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

Marianne Webb
Royal Ontario Museum

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 obsured. 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 spandrel 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 tortoishell 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 stubborns 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 Afflair 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.

BIBLIOGRAPHY

Edwardes, Ernest L. The Grandfather Clock, Altringham, John Sherratt and Son Ltd., 1974.

O’Neil, Isabel. The Art of the Painted Finish. William Morrow & Company. Inc., New York.

Pearson, Michael. The Beauty of Old Clocks. Colour Library International Ltd. Great Britain, 1978.

Phillips, Phoebe ed. Lacquer: An International History and Illustrated Survey. Harry N. Abrams Inc., Publishers, New York.

Stalker, John and George Parker. A Treatise of Japanning and Varnishing, 1688. Reprinted London, Alec Tiranti, 1971.

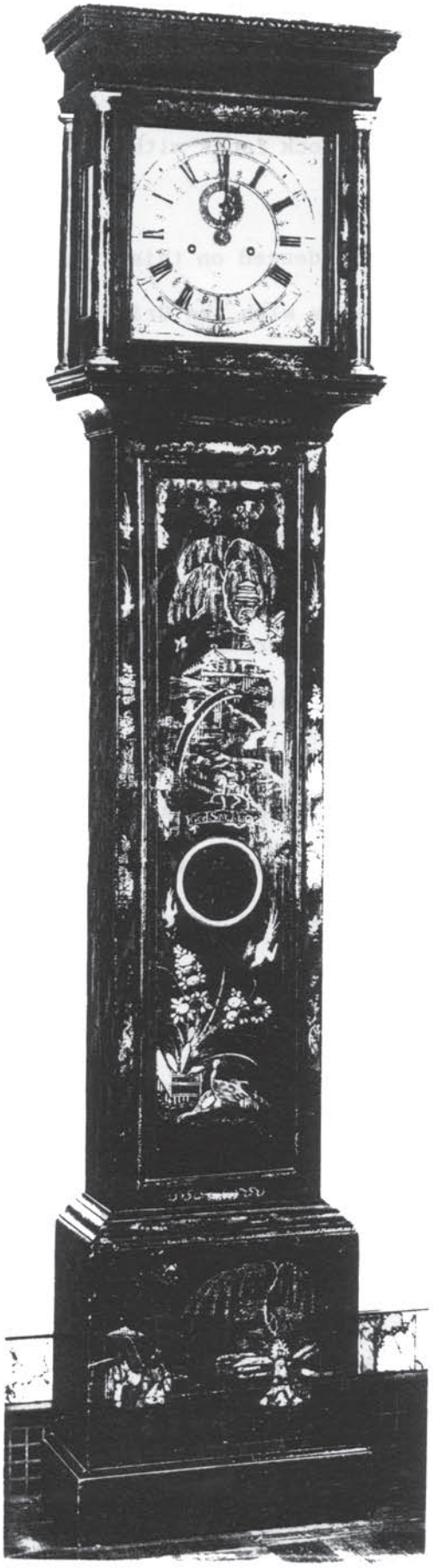

Illustration - The long case clock as it appeared in 1971. Royal Ontario Museum, 954.117

appear as common ingredients in 18th-century varnishes of. France, England and Germany, they represent a minority. in the later 19th-century oil varnish recipes studied (Walch. 1997).2 Conversely, most 19th-century sources state that such. an additive yields a varnish of inferior quality, referencing a. lower grade of rosin adulterated products. Similarly, while. Figure 1 Gum sorting process from a promotional volume of John Lucas Paint and Varnish Works, 1886 (Collection of the Camden. County Historical Society). Copal resin and the practice of oil varnishing in 19THî€„century america 107. the A print of an 18th-century liquor seller. (Photo by Universal History Archive/UIG via Getty Images). Indeed, the most notorious single incident of the gin craze was the case of Judith Defour, a young woman with a daughter and no obvious husband. The daughter, Mary, had been taken into care by the parish workhouse and provided with a nice new set of clothes. One Sunday, in January 1734, Judith Defour came to take Mary out for the day and didnâ€™t return her. Instead, she strangled her own child and sold the new clothes to buy gin. Judith Defour was probably mentally unwell anyway, but her case be Stradivaris Varnish A Review of Scientific FindingsPart I BRUCE H. TAI California Institute of Technology Division of Chemistry and Chemical Engineering 1200 East California Blvd., MC 164-30, Pasadena, CA 91125 tai@caltech.edu. Abstract The violin varnish used by Antonio Stradivari and other Cremonese master luthiers has been a subject of fascination for two centuries. Scientific evidence accumulated over the last few decades has shed some light on its structure and composition. The organic component consisted of drying oils, resins, and proteins. The inorganic constituents included metallic d Art expert and host of the BBC One show Fake or Fortune Philip Mould shared footage with his followers, revealing the careful removal of the protective varnish from the painting, and the transformation looks stunning. â€œA remarkable Jacobean re-emergence after 200 years of yellowing varnish,â€ he wrote on Twitter. Most details of the â€œWoman in Redâ€ are lost, and all that we know is that she was 36 years old at the time.Â A mixture of gel and solvent was created, specifically just to remove the varnish and not to damage the underlying paint. Itâ€™s different from normal restoration, with the gel suspending the solvent and working in a more controllable way.â€ More info: Twitter. About two hundred years ago, someone coated a 1618 oil portrait of an unknown lady with a thick layer of varnish. A bone discovered in chance in the 17th century was the beginning of the search for dinosaurs. From then in, scientists and the public have been fascinated by these creatures. In accordance to beliefs at the time, the initial discovery was thought to be the bone of a human giant. However, in 1824, a scientist, William Buckland ,calculated that the bone belonged to a 12-metre, flesh-eating reptile and named it Megalosaurus, on the process giving us the first of the wonderful list of exotic names for dinosaurs. The 17th century discovery had, on turn, led to a series of futher names for further