
Presentation 1

History and Transmission of Korean Lacquer Crafts

Lee, Jae-ho

(Curator, Department of Art, National Museum of Korea)

1 Gong-ho Choi, Seung-joo Lee, Chiljang (Otchill): Seoul Intangible Cultural Property No. 1 (Seoul: Seoul Metropolitan City, 2020), pp. 22-25.

2 Oh-hee Lee, Reservation of 1,000-year-old technology lacquer cultural properties (Seoul: Juryuseong, 2020), pp. 32-33.

History and Transmission of Korean Lacquer Crafts

Lee, Jae-ho (Curator, Department of Art, National Museum of Korea)

1. Introduction

Human has made great progress beyond the speed of biological evolution by using tools. First, human used stones and wood as tools for hunting and gathering, and then invented earth-baked earthenware such as bowls for food, appropriate to farming life. The defects of woodenware and earthenware, however, were obvious. It was not able to contain liquid due to their moisture absorbency, and easily damaged. Earthenware has evolved into glazed ceramic but it required a high-tech kiln with high temperature, accompanied by a technology for metal refining as a key prerequisite. In East Asia, moisture proof and insect proof techniques to coat objects were invented much earlier. That is lacquer technique.

Production process of lacquer is delicate and complicated such as handling lacquer sap at the risk of skin disease, creating hot and humid environment for hardening process, etc. Nevertheless, in East Asia, people have used lacquer technique in many regions from the Neolithic Age, knowing its merits earlier on. Lacquer was used for adhesive and surface protection of leather, earthenware, ceramics and metalware. In particular, it has been inextricably linked to wooden objects. Whereas in West Asia and Europe various varnishes mixed with dry oil and resin has been used, in East Asia lacquer was used as a basic varnish in common. That shows that lacquer is great material and technique to represent the commonality of Asian culture.¹⁾ This article aims to briefly look into the origin of lacquer technique in Northeast Asia and share the information on it and its current status of transmission.

2. The Origin of Lacquer Technique and Ancient Lacquer Crafts in Korea

1) The origin of lacquer technique in Northeast Asia

The technique of collecting sap of lacquer trees(*Toxicodendron vernicifluum*) and spreading the lacquer on the surface of an object to form a coating layer got already started in the Neolithic Age. There are over 200 species of lacquer trees from tropical region to temperate climate region, out of which 6 species, namely, *Rhus verniciflua* STOKES, *Toxicodendron trichocarpum*, *Toxicodendron succedaneum*, *Toxicodendron sylvestre*, *Toxicodendron orientale* and *Rhus chinensis* are native to Korea.²⁾ The species for lacquer tapping is different depending on regions. In Northeast Asia the lacquer sap is tapped mainly from *Rhus verniciflua* STOKES and in Southeast Asia, mainly from *Toxicodendron succedaneum*. The lacquer technique has developed natively in each country of Asia.

- 3 Takeakira Motomura, "Lacquer crafts of Japan: The periods of Jomon, Yayoi and Kofun", in *The Special Exhibition: The Lacquer Crafts in East Asia* (Tokyo: Tokyo National Museum, 1977), pp.32-33
- 4 "In the Neolithic Age, the Korean Peninsula also used lacquer", an article from *E-Daily*, 2019.12.13.
- 5 Gong-ho Choi, "The Tradition and Transmission of Korean lacquer crafts", in *The Traditional lacquer crafts*, (Seoul: Korea Cultural Heritage Foundation, 2006), p. 9.
- 6 In Heukchil, it was a general method to apply the mixture of soot and unrefined lacquer. It was identified that red color of lacquer was produced by mixing with oxidized steel and sometimes cinnabar. Yong-hee Lee, "A study on the ancient lacquerware technology of Korea-from early Iron Age to the Unified Silla", (Thesis of Master's Degree of Gongju National University, 2010), pp. 14-26.
- 7 According to the cross-sectional analysis of the plate lacquer excavated from the site of Daho-ri in Changwon, it was confirmed to fill tiny holes and cracks on the surface with mixture of soil and unrefined lacquer, then to apply refined lacquer five times in total. The total thickness of lacquer layer is about 100 μm, among which the first and third layers are blackened with the mixture of soot and refined lacquer. Soo-chul Kim, Min-soo Park, and Eun-young Yoon, "The analysis of plate lacquerware excavated from the site of Dahori", *Conservation Science in Museum 13* (Seoul: National Museum of Korea, 2012), pp. 33-36.

Lacquered artifacts such as a container of lacquer, a red-colored lacquer bowl and hoe were excavated from the ruins of around 5,000BCE in Hemudu, Zhejiang Province in China, which revealed that lacquer was used both as a paint and an adhesive. Given that full-fledged lacquerware was unearthed from the earliest farming site in China, the origin of lacquer can be dated back to prior to that time. At the Kakinoshima ruins, Hokkaido in Japan, pottery painted with mixture of lacquer and iron oxide pigment made in around 7,000BCE was excavated and at Toryhama shell mound off the coast Mikata Lake in Fukui Prefecture, lacquerware was also uncovered, such as wooden comb decorated with red lacquer made in around 4,500BCE.³⁾ The assumption that lacquer in Korea has been used since the Neolithic Age was also testified by analyzing the component of red colored earthenwares excavated from Sinan site in Miryang, Gyeongsangnam-do Province, and the sites in Nongso-myeon, Geoje.⁴⁾ On the surface of earthenware made in around 3,000BCE, phenolic compound, a main ingredient of urushiol, was detected, which evidences that lacquer was used as an adhesive for applying pigment. From dolmens built in around 5c BCE-6c BCE, located in Jeoknyang-dong, Yeosu in Jeollanam-do Province, a fragment of lacquer was excavated. It is assumed to be painted on the wooden sheath of Mandolin-shaped bronze dagger. Such things taken together, lacquer culture of three countries in Northeast Asia is thought to occur spontaneously from the Neolithic Age. Since then, Asian lacquer culture has in earnest developed, influencing interactively in historical period.

2) Lacquer crafts before the period of Three Kingdoms in Korea

From the sites of Dahori in Changwon and Sinchang-dong in Gwangju, weapons such as sheath and handle of Korean-style bronze dagger, vessels for rites such as bowls and plates and ceremonial goods were excavated intactly. Those relics are dominated by Moksimschilgi(木心漆器), a type of lacquerware painted with lacquer directly on the surface of wood base, and some of them are Dotaechilgi(陶胎漆器) lacquered on the ceramics and Namtaechilgi(藍胎漆器) lacquered on the surface of the frame interwoven with strips of bamboo. From the site of Sinchang-dong in Gwangju, earthenware for containing lacquer sap, a spatula for lacquer application, hemp cloth for rubbing were excavated all together, which tells that the production site coincided with use site. In aspect of form and technique, lacquerware excavated from the sites of Dahori and Sinchang-dong is different from those in China, which suggests that lacquer in Korea has developed natively.⁵⁾ Considering that the lacquer permeated deeply into the base material, low viscosity lacquer seems to have been mainly used in this period.⁶⁾ Mostly, lacquer was applied thinly to wooden material several times without priming coat/ underpainting and there also remain many artifacts mainly applying black lacquer and transparent lacquer by turns 4-5 times.⁷⁾ As the place for refining lacquer sap by boiling was identified at the site of Gochon-ri in Gijang, it can be seen that the technique to reduce moisture in raw lacquer sap and to refine it into transparent lacquer was already developed from that time.⁸⁾

On the other hand, around CE, Chinese lacquerware was imported through Lelang Commandery located in Pyeongyang area, where a variety of lacquerware were excavated. Among them, Hyupjeochilgi(夾紵漆器), adding thick lacquer on the fabric frame, is a basic type and there are also Moksimjeopi(木心苧被), applying fabric on the wood base, and Namtaechilgi, too. Cup with ears, bowls called 'hap' and 'ryeom' were unearthed as well. Painting inside of bowl in red and outside in black is basic decoration technique. Chilhwa(漆畫), a technique for drawing with mixture of lacquer and various pigments, and gold leaf technique were also used for the decoration. As a result of examining layers of lacquer applied to a cup with ears and plates housed in National Museum of Korea with a microscope and analyzing their samples, a underpainting layer applying the mixture of soil powder, bone powder and wood powder

8 Bo-sik Hong, "The features of calcination and refined lacquer production", in *Lacquer, the ancient color*, (Kimhae: Gimhae National Museum, 2019), p.p222~239.

9 Kyung-soo Kim, Hye-sun Yoo, and Yong-hee Lee, "A research on the technology of Lelang lacquerware(1)", *Conservation Science in Museum 4* (Seoul: National Museum of Korea, 2003), pp. 79-88.

10 Yong-hee Lee, *Ibid*, pp.60-63.

11 *Ibid*, pp. 39-42.

12 *Ibid*, pp. 49-57.

was identified beneath a red lacquer layer.⁹⁾ This coincides perfectly with techniques of lacquer production in Han Dynasty of China. In Han Dynasty, lots of efforts were put into making the surface of base material smooth. So, the process of filling small holes and cracks has been developed in various ways, and mixtures of various powder such as bone powder, wood powder, wild rice powder were properly used for underpainting.¹⁰⁾ Although it is hardly to know whether those lacquerwares discovered in Lelang area were produced in China, then imported into Lelang or produced in the Korean Peninsula by lacquer experts from China, it is evident that Chinese lacquer heavily influenced on lacquer in the period of Three Kingdoms in Korea.

3) Lacquer crafts in the period of Three Kingdoms and the Unified Silla

The period of Three Kingdoms was an era that enjoyed high quality of lacquer culture, combining lacquer tradition inherited since Early Iron Age with lacquer culture of Lelang Commandery and newly introduced decorative technique from Tang Dynasty. Silla established a central government office called Chiljeon(漆典) and supervised the production of lacquer objects under control of royal court. The true lacquer culture of Silla is exemplified in a variety of lacquerware excavated from burial mounds such as Hwangnamdaechong Tomb and Cheonmachong Tomb, and ruins of royal palace. In Baekje, a plenty of lacquer artifacts were also excavated from archaeological sites related to royal family such as pit burial No.5 in Seokchon-dong, Tomb of King Muryeon in Gongju, Neungsanri temple ruins in Buyeo and ancient mural paintings, which shows that lacquerware was produced in national and royal family level in Baekje, too. The situation must be the same in Goguryeo, looking into mural paintings in which it was portrayed that upper class used lacquerware in everyday life.

In the period of Three Kingdoms, like Early Iron Age, basically Moksimchilgi, wood base lacquerware, was still dominant but it can be said that the techniques such as placing fabric on the wood base and applying a mixture of unrefined lacquer with bone powder and soil powder were influenced by Han Dynasty. In case of Baekje, it is confirmed that, on the wooden coffin excavated from the Tomb of King Muryeong, 101 μ m-thick-lacquer layer was applied and 160 μ m-thick-lacquer layer on the foot rest from the same tomb. Fabric was not applied to and all of 3 lacquer layers were flat and smooth.¹¹⁾ Soil powder or bone powder was not clearly identified, but it is possible that filling up tiny holes and cracks was not probably important because the surface of the base was smoothed enough.

In the Unified Silla, using well-refined and highly transparent lacquer revealed the impression of black and red colors evidently. In addition, the tendency of technique standardization, for instance, applying priming coat more than twice by adjusting the degree of rough or fine powder, has emerged.¹²⁾ Examining Eunpyeonghwahyeongchilgi(flower-shaped silver lacquerware using Pyeongtal technique) and lacquer bowls discovered in Anapji, a underpainting layer with mixture of relatively coarse bone powder and soil powder was applied to the bottom and then additional underpainting with fine bone powder was applied on it once more. After that, 2-3 layers were added more. Lastly, it was painted with red color lacquer on it, then finished with applying transparent lacquer. The thickness of layers is about 338 μ m~565 μ m except for a fabric layer. It is much thicker than that of lacquerware made in the period of Three Kingdoms. The Pyeontal(平脫) technique, pasting pattern plates made of precious metal with lacquer, is regarded as the origin of Najeonchilgi(mother-of-pearl lacquerware) in Korea since then.

13 Forty-two Japanese people asked for offering of najeon, saddles, and inkstone boxes. Article in July of the 27th year(1073) of King Munjong in A History of Goryeo; The envoy of the Song Dynasty sent four horses with colorful saddles as a present. Article in 25th June of the 32nd year(1078) of King Munjong in A History of Goryeo.

14 Yong-hee Lee, Soo-jin Park, Eun-young Yoon, Hye-jin Jung, "A Study on the Manufacturing Techniques of Moksims Chilgi in the Goryeo Dynasty", Conservation Science in Museum 15 (Seoul: National Museum of Korea, 2014), pp.78-95.

15 Yong-hee Lee, "The current status, material and production techniques of Najeon Poryu-Geummunhyangsang in Goryeo Dynasty housed in National Museum of Korea", in Najeon perfume box and Lacquerware in East Asia (Seoul: AMI Asia Museum Research Institute, 2014), p.p 23-54.

16 Native products, Miscellaneous folklore 2, Goryeodogyong Vol.23.

17 In Song dynasty, a technique, called Jochil, was developed to emboss the pattern by placing several layers of lacquer and carving deeply on them. In addition, there were popular techniques such as "myogeum," which paint a picture with mixture of gold and "changgeum," which is a kind of technique for inlaying gold. Such relics made with those techniques are difficult to find among existing lacquerwares of Goryeo, and can be inferred only from the Buddhist painting.

3. The Lacquer and Najeon Crafts of Korea Since the Period of Goryeo

1) Lacquer and Najeon(mother-of-pearl) craft

Although the number of remaining lacquerware produced in Goryeo Dynasty is small, Najeon(螺鈿, mother-of-pearl) craftworks such as Gyengham(經函, box for Buddhism scriptures), Mojahab(母子盒, a bowl set) remain, from which we can get some senses of technological features in Goryeo. In addition, it is recorded that Goryeo came into contact continuously with lacquerwares from Song, Liao and Japan through trade.¹³⁾ During Goryeo Dynasty, Chiljang(漆匠, lacquer artisans) were subordinated to Jungsangseo(中尙署, an authority responsible for supplying royal commodities). Considering such a fact, it can be assumed that high quality lacquerware was produced in central workshops, receiving tribute of lacquer sap from chilso(漆所, local lacquer workshops) scattered all over the country. Remaining lacquerware of Goryeo Dynasty tells that it was used regularly for daily necessities such as takjan(a cup with stand) and religious objects among upper class. There is a possibility that ordinary people may have used lacquered woodenware in everyday life but it is rarely proved as relics or records.

In Goryeo, Moksimjeopychilgi, which fabric was layered on the surface of wood base, was general. Since moksims(wood base) was too thin to be assembled by nails, the overall strength was reinforced by connecting parts using adhesive such as a glue or a fish glue and then covering fabrics on it.¹⁴⁾ In case of a bowl set, housed in the National Museum of Korea, its total thickness of layers is 523µm and thickness of underpainting mixed with bone powder is maximum 380µm. On the underpainting, lacquer is applied by 3 layers. The colored layer mixed with cinnabar and orpiment is evidently identified. This layer composition can be said to have been more delicately improved based on the techniques passed down from the Unified Silla. Najeon Poryusugeummunhyangsang(螺鈿蒲柳水禽文香箱, a perfume box decorated with plant and animal motifs) has attracted keen attention for its various decoration techniques. Unfortunately, the overall shape of this artwork can be seen only in the black and white photograph in the book, Joseon Historic Gobo. Its extremely thin base material was destroyed during the Korean War and it is left in fragments at present. Looking into the fragments, the silk fabric was layered after underpainting on the base. Then, mixture of lacquer and bone powder was applied on it and transparent lacquer was added 2 or 3 times to give it a polish. It was decorated with prepared shell pieces of hawksbill sea turtle or mother-of-pearl on the underpainting and gold leaf was applied to the top layer.¹⁵⁾ As a result of these complex and sophisticated processes, light reflection of patterns must have been colorful according to several transparent lacquer layers and also its decorative effectiveness must have been greatly delicate.

Najeonchilgi of Goryeo shows fine and elaborate composition of patterns. Xu Shihui(徐兢, 1091-1153), an envoy of North Song Dynasty to visit Gaegyeong, the capital of Goryeo, in 1123, recorded in his book, Seonhwabongsa Goryeodogyong(宣和奉使高麗圖經), that the technique of lacquer application on objects was not that skillful but the technique of Najeon was very exquisite and precious.¹⁶⁾ This record tells that although the technique of applying lacquer of Goryeo was inferior to that of the Song Dynasty, the decorative technique with mother-of-pearl was excellent and delicate. It can be said that the sophistication of Najeon techniques reached to the highest quality level even though Goryeo was not good at the lacquer carving techniques that were popular in contemporary China.¹⁷⁾ The Najeonchilgi of Goryeo is characterized as forming the whole patterns by cutting each component of patterns in small pieces and combining them. On the basis of foliage patterns, flower motifs such as lotus, chrysanthemum, peony, etc, composed decorative designs. The size of each pattern unit is less than 1cm and the smallest one is only 2~3mm. Cutting avolon shells into such a small size

- 18 Gong-ho Choi, "Najeonchigi, A Lasting Spectrum of Light", in *Semilgagui: Dignity of Korean Art* (Seoul: Samsung Museum Leeum, 2015), pp. 268-269.
- 19 Article in the 15th of February of the 13th year of King Wonjong(1272), *History of Goryeo*,
- 20 Article in the 29th of leap month of January in the second year of King Sejong(1420), *Annals of King Sejong*, Vol.7.
- 21 Article in the 11th in June of the first year of King Sejong(1419), *Annals of King Sejong* vol. 4.; Article in the 30th in October of the 7th year of King Sejong(1425), *Annals of King Sejong* vol.30; and see the article on desire for red colored lacquerware by upper class in the 8th in November of the 11th year of King Jungjong(1516), *Annals of King Jungjong* vol.26.
- 22 Ji-hyun Hwang, "Mokchil Furniture of the Joseon Dynasty", *Ibid*, Gimhae National Museum, pp. 208-209.
- 23 Seok-chan Choi, Sun-deok Kim, Yong-hee Lee, Soo-rin Ko, Seung-wook Ham, "A Study on the Childo coating of Joseon Dynasty", *Journal of Conservation Science* 27 (The Korean Society of Conservation Science for Cultural Heritage, 2011), pp. 371-380.

required highly advanced hand skill even in an era when there were no tools for crafting such as a wire saw.¹⁸⁾ Najeon artisans in Goryeo achieved elegant and decorative features in lacquer crafts, using mother-of-pearl shell, bronze wire, etc together. During Goryeo under Yuan Dynasty, it was recorded that Goryeo temporarily established an office in complete charge of producing Najeonchilgi boxes for Buddhist scripture, as Empress of Yuan Dynasty requested Najeon lacquer boxes for Buddhist scriptures.¹⁹⁾ Today, about 10 pieces of the boxes of Najeon scriptures remaining in the world can be also related to this request.

2) Lacquer and Najeon crafts in Joseon

In Joseon Dynasty, lacquerware crafts has developed in the direction of expanding the base of production and use, and varying its own techniques based on inherited techniques from Goryeo. Until the middle of Joseon Dynasty, Chiljang and Najeonjang(mother-of-pearl artisan) were subordinated to central and local government workshops. In "The Annals of King Sejong", it is recorded that Yebinsi(a central government office in charge of national ceremonies and foreign envoy receptions) purchased juchilgi(red lacquerware) every year and secured wooden lacquerware through tributes from the locals. Through this records, it can be inferred that expensive red lacquerware, being time-consuming and labor-intensive, was made by orders to professional craftsmen, paying costs but relatively cheap wooden lacquerware was covered by tributes.²⁰⁾ King Sejong wanted to give the ordinary people warning of the luxury and raise royal dignity by proclaiming a decree to prohibit using red lacquerware in the public. This keynote continued until the 18th century to make social hierarchy clear by imposing a ban on luxury crafts and making delicate and luxurious objects ordered only by royal family.²¹⁾ According to this prohibition, lacquerware in Joseon Dynasty was divided into red lacquer for royal family and heukchil(black lacquer) and jeobchil(applying lacquer directly to the wood base) for the public. During Joseon Dynasty, lacquerware made by copying red lacquerware used in royal family has become popular, which shows the desire and longing for the color at that time.²²⁾ The demands for lacquerware increased more and more in the late of Joseon Dynasty. Comparing to the fact that the remaining Najeonchilgi of the early period of Joseon are mainly boxes of official uniform for upper class, decorated with lotus and foliage patterns using mother-of-pearl, it is very obvious that Najeonchilgi made after the 19th century was expanded to the public, which was evidenced by daily commodities including lacquer comb boxes and large wooden lacquer bowls.

Even though it is undeniable that wood lacquer techniques in Joseon Dynasty were transmitted from Goryeo Dynasty, there are only a few real examples of the early Joseon period and full-scale researches on lacquer layers are not entirely satisfactory. It seems, however, that it was the customary processes to, first, underpaint on the wood base and after applying fabric on it, then coat a base material with mixture of lacquer and soil, and lastly, apply transparent lacquer several times. The boxes of official uniform decorated with Najeon(mother-of-pearl) in the 16th-18th century are representative and typical examples showing this process. In accordance to recent researches through analyzing lacquer layers of lacquerware made in the late of Joseon Dynasty, in many cases, unrefined raw lacquer was used for batangchil(underpainting/priming coat) and some cases using mixture of bone and soil powder or using only soil powder are found together. Also there are many cases that lacquer was applied to wood base directly without hemp cloth layer. Sometimes transparent lacquer layers on the underpainting were thinner than those of Goryeo Dynasty and some cases were finished only with once or twice application of transparent lacquer.²³⁾ It is simplified technique compared to that of previous period. It can be interpreted as saving lacquer in accordance to increasing the demands for lacquerware but it can be also related to the popularity of jeobchil which is a method to apply

- 24 Yeong-gyu Park, "The technology of making Najeon Chilgi and the patterns," in *Brilliant colors: Najeon Chilgi of Joseon Dynasty* (Seoul: Seongbo cultural foundation, 2015), pp. 181-188.
- 25 Gong-ho Choi, "Modernized Process of Korean Najeon Chilgi", in *Modern Najeonchilgi Crafts* (Busan: Busan Modern History Museum, 2014), pp. 183-186.
- 26 <http://encykorea.aks.ac.kr/Contents/Item/E0010634> "Korean National Culture Encyclopedia", accessed on 2021.01.27.
- 27 Cashew paint is a kind of paint to be condensed by using formaldehyde after adding phenol, melamine, and urea to the cashew solution extracted from the shells of the cashew fruits. It began to be used in Japan around 1951, and became popular world widely in the 1960s. Oh-hee Lee, *Ibid*, pp. 5-86.
- 28 Yeong-hwan Jeong, *Chiljang: Important Intangible Cultural Property No. 113* (Seoul: Minsokwon, 2006), pp. 42-44.

lacquer directly to wood base to reveal the natural and fine grain of wood.

Technique of Najeonchilgi during the Joseon Dynasty has developed in a way to emphasize the natural color of the shell itself, investing less time and labor instead of the elaborate and sophisticated combination of patterns. The wrinkling technique, which cuts mother-of-pearl shell into a large pieces and makes a single pattern with those pieces, can make the color more brilliant by scratching the lacquer on the surface of the shell pieces. Tachal technique, hitting the curved surface of the shell with a hammer to break and making natural crack patterns, goes well with wrinkling technique. Cutting technique has been also developed. It is the technique to cut thinly ground shells in long shape like noodle and to paste them on the patterns, cutting noodle-shaped peices short in order to fill up patterns.²⁴⁾ Fueled by these techniques, the unit cost of Najeon production was cut down and, consequently, increasing demands for Najeonchilgi could be satisfied.

3) Change and succession of Najeon crafts in modern times

Till the end of Joseon, artisans all over the country manufactured wooden objects and furniture. Also, there used to be several crafts production centers such as Tongyeong where Najeonchilgi(mother-of-pearl lacquerware) workshops clustered densely. Lacquer crafts continued still in the 20th century, and the concept of art crafts was formed. Accordingly, design and production were separated and craftsmen were transformed into artists.²⁵⁾ The Royal Handicrafts Workshop, which began as Hansung Artwork Production launched in 1908 and then changed into the Yiwangjick Artwork Production in 1911, was the first workshop to modernize traditional lacquer crafts based on the artisan's designs and patterns. Artisans such as Jeon Seong-gyu (?-1940), Kim Jin-gap (1900-1966), and Kim Bong-ryong (1902-1994) concentrated on lacquer, in particular, Najeonchilgi. The early of the 20th century was the era when modern tools and processes were introduced and corporations were established while the traditional techniques were also inherited. In 1921, Jeon Seong-gyu introduced a scroll saw for metalwork from Japan, which enabled him to cut mother-of-pearl shell in curve line freely. In 1953, the Korean government sent a Nageon table produced by Kim Jin-gap to U.K to celebrate the coronation of Queen Elizabeth II.²⁶⁾ It shows well that Najeonchilgi was recognized as representative crafts or commercial products of Korea at that time. However, as cashew resin paint was introduced in the 1960's, lacquer lost its price competitiveness in the market and was in danger as an industry.²⁷⁾

4. The Lacquer Techniques and Current Transmission in Korea

1) The techniques of lacquer tapping and its refinement in Korea

In Korea, lacquer sap is collected from lacquer tree, *Rhus verniciflua* STOKES, grown for 8-10 years. It prefers to sandy soil with good drainage and moisture at the same time. The northern limit of this tree is south of Cheongcheon River located in North Korea. From Joseon Dynasty to Japanese colonial times, lacquer tree forest was fostered nation wide including Taecheon in Pyeonganbuk-do Province, Okcheon in Chungcheongbuk-do Province, Gurye, Jangseong, Naju, and Gokseong in Jeollanam-do Province but now, lacquer tapping is carried out mostly in Wonju in Gangwond-do Province and the rest is only in some parts including Okcheon, Namwon, etc.²⁸⁾ It is highly possible that the method of lacquer tapping today is different from the method in Joseon. There are rarely records on lacquer tapping, so there are not much to be known about that before modern times. But it is assumed that the current method of

29 Yong-joon Jang, "Lacquer and lacquer tree, and lacquer crafts", *Ibid*, pp.218-219.

30 Oh-hee Lee, *Ibid*, pp. 34-45.

31 Young Hwan Jung, *Ibid*, pp.74-129.

32 Gong-ho Choi and Seung-joon Lee, *Ibid*, pp. 63-105.

lacquer tapping and refining was introduced from Japan in Japanese colonial times. Because the method was almost similar to that of Japan's modern times in tools and processes.²⁹⁾ At present, tools for lacquer tapping are basically a sickle for peeling barks, a sickle for scratching, a spatula knife and a lacquer container. The sickles for peeling barks and scratching are used for cutting grooves on the stem horizontally and a spatula knife is used for collecting the lacquer sap from the grooves and putting it into the lacquer container.

The lacquer is tapped every four days from June to October, as much as 0.5-1ml once and the total amount of lacquer sap that can be tapped from a single tree is about 200ml a year. After tapping of about 200ml, the lacquer trees are cut down, which is called 'salsobeob'. These processes are the common method to collect the lacquer sap. Since lacquer sap transudes from a liquid layer between a bark and a cambium, it requires special skills to carve grooves in a proper depth and location in between. The lacquer workers have to decide the scope of works for the year in advance. The artisan An Young Bae, who works in Wonju, set a work section for each month and marks on lacquer trees at intervals of every 20cm on around the 25th in May.³⁰⁾ After that, every four days, lacquer sap seeping from the horizontal grooves is tapped and then the grooves are scratched upwards one by one. 25 grooves can be made yearly. Lacquer sap from the 1st-3rd grooves is used for medicine. Lacquer from the 4th-8th grooves in June is called Chochil, lacquer from the 9th-19th grooves in July and August is called Seongchil, lacquer from the 20th-25th grooves tapped in September is called Malchil. Lacquer collected from the additional grooves in the end of September and October is called Duitchil. After completely harvesting all the sap including Duitchil, lacquer sap is collected from the cut-down branches, which is called Jichil. Lacquer sap can be also collected from burnt branches after soaked in water, which is called Hwachil. Hwachil is the unique collecting method to be only in Korea. But it can not be used alone for varnishing because laccase enzyme is inactive at high temperature. Therefore, it is mainly used for medicine or mixture of others in priming coat. Seongchil is the highest in the content of urushiol so it is appropriate for the last top coating. More moist Chochil and less moist Malchil are mainly used for priming coat. Low-quality Duitchil and Jichil are also completely consumed for mixture of others in priming coat or applied to woodenware for public use. Like this, fully utilizing lacquer collected in various methods was because that lacquer was precious material difficult to obtain.

Purification of lacquer is carried out through several steps such as getting rid of impurities from crude lacquer sap, reducing moisture contents for slow-down of hardening and raising the transparency. The processes to obtain unrefined lacquer is, first, to filter lacquer sap with hemp cloth, then to put cotton wool in it and stir it, lastly to filter it with hemp cloth again to remove impurities.³¹⁾ The processes to obtain refined lacquer is to pour unrefined lacquer into a container and stir it with a rake for 2 or 3 hours. In this process, moisture evaporates and the particles of urushiol, moisture, rubber and nitrogenous substances as main ingredients of lacquer sap become even, then eventually lacquer is refined so to be suitable for application. Nowadays, machines such as a mixer and a centrifuge are used to precisely adjust the desired amount of moisture and to make particles much more even.

2) Lacquer techniques-Jeobchil and Bultumyeongchil(opaque lacquer)

Currently, lacquer techniques handed down in Korea are largely divided into two types: Jeobchil(摺漆, transparent lacquer application) and Bultumyeongchil(opaque lacquer applications, including color painting in black and red lacquer).³²⁾ These two techniques are not classified only by the criterion of transparency. They resulted from the artisans' choice on whether to reveal the grain cut of wood base or to vivify the aesthetic feelings of lacquer layers. In many cases, it is difficult to differentiate clearly between two types in real artifacts.

33 Young Hwan Jung, *Ibid*, pp.164-167.

34 Sam-dae-ja Kim, *Somokjang: Important Intangible Cultural Heritage No. 55* (Daejeon: National Institute of Cultural Heritage, 2003), p. 152.

35 Gong-ho Choi and Seung-joo Lee, *Ibid*, pp. 148-150

Jeobchil has several steps as follows. First, baekgol(白骨, plain wood base) is smoothed with a sandpaper. Then, mixture of refined lacquer and 30-40% of terebene oil is evenly applied to baekgol and wiped out right away to dry out. After that, the mixture of unrefined lacquer and 25% of terebene oil is applied to it and wiped out, then dry it again. This process is usually repeated 3-5 times but sometimes according to its degree of coloration, jeobchil is carried out repeatedly up to 12 times. Jeobchil features revealing profound texture of wood grain by applying unrefined lacquer thinly several times, and the number of application depends completely on artisan's sense and experiences. Jeobchil appealed to the aesthetics of scholars in Joseon who set a primeum on natural beauty and simplicity, so the technique was widely used in wooden objects and furniture for man's room.

The opaque lacquer begins with 'filling Goksu' that fills the tiny holes and cracks on the surface of baekgol. Depending on artisans, there are some differences in ways of filling such as applying unrefined lacquer enough or mixture of soil and ash, etc but it has been regarded as an important step to stabilize the plain wood base. On this, hemp cloth is layered with Hochil, an adhesive mixture of glutinous rice paste and unrefined lacquer in the proportion 3:1, which plays an important role in preventing baekgol from being twisted, and stabilizing lacquer layer. On the hemp cloth, the mixture of soil and ash is added twice times and the surface is ground. Then, refined lacquer with pigment is applied to it. After drying out, about 1/3 of dried lacquer layer is ground with wet sandpaper. Scratches by sandpaper are filled with a mixture of soil and unrefined lacquer in proportion 1:1 and then dried out again. After that, it is ground with a rubstone to make surface even and flat. Baekgol is reinforced through this chochil(the first application) process and can be a suitable base for the next lacquer applications, Junchil(mid-application) and Sangchil(last application on the top) afterwards. Chochil is followed by Jungchil which is a process to apply lacquer 2-3 times on the first application. This process needs to be handled carefully to keep dust out and not to leave brush strokes. Last lacquer application is carried out extremely carefully in a clean room just right next to a drying room, and through these processes, eventually transparent and polished lacquer layer is completed.

3) The transmission and preservation of lacquer crafts technology in Korea

When Korea government established the Cultural Heritage Protection Act in 1962, traditional crafts techniques were included in 'intangible cultural heritage' for protection. Lots of efforts to protect lacquer techniques began early with inscribing it as national intangible heritage. In 1966, 'Najeonchilgijang(Artisan of mother-of-pearl lacquerware)' was the first to be designated as important national intangible cultural heritage No. 10 and Kim Bong-ryong was recognized as its bearer. In 1975, 'Cutting technique' was separately designated as important national intangible cultural heritage No. 54 and Sim Bu-gil(1905-1996) was recognized as its bearer but afterwards, these two elements were integrated into 'Najeonjang(Artisan of mother-of-pearl crafts)'.³³⁾ In the same year, even though 'Somokjang(cabinetmakers)' was also designated as important national intangible cultural heritage No. 55, Najeon was designated earliest among lacquer-related techniques because it emphasized the comprehensive technique of making the complete Najeon lacquerware.³⁴⁾ It is not until 1992 that the academic researches on the lacquer technique itself began. It was in 2001 that 'Chiljang(Artisan of lacquer)' was designated as important national intangible cultural heritage No. 113 and Jeong Su-hwa(1954 -) was recognized as its bearer. Looking into his transmission history of lacquer crafts, his teacher-student relation can be traced back to Kim Bong-ryong. And Son Dae-hyun, who was recognized as a bearer of Najeonchilgi technique(later, it is changed into 'Chiljang') of Seoul Metropolitan intangible heritage, was taught the lacquer techniques by Min Jong-tae who was a student of Kim Bong-ryong.³⁵⁾ This transmission history shows that traditional lacquer crafts

transmitted in Korea is connected to the techniques of modern artisans working in Yiwangjik Art Workshop etc. On this wise, lacquer and Najeon techniques keep alive by laws and policies for intangible cultural heritage protection. Lacquer tapping and refining, mother-of-pearl craftsmanship, material development as well as its succession are tasks for maintaining this crafts for the future to be left with us.

5. Conclusion

Korea has shared long history of lacquer crafts from the Neolithic Age on with Asian countries. Lacquer crafts is very intricate and difficult, especially in collection of materials and production process, of course, that difficulty is the same for any crafts sector, though. Today's lacquer crafts was built on the basis of human's accumulated wisdom and patience. The production process of lacquer crafts is very difficult but its outcome is so outstanding in aesthetic and functionality that it is hard to find comparable materials among other varnishes. The National Museum of Korea has spaces for displaying various lacquerwares from all over Asia. You can see the wide and deep flows of lacquer culture in the Chinese room, the India and Southeast Asian room and the Japanese room in the World Culture Hall as well as the Kaneko room of the Donor's Hall, and the Mokchil(lacquer on wood) Craft Room in the Sculpture and Crafts Hall. The sense of beauty of the lacquer products appears different but their delicate sheen and smooth texture gives a sense of homogeneity as common Asian lacquer culture.

At this time when the environmental crisis comes to reality in front of us, thinking better of natural materials has been voiced in crafts industry. Traditional lacquer crafts can be maintained only if it is based on forestry. A deep understanding of nature is essential in all steps of the process from collecting materials to producing objects. Inventorying traditional crafts techniques is similar to establishing a seed bank under the permafrost. Collecting and recording knowledge and wisdom about lacquer from all parts of Asia and transmitting it to future generations has meaning to deliver the seeds for human survival beyond the craftsmanship.

Reference

Historical literature

History of Goryeo(高麗史)

Seonhwabongsa Goryeodogyeying(宣和奉使高麗圖經)

Annals of King Sejong(世宗實錄)

Annals of King Jungjong(中宗實錄)

Books and articles

Motomura, Takeakira , " Lacquer crafts of Japan: The periods of Jomon, Yayoi and Kofun", in The Special Exhibition: The Lacquer Crafts in East Asia(Tokyo: Tokyo National Museum, 1977).

Kim, Kyung-soo, Yoo Hye-sun, and Lee Yong-hee, "A research on the technology of Lelang lacquerware(1)", Conservation Science in Museum 4 (Seoul: National Museum of Korea, 2003).

Kim, Sam-dae-ja, Somokjang: Important Intangible Cultural Heritage No. 55 (Daejeon: National Institute of Cultural Heritage, 2003).

Son, Dae-hyun, Traditional Lacquer Crafts (Seoul: Korea Cultural Heritage Foundation, 2006).

Jeong, Yeong-hwan, Chiljang: Important Intangible Cultural Property No. 113 (Seoul: Minsokwon, 2006).

Lee, yong-hee, "A study on the ancient lacquerware technology of Korea-from early Iron Age to the unified Silla", (Thesis of Master's Degree of Gongju National University, 2010).

Choi, Seok-chan, Kim Sun-deok, Lee Yong-hee, Ko Soo-rin, Ham Seung-wook, "A Study on the Childo layer of the Joseon Dynasty", Journal of Conservation Science 27 (The Korean Society of Conservation Science for Cultural Heritage, 2011).

Kim, Soo-chul, Park Min-soo, Yoon Eun-young, "Dahori discovered plate lacquerware analysis", Conservation Science in Museum 13 (Seoul: National Museum of Korea, 2012).

Lee, Yong-hee, "The current status, material and production techniques of Najeon Poryu-Geummunhyangsang in the Goryeo Dynasty housed in National Museum of Korea", Najeon perfume box and Lacquerware in East Asia (Seoul: AMI Asia Museum Research Institute, 2014).

Lee, Yong-hee, Park Soo-jin, Yoon Eun-young, Jung Hye-jin, "A Study on the Manufacturing Techniques of Moksim Chil-gi in the Goryeo Dynasty", Conservation Science in Museum 15 (Seoul: National Museum of Korea, 2014).

Busan Modern History Museum, Modern Najeonchilgi Crafts (Busan: Busan Modern History Museum, 2014).

Horim Museum, Brilliant colors: Najeon Chilgi of Joseon Dynasty (Seoul: Seongbo cultural foundation, 2015).

Samsung Museum Leeum, Semilgagui: Dignity of Korean Art (Seoul: Samsung Museum Leeum, 2015).

Gimhae National Museum, Lacquer, The Ancient Color (Kimhae: Gimhae National Museum, 2019).

Lee, Oh-hee, Reservation of 1,000-year-old technology lacquer cultural properties (Seoul: Juryuseong, 2020).

Choi Gong-ho, Lee Seung-joo, Chiljang (Otchill): Seoul Intangible Cultural Property No. 1 (Seoul, 2020).

Articles from Newspaper

"In the Neolithic Age, the Korean Peninsula also used lacquer", an article from E-Daily, 2019.12.13.

Website

Encyclopedia of Korean Culture(<http://encykorea.aks.ac.kr>)