**Metal Casting (*Chūkin*)**

*Chūkin* refers to several traditional casting methods used in Japanese metalwork. Each involves pouring molten metal into a mold, then allowing the cast object to cool at room temperature. Because the artisan is working with metal as a liquid, much more complicated forms are possible compared to what can be achieved through other metalworking techniques, such as hammering. *Chūkin* techniques were collectively designated an Important Intangible Cultural Heritage in 1964.

Molds for *chūkin* are constructed using a mixture of clay and sand called *mane* (pronounced “mah-nay”). The molds are divided into three types based on the way they are made: *rōgata*, *komegata*, and *sōgata*.

*Rōgata* is a lost-wax technique in which a model of the desired object is first crafted out of a malleable mix of beeswax and resin. *Mane* is then packed around the wax model and heated. The wax liquefies and drains out, leaving a hollow in the shape of the original image. Of the three mold types, lost-wax casting allows artists to reproduce the most complex shapes, but the model is destroyed in the process.

*Komegata* is a section molding technique (also called “piece molding”) in which a model is first made with clay. The model is then covered with plaster, creating a preliminary mold. Next, the outside of the plaster mold is covered in *mane*, which is then cut into sections for removal and separate reassembly. After that, the inside of the plaster mold is covered in *mane*. This results in two mirrored *mane* shapes, one slightly smaller than the other. Once hardened, they are used as an inner and outer mold.

The *sōgata* approach is used for circular, bowl-shaped objects like bells and tea ceremony kettles. The top and bottom of a *sōgata* mold are formed inside two heat-resistant basins. The insides of the basins are filled with *mane*, which is then pressed into an even layer lining the sides and bottom of each basin. The inside surface of the *mane* is smoothed using a board rotated around the basin’s central axis. Decorative designs can then be pressed or carved into the *mane*; these will appear on the outer surface of the finished object. Next, the *mane* inside the basins is hardened by firing. Then the top and bottom halves of the mold are fitted together—much like two halves of a wooden nesting doll—with a core mold called a *nakago* inside them. The *nakago* rests on spacers of metal to create a gap for the molten metal to flow into.

Regardless of method, when the casting mold is complete, molten metal is poured in, taking the shape of the hollow within. Once the metal has cooled, the mold is broken away, leaving just the metal form. Often, the still-warm object is coated with lacquer or a black, iron-based dye to give it color and a protective finish.

Cast metal objects were first imported to Japan from mainland Asia, but evidence suggests domestic casting began during the early Yayoi period (400 BCE–200 CE). By the first century CE, craftspeople in Japan were using advanced casting techniques to form bronze items such as swords, mirrors, and bell-shaped ritual objects called *dōtaku*.