



## Urushi (漆) : Japanese lacquer enchantment

*On dit avec raison que les laques étaient les objets les plus parfaits qui fussent sortis de la main des hommes ; ils en sont tout au moins les plus délicats<sup>1</sup>.*



Writing box (suzuri-bako). Takamakie design of a pine tree - Early Edo period.

The “*Libro Della Maraviglie*”, a travel report written by Marco Polo (1254-1324), contains a description of “Zipangu”, an island said to be located on the sea 1,500 miles east of the Chinese continent and vividly described as a country of gold: “*People on the Island of Zipangu (Japan) have tremendous quantities of gold. The King’s palace is roofed with pure gold, and his floors are paved in gold two fingers thick.*” The Venetian merchant did not come to Japan and based his writing on tales he heard about the country while in China, most specifically from people living around the city of Hangzhou, where he sojourned in the latter half of the 13th century, from which Chinese merchants certainly had some trade with Japan. Hirado Island at the corner of Kyushû was already well known as an international landing port for merchants and pirates of the Asian region.

What could have been misleading Marco Polo or his informants? Some believe it could have been Japanese *makie* lacquers, lacquered containers with their entire surface scattered with gold powder that might have easily been mistaken for containers made of pure gold. Indeed, golden *makie* lacquers were largely exported to China at the time. But let’s begin from the beginning, what exactly is Japanese lacquer?

Lacquer, or *urushi* in Japanese, is a natural product extracted from the sap of the lacquer tree (Lat. *Rhus vernicifera*)<sup>2</sup> that hardens upon contact with oxygen. The sap is tapped from the trunk of trees by a series of cuts through the bark in a similar way to that used for the extraction of rubber latex or maple syrup. This

<sup>1</sup>Louis Gonse, *L’Art japonais*, Paris, A. Quantin, 1883 (2 volumes).

<sup>2</sup> *Rhus vernicifera* (or *Toxicodendron vernicifluum*) is found in China Korea and Japan. *Rhus succedanea* is used in Annam and *Melanorrhoea* is used in Cambodia.

sap, which produces highly toxic vapors, turns brownish when exposed to air and solidifies with certain conditions to become a very hard and strong material that can be polished, carved or even modeled in any shape.

The active ingredient of raw lacquer is the hydrocarbon urushiol, which is the main constituent of lacquer, and the hardening agent is the enzyme laccase. While most paints or varnish dry by the evaporation of a solvent, *urushi* dries or hardens by absorbing moisture from the air. It can be said that lacquer is the most ancient industrial plastic known to man, undergoing a chemical but natural process known as polymerization which immediately starts upon contact with oxygen, during which urushiol, becomes solid<sup>3</sup>. The process happens better in warm and humid air (80-90% humidity) and for this purpose a humidity chamber called *furo* is used by Japanese lacquers, which is a wooden “wet box” made in *hinoki* (Japanese cypress). The *furo* is regularly wetted with water in order to maintain the relative humidity inside permanently above 90%.



Sculpture of Hotei - Lacquered bronze.



Tray with a design of shishi-lion - Takamakie with mother of pearl incrustation.

Excavation in Japan’s main island of Honshû from tombs dating to the 4th millennium BC attests to the existence of lacquer use during the Jômon period (14,000 BC to 300 BC). Some of the earliest objects found in those sepultures are arrows, on which the arrowheads have been secured to their shafts with lacquer. Woven fiber baskets covered with a thick coat of red lacquer have also been found in late Jômon sepultures. So the first virtue associated with the product was not the decorativeness that we usually think of, but the strong bond and extreme durability of the mixture. A famous incident gave the Japanese a needless proof of the strength of lacquer during the Meiji era. In 1874, the French steam ship “Nile” was wrecked off the coast of Izu with numerous examples of Japanese craftsmanship

destined to be shown at the Vienna International Exposition. One year after the wreck, the cargo was saved, and among this, some lacquered bookshelves were found to be in excellent condition. The Japanese authorities were so impressed by the durability of Japanese lacquer that they decided to display the pieces at the Tokyo Imperial Museum.

<sup>3</sup> When exposed to warmth and humidity, the laccase enzyme is activated and extracts oxygen from the water and supplies it to the urushiol. Urushiol then becomes solid.

No other natural substance used in arts offers a wider range of use. It can be processed in liquid condition as well as in solid form. It can serve as an adhesive, a filling material, is sometimes used for repairing or consolidating old artwork (like ceramic), offers a surface coating and is a material to be carved.

This bonding value of *urushi* has long been known in Japan through a process called *urushi-naoshi*: the accidental fracture of ceramic bowls and vessels has, since ancient times, been repaired with *urushi*, not trying to dissimulate the repair but instead making it deliberately visible. The fracture is covered with gold or silver powder, as if celebrating the acceptance of a natural accident as part of the experience of a ceramic object. Beauty does not mean perfection and a damaged ceramic piece need not lose it's the soul just because it has been broken.



Daikoku figurine - Lacquered ceramic.

Almost any surface can be lacquered: wood, bamboo, leather, paper, fiber, stone, wood, metal, ceramic, ivory and horn, turtle shell, and even plastic... Some of the first lacquered objects were probably baskets, like those woven from bamboo with a heavy lacquer coating that offers them impermeability. Since ancient times, wooden tools and utensils must have been coated with lacquers, to give them good protection against humidity and insects.

Here is a description of some of the basic steps involved in creating a refined lacquer object. Most of the time, the base for the lacquer is wood, like *hinoki* (Japanese cypress), *sugi* (cryptomeria), *keyaki* (zelkova), or *kiri* (paulownia), along with several other Japanese species. To strengthen the base against cracking, a woven fabric, like cotton, hemp or silk, is applied to it with *nori usushi* (*urushi* and rice flour). Then comes a coarse mixture of lacquer and a siliceous material (powder from pulverized earthenware). It is then polished by rubbing it with a whetstone. This step is repeated several times with finer grades of the latter powder. Then, pure *urushi* blackened with iron powder is applied, dried and polished with pulverized charcoal; this step is repeated several

times. If a gold dust background is desired, as in *nashiji urushi*, it will be applied on the last layer of this stage.

For the final surface coating (*uwanuri*), another several layers of *roiro urushi*, the highest quality of lacquer blackened with iron, is applied, dried and polished with magnolia charcoal. Finally, the polishing of the lacquered object is done by rubbing thin *urushi* into the surface with cotton and wiping the excess off. After drying, it is finger polished with oil and *tonoko* (the finest powder made from pulverized earthenware), then oil and *tsunoko* (calcined deer's horn ash). Several more steps involve raw *urushi* mixed

with water and oil rubbed with the finger. At this point, traditionally 33 steps have been involved to obtain a surface that develops into a deep black finish. If a design is involved, this process requires many more steps.

The most typical Japanese lacquer designs use the *makie* ("sprinkled picture") technique, which was in use already during the Heian period (794-1185) and was perfected during the Muromachi period (1392–1573) when it was already being exported to China. Essentially, the term denotes the technique of sprinkling gold (or silver, or other metallic dust) onto a wet surface design. The term *makie* is first mentioned in the *Taketori monogatari* ("The Tales of the Bamboo Cutter"), the oldest surviving fictional prose narrative in Japanese literature, written in the late ninth or early tenth century. The story's description of a splendid palace decorated inside with precious materials, such as sprinkled gold lacquer, mother-of-pearl inlays and luxurious brocades, clearly illustrates the timelessness of lacquer arts in Japan.

There are three kind of *makie*. The first is the *togidashi*, in which the design is sprinkled, and then the whole surface is covered with several layers of *urushi*, which are subsequently dried and polished as described earlier until the design is revealed, then everything is covered with a final clear layer of *usushi*. The result is a flat and shiny surface. In *hiramakie*, only the gold sprinkled design is covered with *urushi*, then dried and polished as in the *togidashi*. The result is a relatively flat surface, but the design can still be

felt under the fingers. Finally, the *takamakie* is used to create the most prized of all Japanese lacquerware. The design is covered with *urushi*, then sprinkled with charcoal powder to produce a raised relief. Loose charcoal powder is also covered with *urushi*. After drying, the treated design is polished with charcoal until flat. The process is repeated many times until the desired relief is attained. The raised surface is then treated with several coat of *usushi*, dried and polished with charcoal, and finally the same technique as the *hiramakie* is used to finish the raised pattern.

As one can understand, lacquer technique demands the highest attention to detail and an intimate feeling for the material. *Urushi* is a thick and sticky medium that would produce nothing as sophisticated as the *makie* lacquerware if its use had not been patiently refined for centuries. A secular tradition of craftsmanship, a strict division of labor, and the fact that the profession was passed down from father to son through generations has contributed to the unsurpassed skill of the Japanese lacquer makers. It is also a tradition that has long been encouraged: as early as 701 was there a *Nuribe no Tsukasa*, a Government



Inside of writing box from page one. Taka-makie design of 2 cranes on a *nashiji* background - Early Edo period.

Office controlling the Lacquers' Guild, issuing decrees to encourage production, requiring farmers to plant lacquer trees and, in some provinces, allowing them to pay their taxes in lacquer sap.

Lacquer objects have always been symbols of elegance in Japan. Even in the most modest of homes, lacquerware goods were the most precious objects, perhaps the equivalent of our silverware in Europe. Carefully stored when not in use, precious lacquerware was taken out on special occasions, or sometimes displayed in the *tokonoma* where their shiny dark colors would catch the light and the eyes of any visitor. A connoisseur would recognize a fine piece from a distance, and, given permission, would be able to take a closer look in order to inspect the details and elegance of the shapes and motifs, the technical mastery, and, in the end, appreciate the refinement of the owner.

In Europe as well, Japanese lacquerware was highly praised as soon as it was imported by the Portuguese, followed by the Dutch. One of the finest collections belonged to Queen Marie-Antoinette, sadly now divided between the Musée du Louvre, the Musée Guimet and the Musée de Versailles<sup>4</sup>. Europeans were so eager to get their hands on as much as possible of those delicate objects that imitations started to be produced locally. No lacquer trees grow naturally in Europe, however, so, in order to reproduce the lustrous finishes, all kinds of processes were tried, falling under the general term of "japanning". The most famous recipe was invented by the four French brothers Guillaume, Julien, Robert and Etienne-Simon Martins, the famous "*vernis Martin*," patented in 1730, which was applied to any kind of surface, from walls to furniture and even to coaches.



Tobacco pouch and carved lacquer pipe case. Design of a landscape with cranes.

<sup>4</sup> The collection of over 70 pieces was deposited in 1794 at the Musée du Louvre and all inventoried.

## Glossary of the most common terms concerning Japanese lacquer:

<i>Chinkin-bori</i>	Design engraved with a rat's tooth and the carved lines covered with gold.
<i>Fundami-nuri</i>	Gold dust applied on a very thin layer of plain <i>urushi</i> still wet.
<i>Giobu</i>	Gold leaf mingled with <i>nashiji</i> .
<i>Guri</i>	A carved lacquer in layers of different colours showing a scroll pattern of V-shaped incisions which displays the various colors of the layers.
<i>Hira-makie</i>	Flat <i>makie</i> : design in sprinkled gold (or silver, or other metallic dust) onto a wet surface design.
<i>Ikkabanbari harinuki</i> or	A technique used to make tea wares, invented by Hirai Ikkaban in the early 17th century, the process involves the application of layers of lacquer to paper shaped in a mould.
<i>Kamakura-bori</i>	A carved wood-work, lacquered in various ways.
<i>Kanshitsu</i>	Many layers of cloth impregnated and covered with <i>urushi</i> , over a wooden armature.
<i>Kinji</i>	Plain gold ground.
<i>Kirikane</i>	Inlays of gold or silver leaves cut in small squares
<i>Kokuso-urushi</i>	A mixture of <i>urushi</i> and sawdust (and flour?)
<i>Makie</i>	Literally "sprinkled picture", generic term for gold lacquer. When the decoration is in relief, it is called <i>takamakie</i> , and when the decoration is smooth it is called <i>hiramakie</i>
<i>Mokume</i>	Decoration resembling the natural grain of the wood.
<i>Mugi-urushi</i>	A mixture of <i>urushi</i> and flour
<i>Nashiji</i>	So called because of its resemblance to the color of the skin of a ripe pear of the russet-coloured variety found in Japan. It is produced by spreading powdered gold evenly over a lacquered surface, and covering it with an unpolished clear lacquer.
<i>Nori-urushi</i>	A mixture of <i>urushi</i> and rice flour
<i>Roiro-urushi</i>	The most refined quality of lacquer, blackened with iron.
<i>Sabi-urushi</i>	A mixture of <i>urushi</i> and pulverized baked clay
<i>Shippaku</i>	Gold leaves, applied on a very thin layer of plain <i>urushi</i> still wet. That <i>urushi</i> is often coloured in red (after the 13 <sup>th</sup> c.) to improve the color of the thin gold leaves.
<i>Taka-makie</i>	Raised <i>makie</i> : design in sprinkled gold (or silver, or other metallic dust) onto a wet surface design previously raised with a mixture of charcoal powder and lacquer, in numerous layers.
<i>Tsugaru-nuri</i>	Produced by the use of lacquers of various colours mixed together and rubbed to a smooth surface.
<i>Togidashi-makie</i>	<i>Makie</i> design covered with black lacquer, then exposed again by grinding and polishing.
<i>Tsuishu</i> or <i>tsuikoku</i>	Carved red lacquer and carved black lacquer.
<i>Urushi</i>	General term designating a lacquered object, or raw lacquer.
<i>Urushi-naoshi</i>	Lacquer repair



Dry lacquer mask. The dry lacquer technique flourished in the 8th and 9th centuries for making Buddhist sculptures. A wood or mud statue was covered with multiple layers of hemp cloth impregnated with *urushi*. When the core was mud, that mud was later removed.