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Front Cover image: 5804-1859 Detail of *The Continence of Scipio* panel (Photography by Éowyn Kerr)

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Editorial

Sandra Smith

Welcome to the first edition of the annual, full-colour *V&A Conservation Journal*. The Journal has changed in content to reflect the length of time between editions. It continues to represent the day-to-day activities of the Conservation Department in relation to priorities created by the Victoria and Albert Museum's strategic plan and the Government agendas that underpin it. In the Journal, our aim is to highlight aspects of the Department's activities:

- Practical conservation
- Research
- Changes and developments in practice/policy
- Communication
- Training and education

Brief articles have been solicited from each of the conservation studios, the Science Section and the RCA/V&A Conservation Programme. The intention is that some of these will be augmented through the Conservation pages of the V&A website where links to further information or related subjects can be explored (Campbell). Whilst the Journal still contains a staff chart, readers are encouraged to use the website for the most up-to-date staffing list and to access new staff and student biographies, feedback from interns and placements and other current news. The Journal continues to contain timely articles relating to current exhibitions such as Hartog's on the preparation of the Dior dress for *The Golden Age of Couture* exhibition (the exhibition will also go on tour). The work for V&A FuturePlan projects, such as the preparation of collections for the forthcoming Medieval and Renaissance galleries (Kerr), and the Ceramics galleries (Ramakers) is also illuminated.

Making our expertise available to a variety of audiences and providing access to the decision-making process is thought provokingly explored by Kemp in his article on ethics, whilst Battisson highlights the importance of guidelines for good practice in preserving and copying original digital and other time-based media within the collections.

During 2007, the Museum's public programme has seen the Department involved in 13 gallery projects, 19 exhibitions, 26 displays, 14 touring exhibitions (at 24 different venues) and over 100 loans resulting in over 6000 objects being assessed and treated by the Department. Eatman and Rutherston explore changes in conservation practice within their particular areas of expertise, resulting from the need to increase the efficiency and speed with which we prepare collections for the public. Other departments, namely Collections and Technical Services, have also contributed articles to provide a broader Museum perspective and examples of collaborative problem solving for mounting collections quickly (Lambeth and Brown).

Staff have continued to work alongside students to undertake research on the V&A collections (Schellmann, Tallian and Derbyshire) and to collaborate with other external institutions to deliver research on preservation and care which has the potential to benefit collections across the world (Strlič). The Department's other research activities have included: providing speakers for external conferences; co-hosting the ICON Textile Group Spring Forum: Dress in detail; and organising an international conference, *Plastics: Looking at the Future & Learning from the Past,* the preprints of which should be published in 2008. Concurrently, money has been secured for Christine Powell and Zoë Allen to write a book on the technical aspects of Renaissance frames, due to be published in 2009. The output of the Department this year has been formidable in every area and my thanks go to all members of the editorial team as well as the authors for their contributions to this successful production of the first annual *V&A Conservation Journal*.

Displaying stained glass in a museum

Sherrie Eatman
Senior Stained Glass Conservator

Stained glass is considered to be one of the more difficult objects to display in a museum, not because it needs strict environmental conditions but because it involves far more than placing it inside a case, hanging it on a wall or moving it into the correct position on the floor. The majority of the stained glass panels in the V&A's collection were originally part of a building's architecture and as such they can be large and heavy. It is not unusual for one object to consist of multiple panels that need to be supported individually. Artificially lighting stained glass at a suitable level provides a further challenge for designers because stained glass was designed to be illuminated by natural light, which changes throughout the day as well as the seasons.

Since the mid-1980s, the V&A's stained glass objects have been mounted in handmade L-section frames constructed from light aluminium alloy and painted black using a low-gloss polyester powder coating before going on display at the Museum or in external venues. The Stained Glass Conservation Studio devised these frames to protect and support the panels during installation, display, storage and transport. Their use also provides consistency for gallery and exhibition designers and enables appropriately trained technicians and curators to handle the panels safely and confidently without always requiring the presence of a stained glass conservator.

After a stained glass panel has been placed in its frame, a piece of clear Perspex® or Makrolon® is placed directly behind it to provide added support. The stained glass panel and its backing sheet are held in place with L-section brackets and screws so the frames can be removed easily without causing any stress or damage to the objects. The construction of the frame also allows for an additional piece of Perspex/Makrolon to be placed in front of the panel, which is necessary when it is displayed at a low level without a physical barrier. For irregularly-shaped panels, thin black aluminium infills are fitted under the flanges of the perimeter leads to fill the spaces between the stained glass and the rectangular frame.

False walls are often constructed for displaying stained glass in temporary exhibitions and permanent galleries. Ideally a false wall will be built far enough out from the existing gallery wall to allow the stained glass to be installed from behind it. Apertures with rebates corresponding to the dimensions of each framed stained glass panel are cut into the false wall. The framed panels are placed into their apertures from behind the false wall and held in place with wooden beading.

(Photography by V&A Photographic Studio)

Figure 1. False wall display in the Whiteley Sacred Silver & Stained Glass Galleries

In galleries where space is limited, like the long, narrow Whiteley Sacred Silver & Stained Glass Galleries, the false wall construction can only be deep enough to accommodate the required services and light fixtures (Figure 1). In these cases, the rebate is reversed so that the panels can be installed from the front of the false wall. Instead of using beading, a fascia board or decorative masking frame is fitted to the front of the aperture to hold the panels in the rebates. If only a few stained glass panels are to be displayed in one space, designing individual wall-hung lightboxes may be a more desirable alternative to constructing a false wall (Figure 2).

(Photography by V&A Photographic Studio)

Figure 2. Wall-hung lightbox in the entrance of the Whiteley Sacred Silver & Stained Glass Galleries

Displaying stained glass on the window side of the Whiteley Sacred Silver & Stained Glass Galleries, which overlook the John Madejski Garden, required a different solution to ensure that visitors could enjoy the views of the re-landscaped garden from these windows. A series of nine 4 metre high metal screens were designed to hold the stained glass while taking advantage of the natural light to illuminate the panels (Figure 3). The design of these screens also enabled some panels to be displayed at eye level, giving visitors the opportunity to engage with these objects at close range.

Stained glass can be illuminated artificially using either a conventional back lighting system or a slim profile edge lighting system. Variations of both were used to enhance the four different display methods chosen for the stained glass in the Whiteley Sacred Silver & Stained Glass Galleries. The stained glass panels displayed along the wall side of the gallery are backlit using fluorescent lamps. The panels displayed in the screens are individually illuminated by LED modules that switch on whenever the natural light coming through the windows needs to be boosted. An edge-lighting system using slimline fluorescent lamps was devised for the wall-hung lightboxes to enable them to be as thin as possible. Finally, the stained glass panel in the display case is edge-lit using fibre optic lighting, which is particularly good for use in enclosed spaces since it does not produce heat.

(Photography by V&A Photographic Studio)

Figure 3. Free-standing screens in the Whiteley Sacred Silver & Stained Glass Galleries

Following are some basic guidelines for artificially lighting stained glass:

- stained glass should not be lit too brightly
- the light must be evenly distributed across the entire panel
- the diffuser material should not have a distracting pattern that can be seen through clear, unpainted glass
- the inside of the lightbox should be painted white to reflect the light source
- the light source should generate a minimal amount of heat
- suitable ventilation must be provided to dissipate heat
- it should be possible to replace faulty lamps or transformers without having to remove the stained glass
- the ambient light levels in the gallery should be taken into consideration to ensure too much reflected light does not fall on the stained glass

The new Medieval and Renaissance galleries, due to open in late 2009, will include over 130 stained glass objects amongst its permanent displays. The same basic display and lighting methods will be used, i.e. wall-mounted lightboxes and free-standing support structures, but no doubt with exciting new technology. Regardless of how a museum ultimately chooses to display its stained glass, the most important thing to remember is that the most successful displays will result from involving designers, engineers, conservators, curators, technicians and lighting specialists from the earliest stages of design.

Resources vs access: meeting the challenge

Jane Rutherston
Senior Book Conservator

One of the Victoria and Albert Museum's key objectives is to increase access. This is reflected in an extensive public programme of FuturePlan projects, exhibitions, displays and loans. Due to limited resources this philosophy has challenged conservation to focus on the standards of work we apply to objects depending on the type of display. For example, objects going on permanent display, in high-profile FuturePlan galleries, may require more interventive conservation than an object going on loan where the key factor is stability and suitability to travel.

In response to this, and ever the advocate of adopting simple, more efficient solutions to conservation problems and in order to limit interventive treatments, I am always open to suggestions and looking for new techniques. This is not, as some believe, due to lack of skills on the part of the conservator, but merely a pragmatic response to a modern-day necessity – the pressure on museums to allow access and the role of conservators to facilitate this objective cannot be ignored.

In 2006 four books from the V&A collection were part of the exhibition *Leonardo Da Vinci: Experience, Experiment and Design* held at the Museum, which opened on 14 September of that year. One of these was *De Divina Proportione,* (Pressmark 87.B.30), printed in Florence in 1509 and bound in a limp vellum binding. The book was in fairly good condition apart from various tears to the cover including one on the front yap and two on the back (Figure 1), with some skinning running horizontally from the edge. It was deemed necessary to repair these tears in order to minimise the possibility of them extending onto the covers through handling. A decision was made to limit treatment and find a suitable non-interventive method. It was at this point, in discussing possible repair techniques, that my colleague Merryl Huxtable, Senior Paper Conservator, suggested the use of a strip of an appropriate weight parchment slipped into the fold of the yap may be sufficient to support the tears. After consideration and assessment of the suitability of such a repair, the idea was adopted.

Methodology: Parchment of the correct weight was found, cut into strips slightly narrower than the yap and toned using acrylic paints. The ends of the parchment strip were then rounded and inserted into the fold of the yap (Figure 2). Where skinning to the tears had occurred a film of isinglass, re-activated with moisture, was used or a dry wheat starch paste (Figure 3). The front tear also had a weak area which was supported onto the parchment strip using an isinglass-coated Japanese tissue.

This simple method appeared to be perfectly adequate in meeting the aims of the treatment without compromising the original appearance of the object. Any adhesive used was minimal allowing the repair to be easily removed if necessary.

Acknowledgements
My special thanks to Merryl Huxtable for making the repair suggestion.

(Photography by Jane Rutherston)

Figure 1. Tears on lower yap before conservation

(Photography by Jane Rutherston)

Figure 2. Repair parchment being inserted into lower yap

(Photography by Jane Rutherston)

Figure 3. Lower yap after conservation

Costume cleaning conundrums

Frances Hartog
Senior Textile Conservator

In preparation for the V&A's autumn 2007 exhibition, *The Golden Age of Couture,* an extremely rare costume by Christian Dior was brought into the Textile Conservation Studio for treatment (Figure 1). It was amongst over one hundred costumes, underwear, hats, shoes and other items requiring conservation and mounting before display.

The greatest challenge this costume presented was its appearance; it was heavily soiled, distorted and visually unappealing. The question was – could it be cleaned and reshaped?

The costume, entitled *Zemire* by Dior (T.24-2007), consists of a bodice, skirt and jacket made from a vibrant fuchsia pink fabric with a full-length petticoat of stiff net and crin (a stiffening fabric) with a boned bodice. This ensemble was the star piece of Dior's autumn/winter collection of 1954. In spite of its fame it was believed no version of this outfit had survived – that is until Claire Wilcox, the curator of the exhibition, spotted it anonymously listed in a Paris auction. Permission was granted to acquire the piece specifically with the exhibition in mind. Investigations have since proved that it was commissioned by Agota Sekers, the wife of Miki Sekers the textile manufacturer.

In Dior's original collection the *Zemire* design appeared in a subtle grey silk satin with mink trim. This bold, fuchsia pink version had been created using a Sekers manufactured satin weave fabric of the early synthetic cellulose acetate. The obvious intention was to showcase the fabric using Dior's design, which was perfectly suited because of the quantity of fabric required; the waist of the very full skirt measures over 5 meters when un-pleated. This joint creation is a neat illustration of Christian Dior's commercial acumen.

The condition of the costume at the time of purchase was startling. The hem of the skirt was black inside and out. All parts were soiled. There was extensive water-borne staining throughout; the proper left sleeve of the jacket and front of the skirt both had large stains down their entire length that had hardened to the consistency of cardboard. The whole ensemble was very heavily creased and misshapen. The waist of the skirt had been taken apart and cobbled together again in haphazard gathers. As one of my colleagues succinctly put it – it was a mess!

(Photography by Richard Davis, V&A Photographic Studio)

Figure 1. T.24-2007 *Zemire* costume after acquisition

It was apparent the costume could not be displayed in its present bedraggled state and any treatment undertaken would need to focus on cleaning. The fabric was analysed and identified as cellulose acetate by the Science Section (this was before the connection with Sekers had been made). Information found on cleaning methods for cellulose acetate tended to be for contemporary examples; nothing was found for fabric of this age.

Cleaning tests followed. Surface cleaning using vacuum suction was ineffective. Chemical sponges had limited success on the black hem of the skirt; the sponges came away black but there was no visual improvement. Stoddard solvent was tested and was reasonably effective, it reduced the black soiling around the hem by approximately 20%. Wash tests were also carried out. The results showed that the cellulose acetate released dye in a non-ionic wash solution with a pH of 5.6. It also released colour – but

to a lesser degree – at a higher pH of 8, in a wash solution containing the chelating agent tri-sodium citrate. Though there was dye loss, there was no discernable colour change. The fine silk used as the primary lining in all the pieces released dye more readily; the amount of loss increasing as the pH rose, exactly opposing behaviour to that of the cellulose acetate. The secondary heavier silk lining in the jacket lost colour in a pH as low as 4.5 and above this, in a wash solution with a pH of 5.6, the loss was so great that the colour changed from deep pink to pale pink.

From the evidence it was felt that solvent cleaning would offer the least detrimental solution. Because maximum efficiency was required, a commercial dry cleaner of considerable experience was invited to the V&A to examine the costume. After discussions it was decided that the jacket, bodice and skirt would all undergo commercial solvent cleaning using perchloroethylene (PERC). It was thought PERC would be more effective on the black soiling than a white spirit-based solvent. It was accepted that the creasing would remain and that it was unlikely any of the water staining would be removed. The results were very much as expected; the black soiling around the skirt's hem was reduced by as much as 50% but was still evident, the creasing and water staining were unchanged. Whilst carrying out further tests on the hem using a dilute detergent solution in an attempt to reduce the black soiling further, it was noticed large amounts of brown soiling were being released, presumably originally water-borne. To remove the creasing, hot steam would have to be employed and this sat uncomfortably with the amount of soiling still retained in the fabric. The introduction of steam could cause hydrolysis of the fibres and fix the soiling.

After consultation with Claire Wilcox, the decision was made to wash the jacket, bodice and skirt, in the knowledge there could be colour loss and not knowing what level of soil release would be achieved. This necessitated the removal of the secondary lining in the jacket and the removal of the skirt from its yolk to release the uneven gathers. The primary lining of fine silk found in all parts of the costume was structurally integral and could not be removed; it was accepted there would be probable colour change.

To maximise cleaning efficiency, the chelating agent tri-ammonium citrate was added to all wash baths, raising the pH from 5.6 to between 6.3-6.6. Due to the complexity of the jacket's structure and scale of the skirt, logistics dictated that all parts be washed separately, introducing the further risk of inconsistent results. The bodice was washed first; being the smallest item it was felt to be the most controllable. The results were pleasing, a noticeable reduction in soiling but the creasing remained. The jacket (the skirt of which was lined with three different fabrics) was then washed with enhanced results (Figure 2); all the water staining was removed and the appearance was much improved. Finally, the skirt was washed, again with impressive results. Though some of the water staining remains, the fabric became soft and malleable, and the lustre of the satin was greatly enhanced.

(Photography by Jennifer Barsby)

Figure 2. The jacket being washed

There was, indeed, dye loss in all the baths and it is probable that this was from both the cellulose acetate and the primary silk lining. Dye loss does not always equate to colour change. The visual intensity of the cellulose acetate appears unaltered and importantly, in all three parts – bodice, jacket and skirt – it remained colour-matched. However, the primary silk lining did lose colour and is paler after washing.

The level of cleaning allowed the use of hot steam to remove the creasing which had been so extreme it had masked the true shape of the ensemble. In turn, the steaming facilitated the reinstatement of Dior's original, complex, soft box pleating around the skirt. The soiling down the left sleeve of the jacket and centre of the skirt which had been so hard there was a danger the fabric could crack with handling – was gone. And the final result? The costume on display is now recognisable as an original Dior creation (Figure 3).

Figure 3. The *Zemire* after washing
(Photography by Richard Davis, V&A Photographic Studio)

Digital killed the analogue star! Care of V&A collection based carrier and machine assisted media

Clair Battisson
Preservation Conservator

(Photography by Peter Kelleher, V&A Photographic Studio)

Figure 1. *The Other Flower Show* 29 May – 11 July 2004
Graham Fagen *Blood Shed*

(Photography by Peter Kelleher, V&A Photographic Studio)

Figure 2. *The Other Flower Show* 29 May – 11 July 2004
Vince Clarke and Martyn Ware (Illustrious Co. Ltd) *Town and Country*

Video, film, sound and audio recordings have become a familiar feature of V&A exhibitions, displays and collections. The term we are currently using to describe this type of work is 'Carrier and Machine Assisted Media'. Presented in an ever-increasing variety of formats, these works are machine assisted in their realisation and should be experienced over a period of time.

Conservations' need for care policies and procedures for this type of work first became apparent during the installation of *The Other Flower Show* (May 29 – 11 July 2004). Ten contemporary artists and designers were invited to each transform a garden shed to produce a site-specific work following a flower/ garden theme; three of which incorporated sound and moving image. It soon became obvious that we didn't have any documentation or procedures in place to help with condition checking or the monitoring of display equipment for this media. This triggered thoughts, as well as concerns, about possible care and conservation issues surrounding this type of work already belonging to the Museum.

Optimum access to collections is one of the V&A's key strategic objectives. Although some collections may be better equipped for accessibility and may even have basic care policies in place for this type of work, a limited survey showed that many master copies were functioning as 'user copies' and some media was inaccessible due to outmoded formats (for example varieties of magnetic tape; video, audio and open reel) and lack of playback equipment (such as vinyl, cassette and video players, and specific projectors). Constant manufacturing developments mean there is a continuous need to upgrade carrier

formats and, subsequently, playback equipment to allow accessibility. Outmoded technology, inefficient knowledge and poor storage conditions can cause this media to deteriorate rapidly. However, on a positive note, storage conditions appeared to be fair; the majority of media was stored in either a case or sleeve and most was stored upright rather than horizontally.

It was essential that the Conservation Department produce a set of policies and procedures to cover the care of this type of work across the collections and also take into account any loan objects entering the Museum. Contact with Pip Laurenson[1] and her colleagues at Tate, and Gary Malkin[2] at the BALTIC Centre for Contemporary Art was an extremely helpful start. Further research into other institutions' guidelines and recommendations eventually enabled us to create a set of basic policies outlining 'Good' and 'Best' Practice which are manageable but of an acceptable standard, while taking into account a number of constraints such as staffing and costs. The draft document is currently under review and comments from colleagues could have an impact on the final policy as well as the way in which works are categorised and terminologies used.

'Good Practice' covers basic care issues and recommendations such as storage, environment, handling, labelling, condition checking and equipment, these being preventive measures which should help to slow down the accelerating deterioration process. Humidity and temperature ranges are still to be considered. The scale of the ranges will be very much dependant on available resources of both space and costs when this matter is addressed.

'Best Practice' raises issues about accessibility, collecting and requires definition of object types, as it may have an impact on the care policy.

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Objects fall into one of three main categories:

1. Works of Art
   Works which are art objects in their own right, such as the video installation of *24 Hour Psycho* by Douglas Gordon.

2. Documentation
   A record of an event, such as footage of a stage play of *Hamlet*. (Some works of art are made to be purely documentary especially for ephemeral works and may be the only thing that exists after that one off event is over. Recordings of a Joseph Beuys performance would fit into this category.)

3. Supporting Material
   Records which explain aspects of a particular object or exhibition, such as the DVD recordings of people describing their experiences shown in the V&A's 2005 *Black British Style* exhibition.

Those which usually sit in the works of art category could possibly create an additional set of problems, such as care of playback equipment. Specific equipment may not only be necessary to play the work but also be a part of the installation so must also be taken into consideration as part of the conservation policy. Substituting specific equipment and formats could significantly change the meaning of the work.

To provide optimum access to outmoded media, which sits in the documentation or supporting material categories, a migration programme could be considered. This would guarantee access to:

- Outmoded media where playback equipment is not readily available
- Works where the carrier is showing signs of degradation
- Data from a carrier where degradation is so bad the information is almost lost

However, a migration programme would require much careful consideration. It is an ongoing long-term preservation process which involves continual upgrading of formats and playback equipment making it a huge and expensive undertaking.

Ideally the Museum should hold three copies of each work: a master, a secondary master and a user copy. Each copy requires different standards of care and different levels of accessibility, all of which raise storage issues.

Two methods for keeping works of art alive are 'emulation' and 'reinterpretation'. Emulation involves imitating the original look of the work but by completely different means. Reinterpretation is possibly the most radical, as the work is reinterpreted each time it is recreated. Both are contentious procedures, particularly if not agreed by the artist or designer, but sometimes the only way to replicate a performance or installation.

The draft policy is currently under review and, once agreed, should be implemented as soon as possible. It is imperative that we begin to tackle the issues surrounding the care and conservation of collection based carrier and machine assisted media now, otherwise we could risk losing works forever. Increasingly, more art and design work is being created digitally. The types of work being produced will continue to grow as technology progresses. As a result of this, the different types of media in the Museum's collections will increase, emphasising even more so, the need for a care policy. If we don't have the resources to look after this media in an acceptable way and are not able to make this type of work accessible then maybe we need to consider why we are collecting it in the first place.

Acknowledgements
I would like to thank Pauline Webber, Brenda Keneghan, Sandra Smith, Pip Laurenson and her colleagues at Tate, and Gary Malkin.

References

1. Pip Laurenson is the Head of Time-based Media Conservation at Tate. SFMOMA, New Art Trust, MoMa and Tate have formed the consortium 'Media Matters – Collaborating Towards the Care of Time-Based Media Works of Art'. They aim to establish best practice for guidelines for this type of work.
   www.tate.org.uk/research/tateresearch/majorprojects/mediamatters

2. Gary Malkin is a Programme Archivist and Librarian at the BALTIC Centre for Contemporary Art, Gateshead

Observations on the causes of flaking in East Asian lacquer structures

Nanke Schellmann

PhD Student, Dresden University of Fine Arts and V&A Mazarin Chest Project*

The Victoria and Albert Museum houses a large collection of East Asian lacquer art. The main coating constituent of these objects is the sap of certain trees, which polymerises through an enzyme-catalysed reaction in the presence of oxygen and high relative humidity. Like many other museums in the West that collect objects of similar nature, the V&A has a small but significant number of artefacts that have suffered severe damage to their lacquer coatings over the course of time. The lacquer coatings show dramatic signs of degradation, with cracks covering large areas of the surface, cupping and tenting of layers, and, in the worst case, considerable losses caused by the complete adhesion or cohesion failure of the layered coating structures (Figure 1).

(Photography by Nanke Schellmann)

Figure 1. W.332-1921 Round lacquer box with chrysanthemums, Japanese, 18th century, showing blistering and losses of the lacquer coating

It is generally understood that damage to lacquer coating structures is caused by unfavourable environmental conditions during storage and display such as exposure to ultra violet (UV) and visible light radiation (VIS), and frequent or extreme fluctuations of ambient relative humidity and temperature. However, it is unclear why some objects are more badly affected than others when exposed to similar environmental influences.

A small survey of the Museum's Japanese and Chinese lacquer collections was undertaken in order to understand the failure mechanisms responsible for the flaking of East Asian lacquer coatings and to find out whether it was possible to discern any structural or compositional similarities between the objects. Objects displaying the most severe cracking and flaking were targeted for the survey. Examination with the naked eye and a stereo microscope was undertaken to identify objects where the damage had been caused by inherent structural weakness rather than accidental impact. These were studied in more detail and sampled for cross-sectional analysis.

The survey confirmed an earlier assumption that Japanese objects which had been originally produced for the western market (frequently referred to as 'export-ware') and Chinese lacquer screens were particularly affected by cracks and progressive flaking of the lacquer coating. However, an early fifteenth-century Chinese cabinet (FE.7-1973) had only suffered minor losses to its lacquer coating, despite displaying pronounced lacquer cracking and cupping (Figure 2). A comparison of this object with the group of Japanese export lacquerware and the Chinese screens seemed a promising approach to resolve the question of why lacquer coatings behaved so differently.

(Photography by Nanke Schellmann)

Figure 2. FE.7-1973 Detail of a Chinese lacquer cabinet showing extensive cracking of the lacquer coating on the inside of the drop-front

East Asian lacquer coatings are complex multilayered structures, usually consisting of several foundation layers, sometimes incorporating sheets of textile or paper, followed by a number of lacquer top coats to produce a highly polished surface. The main rationale behind this complex layer structure is to achieve a perfectly smooth surface that can be polished to a mirror-like appearance, and to balance stresses within the coating structure, which is a prerequisite for achieving long-lasting lacquer finishes.

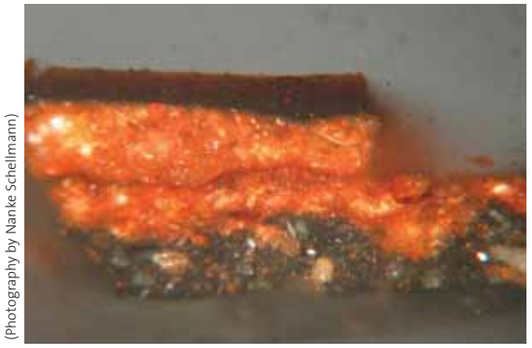
Stresses are best distributed and compensated within a multilayered structure if all layers show a similar elastic behaviour and adhere strongly to one another. Usually, the individual layers differ in their mechanical characteristics, owing to the varied natures of their components. Even if the lacquer layers show a great compositional similarity, the coating will exhibit a different mechanical behaviour to the substrate it is applied to. Strong cohesion within the layers and a firm attachment to the substrate and adjacent layers is required to inhibit or restrain the expansion and contraction of the composite layer in the in-plane directions (horizontal to the layers) and helps reduce the risk of delamination.

East Asian lacquer is known to be a strong (flexible though rigid) material featuring firm cohesion and good adhesion between individually applied layers.[1] The surveyed objects reflect this in that none of them showed any delamination within the pure lacquer layers. The cohesion and adhesion of composite foundation layers, on the other hand, depends on the amount and nature of binder enclosing the pigment particles. As lacquer has always been a very expensive material, it was frequently replaced by cheaper binding media (e.g. animal glue or persimmon juice) or adulterated with additives (such as *funori* (seaweed) or oils) in Japanese export-ware and Chinese coatings.[2] Foundations that do not contain a high amount of oriental lacquer, or introduce weaker binding substances to the multilayered coating, will weaken the structure. It was therefore expected that the lower quality of their foundation layers would be found to be responsible when lacquer artefacts exhibited extensive flaking.

Cross-sectional analysis of a number of samples taken from the group of objects showing severe flaking damage gave useful insights into the structural and compositional weaknesses of the lacquer coatings. The cross-sections were microscopically analysed under VIS and UV light, and some chemical staining for the identification and distribution of binding media groups was undertaken. Ponceau S and Amidoblack 10B stain were used to identify proteinaceous media. Starch was detected with iodine potassium-iodide (Lugol's solution), and oil with Sudan Black B (Figures 3a-c). The binding media of the foundation layers were analysed with Fourier Transform Infrared Spectroscopy (FTIR) to verify the staining results. This research is still underway.

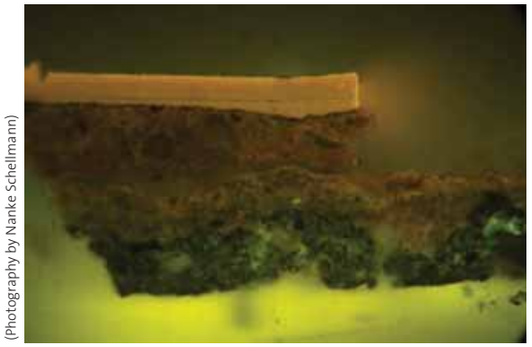
The analysis of the coating samples showed some interesting preliminary results. The samples taken from the Chinese cabinet differed profoundly from those of the Japanese export-ware and the Chinese screens. Its foundation layers were densely bound with a high concentration of oriental lacquer (low pigment to binder ratio), thoroughly coating even the fibres of the incorporated textile layer. Thus, the structure possessed hardly any pores, which was also confirmed with scanning electron microscopy. This suggests that a dense lacquer structure throughout the entire thickness of the coating may not necessarily inhibit cracking, but is effective in preventing flaking. Adhesion between the wood substrate and a composite foundation seemed to be significantly improved if the wood was primed with lacquer before the application of the foundation and/or the foundation was bound with a high content of lacquer.

Where paper was used, it tended to be the weakest layer where delamination was likely to occur. It either fully detached from the adjacent foundation layers or wood substrate, if poorly adhered (usually with starch), or split lengthwise within the layer, particularly when adhered with lacquer. Furthermore, protein-bound foundation layers generally appeared not to adhere well to starch layers and failure was likely to occur at their interface. Starch-containing foundations also



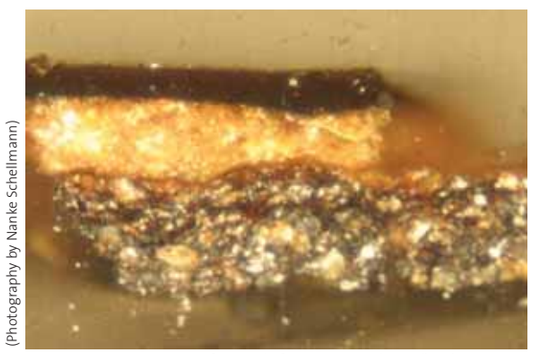
(Photography by Nanke Schellmann)

Figure 3a. 303-1876 Cross-section of a lacquer coating from a late 19th century Japanese cabinet stand; VIS light, 20x object



(Photography by Nanke Schellmann)

Figure 3b. Cross-section (as in figure 3a) seen under UV light showing 3 foundation layers and 2 lacquer layers



(Photography by Nanke Schellmann)

Figure 3c. Cross-section (as in figure 3a) after staining with Lugol's solution, VIS light. Adhesion failure at the interface between the top foundation and the starch-containing layer

appeared to cause problems, particularly when artefacts had been exposed to high levels of humidity. Such layers tended to exhibit adhesion failure from their adjacent foundations and promote delamination. Failure within protein-containing matrices (cohesion failure) and at their interface with adjacent textile layers was observed in several instances.

Preliminary results gained from microscopic, cross-sectional and FTIR analysis gave some indication of the different failure types that may occur in East Asian lacquer structures. Delamination appears to take place predominantly at, or near, the interface of layers that are bound with different media. Layers with a high lacquer concentration show good cohesion and adhesion to adjacent foundation layers and lacquer films. Cohesion failure of foundations that contain protein or starch was found to be a common cause for the flaking of East Asian lacquer coatings. Ongoing research aims to build on these results to provide conservators with a clearer picture of failure mechanisms in multilayered lacquer structures. This is essential for finding appropriate consolidation treatments for flaking lacquer coatings.

References

1. Kuwata, T. et al. 'Studies on Phenolic Resins. IV. Physical and Chemical Properties of Coating Films of Japanese Lac (Urushi)', *Bulletin of the Chemical Society of Japan*, 34/11 (1961) pp.1678-1685

2. Thompson, J.C. (ed), *Urushi – The technology of Japanese Lacquer* (Report by John J. Quin), (Portland, Oregon, 1995) p.13

Acknowledgements

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Practical ethics

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Senior Sculpture Conservator

The last decade or so has seen the transformation of knowledge-behaviours by the World Wide Web. The key to this rapid shift has been both the advent of the free software (or 'open source') movement and Web 2.0, whereby knowledge content has moved away from being a flat one-to-many model to a model of many-to-many content generation. The latter offers vast possibilities in the circulation of knowledge and of unlimited exchange in cultural content. As the Museum pushes itself into the digital domain, there entails a raft of demands and consequences about the knowledge economy in which it currently sees itself operating. It is against this background that this short paper will address a notion of practical ethics.

Codes of ethics are intended to produce real-world behaviours but without necessarily invoking clearly defined goals. The end cannot always justify the means, be it the greater good, the end to poverty, or just keeping things together. The V&A Conservation Department's Ethics Checklist[1] is described both as a tool for conservators in treatment decision-making, and a filter reflecting the guiding philosophy of the Department. This document is not meant as a temporary nor as a contingent scaffolding, rather as the standard for object care in the Museum. Along with other codes, what it reinforces is the assimilation into conservation of scientific methodologies alongside particular versions of full disclosure – where facts relevant to the object's care are recorded – with both being centred around clear documentation. Such features are designed to pin down decision-making by conservators onto a bedrock of empirical evidence, so that, for example, the future can reverse-engineer our present.[2] What is strikingly important in all this is that conservation's commitment to disclosure mandates a positive entry into the changing knowledge economy.

However, a difficulty arises when conservation understands itself as being concerned with the preservation of both the material and the cultural value of a thing, especially as the latter shifts with the changing role of the host institution. The V&A's current focus is to share its collections 'and explore the cultures that created them, ... as resources for learning, creativity and enjoyment by audiences within and beyond the United Kingdom', moving the Museum from earlier descriptive inceptions as a pedagogical institution, museum-as-machine-for-learning, or the museum-as-metaphor of popular modernity, and into the current museum-as-global-agora. This difficulty is summed up in Article 3 of *The Venice Charter 1964*, The International Charter for the Conservation and Restoration of Monuments and Sites[3] (where 'monument' might be substituted by 'object'):

'The intention in conserving and restoring monuments is to safeguard them no less as works of art than as historical evidence'.

Treating an object as an artwork *and* as an object of historical process presents some often irreconcilable demands. Commensurability is never guaranteed between the supportive narratives used in decision-

(Photography by Sculpture Conservation)

Figure 1. A.186-1969 Moyle Finch Monument as installed in Gallery 50 in 2006

(Photography by Peter Kelleher, V&A Photographic Studio)

Figure 2. A.186-1969 Moyle Finch Monument as installed in the Dorothy and Michael Hintze Galleries in 2007

making (by, for example, curators and conservators) since differing ideologies and discourses construct the detail of an object differently. At its most significant an ideology cements itself as a lived belief at the level of practical execution, but this is also the grounds for its failure, when the material fails to line up to affirm its methodologies, and reveals the present as somewhat more contingent.

Within the V&A the emphasis is on optimising an object's aesthetic and decorative importance from a particular time and place in (its) history. This reflects an ideology produced through the mobilisation of groups of relations forged in the Museum's past. With a contemporary eye on the authenticity of the viewer's experience, this crueller legacy of the Enlightenment is further compounded by the expectation for the object to perform in new ritual and social networks. Whilst a richly worked memorial tomb chest taken from its church setting displaces certain historical truths about the piece, it now also has to allow for the continuing creation of aesthetic as well as wider social functions within the Museum (Figures 1 and 2).

Against these shifting relationships conservators often feel the need for some sort of ethical consequentialism, invoking the utilitarian view that an action's ethical right or wrong is based on the balance of its good or bad consequences for the object and its interpretation. The Museum's commitment to the democratisation of knowledge through the portal of full disclosure *would be* a measure of those consequences.

The analysis and identification of an object's components, each of which correspond to some point in its history, and the disclosure of the context and evolution of decision-making (including an object's current production status) provide a rich mapping for a practical ethics that recognises the object as a knowledge asset.

Such an ethical approach is thus descriptive: the decision mechanisms through which the current Museum is now produced are placed on record; and the degree of deviation from the normative (*qua* scientific) methodologies subscribed to in an object's care is indicated as part of the process of this disclosure. This ethic is also moderately prescriptive because its methodologies are applied as the prevailing ethos for object care across the Museum. This means that the Museum rigorously adopts methodologies that govern its technical operations. The Ethics Checklist, along with its raft of supporting documents, is a good place from which to begin this consultation.

This also entails that the current version of an object (or asset) is more fully understood as part of its continuing history, and that contexts of decision-making are themselves available as part of this history. An understanding of the chain of processes and any conflicts encountered are a part of that disclosure, with any fault-lines between the authenticity of object and authenticity of the viewer's experience neatly rounded out in the object record which should itself become a major part in the Museum's knowledge economy.

This is a practical way forward for addressing the conflict and contradiction that any social order, like a museum, inevitably produces in itself.

Acknowledgements
I am grateful to Alison Richmond, RCA/V&A Conservation, for invaluable discussions, and to Peter Kelleher, V&A Photographic Studio, for image advice.

References

1. http://www.vam.ac.uk/res_cons/conservation/advice/policies/index.html (Ethics Checklist 1994, revised 2004) (accessed 26 August 2007)

2. For this assimilation codified as a general museum ethic see e.g. Article 9.2 of the Museum Association Code of Ethics for Museums. http://www.museumsassociation.org/asset_arena/text/cs/code_of_ethics.pdf (accessed 26 August 2007)

'Apply the highest possible standards of objectivity to the research undertaken by the museum, and distinguish clearly between evidence and deduction. Maintain, as far as possible, records and material so that the evidence on which research is based can be re-examined and verified independently'.

3. http://www.icomos.org/venice_charter.html *The Venice Charter* (accessed 26 August 2007)

Mount making for the Medieval & Renaissance exhibition tour

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Hannah Brown, Museum Technician

In advance of the opening of the new Medieval and Renaissance galleries in 2009 at the V&A, a selection of medieval and Renaissance treasures are on a six venue tour with five US locations. The objects will then be displayed in the new galleries on their return.

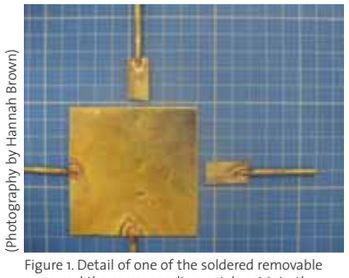
The fragility of many of the objects, and the multi-venue nature of the tour implied a heightened risk due to handling; objects would be packed, unpacked and installed, de-installed and repacked at each venue. With this risk in mind it was decided that custom-made mounts would be provided for all objects that required them. In this way we could keep control over the mounting method. In the case of the three Rolls Plaques of enamelled metal (M.53 to B-1988) and two Kentish brooches (M.109-1939, M.110-1939), the objects were sufficiently fragile for the conservator to request whether it would be possible to create mounts on which these objects could travel, thus further reducing handling.

Traditionally these kind of objects would be displayed flat, raised on a shallow slope, or be pinned to a board. As displaying the objects flat would not show them at their best, pinning was the preferred option. Pinning is a process that requires a certain amount of expertise and skill to be carried out safely. Also the materials and tools required to do this work may not always be available – especially at a tour venue.

After consultation we devised a method of placing the objects on a brass keyhole plate with fine retaining arms that could stay attached to the object during transport and then be easily used to install the plaques on a block or other backing by means of carefully placed screws. In this case we have supplied a block with the screws already positioned. The block is not absolutely necessary as the mount can be positioned on any suitable surface as long as care is taken when positioning the screws, as misalignment would make it difficult to fit the mount. To help with this we have supplied a Melinex® template. The retaining arms have an added benefit as they can be used to manoeuver the object without touching the vulnerable edge and surface; so, at no time does the object need to be handled.

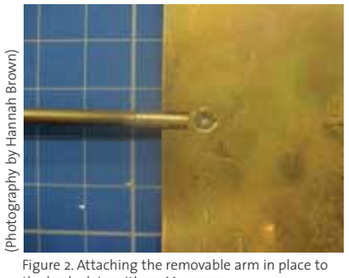
Once the method was devised the first step was to cut an undersized back plate from (recycled) sheet brass (smaller than the outer dimensions of the plaque so as not to be visible when complete) and four short lengths of thin brass rod. To create the two fixed arms, brass rods were soldered into the notches and cut mid-way along two of the edges. On the remaining two sides of the plate a similar notch was cut at the central point of both edges. The two remaining rods for these sides were then each soldered onto a separate small section of brass plate in order to become the moveable arms for the finished mount (Figure 1).

These two units (the back plate and the moveable arm) were then held in place with a clamp, drilled, tapped and countersunk to fit a M2 screw (Figure 2). It was important that the small section of brass on the end of the moveable arms was located behind the brass plate so the back of the mount remained flush. In order to protect the back of the object from the mount, a section of Plastazote® Foam (closed cell, cross-linked polyethylene foam) was cut to the size of the back plate to form a barrier between the plate and the object (Figure 3).



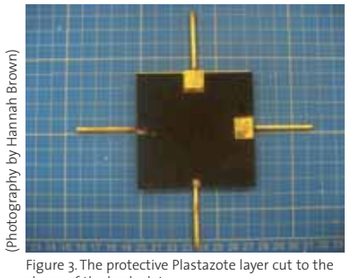
(Photography by Hannah Brown)

Figure 1. Detail of one of the soldered removable arms and the corresponding notch cut into the back plate



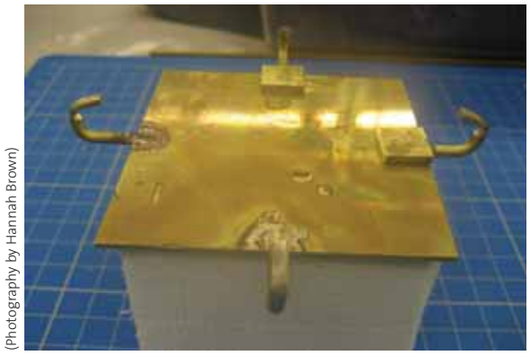
(Photography by Hannah Brown)

Figure 2. Attaching the removable arm in place to the back plate with an M2 screw



(Photography by Hannah Brown)

Figure 3. The protective Plastazote layer cut to the shape of the back plate



(Photography by Hannah Brown)

Figure 4. Creating the second bend in the arms to hook around the front of the object

(Photography by Hannah Brown)

Figure 5. Checking the location of the screws in the 'keyholes' cut into the back plate

It was then time to mark out for bending the four arms into place. This was done by laying the mount centrally upon the back of the object so the bending points of the arms could be marked by eye against the edges of the plaque. The mount was then removed from the object and the arms bent with a hammer to create right angles at these points. Once this had been done, the process was repeated to determine where the arms needed to be bent again in order for them to hook around the front of the object (Figure 4). After this process it was necessary to unscrew the removable arms and test the fit of the mount around the object. The arms were then adjusted where necessary before filing, shaping and cleaning the brass. Small sections of conservation grade self-adhesive acrylic tape were then stuck to the ends of the brass arms, where they came into contact with the object, to protect the edges.

The final process was to cut two 'keyholes' into the brass plate in order for the whole mount to be located onto screws and slid down into place. As before with the removable arms, sections were then cut out of the Plastazote layer to accommodate the screw heads and to prevent the object from getting scratched (Figure 5). As instructed, a fabric-covered slope was made, on which to display the objects at each of the venues (Figure 6).

To achieve a new method of mounting such as this, a great deal of collaboration is required as well as on-going consultations between each department involved – constantly revisiting the mount design when any necessary modifications need to be made. Although the general method is agreed at the start of the making process, one must be free to change and develop the mount in order to get the most out of the ideas thrown up by the creative process. As it is now incumbent on museums to make greater use of their collections, more and more tours are being agreed and objects loaned than in the past. Conservation and handling issues have meant that the more vulnerable objects have not been able to tour. This has in part been the impetus behind the drive to improve and develop our methods of mount making and packing.

(Photography by Hannah Brown)

Figure 6. The Rolls Plaques on their mounts displayed on a fabric-covered slope

SurveNIR Project: non-destructive characterisation of historical paper

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Jana Kolar, National and University Library, Ljubljana, Slovenia
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In the SurveNIR project, part-funded by the European Commission, 6th Framework Programme, a consortium of research institutions and end-users have built a dedicated near-infrared (NIR) spectroscopic instrument that enables the user to determine a variety of chemical and mechanical properties of paper, including naturally aged paper. Degradation of paper-based collections is a consequence of a variety of factors, from endogenous (paper acidity, lignin content etc.) to exogenous (pollutants, humidity, etc.) In any case, long-term monitoring of large collections is needed to assess the influence of the storage environment and of the inherent material properties on the ageing behaviour of a collection. For such a task, a simple instrument is needed that would allow us to survey a collection in a non-destructive, non-invasive and chemical-free manner. The approach will be validated in several European collections in The British Library (London), Victoria and Albert Museum (London), National Archives (The Hague), National Archives (Stockholm), National Museum of Denmark (Copenhagen), National and University Library (Ljubljana) and State Archives of Dubrovnik.

Paper-based documents have long been, and still are, the most important witness to human activity. Fortunately, paper is a long-lived material provided that the production technology favours its stability and provided that it is stored in a favourable environment. However, most of the paper produced between 1850 and 1990 is not likely to survive more than a century or two due to the inherent acidity auto-catalysing the degradation of paper. Cellulose is the most important structural element of paper and it is well-known that the rate of its degradation depends on its environment.[1] Traditionally, the condition of a paper-based object or a whole collection is assessed visually, and simple physical and chemical tests are performed, such as the folding test[2] or determination of pH of paper using pH-indicator pens. Due to the fact that the folding test is performed in such a way that a paper corner is actually torn away and the pens leave some of the dye used as a pH indicator on the object, neither of the two tests can be described as non- or micro-destructive. Even determination of paper pH using flat surface electrode is destructive as an area of paper has to be wetted in order that the measurement can take place at all and after drying, degradation is likely to proceed faster along the wet-dry boundary.[3] Surveying methods are also highly individual,[4] however, surveys are necessary in order to reveal the condition of a collection, the general conservation needs and in order to plan preservation activities.

Mid-infrared (mid-IR) spectroscopy is widely used in cultural heritage material diagnostics. However, aged paper is a complex system and interpretation of mid-IR spectra is often difficult. On the other hand, while near-IR spectra often exhibit fewer specific features than mid-IR and Raman spectra, they are characterised by overtones and combination vibrations, especially of NH, CH and OH functional groups, and are thus potentially more information-rich. In general, near-IR spectroscopy is gaining in importance in material studies.[5]

In order to extract complex spectral information, chemometric analysis of data is the commonly accepted approach.[6] This means that the whole spectrum (or part of it) is compared with chemical information obtained with the same set of samples. In order to develop reliable methods, we need large sample sets; in SurveNIR, we collected more than one thousand historical paper samples that can be subjected to traditional analytical methods in order to compare the results with NIR spectra. The sample set includes the paper type that is the most often encountered in library, archival and museum collections and excludes papers evidently degraded by high temperature, fungi, water, etc. A method must be carefully validated and the user must be aware of its limitations – it can only be used for analysis of the same types of objects that were used for calibration. For example, a method developed for rag papers will most probably give misleading results for contemporary papers.

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Using a Partial Least Squares analysis approach, we were able to satisfactorily relate NIR spectral information and determinations of mechanical properties[7] and pH[8] of a variety of historical papers. This enables us to propose the methodology for rapid determination of the most important information on historical paper needed by conservators and collection managers alike. In addition to this, we also developed methods for determination of ash content, aluminium content, carbonyl group content, lignin content[8] and tensile strength after folding,[7] – all from a single spectrum taken in less than a second.

The intention of the SurveNIR project is to provide museums, libraries and archival collections with a tool that would provide more in-depth information than the traditional methods but would also be user-friendly and would not require extensive technical knowledge on the part of the surveyor.[9]

As part of the dedicated SurveNIR instrument, software has been developed that incorporates the chemometric data evaluation. The concept of the software allows the user to survey whole collections in view of chemical and mechanical information of paper and thus undertake actions needed for its optimal preservation.

Case studies in seven collections from European countries in three different types of paper-based collections - museum, library and archive – will be performed to validate the approach.

Acknowledgement
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References

1. Strlič, M., Kolar, J., eds. *Ageing and Stabilisation of Paper*, National and University Library, Ljubljana (Slovenia, 2005)

2. Buchanan, S., Coleman, S., 'Deterioration survey on the Stanford University Libraries Green Library stack collection', *College and Research Libraries* (1987), 48, pp.102-147

3. Eusman, E., 'Tideline Formation in Paper Objects: Cellulose Degradation at the Wet-Dry Boundary', *Studies in the History of Art 51, Monograph Series II* (1995), National Gallery of Art, Washington, pp.11-27

4. Taylor, J., Stevenson, S., 'Investigating subjectivity within collection condition surveys', *Museum Management and Curatorship* (1999), 18, pp.19-42

5. Siesler, Ozaki et al, eds. *Near-Infrared Spectroscopy. Principles, Instruments, Applications,* Wiley-VCH (Weinheim, 2002)

6. Blanco, M., Villarroya, I., 'NIR spectroscopy: a rapid-response analytical tool', *TRAC* 21 (2002), pp.240-250

7. Lichtblau, Strlič, et al. 'Determination of mechanical properties of historical paper based on NIR spectroscopy and chemometrics – a new instrument', *Appl. Phys. A* (2007), submitted

8. Trafela, Strlič, et al. 'Nondestructive analysis and dating of historical paper based on IR spectroscopy and chemometric data evaluation', *Anal. Chem.* (2007), 79, pp.6319-6323

9. SurveNIR webpage, http://www.science4heritage.org/survenir/

The reconstruction of the materials and techniques of Nicholas Hilliard's portrait miniatures

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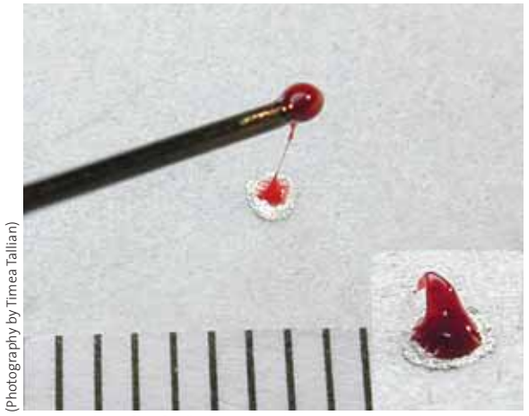
Over the past 10 years the Conservation Department has encouraged and worked with a number of students from the RCA/V&A Conservation Programme with a view to gaining a better understanding of the materials and techniques of Tudor portrait miniatures. This research has involved a multi-faceted approach to the examination of the miniatures, including analysis, source research, computer visualisation and reconstruction.[1] This work has been highlighted by recent research which applied this approach specifically to the materials and techniques of Hilliard's portrait miniatures.[2] Collaboration with curators is valuable as they can provide significant information on the background and provenance of objects. It has also been important for the researcher to be based in a conservation studio, thereby gaining from the conservators' knowledge of the materials and techniques employed to make and restore miniatures in the past. Conservators often have a deep knowledge of materials and techniques but also an understanding of damage and an ability to recognise past restorations, all of which can inform the researcher.

The opening of the refurbished British Galleries in 2001 and the new International Music and Art Foundation Gallery of Portrait Miniatures in 2005, increased opportunities for detailed examination of the National Collection of Portrait Miniatures, which is held at the V&A. In particular, many important Tudor miniatures were unframed for examination, analysis and conservation. They included iconic works by Nicholas Hilliard such as *Young Man Amongst Roses,* the *Drake Jewel*, (which contains a portrait of Queen Elizabeth I), Hilliard's self-portrait and the portraits of his wife, Alice, and his father, Richard.

Sixteenth and seventeenth-century treatises have provided us with recipes and descriptions of materials and techniques that can be compared with each other and with the miniatures. We are fortunate in that Nicholas Hilliard, who is perhaps the most well-known Tudor miniature limner (painter), wrote *A Treatise Concerning the Arte of Limning* around 1600 in which he describes in detail many of the materials (including pigments) and techniques used.[3]

Examination and analysis of known Tudor miniatures, using the naked eye and various instruments from a simple binocular microscope to a Raman spectrometer, has proved essential in building up an objective database of the materials used and has confirmed the use, or not, of various pigments mentioned in the treatises. Passive techniques such as non-invasive, non-destructive Raman microscopy can be used for *in-situ* pigment identification.[4]

Reconstruction can inform the researcher in a very practical way. The treatises and the examination of the miniatures themselves do not always complete the story. We can still be left asking ourselves the question 'How did they do that?' For example Hilliard is quite secretive about the painting of his 'artificial' rubies. Examination of the objects and reading of other treatises only partially reveal the technique. First a reflective base of silver is painted and then burnished. On top of this is placed a tiny blob of coloured turpentine resin using a hot needle. However, attempts to reconstruct this technique failed to produce a smooth blob as a tiny tail of resin is left behind by the needle (Figure 1). Studying other treatises suggested the need to apply heat from a fire to the miniature without explaining why. During reconstruction we found that the heat source allowed the resin peaks to melt into the smooth shape of the gem. Only the practical experience gained from reconstruction gave this insight.



(Photography by Timea Tallian)

Figure 1. Making of 'artificial' rubies using a hot needle and stained turpentine resin

Practical trials such as the reconstruction of artificial rubies have indicated that there are many things that we do not always observe on the originals and, equally, information in the treatises that is misunderstood. An important role of reconstruction or 'practical exploration' has been to point out possibilities – for instance that the mineral blues (e.g. azurite) can be improved by the addition of blue dyes such as indigo as suggested by some written sources. Some aspects of these possibilities or theories were tested using Raman analysis. For example, the analysis of the blue backgrounds on known Hilliard miniatures indicated that pure azurite and natural ultramarine had been used – there was no trace of indigo. Therefore the theory that blue dyes had been used to improve the colour in Hilliard miniatures could be dismissed.

In conclusion, the reconstruction of a portrait miniature has generated many questions and has highlighted areas of interest which escaped our attention previously. Instrumental analysis has been able to answer some of these questions. The practical application of some of Hilliard's methods, as described in his and other treatises, also demonstrated that even seemingly simple techniques such as the painting of a uniform smooth blue background might require extensive research as well as many practical attempts to approximate the skills and experience of a professional limner. This has increased our appreciation for the abilities of the artists. It has also helped us to be able to associate various techniques with certain artists.

The findings and ideas derived from the reconstruction work were not generally conclusive in themselves. They suggested possibilities rather than final answers. However, this highlights the value of reconstruction as a practical tool to provide a basis for scientific experiment. Like a filtering process, it can extract specific questions and relevant variables and so may help us to choose the right research path.

References

1. Derbyshire, A., Frayling, N., Tallian, T., 'Sixteenth-century portrait miniatures: key methodologies for a holistic approach', *Art of the Past – Sources and Reconstructions*. Proceedings of the first symposium of the Art Technological Source Research study group, ICN Amsterdam: 14–15 October 2004. M. Clarke, J. H. Townsend, A. Stijnman (eds), Archetype Publications (London, 2005) pp. 91-93.

2. Tallian, Timea. 'Reconstruction of Nicholas Hilliard's Materials and Techniques'. A thesis submitted for the degree of Master of Philosophy, (May 2007) London, The Royal College of Art, Victoria and Albert Museum

3. Thornton, R.K.R., Cain, T.G.S. ed., *A Treatise Concerning The Arte of Limning by Nicholas Hilliard together with a More Compendious Discourse Concerning ye Art of Limning by Edward Norgate*. Carcanet Press (Manchester, 1981)

4. Derbyshire, A. and Withnall, R. 'Pigment Analysis of Portrait Miniatures Using Raman Microscopy,' *Journal of Raman Spectroscopy* 30 (1999) pp.185-188

V&A Conservation Journal No.56

Conservation of a ninth-century bowl from Iraq

Hanneke Ramakers

Ceramics and Glass Conservator

The small ninth-century bowl from Basra (Circ.175-1926) in Figure 1 marks two significant developments in ceramic history. In an attempt to imitate the much admired fine white porcelains that were being imported from China, potters in Iraq developed a lead glaze whitened and opacified with tin oxide to make their local yellowish earthenwares look white. This new technology would spread throughout the Islamic world and eventually Europe. In addition, the Iraqi potters introduced the use of cobalt oxide, a blue colourant, on ceramic surfaces for the first time in history. They used this locally available mineral to decorate their newly-developed white glazes. Iraqi traders subsequently exported their ceramics and the blue colourant to China where Chinese potters started using it to copy the Iraqi designs on their porcelains. This marked the beginning of the first blue and white ceramics still popular today.

Because of these technological milestones, the bowl will feature in the touring exhibition *Masterpieces in Ceramics from the V&A*, which will travel worldwide during 2008-9. The exhibition will show 120 highlights from the V&A collection representing a timeline of major worldwide developments in ceramic history. On their return, the objects will form a prominent part of the permanent display within the V&A's newly refurbished Ceramic galleries. The first six galleries open to the public in September 2009 as part of the ambitious V&A FuturePlan, a long-term development scheme, which aims to radically update the display of the collections.

(Photography by Hanneke Ramakers)

Figure 1. The bowl (6 x 20.5 cm) after treatment (Circ.175-1926)

Figure 2. The bowl during treatment

On examination of the bowl, significant questions were raised concerning its stability and interpretation. It had broken in about forty-one pieces and was subsequently bonded together. Any losses were then filled and crudely overpainted. Five shards probably once belonged to another object as they had originally been undecorated and differed slightly in thickness, curvature, colour and surface condition. Introducing foreign shards during restoration is not unusual on Islamic wares, and is known to have been practised since the early seventeenth century.[1] Many of the old bonds were structurally unstable, which put the object at risk of further damage.

The ill-fitting replacement pieces and original misaligned shards caused the bowl to have a very irregular surface. An attempt had been made to even out the irregularities with a white filler similar to plaster of Paris. The filler was excessive and needlessly obscuring the original glaze. It had also rubbed into many tiny pinholes in the degraded glaze concentrated on the back of the bowl, creating a distracting white bloom over the surface. In addition it soon became clear that the missing floral design on the front was repainted in a manner that did not match the original (Figure 2). After removing some of the old restoration material, a small area of the original blue decoration emerged, revealing the true shape of the pattern (Figure 3).

To stabilise the structure of the bowl several options were considered of which two seemed suitable. One option was to dismantle and re-bond the bowl because of the relative weakness caused by misaligned shards and failing adhesive. The other option was to stabilise the bowl's structure by reinforcing it through consolidation of the old joins. Dismantling, however, can introduce the risk of staining in this type of very porous ceramic. Furthermore, the structural weakness of the bowl was only concentrated along a few break lines rather than the whole. For

(Photography by Hanneke Ramakers)

Figure 3. Detail from bowl during cleaning showing the incorrectly painted blue design, the circle indicates the small area of the original blue decoration that emerged after removing the old restoration material

these reasons, consolidation was chosen rather than re-bonding. As a result, the replacement shards were retained, although they were of a slightly different shape to the original. The shards support the structure of the bowl well and are of historic interest. Paraloid™ B-72 (ethyl methacrylate methyl acrylate copolymer) in acetone was chosen as a consolidant. For narrow cracks a solution of around 5% was used, while wider cracks required a more viscous solution of up to 20%. Subsequently old excess filling material was softened with de-ionised water and later removed with a scalpel blade.

A strange effect was observed in the glaze that had been covered by the old restoration materials. The glaze that emerged from underneath had a lighter colour. All the shards, including the replacement ones, revealed this. At first it was assumed the colour difference was due to white residue from the old restoration material. After examination under a microscope (x20) it became clear the surface was truly clean and the glaze itself had a lighter hue. The reason for this remains unclear and requires further research.

The next challenge was to reduce the amount of white filler caught in the pinholes. Dry cleaning methods routinely used on ceramic surfaces did not make a noticeable difference. An alternative approach was adopted using an airbrush. An instrument originally devised for painting, it has also been used to retouch restored areas on ceramic objects. The airbrush uses compressed air to force paint through a nozzle resulting in a fine spray. An effective cleaning method was developed using the airbrush with de-ionised water instead of paint. The filler was softened by dampening it with de-ionised water. Then an airbrush was filled with de-ionised water and the force of the spray was used to push the filler out of the pinholes. The surrounding area was covered with an absorbent tissue paper to avoid any water being absorbed into the body through the breaks and the glaze was checked regularly to confirm no damage was caused by the pressure of the water. This method worked very well as the majority of the filler shifted and the appearance improved considerably.

Chips along break-lines were filled with Modostuc® paste (calcium carbonate based filler with smaller amounts of barium sulphate in a poly (vinyl acetate) copolymer binder). The incorrectly painted blue design was removed and reinterpreted using the existing pattern as a guide. The design is not only attractive, but it is also known to have been reproduced on Chinese porcelain, demonstrating the influence of trade. The viewer can now appreciate the true intention of the potter. All retouching was done with Golden® Acrylic Polymer Varnish with UVLS (acrylic/styrene copolymer solution) mixed with Golden® Fluid Acrylics, Golden® Airbrush Colors and dry artist's pigments. Fumed silica (amorphous silicon dioxide, Gasil® 23D) was used as a matting agent.

The aim of the conservation was to prevent further damage from occurring and ensure the correct interpretation of the bowl. The strengthening of the old joins has made the bowl structurally sound, it is now safe to handle and travel with the exhibition. The interpretation has been improved by correcting the design to a truthful representation and reducing the white bloom on the back. As a result, it will feature as one of 120 highlights of the collection in the touring exhibition *Masterpieces in Ceramics from the V&A*.

Acknowledgements
I am grateful to Mariam Rosser-Owen, Curator in the Middle Eastern Section, for her assistance.

Materials
Golden® Artist Colors, Inc., www.goldenpaints.com
Modostuc® paste, Plasveroi International, www.plasveroi.it

Reference

1. Koob, S.P., 'Restoration skill or deceit: manufactured replacement fragments on a Seljuk lustre-glazed ewer', *The Conservation of Glass and Ceramics; Research, Practice and Training* Ed. Norman H. Tennent, James and James (Science Publishers) Ltd., (London, 1999), p.157

V&A Conservation Journal No56

Renaissance painted cassoni

Éowyn Kerr
Samuel H Kress Fellow in the Conservation of Paintings

In 2006-7 the V&A obtained funding for a Conservation Fellowship through the Samuel H Kress Foundation. The goal of the fellowship was to provide a dedicated paintings conservator for the collection of Renaissance objects, particularly painted *cassoni*. Practical conservation treatment and research was carried out in the Paintings Conservation Studio. The project developed out of the larger scheme of the re-display of the medieval and Renaissance collections under V&A FuturePlan. This larger endeavour includes the conservation and study of over 1,800 objects, in multiple disciplines, in preparation for the opening of the new galleries in 2009. The display design for the new Medieval and Renaissance galleries includes six painted *cassoni* as well as other related fifteenth-century paintings and painted objects on wood. Because of the nature of many of the objects an interdisciplinary approach was essential. This included collaboration with conservators from Furniture, Gilded Furniture and Frames, Textiles, Books, the Science Section, Photographic Studio, and MA students on the V&A/RCA course, as well as continuous ongoing support from several sections of the V&A curatorial departments.

The term *cassoni* refers to a type of decorated wooden dowry chest from central Italy, used extensively from the end of the fourteenth, through the fifteenth and sixteenth centuries. The V&A holds a large collection of Italian Renaissance *cassoni* of varying types and periods, including a number of *cassone* panels. These panels are the decorative fronts of *cassoni* that have been disassembled in response to changing tastes, or modified specifically for sale during the nineteenth and early twentieth centuries. Because of the dates of acquisition and state of preservation of several of the panels, both technical examination and documentary research was considered necessary prior to exhibition. This research aimed to provide information about the methods of construction, materials and artistic techniques used, and to give evidence of authenticity, or when possible, confirm the attribution. A variety of analytical methods were used for the investigation of the materials and techniques.

The construction and decoration of *cassoni* closely parallel methods used for contemporary altarpieces, and a number of fifteenth-century panel paintings with similar techniques were also treated in the conservation studio. These included a small Siennese panel from an altarpiece depicting Saint Stephen (371-1876) and a Siennese accounts book cover, *Tavoletta di Biccherna*, dating from January to June of 1402 (414-1892). Important archival research was conducted at the State Archive and Museum of the Biccherne of Siena relating to the history and treatment of the accounts book. The fellowship work focused most heavily on a detached *cassone* panel attributed to Apollonio di Giovanni (5804-1859), from the 1460s, depicting *The Continence of Scipio* (Figure 1). The panel is painted in tempera and has extensive gold leaf and tooled decoration. The *cassone* was detached before purchase and no original framework or joinery remains. Thinning of the panel, to give the appearance of a panel painting, eliminated the original finish on the back and possibly contributed to the convex warp and splitting along the grain.

(Photography by Éowyn Kerr)

Figure 1. 5804-1859 Detail of *The Continence of Scipio* panel

Further examination and comparison with other Apollonio panels indicated that the upper paint layers were damaged as a result of a systematic cleaning across the entire surface. These missing elements affect the overall reading of the composition, and include near-complete loss of glazes in the coloured brocades applied over the gold leaf. The conservation treatment (Figure 2) was sympathetic to the history and use of the panel as a *cassone* but the overall appearance and legibility, and the damage to the glazes, was considered to be too great for an ethical reconstruction. This led to the proposal of a virtual restoration, where the panel will be exhibited in a more authentic state allowing viewers to see the original intention of the artist through digital reconstruction.

(Photography by Rachel Turnbull)

Figure 2. Treatment of the panels in the Paintings Conservation Studio

Direct stylistic comparison was made with other V&A objects attributed to the workshop of Apollonio di Giovanni, such as a birth tray depicting *The Triumph of Love* (144-1869). The birth tray provided insight into the techniques and hands involved in the production of domestic artwork. The investigation into studio practises and styles lead to further discussion and to a more comprehensive examination of *cassone*. Visits were made to the National Gallery, the British Museum, the Courtauld Institute of Art, the Fitzwilliam Museum, and the collections in Florence at the Palazzo Davanzati, Museo Horne, as well as the Museo Bardini. Findings of the V&A Apollonio research were presented at the conference *Art, Conservation, and Authenticities: Material, Concept, Context,* at University of Glasgow, 12-14 September 2007. The fellowship period also overlapped that of the successful exhibition *At Home in Renaissance Italy* (V&A, October 2006 to January 2007) which focused on the study of urban domestic spaces. Through the exhibition curators, Marta Ajmar and Flora Dennis, an arrangement was made to join the MA study trip to Florence with the V&A/RCA History of Design students of the Renaissance Decorative Arts and Culture course. The trip centred around the study of the Renaissance interior through looking at Florentine houses and decorative arts collections. Included in the trip was a visit to the conservation studio of Simone Chiarugi, a third generation restorer of *cassoni*.

Of particular importance to the fellowship was the examination of a pair of gilt *cassoni* with high-relief decoration dated to the 1430s. One (8974-1863) being a full *cassone*, the other (21-1869) is a detached *cassone* panel, with some modification of the support. They were acquired by the Museum in the 1860s at different dates from two different sources, but were purchased because of their stylistic similarities. They have always been considered as originating from the same Florentine or Tuscan workshop. The objects are an excellent example of development of the decorative style in *cassoni*, showing the transition from floral motif patterns and symbols of worldly love, to depictions of the rituals of the marriage agreement itself. Both show variations on the theme of the wedding processional. They are executed in a high-relief pastiglia, with tooling and coloured glazes creating the figures. The paint layers have been applied directly over the gold leaf in large areas of the composition. This unusual technique has led to flaking of the paint layers between the gold and bole layers in a similar manner in both objects.

The extraordinarily complete painted scheme of the panel (21-1869) gave rise to some initial suspicion; however, examination of the surface suggests that the paint layers are original. Retouching was only found in a few areas prompting a closer examination of the *cassone* (8974-1863), which had no extensive conservation and cleaning since its purchase in 1863.

There are indications of an earlier cleaning campaign and modification of the lid. A surface cleaning was proposed and carried out with dramatic results (Figure 3). The *cassone* was first dry surface cleaned with a soft brush and small sections of micro-chemical sponge. An aqueous treatment using a 3% solution of tri-ammonium citrate at pH 8, as well as a 2% solution of triethanolamine (TEA) was chosen to remove accretions and surface grime. Solutions were applied with cotton swabs and cleared with de-ionised water.

The treatment provided information affirming the original condition of the *cassone* structure, as well as the presence of original paint layers and surface decoration. The surface cleaning also revealed the individual heraldic devices of the commissioning families, being held aloft by angels on the predella-like base. The newly conserved condition and fresh examination revealed that the two *cassoni* are nearly identical in the paint layers, the pastiglia work, tooling, gilding, composition, wood and joinery. In addition there is evidence in the *impresse* on the two panels that confirms them as part of a matched set from the same wedding commission. They both show the emblems of the chained leopard from the groom's family and the griffin of the bride's family. When viewed as pendant objects they illustrate the full wedding procession, from the meeting of the two families, to the final marriage ceremony. The reverse of the full *cassone* was also shown to be painted in the leopard spot pattern of the groom's *impressa*.

(Photography by Éowyn Kerr)

Figure 3. During treatment, showing the dramatic surface cleaning of 8974-1863

The objects treated under the fellowship will be on display from 2009, and the pendant *cassoni* will be exhibited together for the first time in the new Medieval and Renaissance galleries. The fellowship has been an excellent opportunity to expand the body of knowledge related to Museum objects, and to provide additional support and manpower for the conservation of paintings under V&A FuturePlan. From a personal perspective the year has provided a deeply enriching experience, allowing for the development of a specialist expertise in the conservation of *cassoni* panels, whilst creating an opportunity to work in a cross-platform environment with the V&A staff and collections.

Acknowledgements

I am grateful for the assistance and expertise of Nicola Costaras, Mark Evans, Christine Powell, the Paintings Conservation Studio, Carolyn Sargentson, the Research Department, and all of those people who assisted with the project from the V&A curatorial departments, Medieval and Renaissance team, Furniture Conservation and Gilded Furniture and Frames; as well as valuable discussions with Caroline Campbell and the many other professionals who added their time to this project. Special thanks to the Samuel H Kress Foundation for funding the project.

A forthcoming technical publication of Renaissance frames at the V&A

Christine Powell, Senior Gilded Furniture and Frames Conservator
Zoë Allen, Gilded Furniture and Frames Conservator

Christine Powell and Zoë Allen are currently working on a publication concerning approximately forty Renaissance frames at the V&A. This has been generously funded by a donor aware of the Renaissance frames at the V&A and with a passionate interest in the subject.

The V&A has a fine collection of very important and beautiful Italian Renaissance and Renaissance-style frames both in its stores and on display from different V&A collections. Among others, there are fine examples of 'Sansovino', tabernacle (Figures 1 and 2), tondo and cassetta frames.

Many of these frames are now empty, having been separated long ago from the objects they came into the V&A with, while other frames were acquired empty. The provenance and date for a handful of these frames is known. However for the majority of them the original use, exact date and origin are not known. Investigation will show that some are possibly partly or all nineteenth century.

(Photography by Ian Thomas, V&A Photographic Studio)

Figure 1. 1079-1884 front

(Photography by Ian Thomas, V&A Photographic Studio)

Figure 2. W.113-1910 front

The main aim of the book is to photograph and describe technically these frames so they may be made more accessible to and appreciated by a wider audience.

The publication will include a detailed entry for each frame with high quality photographs, section profiles, drawings and detailed dimensions (including overall height, width, depth, sight size, rebate size and object accommodation size which can help indicate what type of object the frame originally housed, such as a painting, a mirror or a sculptural relief). There will be comparisons to other known similar examples.

The book will contain a description of materials and techniques used in the frame construction and decorative finish (both the original and any later alterations). It will also discuss how the appearance of frames has changed over time; what a frame looks like today can be quite different from the original appearance. Digital image reconstruction may be used for some frames to demonstrate how the original decoration appeared. An interpretation of the decorative schemes will involve in-depth visual examination by the conservators and some paint analysis. This is useful for the frames connoisseur and conservator to have a better technical understanding of these frames and help identify original material and additional alterations. This is often scantily dealt with in other publications discussing frames.

(Photography by Ian Thomas, V&A Photographic Studio)

Figure 3. 1079-1884 corner detail

The plotted history and origins of picture and mirror frames is covered in other works and will not be the main focus of the publication; however other V&A objects may be cited as examples of influence on the form and function of the Renaissance frame. The architectural naming of different parts and ornament of these frames will be described and a brief introduction to each frame type will be made.

This project has provided the opportunity to collaborate with V&A colleagues, other institutions and fellow professionals. Frames experts from outside the V&A will also be contacted for their opinions on the frames included in the book.

Photography of the frames will be carried out by the V&A Photographic Studio, except for four of our frames on loan to The National Gallery which will be photographed by the National Gallery Photographic Department. Scientific analysis of selected materials is being carried out by Brian Singer of Northumbria University and Ashok Roy and Helen Howard of the National Gallery Scientific Department.

The book will be published by Elsevier Heinemann in early 2009.

Conservation webs

Fiona Campbell
Head of Conservation Administration

The Conservation pages of the V&A website are a collaborative undertaking by members of the Conservation Department. Subjects covered include information about conservation treatments on objects from the V&A collection as well as the Department's involvement in research projects such as the conservation of the Mazarin Chest (412:1-1882) and at Houghton Hall, Norfolk. The equipment, techniques and procedures used by the Department are also covered to a degree, the purpose being to make the site a resource for fellow museum professionals as well as the public.

The current Conservation pages were some of the first to be designed for the new V&A website and have been live since late 2004. They are now in the process of an overhaul. Via the 'list page' webpage design, an array of possible subjects and destinations are displayed not only down the left hand side of the page (in the blue area) but also on the main section of the page (Figure 1). This provides a quick system of navigation, with the page divided by coloured bars into introductory paragraphs for each option; with links on the bars, at the end of the paragraph and also on accompanying thumbnail images. One of the advantages of this style of layout is that the number of 'clicks' from the top level pages is reduced. For example, the Mazarin Chest Project and Conservation Journal will now only be two 'clicks' away from the front page of the V&A website – even without their quick-links (which are in place on the front page).

Figure 1. A page in the 'list page' style

The new layout gives more potential for photographs and videos to be published. 'Lightboxes', a display of thumbnail images that enlarge into a slideshow when clicked on (Figure 2), and videos are very popular with the public. There is also a redesign due for the Online Conservation Journal. With changes to the printed *V&A Conservation Journal* (now an annual publication) the online version will differ slightly in content. For instance, the biographies of new staff, students and interns will feature online only. The inclusion of more interactive and immediate content online, such as videos and more extensive cross-linking (links to other pages within the V&A website) will inevitably raise the question of archiving the content of the website. The V&A website is a dynamic publication; it is not archived or archive-able under current policy.

Figure 2. A page with a 'lightbox' of photographs

The V&A website Conservation pages feature the Mazarin Chest Project (Figure 3) in its 'research' section http://www.vam.ac.uk/res_cons/conservation/research/projects/index.html. This is a collaborative undertaking involving conservators, curators and scientists from the UK, Japan and Poland working on the conservation of the seventeenth-century chest, an exquisitely decorated piece of Japanese export lacquer. The pages take the visitor step-by-step through the organisation of the project itself, an example of cross-cultural cooperative success, as well as the process of the conservation of the chest and the related research.

The content was written by members of the Project Team from their research so far. The pages include bibliographies and extensive links. They also include a substantial number of images, lightboxes and microscopy photographs of the object. These pages are regularly revised to include the latest progress of the research. Rupert Faulkner, Senior Curator, Asian Department, is writing additional text and the pages are being updated by Louise Egan, Conservation Administrator.

Figure 3. The Mazarin Chest Project page

Louise was also recently responsible for the microsite for the conference *Plastics: Looking at the Future & Learning from the Past* held at the V&A, 23 – 25 May 2007 and with her colleague in Conservation Administration, Angela Knight, has uploaded most of the content for issues 54, 55 and 56 of the Online Conservation Journal. Conservation Administration also has a primary role in the V&A Intranet Project which is due for completion in March 2008. The V&A Intranet is being brought more in line with the website, from both management and content perspectives. One aspect of the web content that may be reflected and built on in the V&A Intranet is the use of photographs in the staff directory. The ongoing maintenance of the 'Conservation Staff' pages will allow for more cross-linking to and from web biographies and publications lists.

Figure 4. The Conservation Links page in development

The enquiry email address conweb@vam.ac.uk has already been posted on the Conservation pages with some success and will be listed on a new 'Links' page for the Department along with five of the most commonly used links (Figure 4). The Museum's original intent was to have a museum-wide links register, however, the Conservation pages were always designed with potential for a 'Conservation links page' in mind. Along with the publication of 'Caring for your *object*' as online 'frequently asked questions' on how to look after your objects; a 'Bugs' section; a video showing the reconstruction of a monument in a gallery; and lightboxes based on the before and after treatment photographs of objects; the Links page is now part of the scheduled development of the Conservation pages of the V&A website over the next year.

RCA/V&A Conservation: In-Post MA for conservation professionals

Alison Richmond, Deputy Head, RCA/V&A Conservation
Harriet Standeven, Tutor, RCA/V&A Conservation

In 2004 RCA/V&A Conservation offered, for the first time, a Masters level 'In-Post' studentship. This meant that practising conservators in the London area could now participate in postgraduate education and training, whilst studying within their own employment position on a full- or part-time basis. This new approach would give conservation professionals an alternative route by which they could access an academic framework, develop skills and knowledge, and advance their practice without having to leave paid employment.

We planned to structure this on our existing model of learning within the professional environment: an integrated programme of academic and practical work, supervised by a senior conservator in the student's chosen discipline. This was to be no quick and easy path to an MA. In-Post students would be expected to participate in all aspects of the Department's MA programme. We thought this would be fairly straightforward: the line manager, or another member of staff, would act as the specialist supervisor within the student's discipline; the practical work that the conservator would do for their employer would be assessed and examined in the same way as the work of other MA students; the conservator would be given time by the employer to attend the two-day-a-week taught programme; assignments would be carried out in personal study time. In this way, monitoring and assessments would be the same for all students.

We were not reckoning on what actually happened. For one reason or another – institutions could not give their staff time to study in this way; personal situations would not accommodate the time commitment to the course that was expected – no institutional conservators were able to come onto the course. Unexpectedly, however, there were a number of expressions of interest from the private sector. Indeed, both of our current In-Post students work in private businesses.

(Photography by Karen Lacroix 2007)

Figure 1. The Berkswell 'Cello Project, centred around a rediscovered 18th century instrument, offers many ethical, scientific, contextual and practical challenges for stringed-instrument conservator Chris Egerton

Our two current In-Post students are part-time and will complete the MA course over three years rather than two. As a rough guide, we expect part-time students to attend the taught programme one day per week, and dedicate one to one-and-a-half days of their practical work to the programme. The student is allocated a mentor or advisor, who is an expert in the student's discipline. Their role is to assess practical work and advise on projects. The mentor may change during the course of the studentship, depending on the student's needs.

As In-Post students come to us with a range of established skills and experience in conservation, the key to a successful studentship is identifying and focussing on areas that require development. This is done in consultation with the mentor and personal tutor, and the programme is thus tailored to each student's specific needs. For example, although the practical skills of the In-Post MA students tend to be well-developed, they may not have experience of reflecting critically on what they do. We have also noticed that students tend to take for granted what they do in their own practice; such a student will be

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encouraged to use the opportunities to reflect on what he or she already does in relation to the assessment criteria. Students will also be supported to develop less familiar aspects, such as documentation, research and analysis. Having access to projects of sufficient complexity to ensure this development takes place is one of the big challenges of the In-Post programme.

Placements are another opportunity that will allow students to experience the unfamiliar, including conservation in a museum environment and a wider range of materials than they normally encounter in their day-to-day work. For example, becoming familiar with standards for museum documentation can help a student think differently about what they already do. The way objects are used in a different context will stimulate reflection on conservation approaches. Sometimes, assignments or practical projects will reveal gaps in knowledge or understanding that can then be addressed.

The benefits to both the programme and the student are numerous: the student gains access to a range of facilities and expertise that they would otherwise not have. To date, successful collaborations of this nature include work placements in museum conservation departments, and collaborative projects with other students in the Royal College of Art. The benefits to the programme are also substantial: enriching learning of all students and staff. In-Post students bring a completely different perspective to the course - that of the working professional in the private sector. Our In-Post students have long experience working in their disciplines and are willing to share their knowledge and skills with their fellow students and staff on the course.

The future of conservation education and training appears to lie in an expanding interface between public and private conservation: private companies working in public institutions, public institutions managing projects carried out by private companies and so on. By running an In-Post MA that is accessible to conservators working in the private sector we are enhancing their ability to adapt to this environment.

(Photography by Ian McLean)

Figure 2. Lucy McLean, In-Post MA in Post-19th-Century Bronze Conservation, burnishing the protective wax coating on the bas reliefs on Nelson's Column, Trafalgar Square, London

Designing and managing this new kind of studentship has given staff the opportunity to develop too. We have had to think even more carefully about what we do and how we do it, so that we can adapt it in the most efficient and effective way for In-Post students. Both the learning experience and assessment need careful management to ensure that there is comparability between In-Post students and those on the regular course. This is time consuming but very rewarding when you see the students benefiting.

As is the case with all our studentships, we cannot offer exactly the same experience to every student, but we aim to provide an equivalent experience. We provide a kind of learning that fits in with the needs of practising conservators. Nothing is ideal of course and there are always many glitches that need to be addressed throughout any studentship. We look forward to the graduation of our first In-Post students and to reflecting on what we can do better next time.

If you have an interest in finding out more about in-post education and training please contact Joanna Baden-Morgan, email conservation@rca.ac.uk.