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Introduction

"Inlayed with Vivid Colors"
The Use of Paints on Gold and Silver

A conference focusing on a subject that has been the focus of little attention in art history, so-called paints on silver (Farbfassungen), was held at Dresden's Residenzschloss from November 14–16, 2018. This event, organized by Grünes Gewölbe in collaboration with Dresden's Hochschule für Bildende Künste, marked the conclusion of research undertaken since 2015, the results of which were presented in the publication »Natürlich bemalt: Farbfassungen auf Goldschmiedearbeiten des 16. bis 18. Jahrhunderts am Dresdner Hof«.[1] This marked the end of the first part of the research project "Goldschmiedekunst des 16. bis 18. Jahrhunderts am Dresdner Hof als Mittel der höfischen Repräsentation" (Gold and Silver of the Sixteenth to Eighteenth Centuries at the Dresden Court as an Instrument of Royal Prestige) supported by Fritz Thyssen Stiftung, Freunde des Grünen Gewölbes e. V. and Peter Forcart (Riehen).

The goal of the conference was to sensitize experts and all those interested to techniques of coloring that until now have only been studied infrequently and to inspire future research in this area. Experts from museums in Germany and abroad were invited to examine their collections with a special focus on the use of paints on silver and to present their results. There was a general consensus that it would be important to expand the Dresden framework in future.

The Dresden Research Project

In the collection of the Grünes Gewölbe, there are many silver objects from the late Renaissance and the Baroque with polychromatic treatments.[2] The more or less well-maintained remains of paint applications accentuate certain parts of the vessels in question. This partial polychromy alters the visual impression of select details, granting them a new importance. Polychromy must have defined the appearance of many silver objects from the period, as a look at collection inventories and other sources from the sixteenth to nineteenth century shows (fig. 1). In particular, vessels featuring items from nature, like nautilus or sea snail goblets from the sixteenth and seventeenth centuries (figs. 2 and 3), were described as "inlayed with color"[3] or "brushed with paint."[4] Although this special technique of coloring is found not only at the Grünes Gewölbe, but at many other court collections as well, it has been granted little attention by scholars. One likely reason for this is the poor state of the

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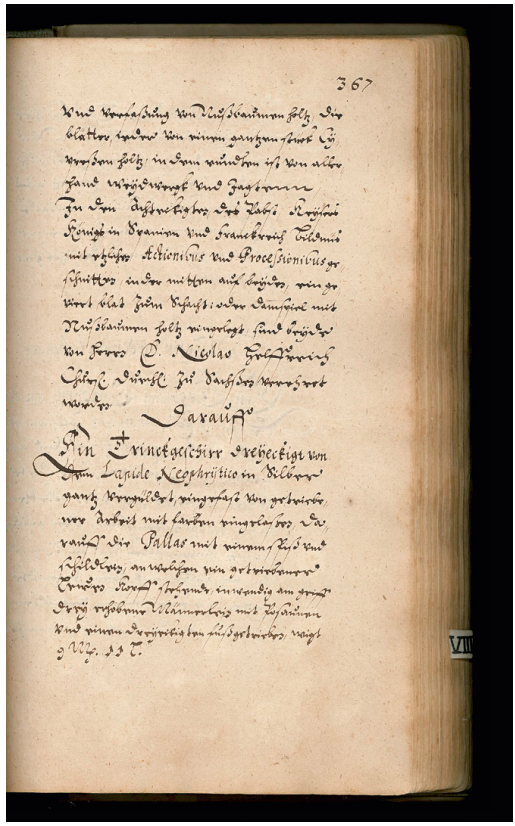
Fig. 1
A page from the inventory book of the Kunstkammer, 1640, Sächsisches Staatsarchiv, Hauptstaatsarchiv Dresden, 10009 Kunstkammer, Sammlungen und Galerien, no. 9, fol. 367r



paints. In comparison to fired enamel, the layers of paint adhere much more poorly to the metal surfaces. They are often largely lost or only visible through the microscope.

The complexity of the issue requires not only studies in art and cultural history, but also needs to consider the particularities of the materials and manufacturing techniques used, suggesting an interdisciplinary research approach. The art historians and conservators at the Grünes Gewölbe thus worked with Christoph Herm and Sylvia Hoblyn from the Archaeometry Laboratory at Dresden's Hochschule für Bildende Künste. At the start of their collaboration, it was necessary to decide on a common language that could be accepted by all, considering that the relevant literature had no unified terminology on the subject. The frequently used term "cold enamel" is used to distinguish from "hot" burning processes of enameling and thus implies a certain affinity in terms of appearance. And yet, the term "cold enamel" is misleading if not even contradictory, for it suggests a special enameling technique altogether different from painting. The frequently-used term "cold painting" was also rejected, since the silver objects placed in focus show the use of color on the largely three-dimensional metal foundations, but not autonomous "paintings" in

Fig. 2 ◄
Nautilus goblet in the form of a peacock, Paulus Widmann, Nuremberg, c. 1593–1602, silver, gilded and painted, nautilus shell, added elements: gilded copper alloy, h. 38 cm, SKD, Grünes Gewölbe, inv. no. III 200

Fig. 3
Basilisk as a drinking vessel, Elias Geyer (attributed), Leipzig, c. 1600, Silver, gilded and painted, turban snail shell, h. 35.2 cm, SKD, Grünes Gewölbe, inv. no. IV 158

the narrow sense. Analogous to painted wood or stone works, the term paints on silver (Farbfassungen) was chosen.

Paint is usually applied to cast or embossed, in part gilded silver. Before the application of paint, all steps of goldsmiths' techniques – engravings, chasings, etchings, and fire gilding – had to be completed. But for a few exceptions,[5] the painting studied in the project was applied without foundation. The thickness of the layer of paint ranges widely regardless of the paints' opacity, between 10 and 100 µm. Only a few objects revealed several layers of paint.

The design of the ground made it possible, at least in applying translucid paints, to create an impact similar to that of enameling. This impression is amplified in part by the intentional mixing of individual paints, as shown by the very differentiated depiction of a peacock in the shape of a nautilus goblet (figs. 2 und 4).

Opaque paints, in contrast, were usually applied in a monochromatic way and in a second step decorated with fine lining effects in various colors. The painted parts thus appear natural, as can be seen in the example of a flower bouquet crowning a grape cup (fig. 5).

The analytic investigations of layers of paint usually revealed largely natural resins partly combined with a drying oil as a binder. The pigment analyses reflect primarily a palette of colors that changed little from the sixteenth to the eighteenth century. Worth mention in this context when it comes to the shades of blue was the use of a blue verditer with an admixture of smalt and a natural blend of lapis lazuli/sodalite (fig. 6). In addition,

in several cases the use of green copper resin was shown, which until now in studies of painting techniques had been considered a product of age-related alteration.

The appearance of the polychromy is quite varied. In more reticent designs, the treatment is nearly monochromatic, with almost stereotypically applied accentuations of constructive elements like clasps or rails, but also on the bases and covers of goblets and on the lip band. The use of a translucid dark red and a translucid green dominated here (fig. 7). In another variation, partial polychromy is used for exposed details of goldsmiths' art like shaft figures (fig. 7) or cover decoration (fig. 5). Often executed in an elaborate and differentiated fashion, polychromy emphasized these elements in a special way by allowing the represented to appear more natural. This effect is used in an especially subtle manner in true-to-nature and detailed silver casts of plants and animals, the so-called "life-casts" (fig. 10, p. 138). On first glance, the polychromy used here often hardly differs from enameling. In the expert literature, it was often reduced to this effect and considered the less valuable alternative to the elaborate enameling process. But this interpretation must be revised. From the perspective of material technique, the enameling of large sized, but also highly sculptural embossed pieces made of silver had technical limitations. But since the partial polychromy of silver gilded objects was clearly considered valuable, analogous to objects made of gold, the application of paint was the only way to achieve the desired appearance (fig. 8).

Fig. 4 ◄
Segment of the peacock tail
(detail, fig. 2)

Fig. 5 ◄
Crowning floral arrangement (Schmeck), Hans Beutmüller, Nuremberg, 1603–1609, silver, gilded and painted, h. 80.8 cm, SKD, Grünes Gewölbe, inv. no. IV 8

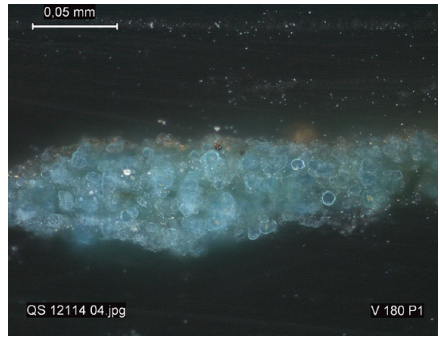


Fig. 6
Cross-section of a layer of blue paint, in the enlarged microscopic image with incident light, globule aggregates of copper blue pigment (blue verditer) are easily recognizable. Painted covered goblet with rock crystal, Hans II. Schweinberger, Augsburg, c. 1570–1580, cutting: probably Breisgau, last quarter of the 16th century, silver, gilded and painted, champlevé enamel, rock crystal, h. 40.1 cm, SKD, Grünes Gewölbe, inv. no. V 180

The motifs of the elements emphasized in this way come primarily from the natural world, against which artists from all realms constantly measured themselves in the late Renaissance in particular. The new artistic self-conception of this period not only required the mimesis of natural forms, but that these natural forms were also to be comprehended thoroughly by way of a profound study of nature. In addition, they were to be created "anew" in an artistic process, ultimately surpassing nature and generating something entirely autonomous. In this sense, craftsmen, especially in Nuremberg, the innovative center of goldsmiths' art, created complex silver works with elements close to nature, whose impact was amplified in a targeted fashion by the addition of paint (figs. 2, 3 and 7).[6]

Painted silver objects experienced its heyday during the sixteenth and seventeenth centuries. But value was placed on polychromatic metal surfaces in Dresden in later periods as well. The partial treatment of such works[7] in 1724, done by the court jeweler of August the Strong Johann Heinrich Köhler (1669–1736)[8] in royal commission when they were brought from the Kunstkammer to the emerging Grünes Gewölbe, do not take up seamlessly from the previously described polychromy of the late Renaissance. The use of paint from earlier periods that was motivated by a desire to attain natural truth was now newly evaluated by Köhler with an eighteenth century understanding. The works now stood in the service of the Baroque gesamtkunstwerk, which was based entirely on the impact of brilliant colors, light, and mirror reflections (fig. 9). Since there were only few significant innovations between the sixteenth and eighteenth centuries in terms of the pigments and

Fig. 7
Detail of the Nautilus goblet with vintner, Elias Geyer, Leipzig, 1606–1608, silver, gilded and painted, nautilus shell, h. 36.8 cm, SKD, Grünes Gewölbe, inv. no. III 160

Fig. 8
Detail of the inside of the lid of the "Large Parade Casket of Electress Sophia" with painted allegories of Justitia and Caritas, figures (fittings): painted silver, silk, 50 × 57 × 39 cm (overall dimension of the casket), SKD, Grünes Gewölbe, inv. no. IV 115

binders used, it was not possible to identify without a doubt the Baroque additions to the paints on goldsmiths' art from the Renaissance that are confirmed by the sources by way of technological or material analysis. But it is clear that Köhler was inspired by the colors used in earlier centuries and took up this technique in his own creations, interpreting it anew (fig. 10).

In the course of investigation, analytic evidence was found of pigments that were used from c. 1810 to the early twentieth century on a large number of objects from the collection (fig. 11). Perhaps this renewed or perhaps even new polychromy was linked to the debate in art criticism on polychromy from around the turn of the century, when the Dresden directors of the Skulpturensammlung and Grünes Gewölbe, Georg Treu (1843–1921) and Jean Louis Sponsel (1858–1930), were strong supporters of polychromatic artworks.[9]

The preference for colored surfaces was not limited to the Saxon court and the secular art of the Renaissance and the Baroque period, as became clear at the conference, opening a wide field for additional research.

The Conference

The first conference session served as an introduction to the subject, where Dresden art historians, conservators, and scientists not only presented the results, but also the methods used and the special challenges confronted by the interdisciplinary project. The following session was dedicated to late Medieval sacred goldsmiths' art, which had been excluded from the Dresden project. As the relatively few examples and the historical sources, like the Aschaffenburg Codex (fig. 11, p. 40), show, the sacred works already at this time reveal polychromy, whereby clear analogies can be drawn to polychromatic wood and stone images (Aleksandra Lipińska).[10] The frequently encountered partial painting of the skin tone of saints was also discussed in terms of the aspired to "real presence" (Christine

Kitzlinger, Patricia Rohde-Hehr and Sebastian Bosch). Until the eighteenth century, the naturalist depiction of flesh tones, as in the representation of people of color, played an important role in many works of goldsmiths' art.

Not just at the Grünes Gewölbe, but also in other collections as well, Nuremberg, the capital of the goldsmiths' art crystallizes as the most important center for the execution of polychromy between 1560 and 1630, as was made clear in the third session in lectures by colleagues from Amsterdam (Tamar Davidowitz), Nuremberg (Birgit Schübel and Annika Dix), Cologne (Karl Tobias Friedrich) and Munich (Joachim Kreutner).

The Merkel Centerpiece by Wenzel Jamnitzer (fig. 1, p. 49), in the Rijksmuseum collection demonstrates this concept of mimesis, where the closeness to reality of life-casts of plants and animals was once again amplified by the use of paint, in a virtually exemplary way. Tamar Davidowitz presented extensive investigations that the conservation workshop of the museum carried out in collaboration with the University of Amsterdam. These investigations referred to a late sixteenth century French manuscript from the Bibliothèque nationale de France in Paris, which was also consulted several times in Dresden and includes instructions on the creation of life-casts and recipes for paints.

The fourth session explored the subject by way of the evaluation of written and visual sources. As soon became clear, these sources should be cautiously interpreted, especially

Fig. 9 ◄
View of the Pretiosensaal, Grünes Gewölbe, Dresden (2006)

Fig. 10
Moses on Mount Sinai, jeweler: Johann Heinrich Köhler, ivory carver: Paul Egell, Dresden, 1717–1718, ivory, silver, gilded and painted, colored glass, precious stones, h. 18 cm, SKD, Grünes Gewölbe, inv. no. VI 222

in terms of their function and their terminology. Ines Elsner presented very interesting archival evidence that shows that the application of paint to silver was not only done by the goldsmiths themselves, but also by simple painters. In light of the rarity of polychromatic French works, Michèle Bimbenet-Privat proposed the hypothesis that the technique of paints on silver made its way to Paris via the Nuremberg master Elias Lencker. In this way, the biographies of individual masters played a decisive role for the transfer of this technique.

The restorative approach to paints on Baroque silver objects was explored by Stephan Rudolph in the fifth session. He presented a splendid Salzburg gold monstrance, which originally had a surface that was framed in black. This lent the artwork an appearance that was more reticent in terms of color, but also more filigreed. An engraving from the time of its emergence is evidence of the astonishing concept of applying a black frame to a gold object.

The last session of the conference turned to paints on goldsmiths' art in the Kunstkammer and treasuries at European royal courts and noble families. Using several findings from objects from Vienna's Kunsthistorisches Museum, Herbert Reitschuler was able to explore various categories of polychromy. The criteria he developed can help distinguish various artistic modes of design from one another in further systematization and to view and evaluate different forms of polychromy in a more subtle way. Katharina Küster-Heise

Fig. 11
Five hippocamps as drinking vessels, Elias Geyer, Leipzig, c. 1591–1593 and 1600, silver, gilded, with layers of paint of different ages, turban snail shell, h. 17.7–22 cm, SKD, Grünes Gewölbe, inv. nos. IV 289, IV 126, IV 295, IV 4 and IV 6 (from left to right)

and Margit Kopp discussed numerous examples of painted silver objects in the treasuries of the Dukes of Württemberg and the house of Esterházy. As Margit Kopp showed, the collection at Schloss Forchtenstein showed one hundred years later an attempt to return to the conceptual idea of polychromy as applied by the Nuremberg master Wenzel Jamnitzer. In consideration of the colorful design of the exhibition spaces there, she emphasized the possible influence of conditions of presentation on the appearance of goldsmiths' art. This perspective might well prove fruitful in future research.

Future Outlook

There is a great interest in further pursuing the scholarly and scientific investigation of paints on silver and to expand the focus beyond the realm of goldsmiths' art to other realms of the applied arts, for example glass painting, porcelain, non-precious metals, and leather wallpaper. In particular, we need to examine the technological analogies to genres like glass or reverse painting on glass.

A viable re-evaluation of this creative device is only possible with additional studies of objects in other collections. Such studies could provide evidence of the local context and clarify whether the technique was also used in other European regions. Interesting here

would be the question in particular whether or to what extent paint can be found on secular silver only in a court context. To explore sacred goldsmiths' art, a deeper investigation of the theological implications is required to work out the intention originally behind the colorings.

From the point of view of the natural sciences, the now available results of the analysis in Dresden should be linked to analyses of other collections. To better be able to evaluate links in the various decorative arts, a comparison with the extensive study of the objects of reverse glass painting at the Grünes Gewölbe presents itself as ideal. Among other things, it would be necessary to see whether paints on silver objects were applied with the addition of heat, as has been mentioned, for example, for reverse glass painting in a manuscript dating from the period in question (see the contribution by Birgit Schübel and Annika Dix in this publication).

It might prove useful to try and reenact these techniques of application experimentally. Beside this approach based in practical-craftsmanship, digital methods also promise new findings. On the basis of detected remains of paint, the original appearance of a painted silver object can be visually resurrected, as was shown by several authors.

1 Ulrike Weinhold, Theresa Witting (Eds.), Natürlich bemalt. Farbfassungen auf Goldschmiedearbeiten des 16. bis 18. Jahrhunderts am Dresdner Hof, Dresden 2018. **2** This section appeared in a slightly different version in: Eve Begov, Theresa Witting, Farbfassungen auf Goldschmiedearbeiten im Grünen Gewölbe, in: Dresdener Kunstblätter 63 (2019), No. 3, pp. 22–29. **3** Sächsisches Staatsarchiv – Hauptstaatsarchiv Dresden, 10009 Kunstkammer, Sammlungen und Galerien, Inventar der Kunstkammer 1640, no. 9, fol. 123r–123v (inv. no. III 160). **4** Ibid., fol. 143v (inv. no. III 200). **5** For example, the cover of a grape cup (fig. 5). **6** Rainer Richter, Theresa Witting, Farbe als Bedeutungsträger, in: Weinhold/Witting 2018, pp. 92–119. **7** Maria Willert, Technologische Befundaufnahme, in: ibid., pp. 30–33; Eve Begov, Zur Restaurierungsgeschichte der Kunstkammer und des Grünen Gewölbes, in: ibid., pp. 42–45; for a transcription of Köhler's invoice, see ibid., app. 2, pp. 130–141. **8** An exhibition (December 4, 2019 – March 2, 2020) at the Sponsel-Raum in the Grünes Gewölbe was dedicated to the work of this goldsmith. A catalogue has been published to accompany the exhibition: Dirk Syndram, Ulrike Weinhold (Eds.), Der Dresdner Hofjuwelier Johann Heinrich Köhler – Dinglingers schärfster Konkurrent, Dresden 2019. **9** Ulrike Weinhold, Exkurs: Polychromie vom 18. bis zum frühen 20. Jahrhundert am Beispiel Dresden, in: Weinhold/Witting 2018, pp. 116–119. **10** Aleksandra Lipińska is a professor at the Institut für Kunstgeschichte, Ludwig-Maximilians-Universität, Munich, and held a lecture entitled "Polychrome Paints on Goldsmiths' Art as a Challenge for Art History." She requested that her contribution not be included in this volume.