

Transition of Ukiyoe-Hanga Techniques and Coloring Materials

The history of Ukiyoe-Hanga began with “Sumizuri-e”, which only used one color of ink. Sumizuri-e was gradually followed by “Tan-e” that added hand coloring, and this was later succeeded by “Beni-e”, “Urushi-e”, and “Benzuri-e”, that had slight technical variations with the addition of new color plates. Ultimately, the “Nishiki-e”, multi-colored wood block print style, was born. These names were derived from coloring materials: *Tan* of Tan-e refers to red pigment (Red lead oxide), *Beni* of Beni-e refers to red natural paint, and *Urushi* of Urushi-e refers to lacquer-like texture produced by paint that mixed glue with ink. Coloring with woodblock was put into consideration afterwards as hand coloring was not suitable for mass production. A new technique of printing using three to four colors including red, green (grass), yellow and ink (main woodblock) was introduced around 1741 to 1764 as Benzuri-e.

In 1765, exchange events for prints embedding the “*Tsuki no Daishō*”, (form of Japanese lunar calendar) which is an element of “*Daishō*” (calendar) was incredibly popular amongst direct retainers of the shogun, merchants, and the wealthy. Techniques for printing and carving of woodblock print were refined in the process of developing unique calendars, and this resulted in the birth of Nishiki-e, which was a form of multicolored print. Numerous natural paints and pigments were used when Nishiki-e was born, and many were used as primary paints in Ukiyo-e until the late Edo era. As for natural paints, Safflower was used most often for red, Turmeric and Amur cork tree were used for yellow, and Dayflower and Indigo was used for blue. As for pigments, Red iron oxide, Red lead oxide, and Vermillion were used for red, and Orpiment and Yellow ochre were used for yellow. Mixing these paints appropriately created various colors such as green and purple.

Blue in Ukiyo-e made a drastic change in the 1830s. Prussian blue, a bright and transparent tone of blue mixed overseas in 1704, was added to the palette of Ukiyo-e as it made expressions that were not possible with traditional paints. Dayflower, which was used as paint before, was transparent but rapidly lost color. Indigo, on the other hand, did not lose color as fast as Dayflower but lacked transparency, and was paint that was not suitable for spreading or gradations. The period in which Prussian blue was incorporated in Ukiyo-e overlaps with the period Katsushika Hokusai and Utagawa Hiroshige began to depict popular scenery. Prussian blue was an ideal paint color for expressing the clear deep blue color of the skies and waters, as well as for shading expressions vital in scenery prints. These new paints are said to be important elements that have assisted in boosting scenery prints to a popular genre of Ukiyo-e. The “Hiroshige Blue” that received critical acclaim globally was actually an expression born from imported European paint.

After the late Edo era and Meiji era, new paints imported through trade began to be used in Ukiyo-e, especially purple and red. Starting from around 1864, the purple featured in some of the works shifted from a transparent purple with a strong tint of red to vivid purple with a strong tone of blue. In 1864, it is assumed that various types of combined purple paint were manufactured / sold and used in Ukiyo-e, but the specific types have not been identified. Starting from 1869, the red in Ukiyo-e clearly made a shift to new paints. The new red had a bluish tint with a strong color, and combined paint is said to have been the most commonly used. However, development of red combined paint was slow and was an underdeveloped market as Alizarin, the only red combined paint at the time, has just started production in Germany and England during 1869. Therefore, it is unrealistic that combined red paint would be used in Ukiyo-e when production has just begun; therefore, it has recently been pointed out that the natural paint of Cochineal may have been used instead. *Tansei Shinan*, a manual for the Kanō school of paint, describes Cochineal to have been first imported to Japan around 1844 to 1848 under the name of “*Yōkō*”, and was said to be used as paint. Furthermore, Cochineal is described as “a pigment used for oil paintings, artificial flowers, or Nishiki-e” in *Shōgaku Senshokuhō* “*Senryōyakuinnobu*” published during 1887 to 1888. The paint assumed to be Cochineal was only used up until 1876, and paint with combined paint properties was used afterwards. As a result, the red in Ukiyo-e after the Meiji era is said to have changed at least twice.