

Architectural paint research and analysis of paint samples showed that the first three or four finishing stages on all the components of the women's galleries are grey. Each finishing stage consists of just one grey paint layer, over which thin black layers are visible. With the aid of scanning electron microscopy (SEM-EDX), it was possible to determine that these layers are rich in organic material, probably a combination of fatty acids and metal soaps that have separated from the paint and in which particles of dirt are encapsulated. In other words, these black layers are clearly layers of dirt. In a paint sample from the cornice above the columns in the women's galleries (fig. 81), the grainy dirt particles are clearly visible. These are particles of ash from the thousands of candles lit in the synagogue in the seventeenth century (a practice that continues to this day).

The fourth finishing stage follows the last grey one and is greenish in colour. It is composed of three paint layers: a grey ground followed by two green paint layers, both consisting of coarse particles of chalk and white lead. This greenish finishing stage contains fine grains of bright blue pigment, probably Prussian blue, a synthetic, inorganic

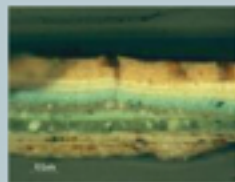
blue pigment discovered fortuitously in Berlin in 1704 by Heinrich Diesbach (a colourmaker) and Dippel (a chemist who provided the raw materials). Because of these origins, it is also known as Berlin blue. It was first produced on a large scale after 1724, which was when the formula became generally available and probably also when it first became commercially available.¹⁰ This paint layer can therefore be dated after 1704 and probably after 1724.

The greenish finishing stage is followed by the fifth, light blue finishing stage, which is composed of a grey ground and a light blue finishing coat. This layer of light blue paint was also found to include the pigment Prussian blue. The light blue finishing stage was found on all sections of the gallery.

All the wooden architectural components (the cornice, the partitions, and the ceiling areas underneath the gallery) were virtually identical in colour in each of the early finishing stages. From finishing stage six onwards, the amount and type of finish varied, as did the colour. For instance, three faux wood stages were found on the exterior of partitions (fig. 84–86), while the ceiling under the women's galleries shows only one faux wood stage.

In summary, a number of grey finishes were applied in succession to the cornice, the partitions, and the ceiling areas under the women's galleries in the seventeenth century. The colour scheme was monochromatic at each stage. The only contrast found between shades of grey was between the ceiling areas under the women's galleries and the rest of the woodwork. The stratigraphic studies and paint samples show that the colour of the ceiling areas was probably brownish-grey, somewhat warmer in hue than the light grey cornices around it.

Colour was not introduced until the eighteenth century, when a greenish stage was followed by a blue stage. These stages can be dated after 1724, and the pigment



81. This paint sample shows a cross-section of the paint layers and was taken from the cornice above the columns of one of the women's galleries [magnified 100x in incident polarized light]. At the bottom, one can see the grey finishing layers and the thin layers of dirt coating them, followed by green and blue stages. The final finishing layer is the present-day faux wood, composed of two underlying yellow layers and a brown top layer.

Prussian blue is present in both. After the blue stage, several faux wood finishes were applied.

The present-day colour scheme, in which the ceiling areas are turquoise green and the cornices and frames are dark brown, deviates from the principle of the original scheme, in which every element had more or less the same colour and a very limited degree of contrast was achieved through tonal differences.

Later colour schemes also adhered to this monochrome principle. The present-day scheme, with two colours, is a result of the 1990–1993 restoration, in which a deliberate choice was made to depart from the original colour scheme by painting the partitions and the ceiling areas under the women's galleries turquoise green, a hue inspired by the eighteenth-century stage of green and light blue.¹¹



84. Stratigraphic study of the interior of one of the results of the partitions of the women's galleries. The paint layers have been exposed one by one with a surgical scalpel; this provides an image of all the different paint layers that are present, from the most recent one (on the left) to the earliest grey finishing layer (on the right).



85. Paint sample from the exterior of one of the results of the partitions of the women's galleries, accompanying the stratigraphic study of fig. 80; [magnified 100x in incident polarized light]. The first grey finishing stages are identifiable at the bottom, followed by a greenish stage, a light blue stage (with every large grain of blue pigment), and three faux wood stages. The faux wood stage can be identified by the dark brown covering layers. The top layer is the present-day turquoise green finish.