

Thammat Treatment Report by Part
K. Shulman

Object Number: 63.4

Curatorial Department: Asian Art

Artist: Thai

Title: Thammat

Medium: wood, glass inlay, lacquer, gilding, metal nails

Overall: 153 9/16 x 74 x 109 7/16 inches (390 x 188 x 278 cm.)

Gift from Doris Duke Charitable Foundation's Southeast Asian Art Collection, 2002

Dimensions: 153 9/16 x 74 x 109 7/16 inches (390 x 188 x 278 cm.)

Materials Description: The structure of the thammat is made of a hardwood that is visually similar to teak. Metal nails have been added to the original wooden joinery to reassemble the piece in the past. The majority of the wood surfaces have been covered in red lacquer or a mosaic application of colored mirrored glass pieces. Some surfaces feature gold leaf on top of lacquer. There is a thick yellowed coating overtop of many of the glass surfaces.

All pieces were labelled with printed accession numbers using Permalife archival paper and 4% methylcellulose as the adhesive.

Nailed roof slats to central roof battens – **#49** and **#50** onto rear batten, **#55** and **#57** onto front batten

3 (Roof trim piece): This piece was uncoated and very dirty. There were no loose glass pieces, although a fair number of the glass pieces were lost. There were no major structural issues.

Condition: There is evidence of one previous break on a flame element. This break appears to have been repaired with a modern adhesive and an internal nail. There are also two old nail holes for the attachment to the roof panels, and one hole has the remnants of a nail still inside.

Treatment: The surface was cleaned using a soft bristle brush and a HEPA vacuum. The heavy dirt accumulation was removed using a cosmetic sponge followed by the pH 6.5 clearing solution when needed. The glass pieces were cleaned with the pH 6.5 clearing solution when possible, and the pH 9.5 EDTA solution was used for extremely dirty glass surfaces (followed by the pH 9.5 clearing solution). Attached trim to #7 by hanging on existing nail and tying in place with monofilament.

12 (sub roof ridge pole): Mortise is larger than tenon of ridge pole. Inserted a wedge in the mortise to tightly secure ridge pole in place.

22 (Roof trim piece): This piece was uncoated and very dirty. There were no loose glass pieces, although a fair number of the glass pieces were lost. There were no major structural issues.

Condition: There are no previous repairs to this piece. There are three old nail holes for the attachment to the roof panels, and two holes have the remnants of nails still inside. There is one small modern wire nail remaining. The initial placement of the wire nail caused the teak wood to splinter at the back.

Treatment: The surface was cleaned using a soft bristle brush and a HEPA vacuum. The heavy dirt accumulation was removed using a cosmetic sponge followed by the pH 6.5 clearing solution when needed. The glass pieces were cleaned with the pH 6.5 clearing solution when possible, and the pH 9.5 EDTA solution was used for extremely dirty glass surfaces (followed by the pH 9.5 clearing solution).

This was nailed onto a batten with a bracket hanger together with #23; is no longer a separate piece.

23 (Roof panel): This was nailed onto a batten with a bracket hanger together with #22; is no longer a separate piece.

24 (sub roof ridge pole): Rebuilt tenon with Apoxie. Drilled hole in Apoxie tenon to insert dowel through to secure ridge pole to central post of gable. Mortise is larger than tenon of ridge pole. Inserted a wedge in the mortise to tightly secure ridge pole in place.

34-38, 42-46 (cornice pieces): As the original joins on the cross beams are not sufficient to support the structure, we discussed options for securing these elements to one another in a minimally invasive way. We decided to use metal plates that could slot into the original dovetail holes, screwed to the ends of the crossbeams. The screws can be loosened/adjusted, as needed, for a better fit while the Thammat is being installed. Mockups of these metal plates were made out of mat board and custom cut to each dovetail hole. These pieces were then used as stencils for the shape/outline of the final brass plates. The plates were screwed to the cross beams and test fit.

42 (Fascia board): This trim element borders the bottom of the roof line, and the disassembly record describes the location for this piece as the proper left side - front. It is "L" shaped and contains a short side and a long side. The original dovetail joinery on the long side end has been cut out and replaced with a modern nail. There is a mitered corner on this long side as well. The short side end is flush and covered in red lacquer. Along the back side there are three grooves for the tongue and groove joinery that attaches the fascia to short wooden support pieces. There is also an area of glossy red paint/lacquer on the back with writing that is not English. The top cornice portion of the piece is covered in red lacquer and features a modified dentil moulding. Rather than a series of squares, there are individually carved demi-lune elements attached to the underside of the top flat wood piece. There is a flat frieze below the dentil moulding with glass inlay that features clear, blue, and red mirrored glass in a diamond lattice pattern. The bottom trim element is a repeated leaf or flame design with inlaid clear mirrored glass in the center of the gilded leaves/flames.

Condition: The piece is in stable structural condition, although the red lacquer is actively flaking. There are multiple layers of red paint/lacquer present, which is especially noticeable on the back side. The glass has been thinly coated, and in some areas the coating dripped onto the red lacquer and/or gilding. Most of the glass is securely attached, and there is little glass loss. There is one modern nail that is still attached where the original dovetail joinery has been removed on the long side edge. (It has not been removed in case it could be helpful in reassembly.) One of the support pieces is also still attached in the

tongue and groove joinery towards the end of the long edge. Multiple small nails are protruding from the corner miter joint, and were likely added to attempt to close the gap. One of the small dentil moulding pieces has a split in it with some slight movement. The piece is located 2.5 inches from the long end and does not appear to require stabilization. One of the dentil moulding pieces has been replaced with unpainted teak wood and is located 31.5 inches from the long end. On the short side, the corner dentil piece is broken and missing the front edge, as is the dentil piece 13 in from the corner.

Treatment: Stable areas of the piece were cleaned with a soft bristle brush and a HEPA vacuum. The coating on the glass was removed by dipping Japanese tissue in a pH 9.5 EDTA solution. Once sufficiently blotted, the tissue was placed on the glass and pressed down with stiff bristle brushes. The tissue remained on the surface under weight for 10 minutes depending on the thickness of the coating. The softened coating was removed from the surface with a wooden skewer, and residues were cleared with the pH 9.5 clearing solution.

2 loose glass pieces on the long side and one loose piece on the short side were stabilized and/or re-adhered with B-72 retouching gels (Hard Fast -25 Si) mixed with lamp black and raw sienna dry pigments. Checked for fragments from #94, and didn't find any.

Flaking lacquer was consolidated with Lascaux Medium for Consolidation. The consolidant was brush applied, and any residues were removed with distilled water when possible.

The large nail was removed to aid in joining with #43. A smaller but equally long nail needs to be inserted for attachment during assembly. Needs to be inserted toward top of piece, not through hole where nail was removed as the wood it goes into is splitting.

48 (Main roof cap trim): Cleaned all surfaces using cosmetic sponges and a soft brush. Glass pieces with accumulated mud and grime were cleaned with the pH 6.5 clearing solution. 3 loose glass pieces were stabilized with B-72 retouching gels (hard fast -25 si) tinted with lamp black pigment. Pieces 48 and 54 were secured to one another with coated picture hanging wire so that they could be hung at the top of the roof without introducing new nails/hardware.

50 (Roof plank trim): Loose glass piece stabilized with B-72 retouching gels (hard fast -25 si) tinted with lamp black pigment.

53 (Fragment): Adhered to #54 with high tack fish glue.

54 (Main roof cap trim): Cleaned all surfaces using cosmetic sponges and a soft brush. Glass pieces with accumulated mud and grime were cleaned with the pH 6.5 clearing solution. 4 loose glass pieces were stabilized with B-72 retouching gels (hard fast -25 si) tinted with lamp black pigment. Pieces 48 and 54 were secured to one another with coated picture hanging wire so that they could be hung at the top of the roof without introducing new nails/hardware.

55 (Proper left end of front roof), now nailed in place on #51 (front roof)

A portion of the trim on this piece came loose during installation (on inspection the trim had broken in this location and been repaired previously). The break edges of the loose piece of trim and attached trim were adhered together with high tack fish glue and then the trim was nailed back into place using existing holes and new tacks. Several glass mosaic fragments were re-adhered as well. The entire piece was then nailed back onto the front roof (#51)

58 (roof ridge pole): Cleaned all surfaces with cosmetic sponges and a HEPA vacuum. Dowel at PR end was broken into two parts and repaired with SculpWood epoxy putty. During test fitting of adjacent barge boards, the dowel snapped in half, with the bottom half stuck in its hole. The piece of the dowel in the hole was drilled out and a new dowel cut to the appropriate length and inserted. The bottom inch of this dowel was covered with medical tape to ensure a snug fit. In two locations on the ridge pole small pieces of wood were splitting and lifting. These pieces were adhered in place with high tack fish glue.

59 (Proper Left Gable): This gable consists of three separate pieces: a central support with two sloping rafters.

Condition: The three pieces have been joined by added battens; the lower one apparently cut from a plywood packing crate, the upper from a section of pine board. The battens have been attached with Phillips head screws. The central support has been sawn off at the level of the roof frame (#70). Piece #103 is the section that was cut off (exchanged with #71 in the last installation). Both rafters have splits at the bottom outside edges, now rather sprung.

Treatment: The battens were removed by backing out the screws with a screwdriver. Splits were stabilized with SculpWood epoxy paste which was applied by spatula into splits from the front and back sides of the two sloping rafters. Once splits were filled, the pieces were clamped to create a tight join, any excess material was removed and the epoxy was allowed to cure for 24 hours. Any epoxy that will be visible when the object is fully assembled and on display was inpainted using Golden Fluid Acrylics (red oxide, carbon black, quinacridone red).

60 (Proper Right Gable): This gable consists of five separate pieces: a central support with two sloping rafters and two projecting joists (for the portico roof). The joists are shimmed and nailed in place with two nails each.

Condition: The three pieces of the gable have been joined by two battens: the lower one apparently cut from a plywood packing crate, the upper from a section of pine board. The battens are attached with Phillips head screws. The central support has been sawn off at the level of the roof frame (#70). Piece #71 is the section that was cut off (exchanged with #103 in the last installation). There is a split at the top of the central support, now sprung and dislocated. One rafter has a loss and associated damage to the tenon at the lower edge. The opposite rafter has a series of splits and splinters to the lower edge. There is a bent finishing nail in the outside face of one of the projecting joists.

Treatment: The battens were removed by backing out the screws with a screwdriver. The nail in the joist was removed with vise grips.

Attempted to remove nail that was wedged in the middle of the split at the top of the central support using various pliers. Was unable to remove nail as the head was buried too deep and situated at an angle that made it impossible to prize out, so removed the portion that extended down into opening for a cross beam to slot through using a jeweler's saw blade and a file.

Splits were stabilized with SculpWood epoxy paste which was applied by spatula into splits and gaps from the front and back sides of one sloping rafter and the central post. Once filled, the pieces were clamped to create a tight join, any excess material was removed and the epoxy was allowed to cure for 24 hours. Any epoxy that will be visible when the object is fully assembled and on display was inpainted using Golden Fluid Acrylics (red oxide, carbon black, quinacridone red).

61 (Central Roof Support): The sliding dovetail at the bottom of this support had previously been sawn off and lost. It was replaced with Apoxie epoxy putty.

62a-aaa (Flames):

Treatment: Cleaned all surfaces using cosmetic sponges and a soft brush. Glass pieces were cleaned by swabbing with ~1.5% sodium citrate with sodium hydroxide at pH 8.5 and cleared with water.

Reattached glass pieces (on 62c, 62x, 62ff, 62s, 62r, 62w, 62p, 62t, 62qq) with B-72 retouching gels (Hard Fast -25 Si) tinted with lamp black pigment. The retouching gel was applied with a spatula and flat edged wood tool to the spaces between the glass. Excess retouching gel on the surface of the glass was removed by swabbing with acetone.

Secured any loose wood elements (on 62k, 62gg, 62ff, 62ii, 62q) with high tack fish glue applied by brush.

Adhered labels to all flames (detached from and attached to base) using 4% methylcellulose.

Returned any detached flames to the base of the Thammat. Nails that obstructed the path for inserting the flames were removed using a variety of pliers and snips. Flames that did not fit securely into place were shimmed with black mat board.

64 (Rear PR corner trim): attached to 93 reusing existing nail.

65 (Seating level trim on large base): Cleaned all surfaces using cosmetic sponges and a soft brush. Glass pieces with accumulated mud and grime were cleaned with the pH 6.5 clearing solution. 4 loose glass pieces were stabilized with B-72 retouching gels (hard fast -25 si). The trim was attached to the base using existing nails and holes.

66 (Middle PL and side apron trim): Attached to 93 reusing existing nail.

67 (Rear apron trim, PL side): Attached to 93 reusing existing nail.

68 (Barge board): 2 pieces of glass were re-adhered with B-72 retouching gels (Hard Fast -25 Si) mixed with lamp black and raw sienna dry pigments.

69 (Trim from rear center base vertical): Attached to 93 reusing existing nail.

70 (Ceiling Frame): Blue side faces down, with holes to engage each of the corner and side posts, wider holes on short ends of thammat, shorter pieces of frame nailed to longer pieces, inner gold pieces are loose and nailed but with some original dowel pegs (now rather loose). Unpainted top: PL side marked in pencil; PR side very mobile and pivots along nails. Red paint/lacquer evidently added after the blue paint. All surfaces very dirty.

Treatment: Vacuumed to remove loose dust and debris. Large nail was removed from PL side.

91 (Platform moulding): This is a section of moulding, likely from the seating platform level on the proper left end (according to the disassembly record). This element is repeated in three locations on the base, but photographs of the proper left end show that there are sections of this moulding missing at the platform level. This piece measures 12.5 inches long. The trim element features a repeated gold flame/trifoliate leaf design with inset clear mirrored glass. The back surfaces are covered in red paint/lacquer.

Condition: The trim piece is in good structural condition. The glass pieces are also well adhered. The top surfaces were very dirty, but the piece is not coated. The carving is very crisp, which indicates that it may be a replacement piece. There are two small modern wire nails extending through the piece which likely attach it to the platform.

Treatment: The surface was cleaned using a soft bristle brush and a HEPA vacuum. The heavy dirt accumulation was removed using a cosmetic sponge followed by the pH 6.5 clearing solution when needed. The glass pieces were cleaned with the pH 6.5 clearing solution when possible. The nails were not removed in case they can be useful during reassembly. The trim was attached to the base using the existing nails and holes.

92 (Stairs): Cleaned all surfaces using cosmetic sponges and a soft brush. Glass tiles were cleaned by swabbing with ~1.5% sodium citrate with sodium hydroxide at pH 8.5 and clearing with water.

Reattached 5 glass pieces with B-72 retouching gels (hard fast -25 si) tinted with lamp black pigment. The retouching gel was applied with a spatula and flat edge wood tool to the spaces between the glass. Excess retouching gel on the surface of the glass was removed by swabbing with acetone.

93 (Base): The base of the pulpit is constructed of teak and made of many component elements. Many of those components were stored separately at the commencement of treatment, so the completeness of the base cannot be fully evaluated at this time. In general, the main frame work consists of six main vertical posts (2 on the short sides and an additional center post at the front and back). There are long horizontal posts that are attached on the external face of the top and bottom of these vertical posts and meet at mitered corners. The square openings of this structure are filled by cross-braces that are primarily ornamental rather than structural. These braces are decorated with a carved gilded medallion in the center. The main structure rests on top of a large red platform, which may not be original to the piece. (Large gaps between the red base and the main body of the piece suggest that it may be retrofitted.) There is a modern internal armature which includes vertical, horizontal, and cross-braced supports with attached wheels.

The majority of the surfaces on this base are covered in mirrored glass pieces or gilding. Those that are unadorned are covered in lacquer/paint in either blue green or red. The bottom platform is bright red. The front faces of the support structure like the vertical posts and the horizontal trim pieces are covered in mirrored glass pieces. The posts feature a multi-colored patterned design, and the upper horizontal bands are a diamond pattern of yellow and maroon glass. The lower horizontal band features a diamond pattern of green and yellow glass. The various levels of the base are accentuated with carved gilded leaf/flame designs with inset clear glass pieces. The top most register has larger individually carved flame pieces. Many of these pieces were removed for storage. One other interesting decorative component of the base is the open fretwork around the upper edge of the seating platform. This area features carved flowers and leaves that are gilded and ornamented with multi-colored mirrored glass pieces. The background is a flat piece of wood that is covered in red lacquer.

Condition: The majority of the treatment of the base to this point has focused on the cleaning and stabilization of the decorative surfaces. Structural treatment has not been completed, and the piece has not been thoroughly examined for structural issues. A brief examination of the base shows that there is significant termite damage on the lower red base. Areas of note are on the front on the proper left side and on the proper right side toward the front corner. Overall, the base appears to be leaning towards the proper left side, and the seating platform is not flat. During the movement of the base, joinery in various corners around the bottom opened up, suggesting that there may be some significant underlying structural issues. There is evidence of modern joinery repairs all over the object, with large screws and nails being used to reinforce mitered corners. In some areas, the lower green and yellow diamond decorated trim pieces are completely unattached.

The decorative surfaces on the base are very dirty, and do not appear to have been regularly cleaned, likely due to the complex three-dimensional nature of the surfaces. The condition of the surfaces varies

on each side, which suggests that there was harsher exposure to light or the elements on the back and proper right side. It is also possible that the front of the piece received more routine care and maintenance. (The back side had a much thicker accumulation of surface dirt.) There is a history of previous repairs over the entire base, especially in the glass mosaic areas. In many areas with glass loss, other glass pieces were adhered, often in the wrong orientation or pattern. This type of repair was especially noticeable on the back. The back also exhibited a large amount of glass loss, especially on the upper trim piece (yellow and maroon diamond pattern) and the lower trim piece (green and yellow diamond pattern). The modern coating was also applied more thickly to the front and sides than on the back.

Treatment: Stable areas of the piece were cleaned with a soft bristle brush and a HEPA vacuum. The top surface of the platform was cleaned using cosmetic sponges and a HEPA vacuum. Dirt on the lacquer and gilded surfaces was removed with cosmetic sponges. Any areas of heavy dirt accumulation were cleaned with a pH 6.5 rinse solution. The coating on the glass was removed by dipping Japanese tissue in a pH 9.5 EDTA solution. Once sufficiently blotted, the tissue was placed on the glass and pressed down with stiff bristle brushes. The tissue remained on the surface under weight and Mylar for 10 -30 minutes depending on the thickness of the coating. The softened coating was removed from the surface with a wooden skewer, and residues were cleared with the pH 9.5 clearing solution.

Many pieces of loose glass were stabilized and/or re-adhered with B-72 retouching gels (Hard Fast -25 Si) mixed with lamp black and raw sienna dry pigments. Shattered glass pieces or pieces where the entire metallic backing was intact were stabilized with ~30% Paraloid B-72 w/v in acetone. Given the size of the base and the number of missing glass pieces, it was not considered time-effective to thoroughly examine it for #94 (glass fragments) locations. If that were to be completed in the future, most locations might be found on the back.

100 (floret/medallion):

Treatment: Secured floret to cross beams on base by threading wire through the central dowel hole to the front of the floret, around a small piece of painted skewer to keep the wire in place. The wire was then tied at the back of the cross beams to hold the floret in place. The back of the floret and the sides of the cross beams were padded with Volara foam to mitigate abrasion from the wire.

101 (floret/medallion):

Treatment: Secured floret to cross beams on base by inserting small pieces of Volara foam into the central dowel hole from the back to minimize movement of the nail that holds the floret to the cross beams.

108 (Cross Beam): Both dovetails augmented with brass plates screwed into place.