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THE RESTORATION OF A GLASS ARM CHANDELIER
FROM THE MIDDLE OF THE 19TH CENTURY
BELONGING TO THE PRUSSIAN PALACES
AND GARDENS IN BERLIN-BRANDENBURG

Introduction and Description

To begin this project, it was necessary to clarify whether there were enough original pieces left to make a restoration possible. There were several boxes with unassigned, broken and filthy pieces of glass. It was unclear which pieces belonged to which object and how many of these pieces were assignable. In question came two candelabras and two chandeliers. The parts were unpacked and laid out. Based on the glass color, degree of soiling and shape, the parts were then sorted and assigned to the various objects.

Through sorting it became clear that there were enough pieces left for a restoration of the Chandelier Inv. Nr. VIII 1010. The other assigned pieces were merged into appropriate fragments and packed for a restoration at a later date. The chandelier had been stored in the depot of the 'Neue Palais' in Potsdam since 1978. Since there are no entries regarding the origin of the object, the provenance is very difficult to clarify. Käthe Klappenbach inventoried the chandelier in 1984. Without doubt this is the work of a virtuoso, a very skilled glassmaker. The color scheme is elegant, yet understated and its form harmonious and balanced. Apparently, the majority of the parts were formed freely, using mainly a glass blower's pipe, pliers and shears. The way it was made, indicates that this type of glass-arm chandelier was most likely produced in series by highly experienced glassblowers. The lighting was provided with gas (not

common until after 1830), which flowed from an outlet in the ceiling through a metal pipe that was covered by a glass baluster, consisting of three hollow glass pieces. At the base of this shaft, there is a divider that directed the gas into the five glass branches. At the end of each branch there is a gas nozzle that controlled the flame. Quite an impressive effect when imagined how it must have looked turned on, with flames illuminating the room.

The colors of the chandelier are mainly opalescent white, blue and raspberry. Green raspberry stamps decorate the leaves. These stamps, which were made by pressing a mold into the hot glass, were common in Venice and Bohemia in the 19th century. Interestingly, the glass looks slightly yellow in front of a light background but glows blue iridescent with a dark background. The techniques used to make opalescent glass were newly discovered and utilized in Central Europe approximately during the first half of the 19th century.

Restoration and Reconstruction

The framework is made of metal and a wooden receiving plate, which is covered by a glass bowl for the glass branches and leaves. Tinfoil on paper was adhered to the wooden pieces and the metal center shaft, as this highly accentuated the light reflection. One of the five arms was broken, but luckily was still connected through an electric wiring that had been installed at a later point in time. This arm also had a layer of amorphous silica towards the bottom. It is possible that the broken end was bedded in soil or in an environment with a higher humidity than the rest of the chandelier. However, this is hypothetical since there are no records concerning its history or storage. The leeching of minerals to the surface of the glass is known to be caused by exposure to highend humidity over a prolonged period of time.

The other arms were stable and could be cleaned using de-ionized water, ethanol and a non-ionic detergent. After cleaning the metal parts, they were coated with a protective layer of Paraloid B48N (methyl methacrylate copolymer) dissolved in Dowanol.

Layers of grime were removed from the wooden receiving bowl and loose pieces affixed. The electric fittings and wiring were removed. It has not been possible to date when this chandelier was electrified. The cleansing and merging of broken fragments sheds a new light on the pieces of glass and the chandelier itself. It became possible to see what it may have looked like right after production and before the adversity of time had taken its toll. Historically, this chandelier does not appear to be highly significant. None the less, it is certainly an impressive piece of work. Glass-arm chandeliers were relatively inexpensive to manufacture, which made them accessible to the general public interested in reading and education. Therefore, it is most certain that they were more widely spread. However, due to their fragility, very few of them have survived.

The receiving bowl had been badly damaged, but again, luckily the majority of pieces had been saved. Almost all of the broken fragments of leaves, receiving bowl, flames and sleeves, could be allocated and then fixated with an UV adhesive. This adhesive was chosen because of its reversibility and adhesive properties. The glass leaves were refitted in metal sleeves with a pine resin and chalk putty. Afterwards, these could be placed into the bore holes in the receiving plate.

There were missing sections in the receiving bowl that were first contained by wax moulding and then filled with polyester resin. Afterwards, the various sections were ground and polished. The polyester resin fill gives the object more stability and is necessary to prevent further loss of substance through the exposure of the fractured edge. Closing the openings also prevents dust and dirt collecting on the interior of the vessel.

The broken arm needed to be addressed separately, as there were a few issues to be considered. Not only was it important to re-attach the broken piece, but also to stabilize and to reduce strain at the leverage point. The solution was found in a triple stabilizing system. First, a plastic tube was fitted into the curvature of the glass arm, which evenly distributed the weight of the arm to the surrounding area. Second, the site of fracture was connected and affixed with an UV adhesive. Third, a thin stainless-steel wire was inserted through the center of the arm and pipe. The wire was

fastened on both ends of the arm with a loop/pin combination and serves as an additional back-up. This conservational intervention is completely reversible and barely visible.

Putting the pieces together

After the documentation, reconstruction and restoration of the various pieces and parts of the chandelier were completed, they could be re-assembled on the metal frame and in the receiving plate. Although the chandelier is preserved fragmentarily, it can be aesthetically perceived and experienced as a whole. Through cleaning, merging and fixing of the fragments that were initially found in boxes, it was possible to reconstruct about three-quarters of the chandelier. Taking the historicity into account, it was possible to give the chandelier its initial appearance and profile. The provenance could not yet be clarified and whether the newly designed end piece (knop) will be replaced at a later date in time, remains open.



Figs. 1, 2 - Glass arm chandelier, mid-19th century, before and after restoration. Potsdam, Neue Palais, inv. VIII 1010.

