

Design Resource

Brass Work of Moradabad

Making of Brass Product

by

Sakshi Gambhir

IDC, IIT Bombay

Source:

<https://dsource.in/resource/brass-work-moradabad>



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<https://dsource.in/resource/brass-work-moradabad/introduction>

Introduction

India is the largest brassware making country in the world. This art has been practiced in India over thousand years. According to archeological records, brass was popular in India since the third century BC and most of the idols of gods and goddesses were made of this metal. Moradabad in the state of Uttar Pradesh is renowned for brass work and has carved a niche for itself in the handicraft industry throughout the world.



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Place

Moradabad was established in 1600 by Murad, the son of the Mughal Emperor Shahjahan. Also called the 'Brass City' or 'Peetal Nagri', it has about 850 export units and 25000 metal craft industrial units in its cluster. In the narrow bylanes of the city, artisans work all day to create the most exquisite brass products that are exported the world over.



Outside Moradabad railway station.

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Streets of Moradabad.



Streets of Moradabad.

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Streets of Moradabad.



Streets of Bartan Bazaar (brass market).

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Streets of Moradabad.



Streets of Moradabad.



Streets of Moradabad.



A karkhana (workshop) where brass products are cast.

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Narrow bylanes of Moradabad where brass products are made.



Streets of Moradabad.

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Narrow bylanes of Moradabad where brass products are made.



Narrow bylanes of Moradabad where brass products are made.

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A karkhana (workshop) where brass products are cast.



A karkhana (workshop) where moulds are made.



A karkhana (workshop) where brass products are cast.

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People

Brass work in Moradabad is a small-scale and low-technology industry. Some of the artisans actually have their manufacturing units and workshops in their own homes. Quite naturally, the tradition of this art form is being passed on from one generation to the next. Most of the brass craftsmen here are Muslims and they take great pride in their work. Each one specializes in a skill (expertise) and handles that respective level of the production process.



A karigar with his brass plates.



A karigar in a sand casting workshop.

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A karigar in a sand casting workshop.



The supervisor of the metal melting workshop

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A karigar in a mould making workshop.



A karigar in a mould making workshop.

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A karigar engraving on a brass plate.



A karigar engraving on a brass bowl.

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A karigar engraving on a brass bowl.



A karigar engraving on a brass vase

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A karigar engraving on a brass vase



A karigar engraving on a brass vase.

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A disabled karigar engraving on a brass vase.



A karigar engraving on a brass pot.

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A karigar engraving on a brass bell stand.



A karigar polishing a brass vase

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Process

There are six basic steps for making any brass product:



Mould Making



Melting



Casting



Scraping



Engraving



Polishing

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Mould Making

The first step is to make the mould or 'master-piece' from which multiple products would be replicated (cast). These are usually made of wax, as it is soft and easy to work with. Sometimes wood is also used. This 'master-copy' is always created in two (or more) detachable halves to make sand casting convenient.



Tools for carving the wax and wooden moulds.



A brass cast heart and its corresponding wax mould (different size).



Wax shavings.



Mould for pen stand being made in wax.

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Mould for pen stand being made in wax.



Mould for pen stand being made in wax.

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Mould being made in wax.



Mould being made in wood.

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Moulds and tools.



'Master-copy' for casting.

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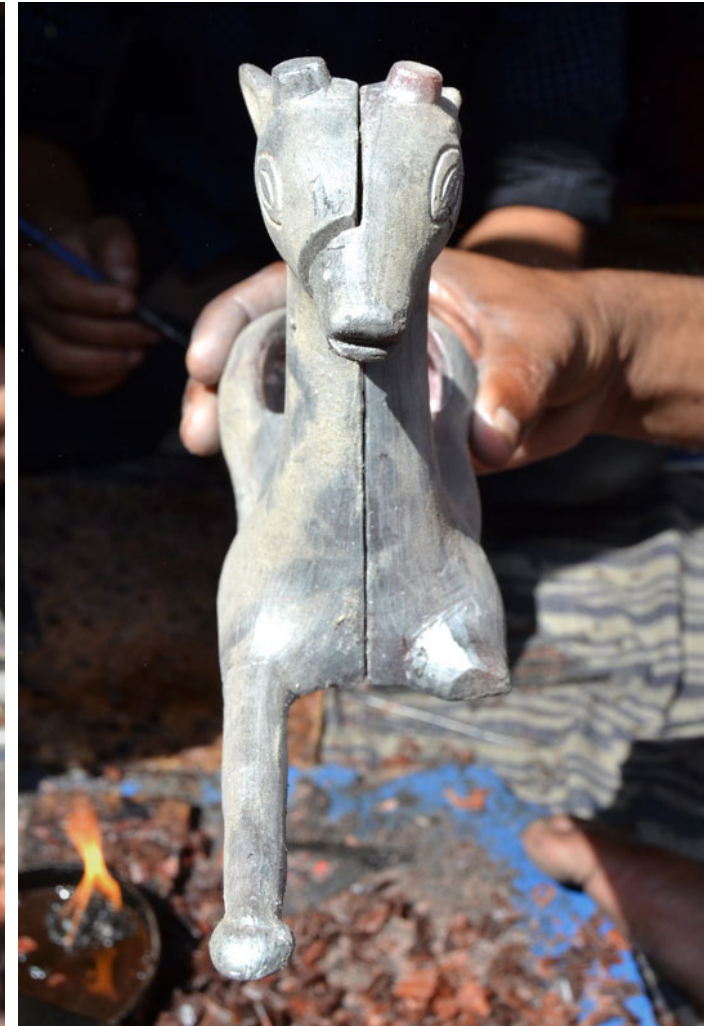
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'Master-copy' for casting.



'Master-copy' for casting.

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Two halves of the 'master-copy' for casting.



The 'master-copy' (mould) and its corresponding cast.

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Melting

Brass is prepared by melting scrap-metal to approximately coal-fired furnace. The raw materials are a mix of many metals namely copper, zinc, lead, etc. in a specified ratio. A flux is also added to remove the impurities. These are molten in a huge container for about twelve hours to produce 350 kilogram of brass at one go. The molten metal is left to cool on basic iron moulds to form strips that are then sent to the casting craftsmen.



The furnace where brass is prepared by melting several metals



A melting workshop.

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The tools for churning molten brass.



Raw materials for making brass.



Raw materials for making brass

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Flowers painted with stains on vases.



Brass shavings being poured in the furnace.



Brass shavings

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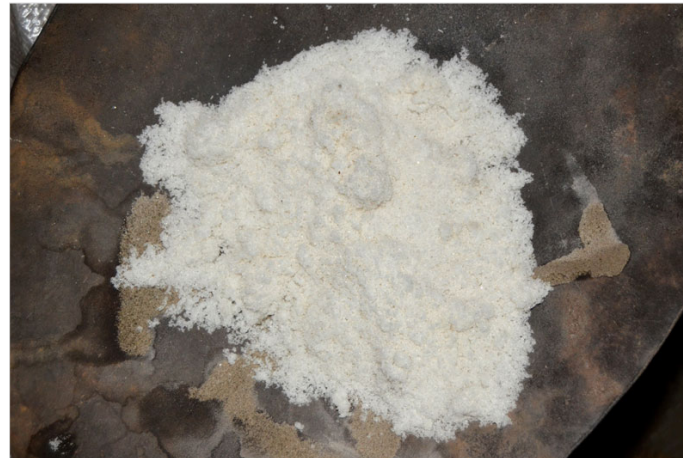
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The furnace.



Raw material for making brass.



Raw material for making brass.



The furnace.

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A karigar churning the molten metal.



Raw material being put in the furnace.



Raw material being put in the furnace.



A melting workshop.

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A karigar churning the molten metal.



Impurities being removed.



Impurities.



Putting sand in the mould to prevent molten metal overflow.

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Molten metal being poured in the mould.



Molten metal being poured in the mould.

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Testing the metal's ductility before pouring it out in strips.



Molten metal being poured in the mould.

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Molten metal being poured in the mould.



Molten metal being poured in the mould.

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Molten metal being poured in the mould.



Karigars taking out the clay bucket.

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Karigars taking out the clay bucket.



Karigars pouring out the remaining molten metal.

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A karigar lifting the metal strip.



Molten metal strips.

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Molten metal strips.



Brass metal strips after cooling.

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Casting

Sand casting is the traditional method of making brass ware. Sand is used in the two halves of the mould box to cast the metal which is prepared by packing sand (locally called 'masala') around the 'master-copy' tightly. The chemical binder in the sand aids in holding the shape of the mould after which it is removed and molten metal poured in its cavity. After being allowed to cool for few minutes, the cast metal is removed from the mould box. The sand and the 'gating' (path way made in the mould for directing the flow of molten metal into the cavity) are broken from the cast using a hammer. These are re-used in the next casting.



A karigar breaking the brass strip into smaller pieces.



A karigar breaking the brass strip into smaller pieces.

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Tools at the casting workshop.



Pieces of brass.



Pieces of brass being heated in the furnace for casting.

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Pieces of brass being heated in the furnace for casting.



A karigar preparing the mould box with the 'master-copy' and sand.



A karigar preparing the mould box with the 'master-copy' and sand.

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A karigar preparing the mould box with the 'master-copy' and sand.



A karigar preparing the mould box with the 'master-copy' and sand.

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A karigar preparing the mould box with the 'master-copy' and sand.



A karigar preparing the mould box with the 'master-copy' and sand.

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A karigar preparing the mould box with the 'master-copy' and sand.



Master-copy' is removed from the mould box and a cavity is created.

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'Master-copy' is removed from the mould box and a cavity is created



Molten brass is picked up from the furnace to be poured in the mould box

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Molten brass being poured in the cavity



Molten brass being poured in the cavity

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Molten brass being poured in the cavity.



Molten brass being poured in the cavity.



Molten brass being poured in the cavity.



Molten brass being poured in the cavity.

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After cooling off, mould box is opened to remove the cast.



Gating' being hammered off from the cast.

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Making of Brass Product

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<https://dsource.in/resource/brass-work-moradabad/process/casting>

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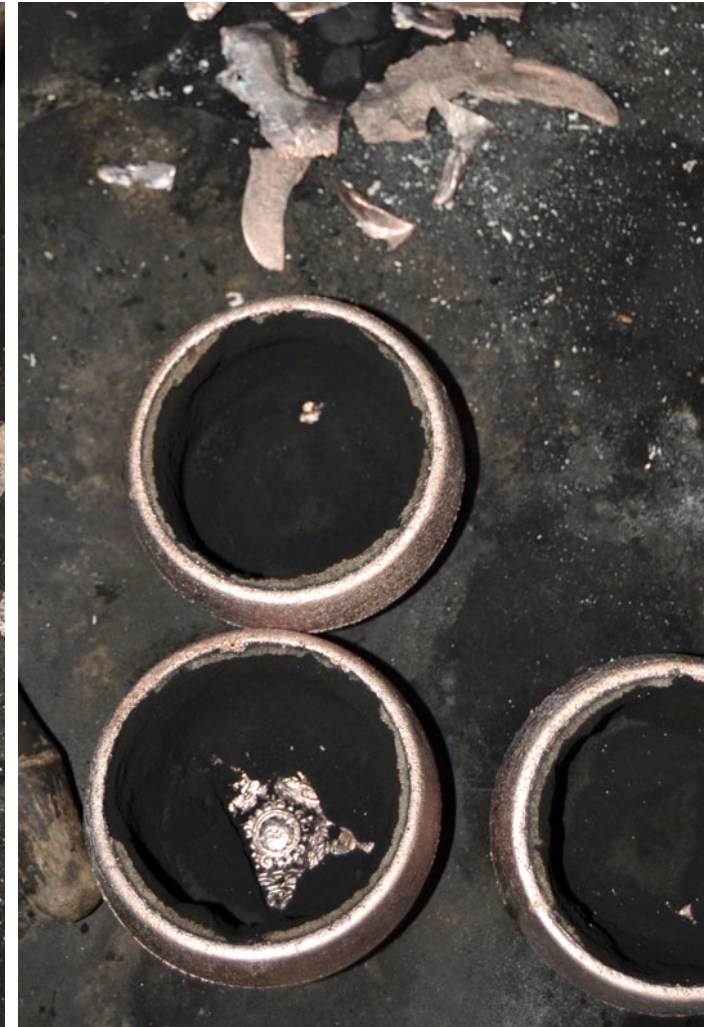
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Gating' being hammered off from the cast.



Gating' being hammered off from the cast

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A rejected cast



Some more casting.

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Brass casts.



Hammered pieces of brass to be re-used in the next casting.

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Brass casts with sand on them.



Brass casts.



Brass mould ('master-copy') and cast.

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Scraping

The cast metal is mounted on a cylindrical wooden block, which in turn is attached to the headstock of the lathe machine. Various chisels and files are used to scrap the spinning cast and smoothen its surface of any irregularities. Sometimes when the product is made in parts, it is first welded together and then sent for scraping and polishing. Metal shavings are re-used in the next melting.



A scraping workshop in full swing.



Small tumblers to be scraped on the lathe.



A mix of scraped and not-scraped tumblers.



The filing tool attached to the lathe machine to scrap the tumbler

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The filing tool attached to the lathe machine to scrap the tumbler.



The filing tool attached to the lathe machine to scrap the tumbler.

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The filing tool attached to the lathe machine to scrap the tumbler.



The filing tool attached to the lathe machine to scrap the tumbler.

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The wooden block attached to the headstock of the lathe machine to scrap the tumbler.



The wooden block attached to the headstock of the lathe machine to scrap the tumbler.

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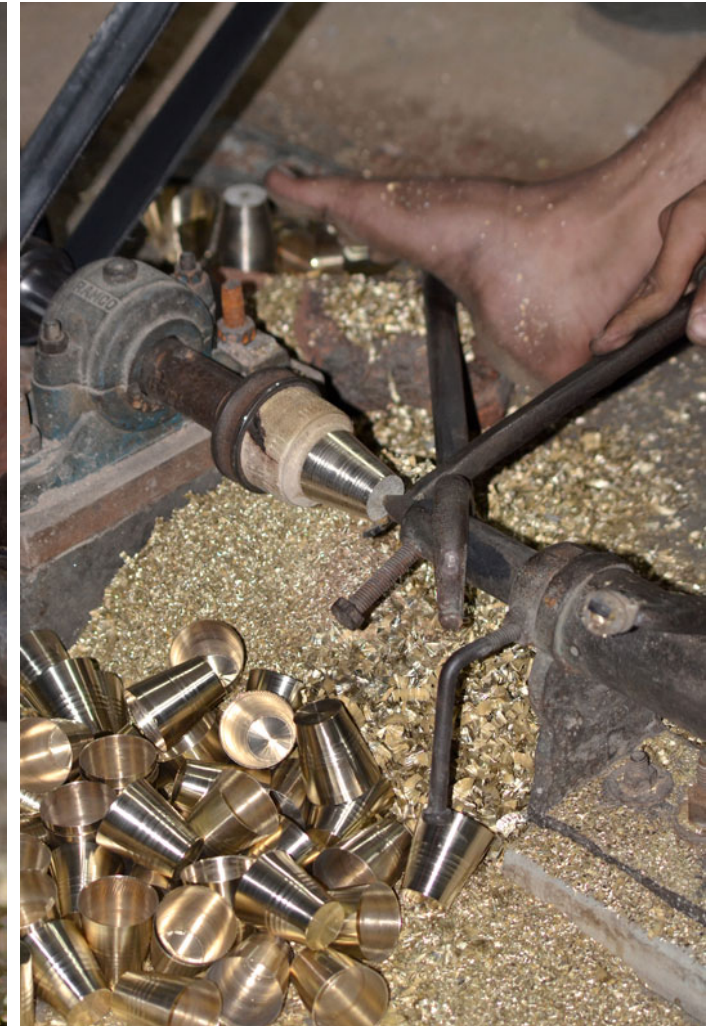
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The wooden block attached to the headstock of the lathe machine to scrap the tumbler.



The wooden block attached to the headstock of the lathe machine to scrap the tumbler.

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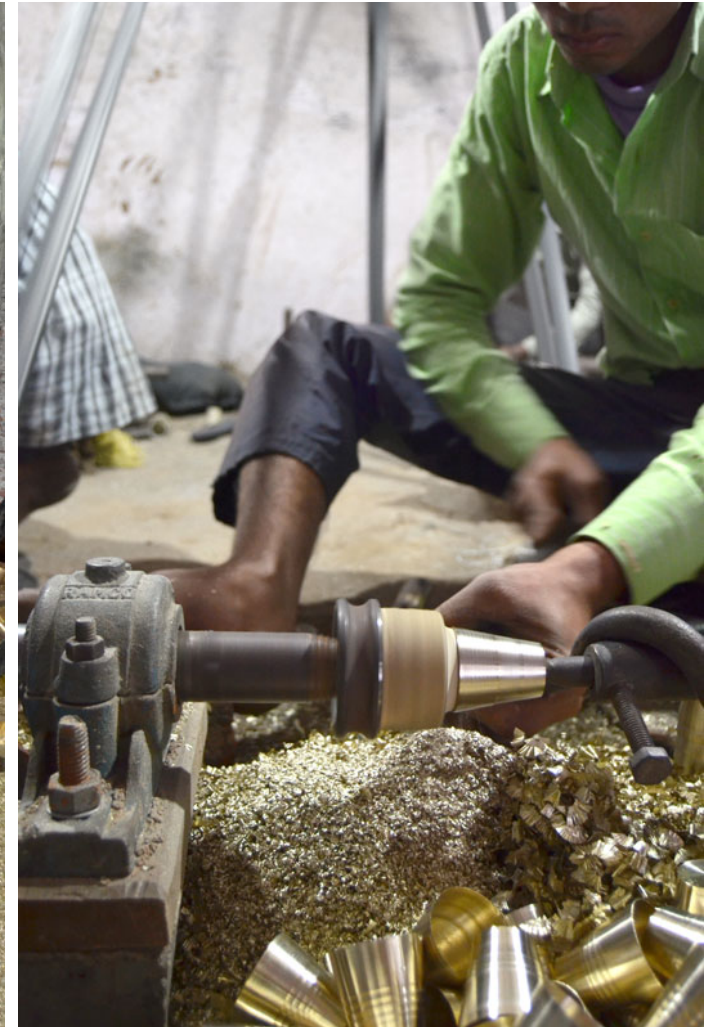
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A scraping workshop.



The wooden block attached to the headstock of the lathe machine to scrap the tumbler.

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Scraped tumblers

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Engraving

Engraving is the most refined and artistic of all the processes. The design that has to be engraved is first sketched on paper and then scaled-up according to the size of the product. Measurement is an important aspect to make the pattern look harmonious and lyrical. These are mainly inspired from different forms of nature like trees, flowers, birds and animals. The geometric ones have their influence from the Mughal architecture.

First, an outline of whole design is done with a fine engraving tool hammered with a wooden block. After that, broader tools are used to engrave the background and give depth to the pattern. These are often filled with colorful lac or enamel.



Engraving on a flower vase.



A flower vase with incomplete engraving.

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Pencil sketched design being engraved with varying depths for enamel.



Pencil sketched design being engraved with varying depths for enamel.

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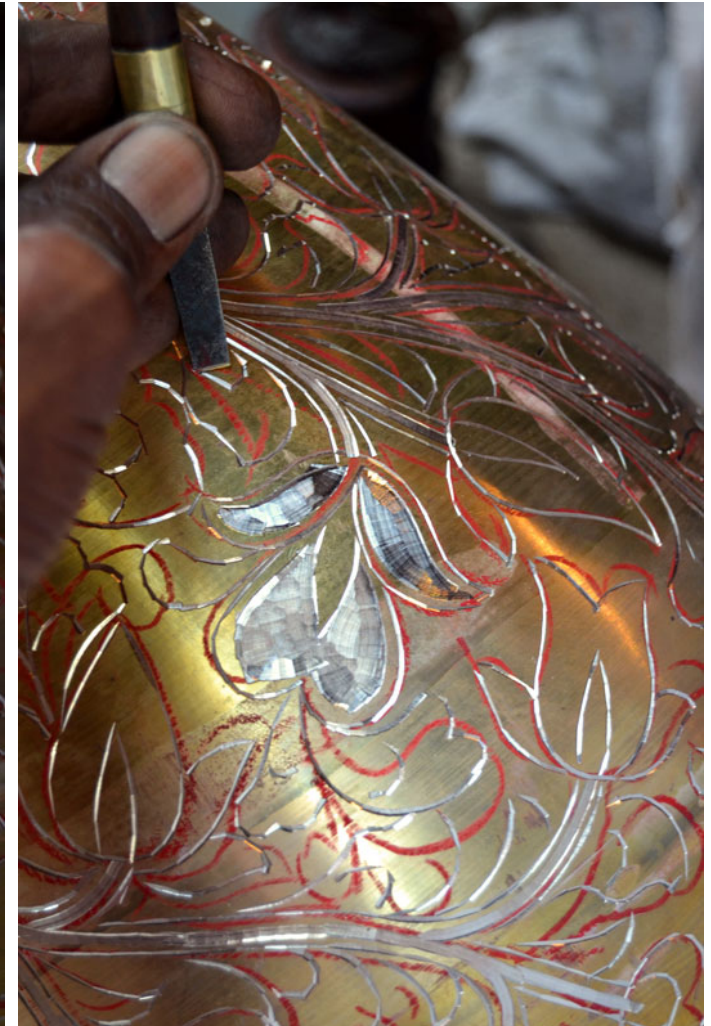
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Pencil sketched design being engraved with varying depths for enamel.



Engraving on a large platter.

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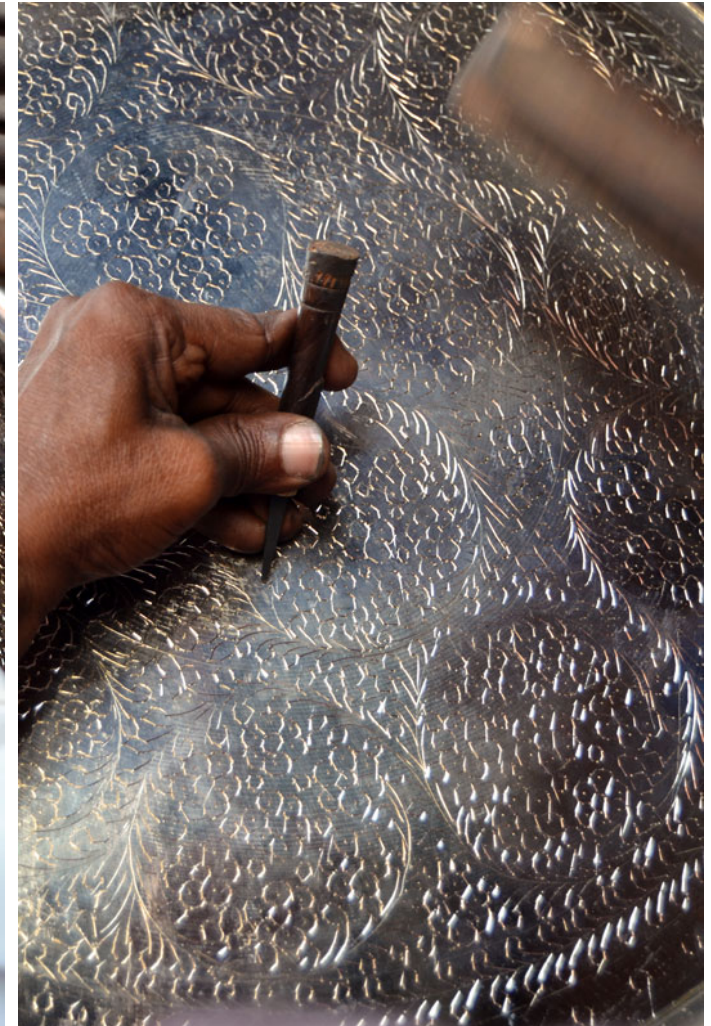
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Engraving on a large platter.



A karigar engraving on a large platter.

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Engraving on a flower vase.



Engraving on a small bowl

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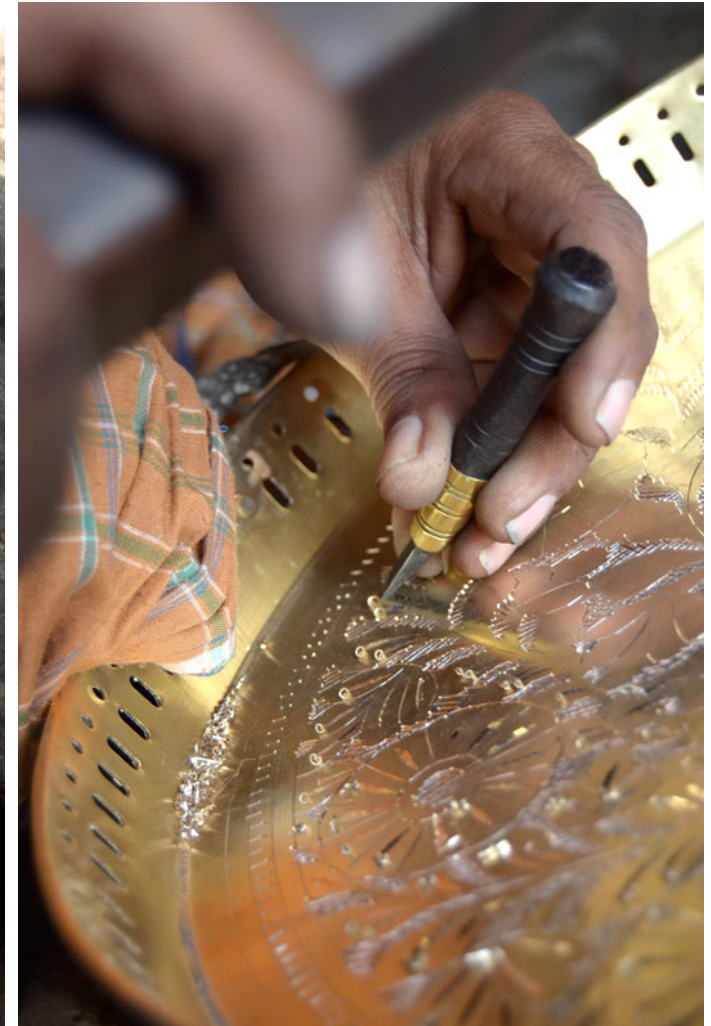
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Engraving on a thaali (platter).



Engraving on a small bowl.

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A bowl with engraving details.



A bowl with engraving details.



Engraving on a thaali (platter).



A thaali (platter) with engraving details.

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Engraving on a flower vase.



Engraving on a flower vase.

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Polishing

Polishing mainly includes cleaning the brass ware with a soft scrub and then buffing it on the machine for golden sheen.



A polishing workshop.



A karigar polishing (buffing) a brass flower vase.

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Source:

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A karigar polishing (buffing) a brass flower vase.



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Products

The range of brass products from Moradabad include idols for worship, flower vases and planters, surahis (round pots), tableware (plates, bowls, boxes etc.), ash trays, diyas, candle stands, instruments, locks and fittings, hook-ahs, antique jewelry, furniture and trophies made by skilled artisans.



Idol for worship (Krishna and Radha).



Idol for worship (Ganesha).

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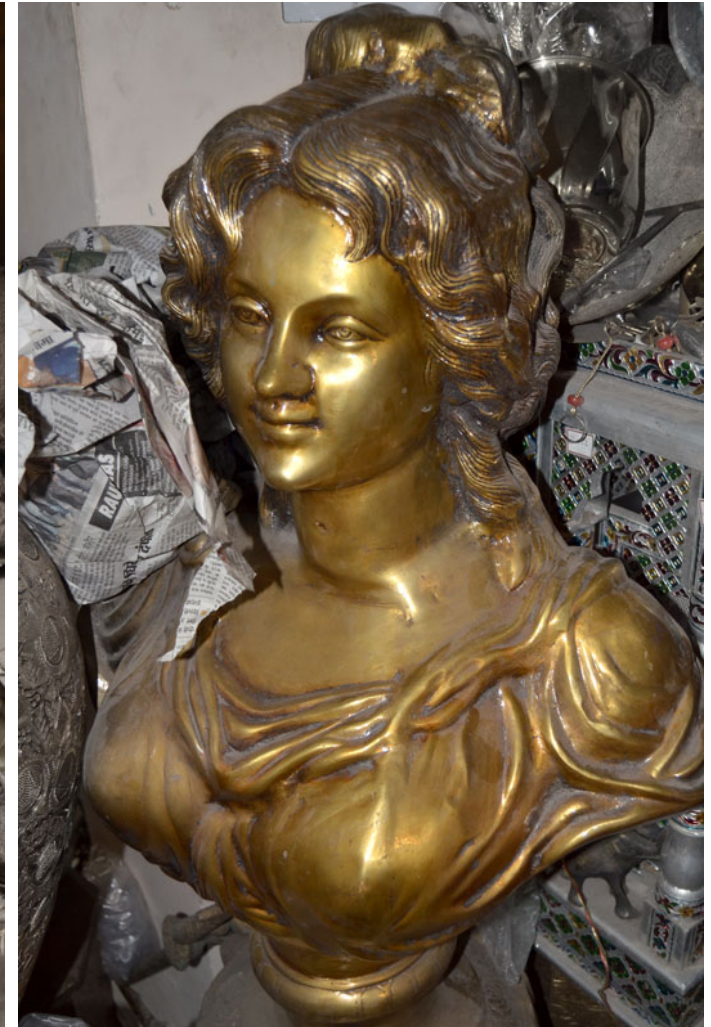
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Idol for worship (Hanuman).



Decorative piece.

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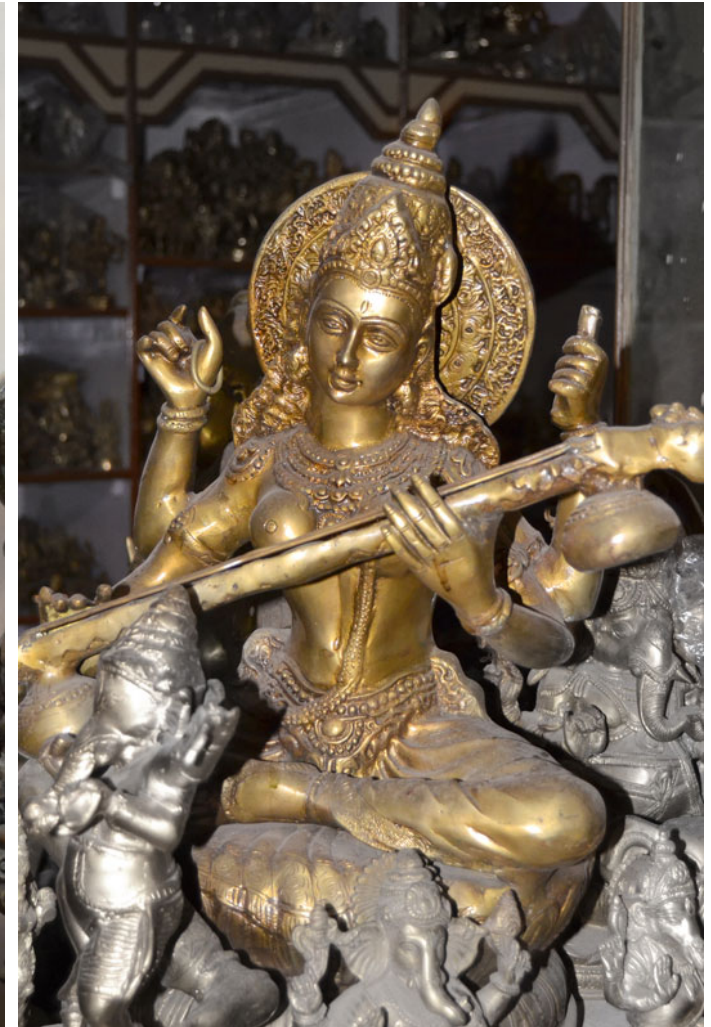
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Idol for worship (Krishna and Radha).



Idol for worship (Saraswati).

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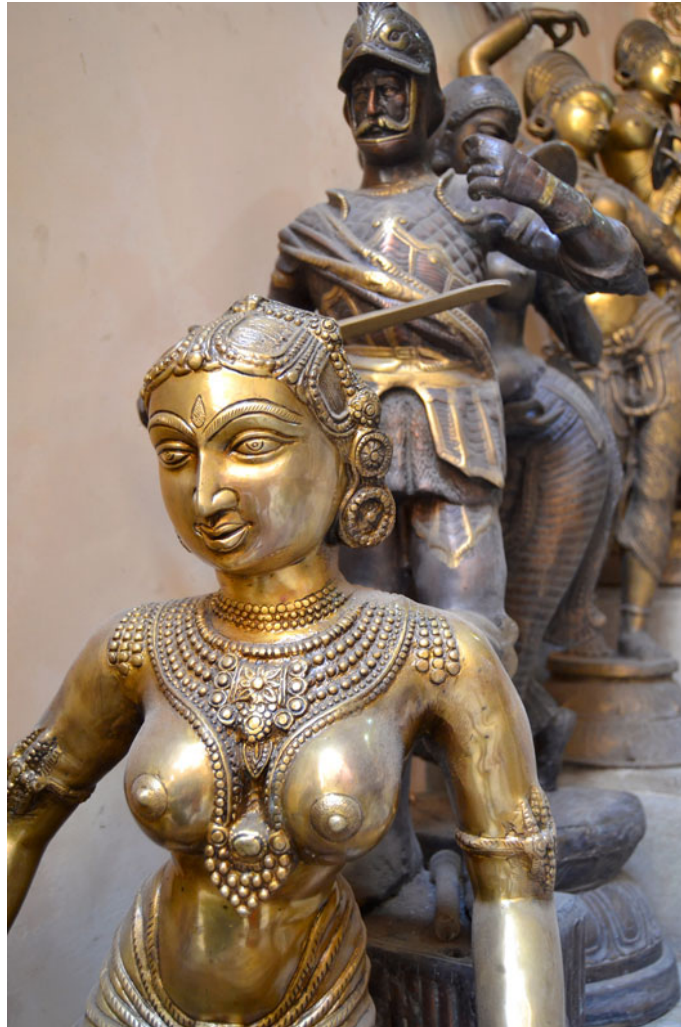
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Decorative pieces.



Idol for worship (Krishna and Radha).

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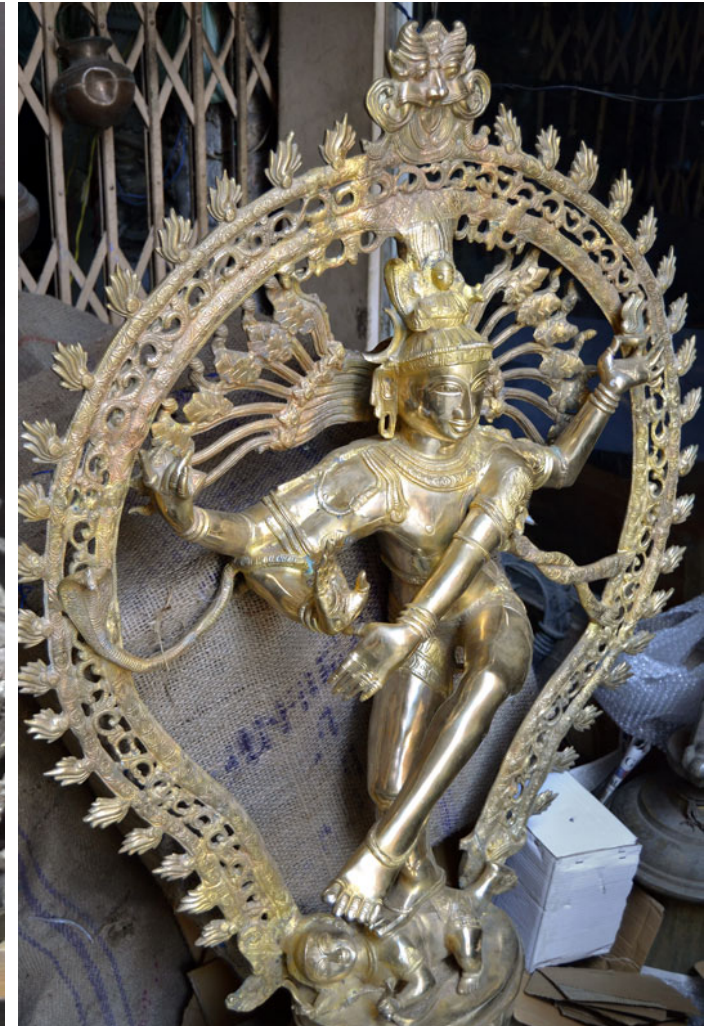
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Crucified Christ.



Dancing Natraja.

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Flower vase.



Engraving details of a flower vase.

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Flower vase.



Flower vase.

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Flower vase.



Flower vase.

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Surahi (pots).



Thaali (platter).

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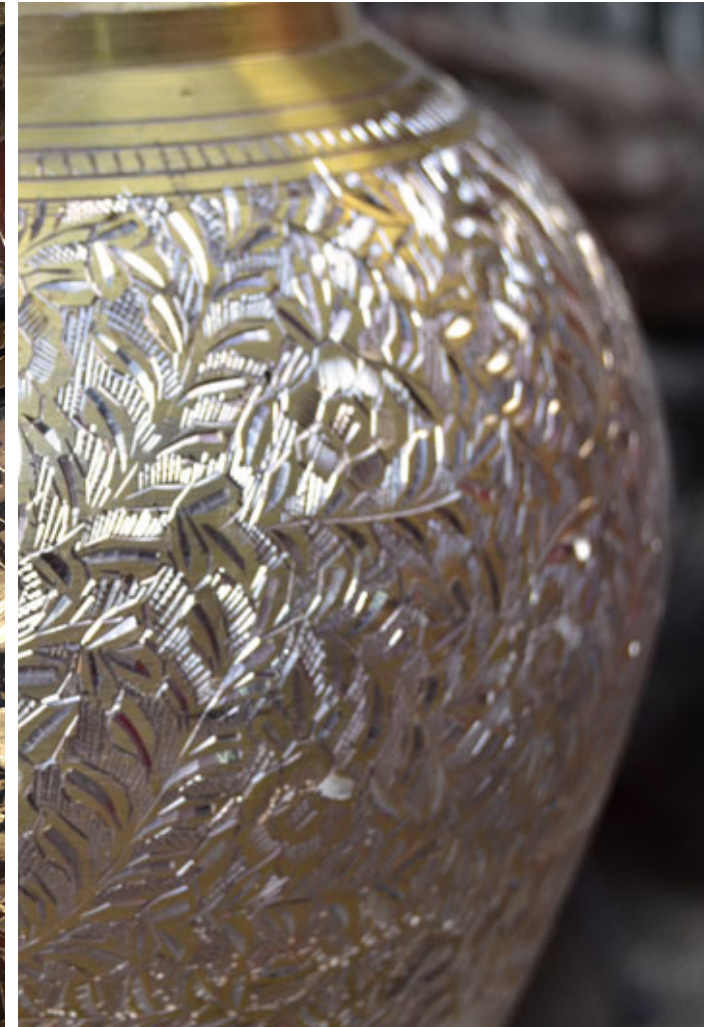
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Engraving details of a flower vase.



Engraving details of a flower vase.

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Engraving and enamel details of a flower vase.



Engraving and enamel details of a flower vase.



Flower vases.



Engraving details of a bowl.

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Set of bowls.



Engraving and enamel details of a bowl.



Engraving details of a bowl.

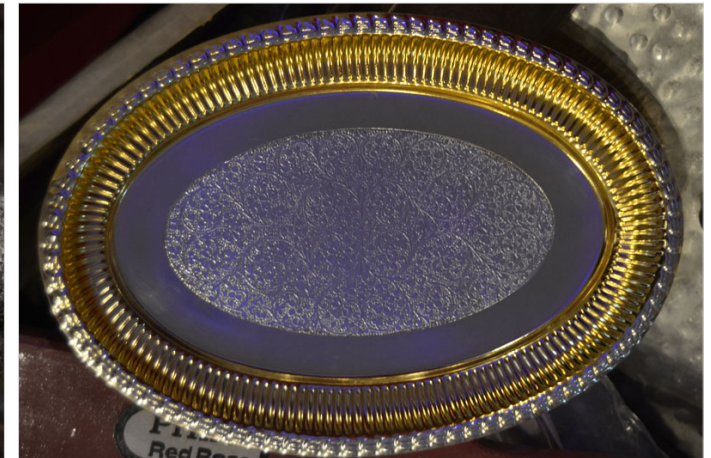


Plate.

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Chair.



Engraving details of a chair.

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Engraving details of a chair.



Peacock diya.

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Bell with swinging hook.



Flowers with planter.

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Thalis (serving plates).



A set of serving lota (pot) and glasses.

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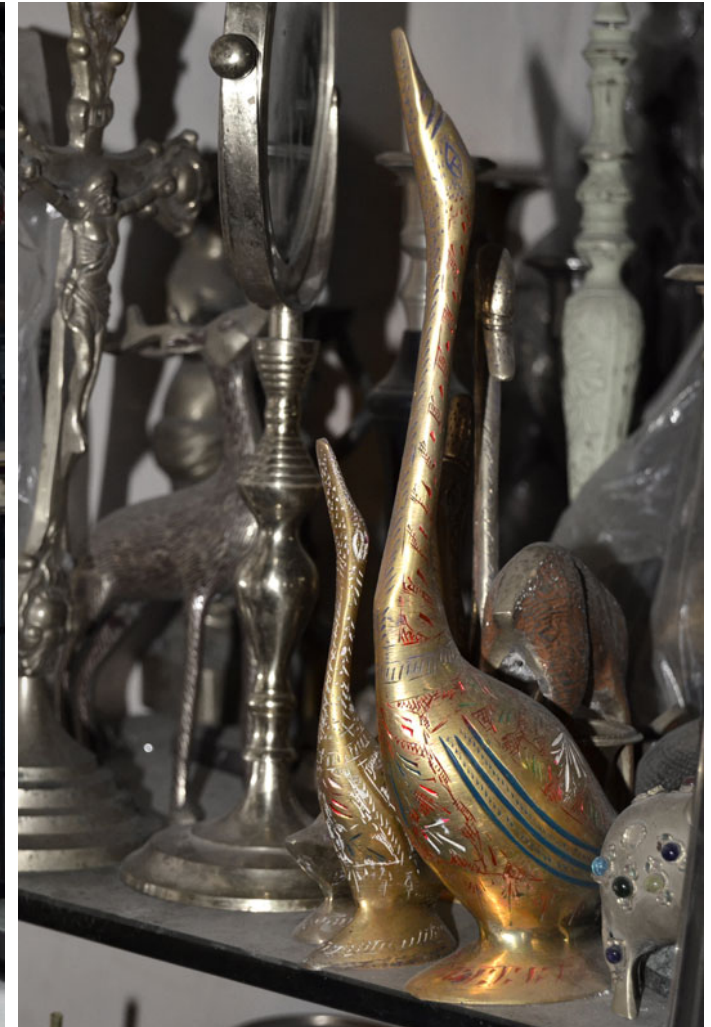
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Matke (pots) of different sizes.



Decorative pieces.

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Bells.



Planter-holder.

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Sun wall hanging.



Trophies.



Idol for worship (Krishna and Radha).

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Contact Details

This documentation was done by Sakshi Gambhir, at IDC, IIT Bombay.

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