

# TRADITION OF EXCELLENCE

卓越した伝統：現代金工作家に見る日本伝統技術

Japanese techniques in contemporary metal arts

## What's that mean?

### GLOSSARY OF JAPANESE TECHNIQUES + METALSMITHING TERMINOLOGY

Can you find examples of these techniques in the gallery?

#### **GINKESHI and KINKESHI**

Kinkeshi and ginkeshi are respectively, gold and silver fire gilding (kin, “gold,” gin, “silver,” and keshi, “amalgam”). This process consists of applying a mercury amalgam of precious metals as the base metal, then heating the piece, volatilizing the mercury and leaving the precious metal behind. Depending on how it is applied, this technique can produce a wide range of effects; it can look like pure gold has been applied to the surface – bold and bright, or it can seem as though just a shadow of the material is present.



#### **HAGIAWASE ZOGAN**

Hagiawase zogan is commonly known in western metalworking as marriage of metals. This technique involves joining dissimilar metals together at the edges with solder to create contrasting patterns. This can be done as simply as butting the edge of two sheets together, or more intricately piercing and fitting more complicated pieces.



#### **HIDO PATINA**

Hido patina is done to turn copper a rich, red color. This is achieved by heating the finished piece to a glowing color and then quickly cooling it in a bath of boiling water and borax.



#### **INLAY (ZOGAN)**

Inlay involves the embedding of relatively soft metals such as gold and silver into a harder ground made of materials such as copper, iron, brass, shakudo, or shibuichi. There are a number of techniques, including line inlay (sen-zogan),



flat inlay (hira-zogan), high relief inlay (takaniku-zogan), polished out inlay (togidashi-zogan) and thread inlay (ito-zogan). In nunome-zogan thin sheets of gold, silver, or lead are hammered into a fine mesh-like grid engraved onto the surface of the metal ground.

#### **JIZAI OKIMONO**

Jizai Okimono are realistically shaped figures of animals made from iron, copper, shibuichi, or shakudo. Their bodies and limbs are articulated and can be moved like real animals; among these figures, we can find models of dragons, birds, fishes, snakes, lobsters, crabs and insects. Okimono is a Japanese term meaning “ornament for display or decorative object”, typically displayed in a tokonoma alcove or butsudan altar. One subcategory of Okimono is the Jizai Okimono.



#### **KASANE-GANE**

Similar to mokume-gane, kasane-gane is the fusing or solder and layering of dissimilar metals. The result is a striated pattern on the finished piece, as you are looking at the patterns on edge.



#### **KUROMIDO**

Kuromido alloy contains 99% copper and 1% arsenic. This alloy is used as an alternate material to the more expensive gold-bearing alloy called shakudo. The color of kuromido is not the same as shakudo, but they both produce a lustrous deep black.



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### MOKUME-GANE

Mokume-gane is a Japanese metal-working procedure which produces a mixed-metal laminate with distinctive layered patterns, as well as the laminate itself. Mokume-gane translates closely to “wood grain metal” or “wood eye metal” and describes the way metal takes on the appearance of natural wood grain. Mokume-gane fuses many layers of differently colored precious metals together to form a sandwich of alloys called a “billet.” The billet is then forged out to reduce thickness. At this point it is carved to create a pattern by revealing the layers of dissimilar metals. Finally, the billet is reduced to its final thickness, creating a flat sheet of metal that can be raised, chased, formed, or fabricated into a final piece.



### NUNOME ZOGAN

Nunome zogan, literally “cloth inlay,” consists of using a hammer and chisel to create a crosshatch pattern on the entire surface, giving it a texture that resembles woven cloth. This pattern is essentially a series of burrs into which foil or wire can set, permanently fixed in place with a burnisher or small hammer.



### ROKUSHO PATINA

Rokusho patina is a chemical patina used to color copper-based alloys. The materials are fully finished and then boiled in the rokusho solution to obtain the desired depth of color. Depending on the composition of the patina and the specific alloy, one can expect the following colors: copper becomes light brown to deep red; shakudo becomes deep purple to black; shibuichi becomes light to dark grey.



### SHAKUDO

This is perhaps the best known of the specialty Japanese alloys. It is made by melting together 3-5% pure gold with the balance being copper. The metal can be worked with traditional metalsmithing techniques, and is used for jewelry, small castings, and ornaments such as sword furniture. To develop a dark purple to black patina, the artist would warm the finished piece and immerse it in a hot niage solution.



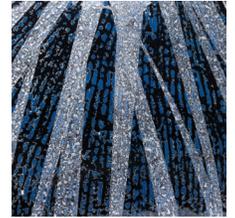
### SHIBUICHI

This is another alloy unique to Japanese metalworking. The name comes from “ichi,” which means one, and “Shibu,” which means “four.” The alloy consists of one-fourth silver and three-fourths copper, sometimes with a percent or two of pure gold added.



### SHIPPO

Cloisonné enamel is a metal working technique where a multi-colored glassy glaze is baked onto a metal surface and is similar to works developed before the Christian era in the ancient Mesopotamia and Egyptian cultures. Cloisonné is said to have traveled from Southeast Europe to China via the Silk Road and eventually to Japan. In English, this is called cloisonné enamel, but in Japanese it is known as “Shippo.” “Shippo” means “Seven Treasures” and is taken from the Buddhist Sutra describing the beauty of seven kinds of treasure being spread out.



### UCHIDASHI

The uchidashi technique involves a hammer and punch forming a flat metal sheet from the front side, defining a form in a way that retains the thickness. The definition of form, before the details are added, leaves the piece appearing as though a thin cloth or piece of clay were draped over it. The details are then chased in.

### URUSHI

Urushi work is the art of creating designs on the surface of artworks by painting them with the sap of the Urushi tree. After it dries, Urushi repels water and forms a hard film that prevents rotting.

### WABORI

Wabori is carving and engraving using hammer and chisels. The work piece is generally set in pitch to hold it steady, and sharpened steel chisels struck with a hammer are used to carve the surface of the metal, removing material in a controlled manner.