

The Removal of an Insoluble Varnish from a 18th Century Clock Case

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A long case clock dating 1715 was examined in preparation for the opening of the European Galleries at the Royal Ontario Museum. Although some curatorial staff claimed it would not need any conservation since it had been treated in 1973, it was found in appalling condition. The japanned surface was blooming to the point where much of the decoration was obscured. Arrangements were made to have it sent to the Decorative Arts Lab.

Description and Technology

The clock case is made of pine, painted with red and black to resemble tortoiseshell with gilded decoration applied. The type of clock works, as well as the style of the clock case indicate that it was made circa 1715. It has a flat-topped hood with rounded pilasters framing the glazed door and side glazed panels. The hood can be removed by sliding it forward, a style predominant from 1714 onwards. Originally there was a bolt on the interior securing the hood, that could only be reached from inside the trunk. The door of the case was locked to prevent tampering with the clock works.

The eight-day striking works were signed John Tetlow London. The face features a square brass dial with a herringbone engraved border. Other decorative elements include brass crown and amorini span-drel pieces and engraving of birds and scrolls around the calendar aperture. The chapter ring and the seconds dial are both silvered, onto which the hours, minutes and seconds have been engraved and then coloured. This clock was made near the end of the period of square clock faces. By 1720 most English clock makers favoured dome-shaped clock faces with corresponding changes to the hood ornaments.

The type of japanning: evidenced on this clock case first became popular in the 17th century as contacts with the Orient through the Dutch East Indies Company and the East India (company became more frequent. (Rather than go into a complete history of Oriental lacquer and its European imitation this article will just outline the factors that pertain to this case.)

The most popular method of decorating clock cases made between 1675 and 1720 was the use of elaborate marquetry. As genuine Oriental lacquer and japanned furniture were popular during the same period, it was natural that some of this style would be carried over to the clock-making trade. Although plain black lacquer, or black japanned grounds, were much more common than faux tortoiseshell finishes, a number of the latter still survive intact. The type of japanning found on this case was commonly done in cabinetmakers' shops but it was also taken up as a hobby by genteel women. Indeed, publication of Stalker and Parkers' Treatise of Japanning and Varnishing in 1688 seems primarily intended for this audience.

Although the Royal Ontario Museum clock case examined here does not reveal particularly fine workmanship, it is doubtful that it was the work of a hobbyist. For example, the work on the front is of fairly high quality while the work on the side is poorer in both design and materials. The layers of colour have been built up with various pigments in a shellac base. A red colour was applied as the base coat and

black was daubed on in various strengths to create the tortoiseshell appearance. Raised decorations on the front of the case were achieved by applying compo to the surface prior to painting. Designs were then oil gilded in silver and gold. Fine details were painted on the surface of the gilding. Bronze powders were used to create the decorative work on the sides.

The designs are typical of the chinoiserie of the period. They exhibit Chinese landscapes, figures and birds with the noted exceptions of a European mounted figure, putti and the inscription God Save King George. While they are not exact reproductions of the designs shown in Stalker and Parker's book, some are very similar in appearance. Overall, the case has the appearance of coming from a workshop where a master had done the front and an apprentice had completed the sides.

Condition

Upon arrival in the lab the clock was given a thorough examination. It was evident that the case had been through a number of previous restorations. Fairly early on in its history, the bolt to the hood had been removed and the interior had been painted. More recent alterations include the replacement of the lower base, wax fills in the rounded pilasters, application of a strip of veneer to the hood and resilvering the clock face dial. In addition, the surface had been revarnished and the gilding touched up with bronze paint.

Despite the cloudy appearance of the recent varnish the rest of the case was in fairly good condition. The original surface was primarily intact with the exception of abrasions on the sides of the base. Areas where bronze pigment had originally been used were now tarnished. Structurally the piece was fairly sound with only one loss of wood in the back and a few holes where the case had previously been secured to a wall. Although evidence of woodworm was found, it was no longer active and the holes had been filled with wax.

Treatment

The conditions that were of most concern were the blooming varnish and the unsympathetic retouches to the gilding.

The first step was to redissolve or take off the varnish to remove the cloudy white patches. The treatment records from 1973 did not indicate the type of coating applied, only that the piece had been 're-varnished.' Solvent tests were carried out to determine what would dissolve the coating and leave the original surface intact. Various combinations of acetone, ethanol, isopropanol, mineral spirits, petroleum ether, toluene and xylene were tried but to no avail. The only solvent that caused slight softening of the varnish was ethanol and this had an adverse effect on the original surface. In fact the only solvent that did not effect the faux tortoiseshell was mineral spirits.

At this point in time samples were sent to the Canadian Conservation Institute for analysis to determine the nature of this coating. The results indicated it was an oil modified ortho-phthalate alkyd resin. Since alkyd resins dry by oxidation after the initial evaporation of the solvent, they are insoluble in organic solvents.

This information, coupled with the fact that the original surface dissolved in just about everything,

meant that mechanical removal was the only treatment option. Removal of the varnish by scraping or pinging with a scalpel endangered the finish underneath and was also too time consuming, another method had to be found.

Close examination of the cloudy areas revealed that in many cases the new varnish was delaminating in very small patches. It was thought that "... adhesive tape could be applied to lift off the varnish, however this was only effective where the varnish had already detached from the surface. Perhaps the rest of the varnish could be induced to delaminate as well.

What conditions had caused this phenomena in the first place? Our museum had recently undergone a renovation and expansion project causing the European collection to be moved a number of times. The clock had undoubtedly been exposed to less than ideal conditions; high humidity had probably caused the surface to bloom. Testing this theory with use of damp blotters, it was discovered that the alkyd resin could be forced to temporarily detach. As a result the following treatment procedures were developed to facilitate the varnish removal.

A damp blotter was applied to the area to be treated, which was then covered with a sheet of polyethylene to prevent it from drying out. Weights were placed on top to ensure good contact with the surface. After two hours the blotters were removed and the excess moisture wiped off. Adhesive tape was applied to the prepared patch and the alkyd varnish peeled off. The original shellac finish had bloomed due to the moisture but was otherwise intact. The shellac was reformed by wiping the surface once with an alcohol swab.

Overall this method proved to be 95% effective. Some stubborn areas of alkyd resin remained, primarily in the crevices and on the newly veneered surfaces. Much of this could be taken off with the use of a scalpel. After discussion with the curators it was decided not to recoat the surface at this time because the original shellac finish was still intact.

The areas of bronze paint retouching on the gilding came off with the varnish. These losses were then inpainted using Acryloid B 67 in mineral spirits with Affair mica based pigments. The small particle size of these pigments and their non-metallic nature (therefore non-tarnishing) make them ideal for inpainting gilding.

Although this treatment for the removal of alkyd-based varnish is quite radical, and should only be used as a last resort, it may prove useful to other conservators faced with similar circumstances.

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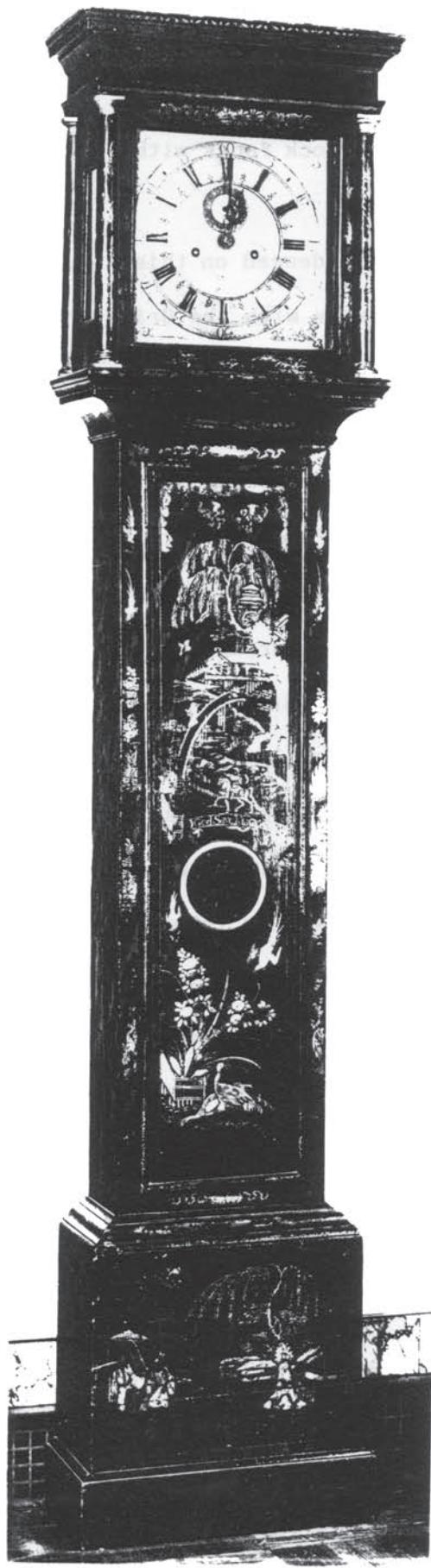


Illustration - The long case clock as it appeared in 1971. Royal Ontario Museum, 954.117