay from the past. This meant first understanding the traditional techniques and materials used—many of which have become almost extinct due to current economic and social conditions—and then learning how to recreate them on the new door panels. Approximately thirty highly specialized and skilled craftsmen worked together on all the requisite procedures, with a dedicated commitment to recreating as accurately as possible this most meticulous, exquisite piece of Thai traditional art.

The following chart details the lengthy implementation process that was necessary to recreate the door panels (Office of Traditional Arts 2012: 14).

Fiscal year	Implementation of the restoration work
2007	The OTA cooperated with the Ministry of Natural Resources and Environment to find solid golden teak suitable for the door panels. Artists studied and drew the pattern for the door panels. The OTA administrators identified and provided the requisite equipment and material supplies.
2008	Craftsmen initiated the woodworking process of the door panels. The mother-of-pearl artisans began the preparation of the shells by cutting them into the requisite patterns.
2009	Craftsmen continued the woodworking process of the door panels. They also prepared the surface of the door panels with lacquer. The mother-of-pearl artisans continued the arduous task of cutting the shells into patterns. They then fitted the finished shells into the panels and applied the inlay process.
2010	The mother-of-pearl artisans continued cutting the shells into patterns. They also continued fitting the finished shells into the panels and applied the inlay process. They then filled the surface with lacquer and polish. They lastly prepared the surface of the back of the panels to be gilded using the <i>lai rot nam</i> technique.
2011	The mother-of-pearl artisans continued cutting the shells into patterns. They finalized fitting the finished shells into the panels and completed the inlay process. They then finalized filling the surface with lacquer and polish. They continued the gilding using the <i>lai rot nam</i> technique.
2012	The artisans completed the gilding using the <i>lai rot nam</i> technique. Workers installed the new door panels. The OTA produced and published 1,000 copies of a book detailing the recreation project.

All of the processes described above, such as woodworking, preparing the shells, cutting the shell into patterns, lacquering, the inlay process and polishing, required plenty of time, artistic talent and skilled craftsmanship. The shell cutting process alone took about three years and used more than 1,300 kg of Turban shell (*Turbo Atraea*, Thai: *muk fai*) (Office of Traditional Arts 2012: 88) imported from Myanmar, Indonesia, Australia and Japan. Lacquer was ordered from northern Thailand, but was mostly imported from Myanmar, and mixed with the carbon deposit from burned banana leaves or coconut shell to make a substance called *rak samuk*; this was then applied in several

layers to fill in the gaps in the design. Each layer took one week to dry. The finished surface was then sanded by hand and given another coat of lacquer, and then polished with the ashes (carbon deposit) from burned banana leaves and deer antlers.

The completed recreated traditional mother-of-pearl inlay door panels were installed at The Scripture Hall of the Temple of the Emerald Buddha on 30 March 2013, and the ancient door panels were then removed to the OTA for restoration, before going on display at the Bangkok National Museum thereafter.

The patterns

Mother-of-pearl inlay displays an intricate interplay between the glistening pearly colours of the shell (the design) and the shiny black of the lacquer background (the surrounding space). The designs and patterns that are used in mother-of-pearl inlay form part of a group of designs referred to collectively as “Thai designs” (*lai Thai*). They include such basic designs as *lai kranok* (flame motif), *lai krajang* (lotus bud motif), *lai prajam yam* (four-petal flower motif), *lai phum* (pointed bush motif) and *lai dao* (star motif). These designs may be expanded and developed by craftsmen to form *lai kranok krueawan* (intertwined creepers motif) or *lai kranok plaew kruea tao* (intertwined sprays

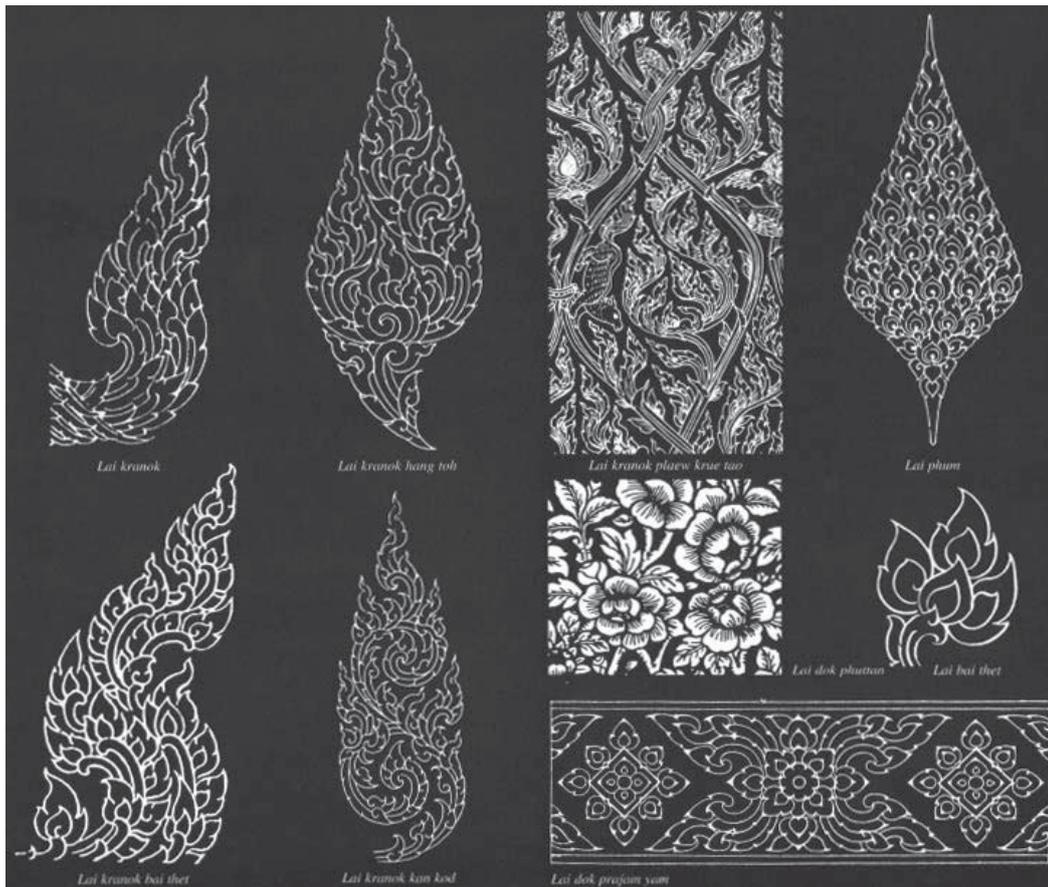
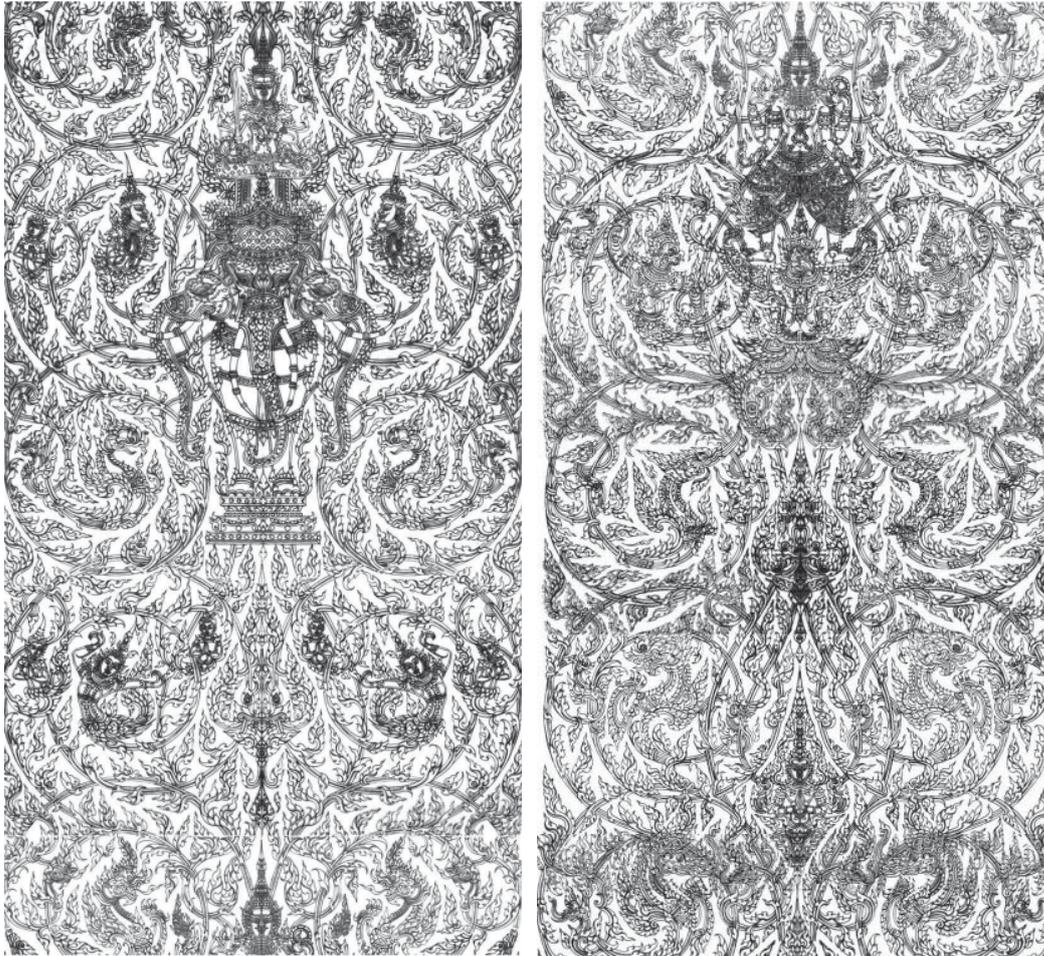


Fig. 4. Some examples of Thai designs (*lai thai*) (Julathusana, *Thai Mother-of-Pearl Inlay*, p. 57, pp. 59-60. Courtesy of River Books, Bangkok.)

motif), *lai kan kot* (scrolls motif) and *lai na kradan* (plank design of continuous lozenges framed by *kranok*). The more geometric static motifs are used as dividers and frames. (Julathusana 2001: 56)

The door panels are bordered on four sides by a four-petal floral and scroll motif called respectively *lai prajam yam* and *lai dok si klip*. The background of the pattern comprises flamboyant scrolls, *lai kan kot kranok plaeo*, while the center depicts various gods and mythical animals such as Wessuwan, Theppanom and Norasingh, as well as Brahma on his Hamsa goose, Indra on his three-headed elephant Airavata/Erawan (Fig.



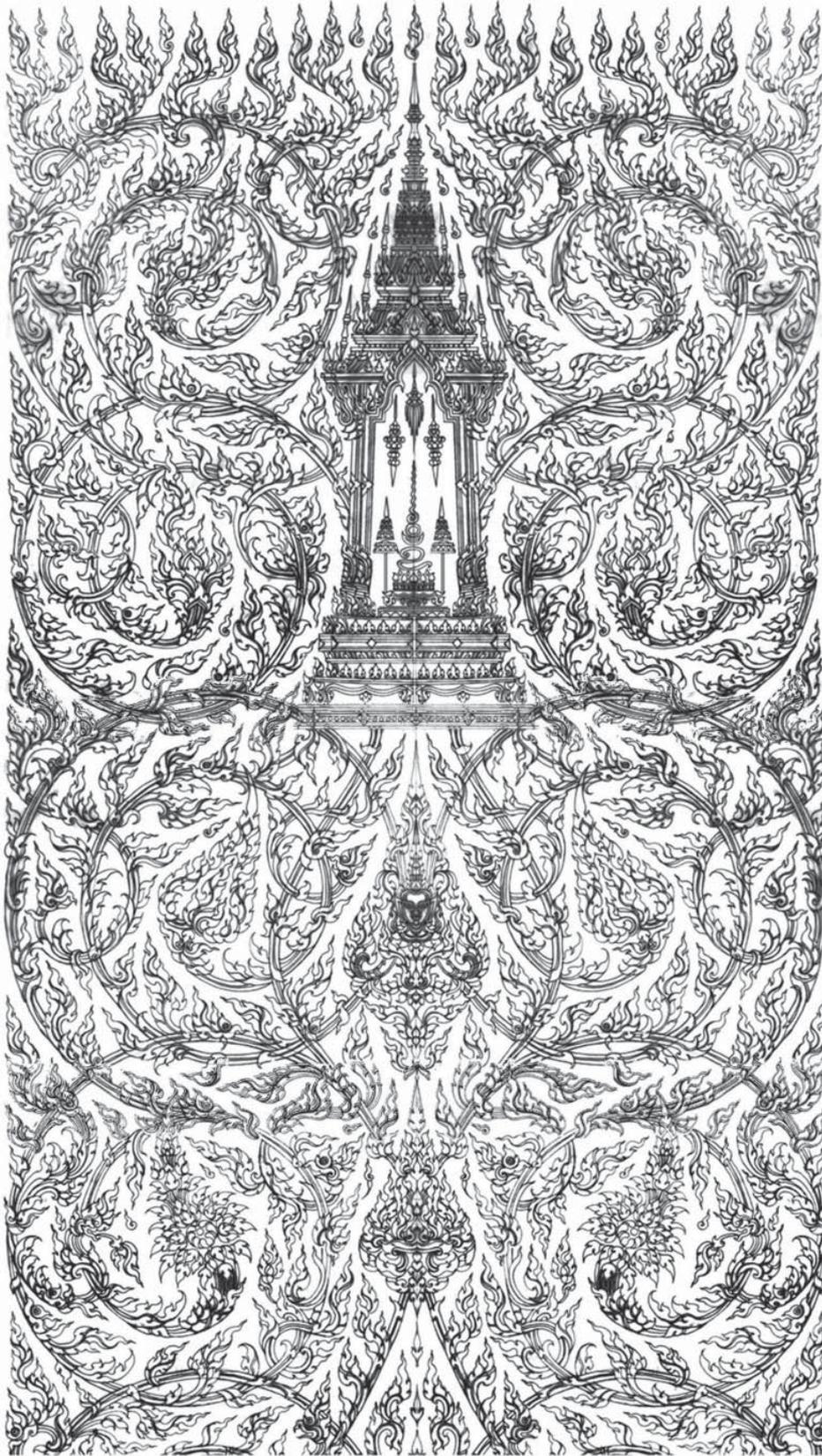
Depictions of gods and mythical beings (Courtesy Handicraft and Thai Arts Section, Office of Traditional Arts, FAD)

Fig 5 (left). Indra on his elephant Airavata (Erawan) Fig 6 (right). Vishnu on Garuda

Fig 7 (opposite). The celestial abode at the top with the *unalom* symbol (a tuft of hair, which is the mark of a great man) inside, flanked by umbrellas.

5), Vishnu mounted on Garuda (Fig. 6) and some celestial abodes (Fig. 7). At the end of the flamboyant floral scrolls, *kranok kruea tao*, mythical creatures of the Himaphan Forest are depicted.

The two door panels have the same patterns; some areas displaying the craftsmanship of the late Ayutthaya period were discovered in tact on the top of each door panel, and it was clear that these had never been repaired, although most of the other areas of



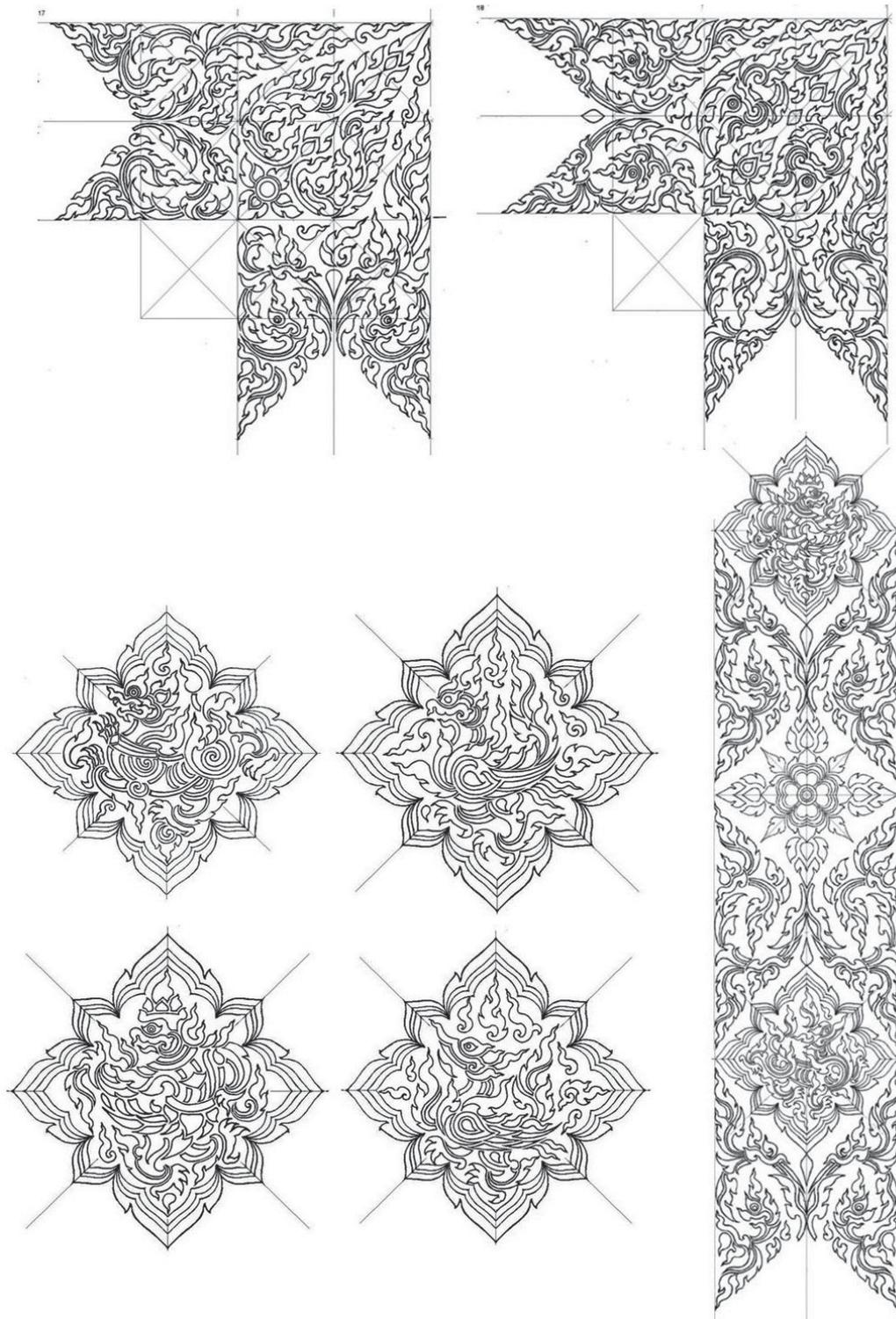


Fig. 8. The door panels are bordered on four sides by a four-petal floral motif and scroll motif (Thai: lai prajam yam and lai dok si klip). Inside the four-petal floral motif are depicted mythical creatures from the Himaphan forest: (from top left) singha, vayuphak, garuda, hamsa

the panels have been repaired many times over the last two centuries. Further, it is noticeable that the rhythm of the lines of the *kranok* on the left side is more beautiful, more delicate, and smoother than on the right side. (Office of Traditional Arts 2012: 20)



Fig 9. An area at the top of the right-hand panel never repaired since the late Ayutthaya era (photo by author)

Woodworking

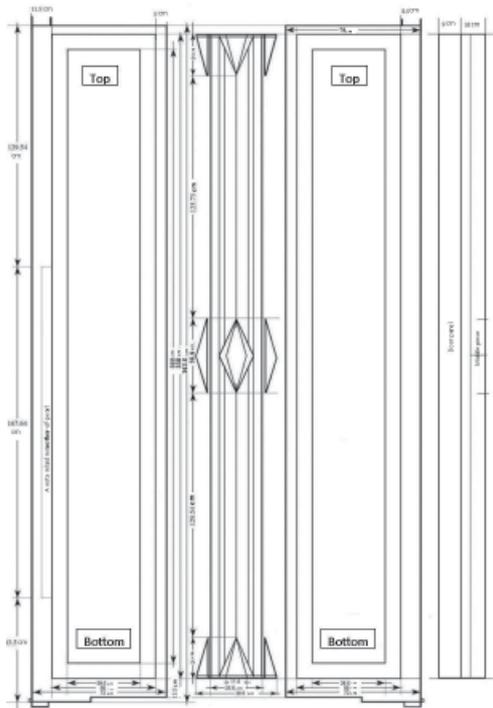
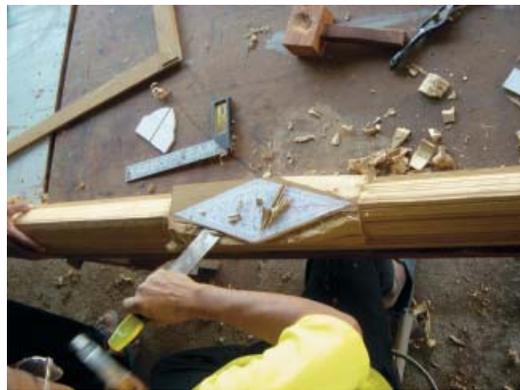


Fig. 10. Drawing, detail of the solid golden teak door panels. Each is 28 inches wide, 143 inches high and 3.5 inches thick (72 x 363.5 x 9.0 cm)



Figs. 11-12 (above). Solid golden teak from Chiang Mai province was brought to the Office of Traditional Arts on 19 November 2008.

Fig 13 (left). The craftsmen started the woodworking process and improved the strength of the wood by inserting a rust-resistant metal sheet into each of the wood panels

Fig. 14 (below). When the carving of the panels was finished, they were taken to the site to ensure that they fit properly.



Preparing the shells



Figs. 14-16 (above). The shells were first cleaned and smoothed using grinding machines to remove the brownish-green, rough outer surface until the inner glossy white and pink part was reached.

Fig. 17 (left). The shells are sawn or cut into patterns.

Fig. 18 (below). The cut shells are attached with latex glue to thin tracing paper.



Preparing and applying the lacquer



Fig. 19 (top left). Lacquer is filtered through a thin white cloth to remove impurities (if this is done in sunlight, the lacquer will have less viscosity and seep through more easily) and then heated at a low temperature. The water in the sap will be vaporized and the sap becomes stickier.

Fig. 20 (top right). A substance called *rak samuk* is made by mixing lacquer with charcoal made from the pounded carbon deposit of burned banana leaves or coconut shells. It is used to fill any spaces remaining between the pieces of shell inlay.

Figs. 21-22 (above). Preparing the panels with lacquer and *rak samuk*.

Fig. 23 (left). The shells are transferred to thin tracing paper, and attached with lacquer. When the lacquer is dry, the tracing paper is burnt from the spaces that have no shell.

The inlay process



Figs. 24-25 (above). The inlay process begins with the pattern of the border and then the pattern of the middle area.

Fig. 26 (middle). The pattern is attached with lacquer both on the panel and the back of the tracing paper.

Filling the foundation with repeated layers of *rak samuk*. Each layer has to be allowed to dry before the next one is applied. *Rak samuk* is applied until the surface between the shell design reaches the same level as the inlay design.

Figs. 27-28 (bottom). The first stage of polishing uses machinery. Later the panel must be rubbed carefully by hand. The finished surface is then sanded and polished with lacquer, *samuk* powder and the ash of burnt deer antlers.



Figs. 29-30 (above). One of the finished panels was put on display during an exhibition at the Bangkok National Museum marking Thai Cultural Heritage Conservation Day, 2-8 April 2012.

Figs. 31-36 (opposite). The gilding process is called *lai rot nam* in Thai, or literally a design made by washing. The lacquer is mixed with a vermilion pigment and turns red. After the pattern has been traced onto the panel, *horadan* (a water-soluble fixative) is painted over the pattern to mask areas not to be gilded. A coat of thin lacquer is applied to the whole area and gold leaf is laid on the pattern area. The panel is then given a thorough washing to carefully remove the gold leaf attached with the water soluble fixative, leaving only the sharp and clear gold leaf pattern which was stuck to the lacquer.

The *lai rot nam* process



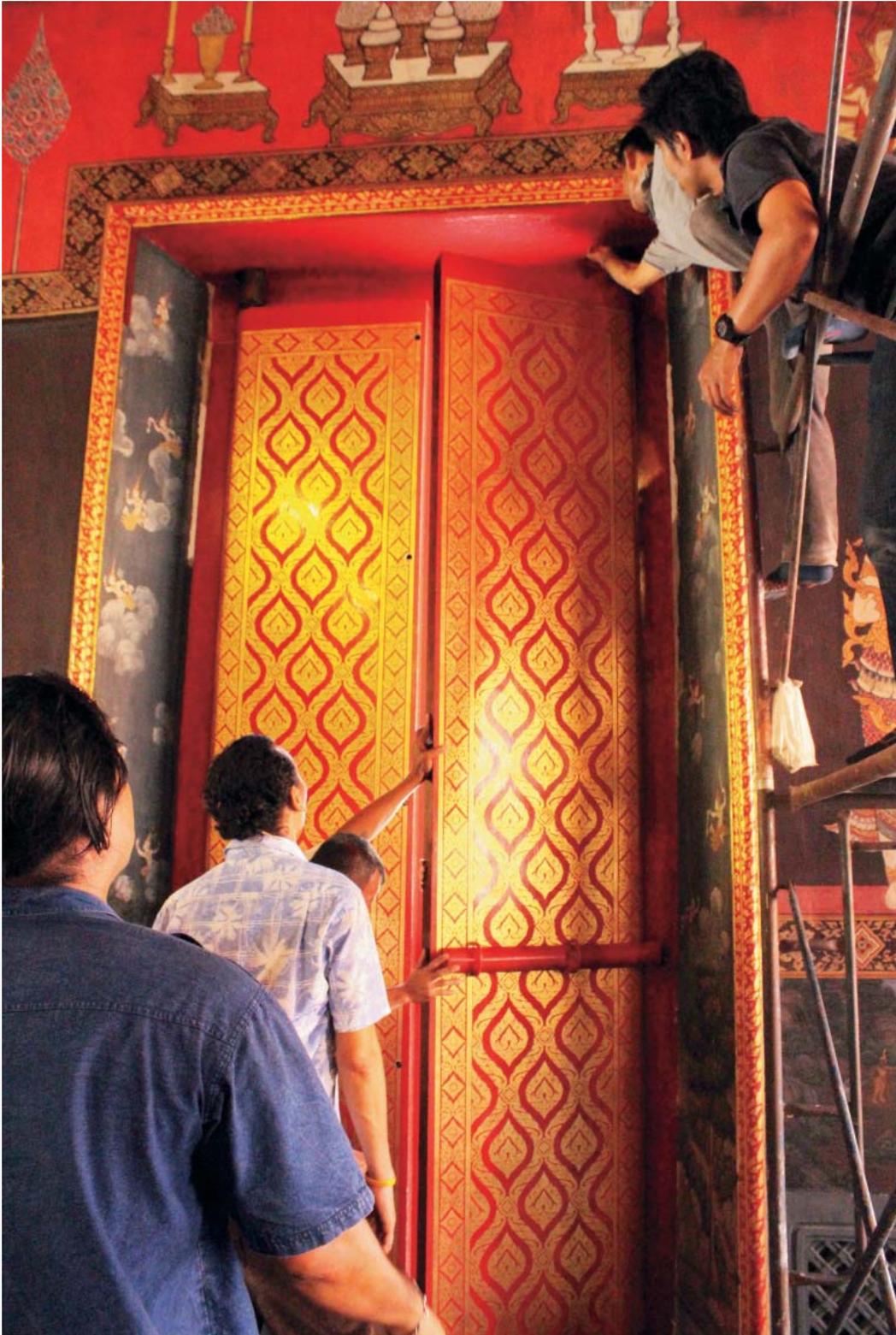


Fig 37. The finished door is set in place; viewed from inside

Fig 38 (opposite). The finished door, viewed from outside

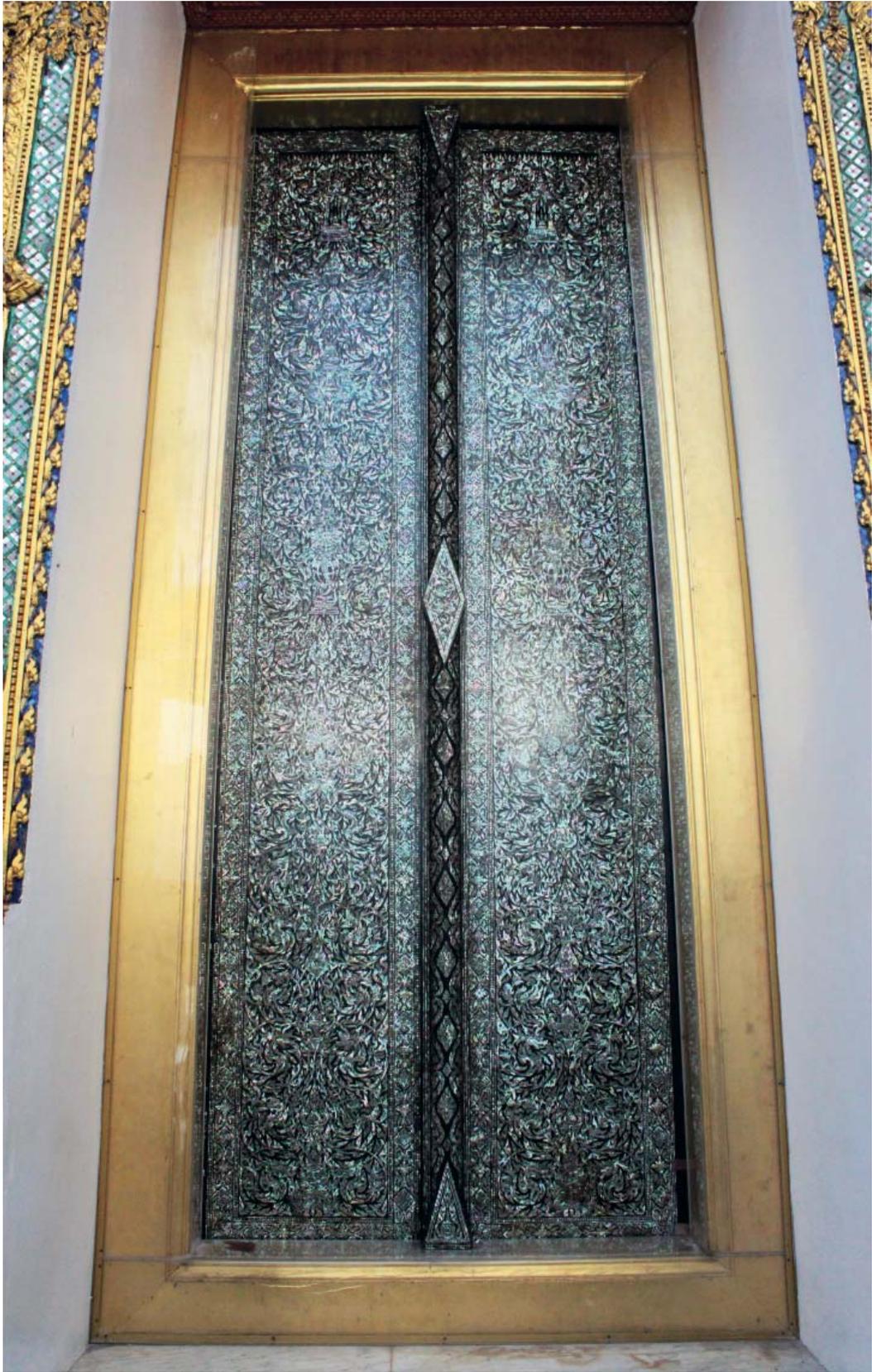




Fig. 39. HRH Princess Maha Chakri Sirindhorn placing a piece of shell of the unalom into the new door panel at the opening ceremony of the special exhibition at the Bangkok National Museum marking Thai Cultural Heritage Conservation Day, 17 August 2011.

References

- Fine Arts Department, Ministry of Culture. 2008. *Seminar on Study of Oriental Lacquer Initiated by HRH Princess Maha Chakri Sirindhorn for the Revitalization of Thai Wisdom*. Bangkok: Amarin.
- Julathusana Byachrananda. 2001. *Thai Mother-of-Pearl Inlay*. Bangkok: River Books.
- Office of Traditional Arts, The Fine Arts Department. 2012. *Kan jat sang ban pratu pradap muk Ho Phra Montien Tham puea kan anurak ban pratu doem* (Construction of Mother-of-Pearl Inlay Doors for the Hor Phra Montien Tham to Preserve the old Doors). Bangkok: Union Ultraviolet.
- Royal Institute. 2014. *Pojananukrom sup lai thai (Lai Thai Dictionary)*, Bangkok, Tanapress.
- SUPPORT Arts and Crafts International Centre of Thailand (Public Organization), SACICT. 2007. *Chang Sip Mu* (The ten craft guilds). Second edition. Bangkok: P. Press.