

Distortion in Pictorial Scenes on Japanese Fans

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Abstract. The art of decorating fans with calligraphy and painting became a highly refined art early in Japanese history. Before long, the ornamentation of fans became a popular art form in China and later spread to Western Europe by the seventeenth century and eighteenth century. Although the ornamentation of fans was practiced in different countries over the centuries, Japanese, Chinese and Western European artists developed different approaches to the art. While Western and Chinese artists presented pictorial scenes cut in the form of a sectorial window, Japanese artists, by contrast, distorted pictorial scenes in order to adapt them to the fan format. According to traditional Japanese painting methods, buildings were drawn by oblique projection or axonometric projection. However, in the case of fan paintings, the method was similar to three-point perspective drawing or inverse perspective drawing. Thus, pictorial scenes on Japanese fans are distinctive from other painting formats and exhibit original expressive characteristics. Because of the sectorial form of the picture plane, three expressive compositional features result: the radial feature, the curved feature and the progressive feature. For this study, I have converted the sectorial picture planes of several fans in the series, Fans with *Scenes from The Tale of Genji*, dated about the late sixteenth century and held at *Jyodo-ji Temple*, Hiroshima prefecture, into rectangular picture planes. I then examined the representation of space from the viewpoint of these three characteristics. By examining the distorted pictorial scenes on these fans, I have found that traditional Japanese painting methods for the depiction of space were not strictly or directly transferred onto fans. That fan painters developed a different approach to spatial expression suited to the fan format, demonstrates the creative tendency of Japanese artists to adapt and devise new approaches appropriate for particular purposes.

Key Words: Application of geometry in arts, pictorial scenes on Japanese fans, distortion

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1. Introduction

One of the most celebrated aspects of Japan's painting tradition is fan painting — resplendent with flower-and-bird imagery or popular narratives, like *The Tale of Genji*, and depicted in opulent pigments on silver, gold and colorful paper. Pictorial scenes on Japanese fans were distorted to fit the sectorial picture plane of the fan format. Although buildings are depicted by oblique projection or axonometric projection on folding screens and handscrolls, there is a break with this traditional method of representation on Japanese fans. Instead on fans buildings are rendered by three-point perspective drawing or inverse perspective drawing which gives rise to distortions. This approach also contrasts with the depiction of pictorial scenes in the fan painting traditions of China and Western Europe, where no intentional distortion is found. On traditions of Chinese and Western European fan paintings, pictorial scenes are simply cut in the form of a sectorial window.

In order to understand what constitutes the unique elements in the spatial expression of Japanese fans, I will examine as a case study several fan paintings from the series titled *Fans with Scenes from The Tale of Genji*, dated the late sixteenth century and held at *Jyodo-ji Temple*, Hiroshima prefecture (Fig. 1). These fan paintings that depict various scenes from *The Tale of Genji*, fit within a painting tradition that has continued since the late eleventh century in Japan. The iconographies, fixed style of representation, scene selection and other aspects of illustrating the epic novel have been subject of through art historical research. But, for the first time, this examination shows that traditional painting methods well established for painting *The Tale of Genji*, were modified to fit the fan format. To demonstrate this, I produced a transformation grid for the pictures on fans in which the sectorial picture plane is represented by a rectangular form. Then, I compared the original sectorial representation with the transformed representation in order to consider the unique drawing approach as well as the spatial and temporal expression of the fans.

2. Pictorial scenes on fans

Fans were introduced to Japan from China via Korea in the early sixth century. The earliest type of fan to reach Japanese shores, the *uchiwa*, had a flat, stiff structure with a round or oval shape. *Uchiwa* could not be folded. In the seventh century, two types of foldable fans were developed in Japan. *Hiougi* fans were formed by strips of pliant cypress wood fastened together, while *kawahoriougi* or *shisen* were created by covering a spread of wood strips with paper. Unlike the stiff *uchiwa* fans of Chinese derivation, these *Japanese born*



Figure 1: Fans with scenes from *The Tale of Genji*, pair of six-fold screens, color on paper, left: 154.7×65.5 cm, right: 155.0×65.0 cm, sixteenth century, *Jodo-ji Temple*, Hiroshima



Figure 2: Fan-paper album of *Hoke-kyo Sutra* (Market scene), colors on paper, H 25.6 / W 49.4 cm, late twelfth century, *Shitenno-ji Temple*, Osaka

fans were compact when folded. A large number of highly prized Japanese folding fans were exported to China during the fourteenth century Ming Dynasty. Later, during the eighteenth century, folding fans were imported to France, where they were a fashionable Chinoiserie (Chinese influence) accouterment in the court of Louis XIV. Before long, folding fans came to be produced in Europe [3, pp. 33–35]. Impressionist painters, for example, responding to the Japonism trend, produced numerous works in the shape of fans during the nineteenth century.

The picture plane on which imagery is drawn on *hiougi* and *shisen* folding fans is not a rectangular, but a sectorial shape. When *hiougi* fans are open, the picture plane is a simple geometrical sectorial shape because thin sectorial strips are fastened together. The picture plane of an open *shisen* fan is a part of a ring shape, with the top and bottom curves included in an arc. The length of the right and left radial lines, thus comprise the difference between the radius of the inner and outer circles. The surface of *shisen* fans, by contrast, consists of arcs in a concentric circle; the top arc is large and the bottom arc is small. When drawing pictures on *shisen* fans, artists have accommodated their way of depiction to suit this particular picture plane. For example, vertical lines tend to be drawn so that they reach the center of the concentric circle of two arcs, which is the pivot of the fan. Horizontal lines are drawn according to both the upper and lower curves of *shisen* fans. And in the case of *hiougi*, horizontal lines are drawn in relation to the curve of the upper edge of the fan.

In the compositional structure of Japanese folding fans, Professor Hiroshi MIZUO has observed the following three characteristics [2]:

- 1) *Radial feature*: motifs are arranged in relation to lines radiating from the pivot to the rim of a fan.
- 2) *Curved feature*: motifs are bent along the arc of a fan.
- 3) *Progressive feature*: motifs are arranged spatially to express the progression of time and movement from right to left when the fan is open.

These defining characteristics are already evident in the late twelfth century, *Fan-paper Album*

of *Hoke-kyo Sutra*, held by *Shitenno-ji Temple*, Osaka (Fig. 2). On the fan Buddhist scripture is inscribed over a background genre painting. It is noteworthy that the size of the calligraphic script subtly diminishes as the scripture reads downward, line by line, between the folds. Moreover, the top of each scriptural line begins from the same height on the surface, following the curve of the fan. In other words, the Buddhist scripture adopts the radial feature and adjusts to the curved feature of the fans picture plane. The genre painting also conforms to the shape of the fan format. For example, the building pillars that would normally stand perpendicular on a painting rendered on a rectangular format, instead tend to lean toward the pivot on the fan format. And the stylized mist that is shown to spread out horizontally in bands is actually drawn in a circular manner, along the lower arc. This adaptation of standard drawing methods reveals both the radial feature and the curved feature.

3. Fans with scenes from *The Tale of Genji*

Pictorial representations of subject matter derived from the epic novel, *The Tale of Genji*, the so-called *Genji-e*, have been a popular theme of Japanese painting since the early eleventh century. During the Momoyama (the late sixteenth century) and early Edo periods (the seventeenth century) the theme underwent a flourishing revival and a large number of *Genji-e* were produced. *Genji-e* was either produced as single paintings that featured a favorite scene or as a series of paintings showing several episodes. These paintings were produced on a variety of painting formats including handscrolls (*emaki*), booklets (*sasshi*) or folding screens (*byoubu*). The Tale of Genji handscroll, dated to the late twelfth century and registered as a National Treasure, is a masterpiece in the genre, and its rich and powerful artistic expression exerted a significant influence on subsequent *Genji-e* [4, p. 291].

A pair of six-fold screen titled, Fans with *Scenes from The Tale of Geji*, belonging to *Jyodo-ji Temple*, is an early sixteenth century *Genji-e* masterpiece. On each of the six-panel screens a collection of old fans bearing *Genji-e* paintings have been pasted over a background painting of *kudzu* vines that sweep across the screen panels. A total of sixty fans — five fans per panel — have been arranged to follow a seasonal progression. The seams along the fan folds, left behind after dismounting from the wood supports, remain visible. The upper arc of each fan measures 50.5–52.6 cm in length. Poetry is brushed between the fold lines on the fans. Clouds or mist formed in gold spread across the surface of each fan. The imagery is delicately painted in a rich palette of colors. The scenes selected and their compositions are thought to have been based on the traditional style of *Genji-e*. In correspondence with the fifty-four chapters of *The Tale of Genji*, scenery based on the chapter titled *Ukifune* appears on four fans, imagery derived from the *Sakaki* and *Asagao* chapters show on three fans. Yet, thirteen chapters, including *Wakamurasaki*, are not depicted. The way in which the *Genji-e* fan paintings were presented on the *Jyodo-ji Temple* screens influenced subsequent generations of painters, who observed the arrangement of the fans, the choice of scenes represented, the high quality and overall originality of the work [4, pp. 293–294],

Next I will examine six fans selected from this pair of screens, including those based on the following chapters: *Kiritsubo*, *Tamakazura*, *Suzumushi*, *Yugiri*, *Hashihime* and *Ukifune*.

4. Transformations and analysis

4.1. A procedure for transformation of the picture plane

The radial feature and the curved feature of the composition of Japanese fans can be seen on the sectorial picture plane. If the sectorial form of the picture plane is transformed into a rectangle, then the radiating lines should become perpendicular and the carving lines should become horizontal. A concrete means to analyze the distortion rendered in paintings applied to Japanese fans would be to transform the sectorial form and reproduce it as a rectangular picture plane. Since the characters of the Buddhist scripture inscribed on the fan titled, *Fan-paper album of Hoke-kyo Sutra*, gradually diminish in size as they flow downward, it can be ascertained that each sector enclosed by the fold lines is drawn in perspective. By using Adobe Photoshop [transformation/perspective] tool, I have devised a transformation method that effectively distorts the image on the thin sector divided by the fold lines in order to create a rectangular form. Determined by the folds, the fan was initially divided into nineteen parts. Each sector was then made into a rectangle. Similar to a coordinates conversion, all rectangular parts were connected (Fig. 3). This posed the problem of how to measure the width of each rectangular part. As an experiment, I tried three kinds of widths taken from various positions on a thin sector. Based on this, I decided to take a measurement at the midpoint of the height of the sectorial form. This determination was made because the image expanded too much when the rectangular width was set to the length of the upper arc. However, the image was overly compressed when the width was fixed in relation to the lower arc. According to this, six fans were transformed on a rectangular picture plane. Now I will analyze and compare the distortion of spatial expression on the sectorial and rectangular picture planes.

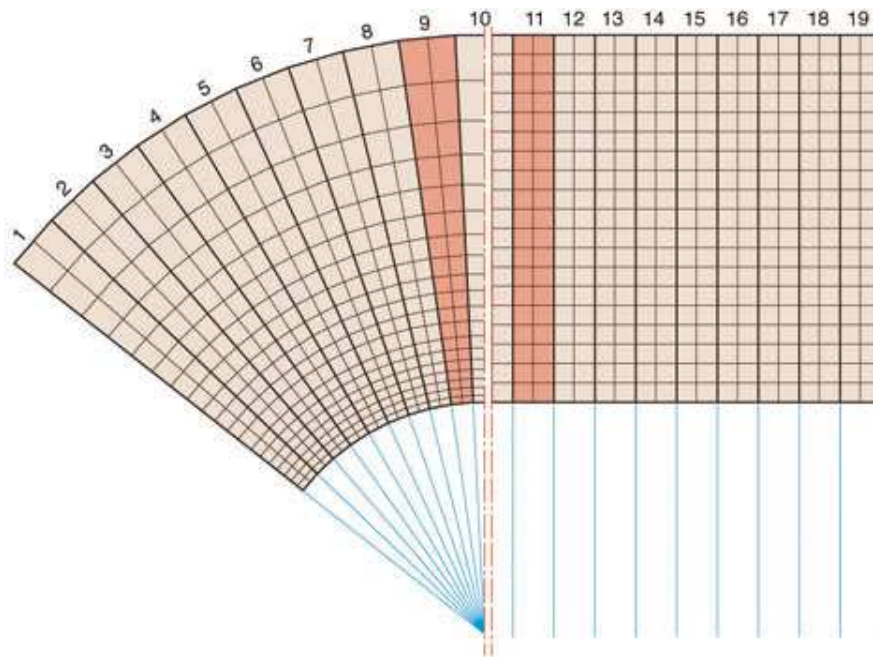


Figure 3: The picture plane on the fan is transformed into a rectangle

4.2. Analysis of transformed scenes

The scenes depicting the *Kiritsubo*, *Tamakazura*, *Suzumushi* and *Hashihime* chapters show architectural structures within garden settings. All buildings were rendered according to the ‘birds-eye view’ perspective and thus lack roofs and ceilings. I will analyze the geometric elements in the sectorial picture plane and the transformed picture plane by extending the lines of the geometric elements. Then I will compare how the lines are changed. Compared to the fans mentioned above, two other fans, those depicting the *Yugiri* and *Ukifune* chapters, differ, for mainly natural scenery is illustrated, with few geometric elements included (Fig. 4).

Kiritsubo: In the sectorial picture plane, the extension lines of the pillars do not converge at one point and most of the oblique lines to the right are not parallel. The depiction resembles an inverse perspective drawing. The wooden floorboards run nearly horizontally in each section. Presumably this scene is drawn by oblique projection. Yet, the pillar lines do not reproduce vertically in the rectangular picture plane. The oblique lines to the right become curved, the wooden floorboards become bent and the room expands to the right and left of the picture plane. Moreover, the people appear to be sitting at an unnatural angle on the rectangular picture plane.

Tamakazura: In the sectorial picture plane, the extended pillar lines do not converge at a point. The pillar lines and the lines that form the pattern of the lattice windows appear to be formed of parallel lines. The oblique lines to the left and right are nearly parallel to each other. And the lower right beam does not quite seem to meet the central beam at a right angle. The lines of the pillars do not appear vertically in the transformed picture plane. Nonetheless, the relationship of the lower right beam and the central beam appears more natural. This configuration seems to be drawn by axonometric projection.

Suzumushi: In the sectorial picture plane the lines extending from the pillars converge to the left of the pivot point. The oblique lines to the left and to the right run approximately parallel. The spatial relationship between the lower and upper rooms is unclear. In order to express two interior spaces in this scene the artist relied on axonometric projection. When the picture plane is transformed into a rectangular form, the perpendicular lines in the center become almost vertical. However, the bottom edge of the lower room becomes greatly curved. The function of the gold cloud is to show ambiguous space. As for the spatial relationship between the two rooms, that the upper room becomes small lends a sense of strong perspective.

Yugiri: This scene illustrating a visit to a mountain villa contains few geometrical elements. The roof, hills and fields are drawn following the arc of the fan. In the rectangular picture plane the hills and fields appear enlarged horizontally. And the gold cloud at the bottom seems to expand. The perspective of the scene changes; the mountain villa appears to be far in the distance. Moreover the men appear to stand vertically.

Hashihime: In the sectorial picture plane a room is painted on the left and the lines extending from the pillars converge slightly to the left of center. The wooden joints of the fence are nearly parallel. In the transformed picture plane the veranda becomes curved and the pillar on the left becomes inclined. Then the angle of the mans line of sight to the women becomes almost horizontal as his size increases and his position becomes higher.

Ukifune: This scene shows a romantic rendezvous that takes place in a boat on a tranquil river. In the transformed picture plane, the boat seems to roll and pitch because it is enlarged and curved. The sense of perspective within the scene is also emphasized.

Kiritsubo



Tamakazura



Suzumushi



Yugiri



Hashihime



Ukifune



Figure 4: *Genji-e* on the sectorial and the rectangular picture planes

5. Consideration of features of Japanese fans

5.1. The radial feature and the curved feature

By converting the picture planes of these six fans from sectors into rectangles, it is possible to understand the distortion in fan pictures according to the radial feature and the curved feature.

On fans the depiction of buildings viewed from a high place looks very much like a three-point perspective drawing with a vanishing point below the ground plane. If an architectural image rendered by oblique projection or axonometric projection is to be applied to a fan, then the vertical lines must converge at the pivot of fan. However, my analysis has shown that on fan pictures almost no lines extending from vertical buildings converge at one point. Moreover, the straight lines on a transformed picture plane are not vertical, but splay out. Distortion according to the radial feature can be seen in fan pictures. I have determined that the painters of fans did not aim to make vertical lines converge precisely at the fan pivot, but painted rather freely, according to a radial feature.

I will now consider the curved feature on the fan paintings. On *Yugiri*, the scenery of the horizon and the gold clouds that align along the arc of the fan, spread out horizontally when transformed to a rectangular picture plane. The scenery appears more natural in the transformation than on the fan. The gold clouds become larger and a depth of perspective appears throughout the entire scene. However, on the other fans, beams and veranda edges that were drawn by straight lines, become curved on the rectangular picture plane. Consider that *Kiritsubo* was painted by oblique projection and *Tamakazura* by axonometric projection. Although the mountains and trees were distorted, they do not appear unnatural on the fans. By contrast, since the geometric structures became unrealistic when drawn by curved lines, they were not metamorphosed during the painting process. However, even if a scene is painted by oblique projection or axonometric projection, such as those of *Suzumushi* and *Hashihime*, the forms in the lower part of the picture may be expanded and the pictorial depth or the perspective of the scene may be emphasized.



Figure 5: EDGAR DEGAS, *The Farandole*, gouache sur soie, H 30.7 / W 61 cm, 1879, private collection

On Japanese fans the radial feature uses a vertical compositional principle and the curved feature uses a horizontal compositional principle. Either of these features can be emphasized in a depiction. It seems that geometric buildings and human figures emphasize the radial feature while natural scenery emphasizes the curved feature.

Impressionist School painters of the latter half of the nineteenth century worked under the influence Japonisme. Mary CASSATT (1844–1926), for instance, painted a woman holding a fan in *The Loge*. Judging from the curved composition of the image depicted on the fan, the fan was likely made in Japan. At the time popular interest in Japan was stirred not only by *ukiyo-e* wood block prints, but also various works of craft, including fans. Things Japanese held exotic appeal for Western European painters who incorporated aspects of Japanese traditional painting style into their own work. Numerous artists including Edgar DEGAS (1834–1917), Maurice DENIS (1870–1943), and Paul GAUGUIN (1848–1903), painted fan pictures. In his fan painting titled, *The Farandole* (Fig. 5), DEGAS painted a glimpse into the ballet dancers world, as if cut off a scenes by a fan-shaped window. His depicted scene is not distorted on the sectorial picture plane. It seems like that he enjoyed an unexpected composition with limited visual field from a sweeping view from a high vantage point. limited visual field from a sweeping view from a high vantage point.

5.2. Progressive feature

The progressive feature exhibited on the Japanese fans under consideration here is quite similar to the compositional arrangements found in Japanese handscroll paintings. As a fan is slowly opened, the scene unfolds from right to left in a manner very similar to the gradual revelation of a pictorial narrative as a handscroll is unfurled. The arrangement of elements within the composition and the format itself work together to convey a sense of time and space as well as suggest certain emotions of the protagonists depicted. A viewers impression of a tale is also conditioned by whether pictorial elements are arranged on the right or left of the picture plane or if emphasis is given to an upward slant to the right or left. For example, the composition of the *Kiritsubo* fan which illustrates the court celebration of *Genji's* coming to age is painted by oblique projection with an upward slant to right. When the fan is opened, the image of *Genji* gradually appears following a secession of court ministers. The spatial and temporal effect is similar to the ‘panning’ of a movie camera.

A close comparison can be made between fan and handscroll renditions of the *Hashihime* chapter of *The Tale of Genji*. In the episode depicted on the fan a man at the right gazes toward the princess seated at the left of the picture plane. Thus, as the fan is opened, the man appears first and then, as the fan is opened further, the princess comes into view, in his line of sight. The same episode featured on *The Tale of Genji* handscroll, is drawn by oblique projection to the right. The composition shows the same characters within a similar setting. On the handscroll the princess is also positioned to the left of the man watching her. The layout of the two protagonists is extremely effective in both compositions. Moreover, both the fan and handscroll formats similarly convey a sense of time and space.

On the fan illustrating the *Ukifune* chapter the boat is rowed toward the right. Here the progressive feature is particularly effective, with the bow of the boat coming into view when the fan is slowly opened. However, on other paintings that depict this scene, the boat does not necessarily move toward the right. For example, on folding screens of the Tosa and Kano Schools, the boat is sometimes shown plying to the left. It should be noted that compositions on fans generally spread out slightly sideways. On folding screens, the entire scene can be viewed in one glance. Thus the scenes are not arranged to express the movement of time.

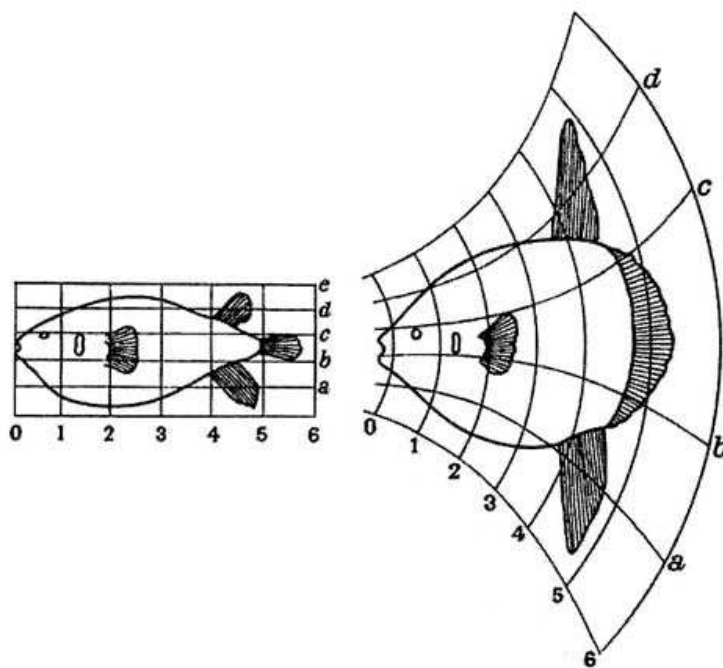


Figure 6: Fans with scenes from *The Tale of Genji*, pair of six-fold screens, color on paper
 A transforming fish on the coordinate, D'Arcy THOMPSON, [5]

As a side note, it should be mentioned that the composition of pictorial scenes on fans is generally expanded sideways slightly. It has been explained that this is because of consideration being given to the width of the paper of the fan being narrowed by folds [3, p. 35]. Thus, scenes appear on the zigzag picture plane of a fan when gradually opened.

6. Conclusion

This conversion of the picture plane of Japanese fans is associated with the kind of metamorphosis of the sunfish that evolves from *diodon holocanthus* in D'ARCY THOMPSON's geometric transformation [5] (Fig. 6). Although compositions on fans generally exhibit radial, curved and progressive features, *Fans with Scenes from The Tale of Genji* have not been painted according to strict rules and even contain various distortions. Oryon LEE describes fans as 'Moving art work' [1]. LEE comments upon the folding characteristic and the portability of the fan. He recognizes in the fan the unique tendency of the Japanese to compress, to draw things close, to grasp objects in the hand. All this he asserts is a distinctive method of recognizing concrete objects. I have shown that fan pictures are not simply transference of Japanese traditional methods for representing space onto a sectorial picture plane. Painters of fans not only intentionally distorted established drawings techniques according to the three features discussed above, but also worked by an intuitive sense of distortion. Scenes depicted on the unique sectorial picture plane of the fan were not merely compressed and composed, but methodically adapted to the picture plane. This innovative approach developed by fan painters demonstrates the ability of the Japanese to devise creative ways of altering things to suit particular purposes or structures.

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