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To Do or Not To Do: Two Examples of Decision Making for Digital Infilling on Asian Format Mounting

ABSTRACT

Mountings play an important role in the support and display of East Asian pictorial art, whether on silk or paper. They often reflect the work's era, genre and aesthetic. Many mountings that we see today may have been changed several times in the past, and as a result, can be viewed as having lost integrity in relationship to the work of art. Also, the physical condition of mountings can be so poor that they no longer function properly in their role as a support. When undertaking the treatment of East Asian artworks with a mounting, conservator and curator alike should take these two factors, physical condition and authentic information, into account in order to determine an appropriate course of action.

This paper presents two examples of East Asian artworks having original mountings in poor condition. The pair of folding screens, *The Deities of the Tanni-sho*, by Munakata Shiko (Japanese, 1903–1975) and the hanging scroll, *Standing Courtesan*, by Keisai Eisen (Japanese, 1790–1848) from the Museum of Fine Arts, Boston's collections are both Japanese prints with Asian format mountings. Taking into consideration historical background, condition, and material characteristics of the mounting papers, this article presents decision making regarding digital infilling and two different approaches used to achieve satisfactory results for loss compensation.

INTRODUCTION: THE MOUNTING OF EAST ASIAN ARTWORKS

East Asian artworks usually are mounted into different formats: hanging scroll, hand scroll, folding screen, panel, album leaf, etc. These mountings function as a means of support, display and storage. In addition, the selection of colors, patterns and style of mounting lends another aspect to the artworks and how it will appear to the viewer. For example, the colors of a mounting might compliment the artwork's palette, or the patterns might relate to the artwork's subject. Traditionally, East Asian format mountings are often changed or replaced by mounters when the condition of a mounting is no longer able to support the artwork or at the whim of the owner. Many mountings seen today may have been changed several times, and some may not present the proper style or aesthetic in relationship to the work of art.

Today, when contemplating the treatment of East Asian pictorial works, two important factors that conservators and curators have to consider are physical condition of the mounting and the information carried on the mounting. At first, conservators examine the condition of the mounting, and judge if it's able to function as intended to support, display or properly store the artwork. Once evaluated, the conservator and curator should have a discussion about the mounting and its context to the work of art. Several questions might arise:

- Is the mounting original/ Has this mounting been changed?
- Are there important marks (seals, inscriptions, etcetera) on the mounting that should be retained and or documented?
- Is the style and aesthetic of the mounting appropriate for the work of art?
- Can the current mounting be retained, or if needs to be replaced, should the mounting be in the same style, or changed to a more appropriate one?

Table 1 shows the relationship between two major factors in determining whether to replace or retain a mounting. The pair of folding screens, *The Deities of the Tanni-sho* (figs. 1a, 1b), by Munakata Shiko (Japanese, 1903–1975) and the hanging scroll, *Standing Courtesan* (fig. 2), by Keisai Eisen are both from Museum of Fine Arts, Boston's collection and belong to the situation III category. For the situation III, course of action should be straight forward since the mounting may be original or there are important marks on the mounting. For these reasons, the mounting should be kept and treated like an artwork. The history background of these two examples, are described as following section.

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	Information - ⟶	Information +
Condition + ↓ Condition -	I. Condition is good. The information carried on the mounting is important and original.	II. Condition is good. The mounting is not original, is not carrying the right information
	III. Condition is poor. The information carried on the mounting is important and original.	IV. Condition is poor. The information that was carried is not much then the just color, or style, which can be reproduced.

Table 1. Mounting elevation table

LEFT TO RIGHT

Fig. 1a. Munakata Shiko, *The Deities of the Tanni-sho*, the right screen, ca. 1950, woodblock prints mounted on one of a pair of six-panel folding screens, ink on paper, 115.6 x 257.2 cm, Anonymous gift in memory of Blanchette and John D. Rockefeller III, Museum of Fine Arts, Boston, 2001.180.1

Fig. 1b. The left screen

Fig. 2. Keisai Eisen, *Standing Courtesan*, ca. 1830, woodblock print; color on paper, 76 x 25 cm, William Sturgis Bigelow Collection, Museum of Fine Arts, Boston, 11.28587.

WHY TO RETAIN THE MOUNTING MATERIALS FOR THESE TWO CASES

For *The Deities of the Tanni-sho* by Munakata Shiko, Munakata Shiko is a 20th century important artist, and was active in the Folk Art Movement (*Mingei*) developed and founded by Yanagi Soetsu (1889–1961). The Folk Art Movement focused on "hand-crafted art by ordinary people" including ceramics, lacquer, textiles, and woodwork. Yanagi wanted people to review the traditional Japanese beauty in everyday craft. Fold-dyed paper (*Orizomegami*) is one of these crafts, usually used on book covers, commonly seen in people's daily life.

Tang Chinese paper (*karagami*) with bird patterns is the most prevalent decorative paper used on the back of Japanese folding screens. However, the decorative papers on the back of Munakata's screens are typical Folk Art Movement style fold-dyed papers. In addition, Munakata Shiko, dedicated these screens to the founder of the Folk Art Movement, Yanagi Soetsu, with an inscription located on the labels at the back of the screens (fig. 3). The presence of these inscriptions is indicative of the strong connection between the artist and the Folk Art Movement during its period. Therefore, these fold-dyed papers had to be kept and treated as part of the artworks.

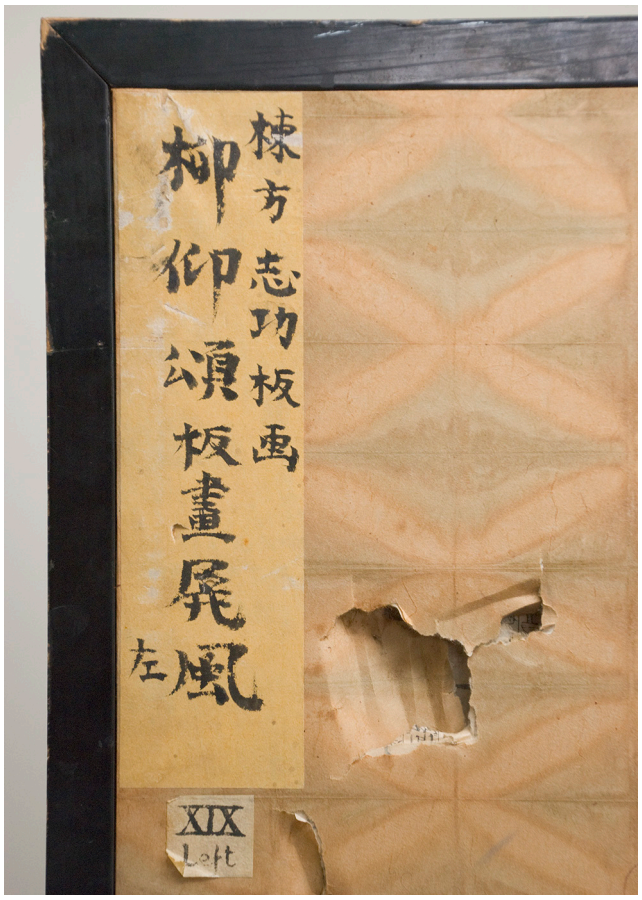


Fig. 3. The inscription on the label at the back of left screen.

Concerning *Standing Courtesan* by Keisai Eisen, MFA has one of the largest of Japanese color woodblock print collections, numbering over 50,000 works, outside of Japan. The majority are Edo period (1615–1868) color woodblock prints known as "Pictures of the Floating World" or *Ukiyo-e.* A number of prints retain materials or exhibit conditions that indicate that they were likely mounted as hanging scrolls. Figure 4 shows triptych prints by Kitagawa Utamaro (Japanese, ?–1806) that present scenes of a print shop at Edo period. (fig. 4) Some pillar prints with mountings displayed as hanging scrolls are seen at the back of the shop. Since *Ukiyo-e* prints were mass produced works of art intended for Tokyo's burgeoning middle class, their mountings were fabricated from inexpensive materials such as decorative papers, bamboo dowels and staves as seen on these Utamaro's prints. One such print, *Standing Courtesan* is an example from the MFA's collection that still retains most elements of its original format. Likely mounted prior to sale by the shop where it was purchased, this print was mounted with Japanese paste papers, decorative strips (*ichimonji* and *suji*), a single backing and thin bamboo dowel and stave, in a manner similar to those depicted by Utamaro.

Several conditions seen on this print likely occurred due to its function as a hanging scroll and the type of materials that were used. Crude overlaps located at the joints between inconsistent thicknesses of mounting components and the mechanical action of rolling and un-rolling around a thin dowel resulted in structural damages. Exposure to light, pollutants, and insects resulted in overall soiling, discoloration and localized flyspecks. Although this format might have

Fig. 4. Kitagawa Utamaro, *Woodblock Printer; Print Shop; Distributing New Prints*, ca.1803, woodblock print; ink and color on paper, 38 x 75.6 cm, William Sturgis Bigelow Collection, Museum of Fine Arts, Boston, triptych: 11.14539 (left), 11.14540 (center), 11.14541 (right).

Fig. 5. Before treatment: punctures and large losses are seen in the fold-dyed paper before treatment.

affected the preservation of the print, few prints have survived relative to the quantity printed, and of those, even fewer have survived with their decorative mountings intact. In order to conserve this print with its proper historical format intact, a treatment had to be designed to improve both the aesthetic and condition of the print and it's mounting.

COMPENSATION FOR THE LOSSES TO THE MOUNTING

In the case of Munakata Shiko's folding screens, different compensation techniques were considered. Firstly, the most common technique is infilling with toned paper, but the two colors used on the fold-dyed papers (fig. 5), green and brown, have a strong contrast and would be difficult to integrate into the original with a single tone and would also disrupt the repeating patterns on the fold-dyed papers. Hand-painting the pattern on a toned paper for infilling was considered as well. However, this technique would be time-consuming and might not achieve the best result. The result of reproducing fold-dyed papers also was not satisfactory (fig. 6). Compelling reasons for compensating losses to the fold-dyed paper of

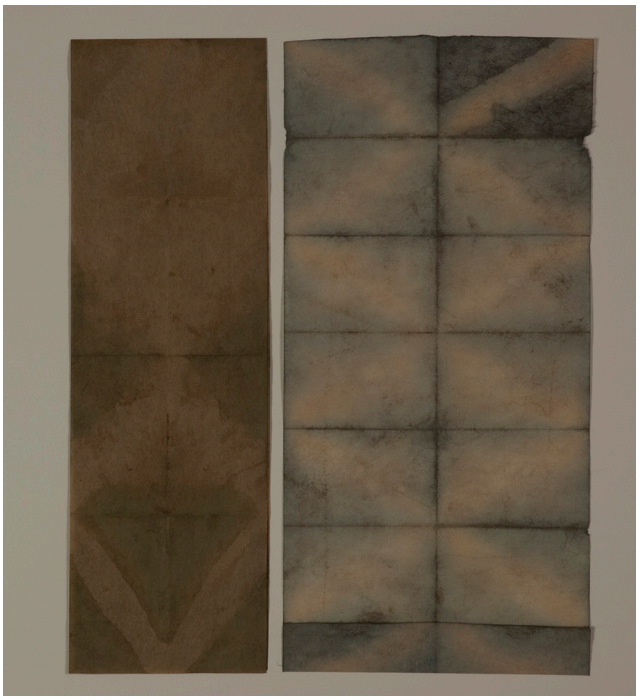


Fig. 6. The fold-dyed paper made by author. The tones are uneven and not matching to the original fold-dyed papers on the Munakata's screens.

Munakata Shiko's folding screens with digital infills were determined. They were:

1. The digital reproduction has enough reference from the original. The image of patterns could be captured from undamaged areas of fold-dyed papers by photography.
2. The losses to the fold-dyed papers are located on the folding screen's reverse. The fold-dyed papers present a style of craft-art but not the fine art created by the artist. Reproducing partial patterns would not change the context and character of these fold-dyed papers.
3. A digital reproduction would be less time-consuming and would result in the most visually satisfactory infill than the other possibilities, such as using basic toned infills, reproducing fold-dyed paper using traditional techniques for infills and hand painted infills.
4. The digital infills are printed in a lighter tone than the original, so it would be clearly visible at close viewing. The authenticity of the original would still be distinguishable from the repairs.

In the case of Eisen's mounting, the blue paste paper is also patterned. Digital infilling was also considered. After capturing the patterns from an area of the mounting free of damages, it proved difficult to find a repeat that matched the area of the loss located at the upper portion of the mounting. Although the pattern on the blue paste paper seems repetitive,

Fig. 7. The blue paste paper (top) and the digital printing (bottom). The circles indicate the location of major flower patterns. The patterns appear arranged randomly and irregularly.

Fig. 8. *Uda* paper was sized with alum gelatin solution (3% gelatin and 0.5% alum) using 1–2 brushed applications.

Fig. 9. A mixture of indigo (from the colorant stick) and paste was applied on the sized paper.

under careful examination, a repeat was not found and its pattern was revealed to be random (fig. 7). The reason for that might be the patterns were made from wood block that were cut free hand. Therefore, the digital infilling was not undertaken because of integrity issue.

Toned paper infills samples were made in order to evaluate their potential to integrate with the original surround. However, the samples did not blend well into the surrounding paper because of the absence of pattern and texture. Upon closer examination, the tone of the original paste paper displayed tones varying from lighter paper tone to dark blue and these uneven, tiny dots caused the paper to get a grainy texture. A review of the process for making paste paper in Japan revealed that one of the steps in the processes is sizing the Japanese paper using alum gelatin solution. This step likely gives the paste paper its grainy texture. Therefore, the papers to be used for filling were sized with an alum gelatin solution (3% gelatin and 0.5% alum) using 1–2 brushed applications (fig. 8). After drying, a mixture of indigo pigment and paste was applied in the manner of traditional Japanese paste paper technique to the sized paper (fig. 9). This method successfully approximated the texture and tone of the original surrounding paper even though it was not patterned. The decision for loss compensation was made.

TREATMENTS

The treatment for these two cases are described below:

MUNAKATA SHIKO'S FOLDING SCREENS:

After completing examination, writing the condition report and treatment proposal, the folding screens were photographed before and after treatment to further document their condition. Wooden trims were disassembled; each panel was separated and the fold-dyed papers were removed from the panels. The papers attached to the back of the fold-dyed papers were removed using Gore-Tex humidification to aid their release. This was followed by pressing them between Reemay, blotting paper and thick Plexiglas.

Of the twelve fold-dyed papers, three had considerable losses and required large digital infills. Since the fold-dyed papers were going to be pasted onto new under cores, the infilling papers had to be close to or slightly thinner thickness than the original fold-dyed papers, so they would have similar expansion and shrinkage during mounting. Japanese handmade *Sekishu* paper was chosen for printing the image onto for infilling. The image was taken from an area of fold-dyed paper with fair condition and a clear pattern. Photoshop® was used for adjusting the image by Color Balance and Brightness/Contrast functions. Several trials were carried out for comparing the color of the reproduction to the original. An Epson Stylus Pro 4900 printer was used for printing and the ink was tested and shown to have great light resistance ('Epson Stylus Pro4900-Print', 2010). Trials showed that there was no migration of ink after the lining treatment. In addition, the trials passed the Oddy Test carried out by the preventive conservation specialist at the MFA.

Unfortunately, the *Sekishu* paper was not compatible with the printer. After discussing this with the photography/printing expert, we found the irregular surface and the

Fig. 10. The lined *Sekishu* paper was accepted by the printer and was able to receive the required image successfully.

Fig. 12. The digital in-fills were positioned to match the patterns and the losses were traced roughly with pencil marks in transmitted light.

Fig. 11. The sizing application was undertaken for fixing the fibers on the digital in-fills.

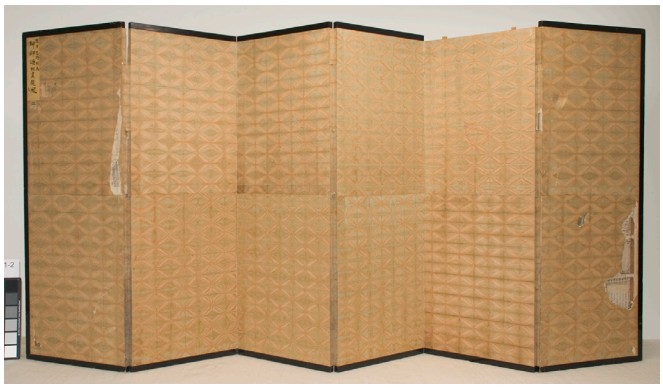
Fig. 13. After lining, flattened fold-dyed papers on the drying board.

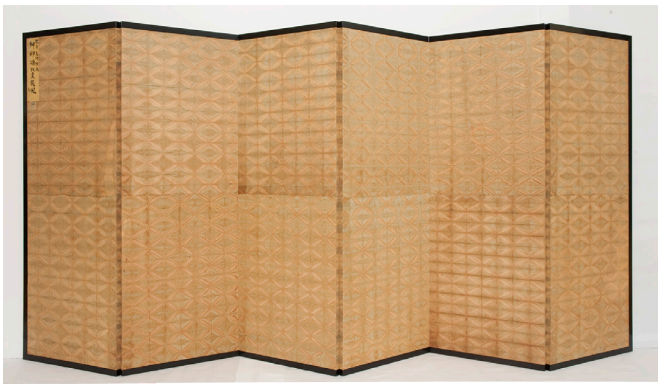
thinness of the *Sekishu* paper might cause the paper to jam in the printer. Therefore, one layer of a temporary lining was added to the back of the *Sekishu* paper so it could be properly printed. The lined *Sekishu* paper was accepted by the printer and was able to receive the required image successfully (fig. 10). A coating was not necessary in this case, because the patterns on the fold-dyed papers are irregular and slightly blurred in character.

After printing the digital infills, sizing was applied on the surface and the temporary lining was removed. The sizing application was necessary for the digital infills since the printing actually only stayed on the surface of the fibers and could be lost or diminished if fibers lifted or were abraded through handling (fig. 11). Sizing also aided the application of toned washes with Japanese colorant sticks. Digital infills were toned to slightly different levels to blend into individual panels although; they could be easily distinguished at a close viewing distance once filled. Before infilling, the digital infills were positioned to match the patterns and the losses were traced roughly with pencil marks in transmitted light (fig. 12). This helped to find the position right away after wetting the fold-dyed papers.

For protection, the fold-dyed papers were humidified overall using a sprayer and placed on the top of Rayon paper. Once moist, they were brushed out from the center to reduce creases and to realign tears. The digital infills were set into place with a slight overlap using wheat starch paste. One layer of lining was added and then paper strips were pasted into place for reinforcing tears and supporting the reverse of severe creases. Finally, the lined fold-dyed papers were flattened on the drying board to prepare them for placement back onto the folding screens (fig. 13).

Besides compensating large losses, digital printings were also used for the covers of the hinges. Since they were dirty





LEFT TO RIGHT

Fig. 14a. Before treatment: the reverse of left screen overall.

Fig. 14b. After treatment: The reverse of left screen overall. The large losses located at the first (the far left) and sixth panels (the far right) have been filled with digital in-fills, and hinges covers have been replaced with digital printing as well.

LEFT TO RIGHT

Fig. 15a. Before treatment: punctures and losses are seen in the fold-dyed paper of sixth panel.

Fig. 15b. After treatment: the digital infill can be distinguished easily at a close-up distance.

and damaged, they were replaced with new ones (figs. 14a, 14b). After treatment, larger losses were filled with *Sekishu* paper of similar texture and character to the fold-dyed papers. These infills not only matched the fold-dyed papers in structure, but also provided a continuous pattern to aesthetically compensate the areas of loss. (figs. 15a, 15b)

KEISAI EISEN'S HANGING SCROLL

After completing examination, writing the condition report and treatment proposal, the scroll was photographed before and after treatment to document its condition under normal, raking and transmitted light. The tear was reinforced on the back using strips of Japanese paper set into place with wheat starch paste (fig. 16). The dowel and stave were removed. Since the scroll appeared stiff and brittle, it was humidified overall using Gore-Tex to bring back the flexibility of the papers.

After surface cleaning the front and back with triple-washed chamois cloth and kneaded eraser, spot tests using filtered water applied to the print's colorants and every element of the mounting including blue and brown paste

Fig. 16. The tear was temporarily reinforced on the back using strips of Japanese paper.

Fig. 17. After Gore-Tex humidification, backing of the scroll was removed.

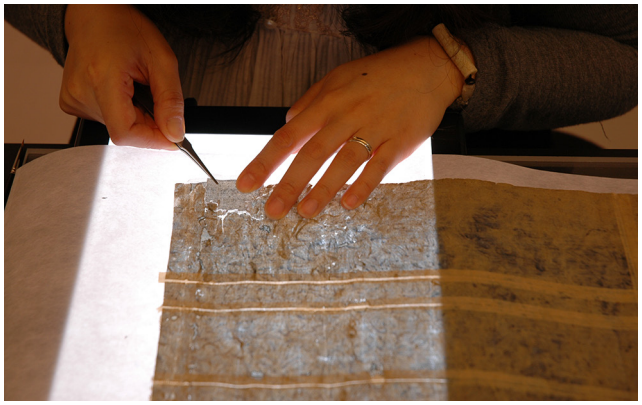


Fig. 18. Losses were set into place with starch paste and pressed under weights between Reemay, blotters, Plexiglas until completely dry.

papers, decorated strips (*ichmonji*), and thin red strips (*suji*) were carried out. The results showed the print's colorants were stable. The colorants used for the blue and brown paste papers, decorated strips and thin red trips were slightly water soluble, especially the mica on the decorated strips.

The scroll was humidified section by section using Gore-Tex as an aid for backing removal and the backing was

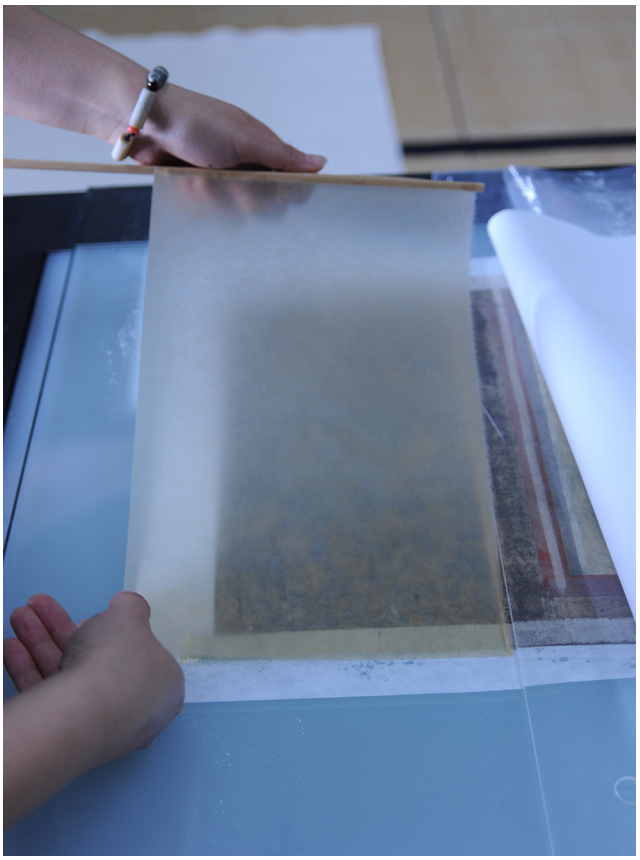


Fig. 19. A layer of new backing was added at the back of the scroll.

removed (fig. 17). Since the print had yellowed overall, local cleaning was undertaken. This treatment was able to release some discoloration from the print. In order to prevent the formation of tide lines, overall cleaning was undertaken. First, the print along with mounting was humidified overall using Gore-Tex until it was just slightly damp since the mounting part is slightly water sensitive. Temporary reinforcements were removed at this point. Then, water was brush-applied to the print. Discoloration was picked-up with blotting paper squares. After cleaning, the print along with its mounting was face up and pressed under light weight between a dry blotting paper underneath and Gore-Tex on the top. This way the print could dry slowly so as to avoid the formation of tide lines. This process was repeated 2–3 times until the discoloration was reduced and the print's overall appearance improved.

After wet treatment, every joint was checked to make sure they were still attached to each other. Once the joint was lifted, to set it back into place, paste was applied onto Mylar to help transfer it into the area of separation. Options for infilling were discussed with the curator as described in the previous session. Appropriate Japanese papers for filling losses to the paste paper were chosen by using a micrometer to select a thickness slightly less than support, and visually

LEFT TO RIGHT

Fig. 20a. Before treatment: creases are seen overall. Losses are located at the upper portion of mounting. A tear is located at the upper portion of the print.

Fig. 20b. After treatment: the large losses on the upper mounting have been filled. The crease and tear have been supported with reinforcements and a new backing.

matching chain lines and texture. For matching the tone of the paste paper, infills were sized prior to color application. Losses were set into place with starch paste and pressed under weights between smooth Reemay, blotters, Plexiglas until completely dry (fig. 18). Edge losses were compensated and extended with blue and brown toned infills.

To reinforce tears, creases and thinner parts of the mounting, strips of Japanese paper were set into place with starch paste. Reinforcements were not added to the back of those creases that were formed during printing since they are considered to be an original part of the work of art.

Fig. 21a. Before treatment: details of the upper mounting.

Fig. 21b. After treatment: the losses were compensated with the infills made using traditional paste paper techniques.

Before lining, thinned areas of the paste paper mounting were filled with Japanese papers with the aid of transmitted light. One layer of paper, Mino (2.5 mm) was applied as an overall lining using thin starch paste. (fig. 19) After lining, the print and its mounting were brushed onto the drying board so it could dry flat without planar distortion. After

inpainting, the original stave and dowel were placed back into their location on the scroll although the original nails and cord were replaced. In addition, a section of spider wire was added into the cord for strengthening. After treatment, the infills made using traditional paste paper techniques successfully compensated the areas of loss although without the patterns (figs. 20a, 20b, 21a, 21b). For storage and preservation, the scroll has been rolled onto a large roll (*futomaki)*, wrapped with a piece of silk cloth, and placed in a paulownia box and then a paper box. The original nail and the cord are retained in the box as well.

CONCLUSION

Digital infills were used in the compensation losses for decorative papers on the Munakata Shiko's folding screens because this technique was efficient in reproducing the patterns that were captured from the original artefact. In the case of Keisai Eisen's hanging scroll, fabricating infills using traditional paste paper techniques for compensation also showed a satisfactory result when there is not enough reference to make a digital reproduction.

There is no perfect treatment that can be used for all situations. Through these two examples for treating the mountings for Asian artworks, we can see that studying craft techniques and historical background helped explore treatment possibilities and discover the best way to solve problems. Fortunately, conservators are now able to adopt new techniques like digital printing for use in treatment. To do or not to do is not just a question. It is a process; a whole process of testing, studying and decision making.

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