John White’s Watercolours: Conservation and Mounting
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Introduction
This paper will look at the Department of Prints and Drawings’ collection of watercolours by John White, displayed in the British Museum’s exhibition, A New World: England’s first view of America, March to June 2007, from a conservator’s point of view. During their examination, assessment and preparation for display, at the Museum then on tour to several venues in America, valuable information was gained about the materials and techniques used by the artist, the current condition of the watercolours and changes that had occurred over time. This was taken into account, together with a number of other considerations, when deciding on the most suitable conservation treatments and mounting methods to preserve them for the future.¹

History of the drawings
The most dramatic event in their history occurred in 1865 when the album of 75 watercolours was in the Sotheby’s warehouse, awaiting sale. A fire broke out, resulting in scorching of the spine of the album and charring of the edges of the pages. The worst damage was caused when the album was saturated with water used to extinguish the fire, and then left for three weeks under the weight of other books. The result was that a great deal of pigment was transferred from the original watercolours to the blank interleaving sheets of paper, creating extraordinarily clear offset images. Figure 1 shows the original watercolour of a Mammea fruit on the left. The offset image, with its charred edges, is seen on the right. In Figure 2 the offset of a Roller Bird is seen on the left, and the original on the right. The remains of smoke damage are visible near the chest of the bird.

The damaged album was purchased at the Sotheby’s sale by an American, Henry Stevens, and in 1865 the pages with the watercolours were removed and remounted for him into a new album of red leather with gold tooling by the binder F. Bedford. The offset images on the interleaving sheets were bound into a separate matching album at the same time. The British Museum acquired both volumes in 1866.

The offsets remained in their album, while the original watercolours were removed from theirs, and then housed in acid-free mounts kept in archival Solander boxes in the Prints and Drawings Students’ room. Remounting of the watercolours was carried out in stages over the years using different types of board. For the earliest mounts thin boards were used. This produces a shallow aperture, or ‘window’, in the top board, which gives little protection from abrasion of the media surface of the watercolour if the paper does not lie flat. In the majority of the mounts the top ‘windows’ were adhered down onto the back board, creating a solid mount which allows no access for viewing the verso of the watercolours. Years of handling had resulted in the mounts becoming dirty and worn with greasy finger marks on the surface of the mounts clearly visible.

The paper used by John White was of a high quality with few impurities. The fine laid lines and even distribution of fibres are shown in Figure 3. Many of the paper sheets contained the watermark of a bunch of grapes, seen here, which closely resembles those found in papers made in France in the 1580s.² In fact, the majority of fine white papers used in England at the time were imported from Europe, France in particular.

Figure 1 Mammea fruit, John White (BM 1906,0509.1.40.a). Original watercolour on left, offset on right

Figure 2 The Roller Bird, John White (BM 1906,0509.1.64). Offset on left, original on right

Figure 3 The town of Pomeiooc, John White (BM 1906,0509.1.8) detail, viewing over transmitted light reveals fine laid lines and bunch of grapes watermark
Examination and condition

The watercolour of a Sabatia flower is shown on its mount before conservation in Figure 4. Raking light was used in the photograph to show the quite dramatic undulations in the paper, which occurred in many of the watercolours. Ridges around the edges of the sheets were the result of methods used to attach them to the mounts, either by long paper hinges (guards), or by inserting them into ‘traditional’ inlays of false paper margins with chamfered edges which were then adhered to the back board of the mount. Some of the watercolours had been adhered directly onto the back mount board, in these cases there were no ridges on the edges.

Over the years general dirt had accumulated on the surface of the watercolours, sometimes with stains from excess adhesive around the edges where they had been attached to another sheet of paper. There were also many tears and other damage to the edges of the sheets.

Damage caused by the offsetting of the images after the flood in 1865 was most obvious in areas where the pigment had been thickly applied or where particles had been more coarsely ground. This can be seen in the watercolour of the Dorado fish, under magnification in Figure 5, where much of the blue smalt pigment has been lost. In the watercolour of the Tartar or Uzbek man (Fig. 6) the blue and red areas have suffered serious pigment loss. A number of the more soluble pigments had ‘run’ through the paper fibres when the album was wet, causing fuzzy edges, as here in the red shoes. There was particular concern about the danger of further loss of pigment and each watercolour was carefully examined under the microscope to detect any loose particles or recent cracking. However, the remaining pigments were found to be firmly attached to the paper surface, therefore no consolidation of pigments was deemed necessary.

Use of the microscope also revealed more information about the artist’s technique, such as the stippling in the hat, and graphite under-drawing around the eye of the Tartar or

Figure 4 Sabatia flower, John White (BM 1906,0509.1.38) watercolor, shown before conservation

Figure 5 Dorado fish, John White (BM 1906,0509.1.44), watercolor. Images above, under magnification, show loss of smalt pigment

Figure 6 Tartar or Uzbek man, John White (BM 1906,0509.1.33) watercolor. Images on right, under magnification, show pigment loss
Uzbek man (Fig. 7). The textures of the paper and media were also clearly visible.

A soluble pale green pigment had 'bled' sideways and downwards through several pages of the album while it lay saturated with water after the fire and flood. This can be seen in the watercolours in Figure 8. Photographs taken under ultraviolet light showed more of the stain, and also picked up some halos and darker patches, which were not visible under daylight (Fig. 9).

In some areas of the watercolours pigments had darkened, giving the opposite effect to the highlights intended by the artist. Pigments containing lead (lead white and red lead) can darken due to a chemical reaction, often with sulphur in the atmosphere. Figure 10 shows darkened areas in the woman’s earrings, shoulder and neck trimming. The darkened patches on the body of the fish are tarnished silver.

A faint grey line was visible across the centre of many of the sheets, indicating that they were once folded. This was probably done before John White painted the watercolours since the pigment layer in the area is undamaged. From their general condition it appears likely that they were painted on his return to England, using notes and other drawings he made on his voyage.

Treatment evaluation

Public access to the Department of Prints and Drawings’ collection has increased greatly over recent years, both in the Students’ Room, which is constantly busy, and through an extensive loans programme to exhibitions in the museum and around the world. There has already been considerable interest in the watercolours by John White, and it is likely that these current exhibitions will generate further demand for access to study them. These facts, together with requirements for storage, future display, handling and transport, (in particular their exhibition in America), was taken into account when making decisions on which conservation treatments to select.

It was necessary to improve the overall distortions, and the ridges on the edges of the papers, which were a visual distraction, and would become more pronounced with any changes in humidity. Any damage to the paper had to be repaired. There was also the possibility of future loss of pigment by abrasion of the surface due to the shallow mounts. It is often important to be able to view both the recto and the verso, and any watermarks present in the paper. This was not possible with these watercolours as they were adhered to the back mount boards. Figure 11 shows the verso of one of the watercolours, after removal from its mount, with collection stamps, pencil inscription, the green stain in the centre, and some of the drawing showing through from the recto. The faint
outline of the bunch of grapes watermark can also been seen. Although conservators can treat blackened lead pigments, mentioned earlier, to restore the original effect, the treatment is not always completely effective and is not reversible. It was therefore decided not to apply it to these watercolours, particularly as digital images can be created to approximate the original colours.

Conservation treatment
This consisted of taking all the watercolours out of their old mounts, removing the distortions from the paper, repairing and remounting them. The first stage is the removal of the top ‘window’ part of the mount. This revealed an area of grey surface dirt visible bordering the watercolour; the top ‘window’ had protected the area around this from dirt.

The watercolours had been attached to their mounts by various methods over the years, as described earlier. If adhered directly onto the mount board, removing them often involved undercutting into the board with a scalpel (Fig. 12).

Figure 13 shows the remains of the paper hinges (guards) that were used to attach the watercolour to its old mount. These often caused a slight ridge under the edges (Figure 4). Paper debris and adhesive residue, had to be carefully removed from the edges of the verso, so that the drawings would lie flat after treatment. Moisture is needed to soften the adhesive residue. However, risk of staining of the surrounding paper must be minimised, particularly in cases like this, where the paper of the watercolours was thin and very absorbent. A poultice of methyl cellulose was applied with a small brush to the edges of the paper hinges (Fig. 14). The moisture in the poultice slowly swells and softens the adhesive, the paper guards and remaining traces of adhesive can then be carefully removed with tweezers and a scalpel.

After they were removed from their mounts, it was clear that many of the sheets had badly ‘skinned’ edges on the verso. This had probably occurred when they were taken out of an earlier album. Viewed over transmitted light, Figure 15 shows the old paper hinges (guards) partially removed, revealing the previously ‘skinned’ areas of the paper. Some old paper repairs, such as in Figure 16 were also found when the watercolours were taken out of their mounts. These were removed if deemed unbeneﬁcial, and any ‘skinned’ and damaged areas were reinforced to add strength and to improve the visual appearance, using a combination of repair papers, chosen for their sympathetic texture and colour.

Working on a light-box revealed the weak areas in the paper and allowed accurate positioning of repairs (Fig. 17). Thin, weak areas and small tears were supported on the verso with long-ﬁbred Japanese paper, and losses were infilled on the recto using a Western paper of similar weight, texture and laid and chain line structure to that used by John White (Fig. 18). A specialist gluten-free wheatstarch paste, which is easily reversible when necessary, was used to adhere the repairs, and these were then toned with watercolours to blend in with John White’s papers.
In order to remove the distortions in the paper, the watercolours were first briefly humidified, face up, on a sheet of Gore-Tex on top of damp capillary matting, in a box made of cedar wood. A sheet of Perspex formed an airtight chamber. Afterwards they were placed between soft tissues, thick sheets of blotting paper and boards, under a sheet of glass and pressed lightly under weights.

There are a number of considerations when pressing paper, for example, the texture of the paper, watermarks, and any vulnerable media, which may tolerate only a very light pressure if these features are to be preserved (Fig. 19). Pressing achieved a marked lessening of distortions in the paper of the watercolours (Figs 20 and 21).

Since the Prints and Drawings collection is so often required for study, display and loan, it is our policy to inlay all drawings. A false margin is thus provided to protect the edges, and reduce direct contact when handling the object. A window is cut into the inlay paper around the drawing, which is then attached on the verso using strips of Japanese paper and methyl cellulose adhesive (Fig. 22). This method of inlaying, using Japanese paper strips, avoids the ridges at the edges of the watercolours caused by the ‘guard’ papers, or by the overlap onto the chamfered edge of the ‘traditional’ inlays, described...
earlier. Photographs showing a watercolour before, during and after conservation treatment can be seen in Figure 23.

After inlaying, the watercolours were hinged into ‘window’ mounts of cream coloured acid-free board. Each mount was stamped with the artist’s name and an individual acquisition number. Inlaying and mounting in this way allows the verso as well as the recto to be seen without touching the watercolour itself, (Fig. 24). For the exhibition here in the Museum, the mounts were temporarily overlaid with coloured board. On their return from exhibition in America, the mounted watercolours will be housed once again in archival Solander boxes to protect them from light, dust and atmospheric pollutants.

Our examination of John White’s watercolours revealed important information on how they were drawn, their history, and present condition. This has been recorded, together with details of our conservation methods, and will provide a useful resource for those responsible for their care in years to come. Conservation treatments and remounting have improved their appearance, and will help to preserve them for the enjoyment of future generations.

Notes