

## Hand Tools Used in the Production of Islamic Manuscripts Nil Baydar and Paul Hepworth

A considerable evolution is apparent in the structure of Islamic manuscripts when the earliest surviving examples are compared with those from the 19<sup>th</sup> and 20<sup>th</sup> centuries. Although primary sources give some insight into this evolution, the information they provide is often scanty and incomplete. Another approach, therefore, is to consider the tools with which these manuscripts were made and how the use of these tools is reflected in the structures themselves.

Though the number of workshops still making Islamic manuscripts with traditional methods and tools is decreasing, some do continue to function. Furthermore, there are some relatively unknown and poorly studied collections of tools held privately and publically. Correlating the physical evidence provided by manuscripts from the last 3 centuries with the tools used to create them should help us in several ways. By first understanding the relationship between later manuscripts and tools that have been preserved from this period, we can then begin to work backward to earlier periods in which the tools that were used no longer survive. This will help us to trace developments in technology that are reflected in changes in manuscript structure. It is also a way to preserve the practical working knowledge of a craft tradition that has lasted more than 1300 years but which is now endangered.

This presentation describes an attempt to document manuscript-making tools in public and private collections in Turkey. We undertook this project because as conservators we are constantly examining manuscripts in detail, trying to figure out how they were made and then why this particular method of manufacture was used. As a preliminary conclusion, we are finding that the approaches and methods we see in the manuscripts are much more varied and individual than is generally assumed. Yet the tools that we have located so far are somewhat limited in type and variety. This implies that the remarkable individuality of the bindings is an expression of the character and skill of the makers, who can achieve many different results with a set of basic, rather standard tools.

Below is a list of tools recently examined in Turkey:

- A variety of stamps were used to create patterns on Islamic bindings. Flat metal stamps were made in different shapes to correspond to different parts of the design. One such stamp is a plate with a complete design for creating the central panel of a binding. However, to economize on time and effort, often only a half plate was made and this was rotated 180 degrees and stamped again. Some of these plates are made with an engraved copper surface and a thick backing of lead to give the stamp weight. Different techniques were employed to make the design on these metal stamps. A modern aluminium stamp can be cut with a laser, whereas the design on an older stamp is engraved on the metal by acid or by hand. Another way of making a stamp was by copying an original stamp with a galvanizing technique. Galvanic current was applied to the original causing deposition of metal on its surface. This deposited metal then creates a mold of the original. Finally metal was poured into this mold to create the copy. Stamps made from very hard wood were also used.

- To burnish paper and polish gold, tools of a hard material were used. Such tools have been located that have tips of gold, marble or agate.
- Leather was pared with a distinctively shaped knife that has a round handle which fits into the palm of the binder's hand.
- A binder's needle was found that was made from gold and has two eyes; however, the reason for the two eyes is no longer known.
- In order to remove recessed shapes in the board into which various inlays of leather were adhered, the board was carved with different tools. These were made by individual binders from tempered and beaten nails. Examining the recessed edge of a medallion on one binding, it could be seen that this edge was created by a series of tiny scallops cut with a narrow tool used.
- Another tool has different knife blades and a punch at its ends. These points slide up and down slots on the handle, allowing them to be changed.
- Various stamping tools were used for creating small, discrete patterns on leather. A cable line could be created on a binding by rolling a continuous design onto the leather.
- Compasses were used for laying out the design on the binding or in illuminations.
- The lines framing a text panel were created with a special tool. One such tool was found which allowed two parallel lines to be drawn at the same time.
- A pointed piece of ivory might have been used to draw blind impressions on paper.
- A tool with a sharp, pointed triangular end was used to cut filigree patterns in paper or leather.
- A metal punch might have been used to create dots on a gilded surface, causing the surface to sparkle.
- Tweezers and knives were general purpose tools used for many tasks.

We propose that documentation such as we have presented here be extended to other parts of the Islamic world and think that members of The Islamic Manuscript Association (TIMA) from every discipline could be involved in this project. In the locations represented by TIMA members, existing workshops and collections can be identified. When possible, photographs can be taken and master craftsmen consulted. Ultimately, we hope that the compilation and publication of this material can then follow.