

2009 Historical Consideration of Hanji Used as Art Materials

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ABSTRACT

Traditional Korean paper called Hanji using bast fibers from mulberry tree is made through complicated handmade works. This made Hanji very strong and exceedingly durable. Therefore it is said to last a thousand years. Such incomparable features of Hanji come from the unique sheet forming method called ouibalttugi using a bamboo screen. Excellent physical properties of Hanji reflect the wide variety of use, all central to everyday life. Despite its Excellency, the papermaking practice of traditional handmade paper, Hanji, from Korea is little known outside its country. This might be due to public apathy on Hanji in modern times. Without future apprentices dedicated to the craft, the Korean tradition able to make its soul is in danger of extinction in its homeland. Therefore more concern and more affection on Hanji is required immediately. It must be kept in mind that Hanji is our cultural heritage in pride over time.

Key words: Hanji, mulberry tree, bast fiber, ouibalttugi, bamboo screen.

1. Paper migration from East to West

Paper has played significant roles in glorious civilization for over 2000 years. Without paper, humankind might not be able to leave their traces in history. In 105 AD, paper was invented by a Chinese Courtier named Ts'ai Lun who used hemp, bast and old fishing nets as raw materials for papermaking (Yang 1997). Unfortunately the exact formulation for papermaking in those days has been lost. It has been roughly known that Ts'ai Lun made paper by soaking and pounding rags and plant fibers into a watery pulp suspension poured on a woven bamboo screen (refer to Fig. 1).

Before Ts'ai Lun's invention, Chinese had used silk, parchment, raw bamboo sticks and wood for a writing surface. It was too expensive for civilians to use silk as writing means, and too heavy to handle bamboo sticks and wood plates. Papermaking craft did not make its way to Japan until the Buddhist monk named Damjing in Goguryeo Kingdom introduced it in the beginning of the 7th century (Starr 2006).

It is important to note that the invention of paper opened a new way of human activity, and made a great contribution to the connection between the East and the West via the Silk Road. Until 751 AD, papermaking craft was not known by the Arab world which had been using Papyrus imported from Egypt. The Tang dynasty went a war against Turkestan in Samarkand, and many of the Chinese soldiers were taken as prisoners who contained papermakers showing the Arabs their craft in the hopes of sustaining their lives.

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As shown in Fig.1, paper continued its journey from east to west through Spain conquered by the Moors in the 8th century. The European crusader contributed to the extension of papermaking skills to Europe via Spain. It took around 500 years for papermaking to reach Europe from Samarkand. It was a shame that early paper was at first disfavored by the Christian world as a manifestation of Muslim culture, and Holy Roman Emperor Frederick II in 1221 declared the all official documents recorded on paper not to be valid. There was a big turning point able to change European attitude toward paper. This was the advance of the printing press in the 1400's. The first paper mill to be documented was established in Fabriano, Italy in 1268 AD and Cartiere Miliani Fabriano is still in operation today.



Fig.1. Ts'ai Lun as a father of handmade paper (left) and Chinese ancient papermaking craft (right).



Source: *Aramco World*, May/June, 1999 (adapted)

Fig.2. Paper journey from East to West.

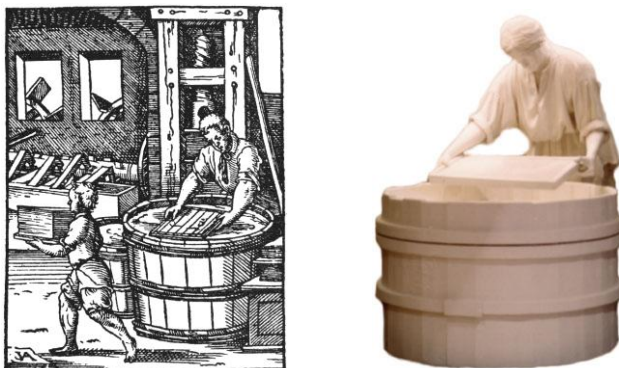


Fig.3. Early papermaking in Europe (left) and the life-size statue standing in the center of the Paper Museum (right).

2. Creation of Hanji

Korean traditional paper called Hanji is a unique fibrous materials originating from Korea. Paper made in China was imported to Korea by trading during the reign of Sosurim. It was not certain when papermaking craft was introduced into Korea from China. According to the documented history, a Korean Buddhist monk named Damjing made a great way to Japan by sharing his papermaking knowledge in approximately 610 AD, six years after Buddhism was introduced in Japan. According to Korean history, the scholar named Wangin in Baekje Dynasty delivered several Chinese books like the Analects of Confucius to Japan, and silk clothes and paper bundles were found at the ancient mound of Nagnang Chosun Dynasty. Based on this tradition, it was assumed that papermaking craft from China was imparted to Korea much earlier than 7 century.

As the papermaking craft was developed in Korea, sensible and intelligent ancestors created a large amount of artwork with paper. The earliest art form was Hanji from the Chosun Dynasty, which is still in existence up to now.

Hanji is made through complicated process using bast fibers of mulberry trees (*Broussonetia kazinoki*) (see Fig. 4). The bark from mulberry trees is composed of three layers – the brown outmost layer, the middle green layer, and the inner whitish layer. For making Hanji, the inner whitish layer called White Skin (Baekpee) is used. The bast fibers are even tougher and stronger than wood fibers. The length of bast fibers is over around 10 mm which is much longer than that of wood fibers in 0.5-3 mm.

Papermaking process for Hanji is very complicated. It is usually known that a sheet of Hanji is made through 99-handmade works before used. This is why Hanji is called as one-hundred paper (Baekji).

Papermaking process for Hanji is shown in Fig. 5. Harvested mulberry trees at an age of around one year old (a in Fig. 5) are cooked with steam in order to separate their barks from the stems easily (b in Fig. 5). Barks of cooked trees are peeled off for acquiring bast tissues (i.e., inner whitish barks) from the barks (c in Fig. 5). The bast tissues are then soaked in water for 1-2 days. After cooked in boiled water for 2-3 hours (d in Fig. 5), the bast tissues are bleached by using caustic soda water which is generated from lye of burned rice straws, buckwheat stalks or beanstalks (e in Fig. 5). The caustic soda liquid is collected through fabric cloth as a strainer and its initial pH is 10-12. During washing, the fibers are bleached by sun light, which takes around 5 days.

Table 2. Physical The bleached bast tissues are washed out with water (f in Fig. 5) and then beaten with a hammer for separating fibers from the bast tissues (g in Fig. 5). The defiberated bast fibers called Dakjuk are diluted in a rectangular forming vat and a wet web is formed with a bamboo screen resting on the mould frame attached to a string hung from a horizontal stick (h in Fig. 5). Sometimes a viscose starch, Dakpul, extracted from the root of *Hibiscus manihot L.*, is added to help the fibers disperse evenly and prevent them from sinking in the water during the sheet formation process, leading to good sheet formation. The formed sheet is moved onto the flat place and the second formed sheet lies down on the first sheet from the opposite direction. These two combined sheets make a sheet of Hanji called eehapji, meaning two-ply paper. The other two sheets of paper are stacked on the first combined sheet in a pile marked with a thread to make it easy to separate them later. For drainage by pressing, the stack of sheets is covered by heavy stones on a thick flat board overnight (i in Fig. 5). After pressing, the sheets are separated and put on a heated room floor or a wooden board for drying under the sun (j in Fig. 5). Finally, every ten-dried sheet are piled up and overlapped with one dampish sheet until about one hundred sheets are piled together. Weighted stones are then left on the wooden board putting on the stack for a day, which makes the moisture to diffuse evenly throughout the entire sheet stack. As the last process, the stack is beaten with a wooden club around 200-300 times and the upper half of the pile of sheets is shifted under the lower half(k in Fig. 5). The stack is beaten again in like manner. Then the stack is stored in a shady place for half of a day and thereafter it may be beaten 3-5 times depending on its wetness. Sometimes low concentration of rice starch may be applied to the surface of each sheet for surface sizing.



Fig.4. Mulberry trees and their barks.



(a)Harvesting



(b) Cooking I



(c) Debarking

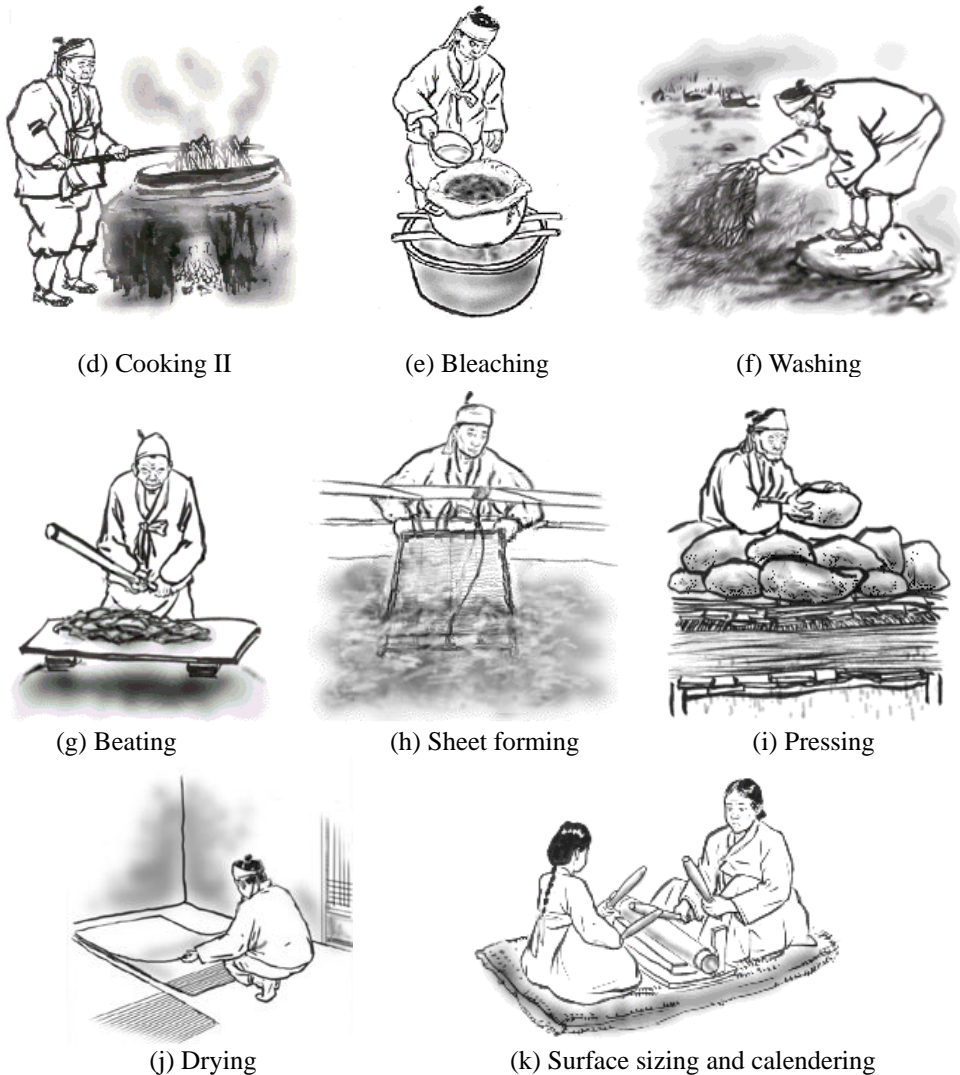


Fig.5. Hanji-manufacturing process (National Memory Heritage Service).

3. Comparison of Hanji with Washi and Sunji

Hanji has unique features compared to Japanese Washi and Chinese Hwaji from several points of views. Japanese Hwaji is made of bark fibers from kozo (paper mulberry), mitsumata (*Edgeworthia papyrifera Siebold & Zucc.*) and gampi as raw materials. On the other hand, Chinese Sunji is made of bamboo and partly rice straw. Raw materials for making traditional paper are greatly different from each country. For Sunji, bamboo must be soaked for about one hundred days differently from mulberry trees for Hanji and Washi. For beating, Sunji used crushed bamboo fibers leading to decrease in fiber length, and other raw materials like flax fibers and bark of mulberry

trees are ground by a grinder. Washi has a similar beating process to Hanji using a pounding technique.

Sheet forming in these three countries is made by a bamboo screen irrespective of paper types. These countries use the dipping method to make a sheet. That is, the sheet-forming mould is dipped into the slurry-containing vat to pick up the slurry. Rocking of the mould spreads the fibers around. When a certain thickness and fiber orientation are required, the mould is repeatedly dipped into the vat, forming several fiber layers over the same mould. However, Korean craftsmen prefer a sheet forming method called 'ouibalttugi' for making Hanji with superior paper strength and good durability instead of not having fiber orientation. Japanese craftsmen use a sheet forming method called 'ssangbalttugi' for making Washi with uniform thickness and even surface in spite of weak paper strength. For productivity of sheet making, it is known that ssangbalttugi is 4 times faster than ouibalttugi. Differently from Korea and Japan, Chinese papermaking craftsmen were accustomed to the pouring method using the wood moulds fitted with a cloth screen. Once the sheet is formed, the entire mould is set out in the sun to dry. Due to the limited number of available moulds for the pouring method, recent evidences suggests that both the pouring and the dipping method of sheet forming coexisted in China (Starr 2006).

In general, papermaking process for Hanji, Washi and Sunji is similar but intrinsic characteristics according to each country are found. Nevertheless there are unique features of Hanji differently from the other papers. Silk endures 500 years and paper does 1,000 years. This implies that Hanji is exceedingly durable over time. Tactile impression of Hanji is so soft. Air permeability of Hanji is very excellent. Hanji has good insulating property. Through these peculiarities, Hanji had been regarded as one of the best gifts by old Chinese scholars from the tenth century. It is recognized that despite mature papermaking craft in China, Hanji was exported to China for sale from Goryo Dynasty.

Excellent characteristics of Hanji made it versatile and thus Hanji could be used for various purposes in Korean culture throughout its history. For example, Hanji was used for calligraphy, books and envelops; for doors, wallpaper, and window papers, furniture including wardrobes, cabinets, and chests; for craft objects including writing-brush holders, umbrellas, lanterns, boxes, baskets, fans, and kites; for clothing and shoes; and for art materials including painting and doll making. The continued use of Hanji with various applications can contribute to its growing popularity for many years to come.

Currently traditional Japanese paper, Washi, is well known as an essential material in paper conservation in the western world. Unfortunately in spite of excellent features Hanji has been little globalized compared to Washi. This is the time that more concerns and more affection on Hanji is needed. This is because Hanji is a legacy containing our spirit inherited from ancestors in Korea over time. It is fortunate that Korean government has been driving diverse projects for conserving Hanji-making craft as well as for its globalization.



(a) Paper dolls made of Hanji



(b) Wallpaper made of Hanji

Fig.6. Hanji application to several areas.

4. Conclusions

Traditional Korean paper, Hanji, is very strong and is said to last a thousand years. The strength of Hanji comes from the unique sheet forming method called ouibalttugi. Excellent physical properties of Hanji reflect the wide variety of use, all central to everyday life. Despite its Excellency, the papermaking practice of traditional handmade paper, Hanji, from Korea is little known outside its country. This might be due to public apathy on Hanji in modern times. Without future apprentices dedicated to the craft, the Korean tradition able to make its soul is in danger of extinction in its homeland. Therefore more concern and more affection on Hanji is required immediately. It must be kept in mind that Hanji is our cultural heritage in pride.

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