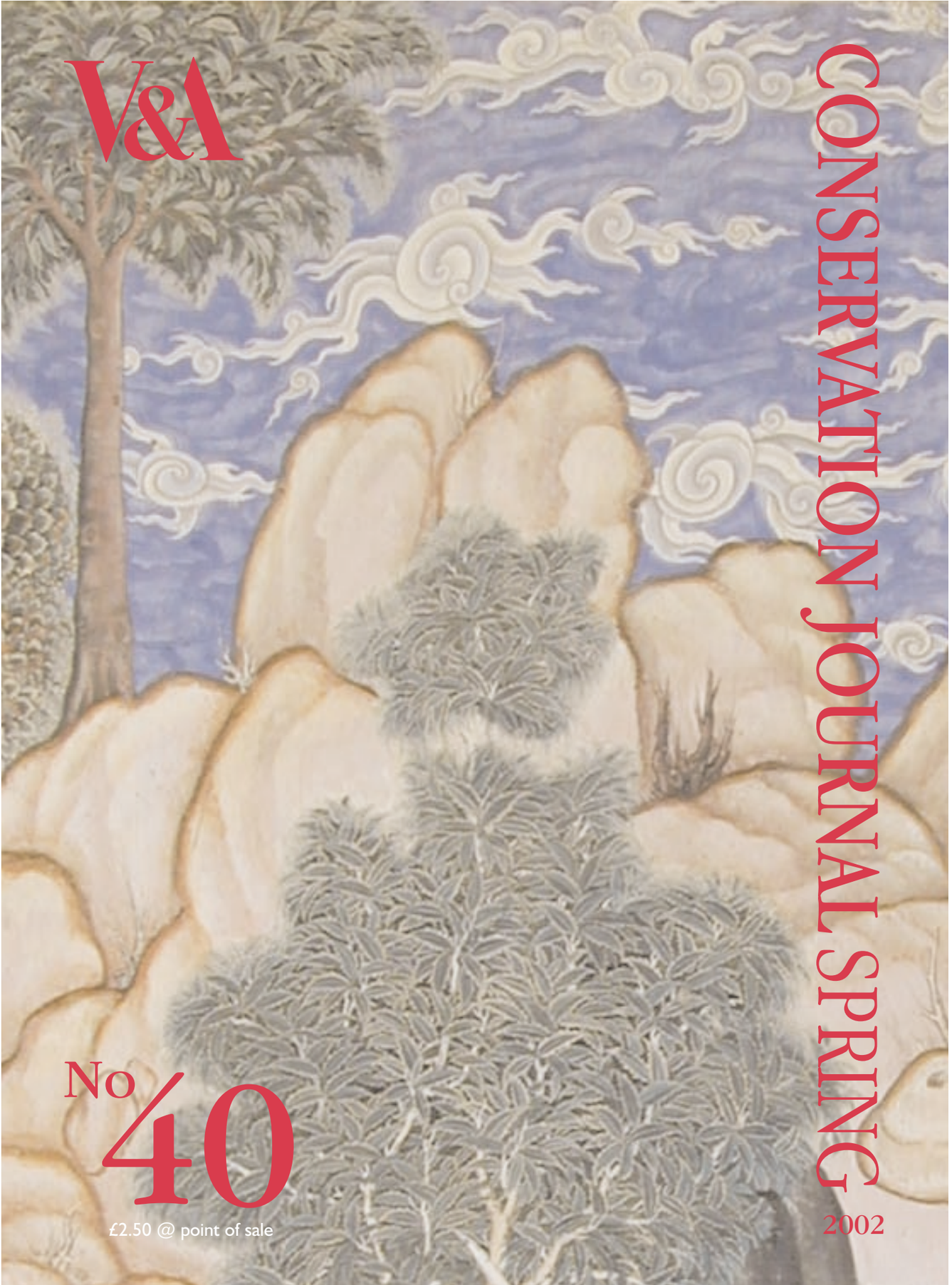

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Cover Image: *Amar Ayaz witnessing the death of Qamir* (Detail)
Photography by Mike Wheeler

Editorial

Jonathan Ashley-Smith
Head of Conservation

The reflective conservator

The last issue of this Journal concentrated on the tremendous volume of practical conservation work needed to ensure that all the objects in the newly-opened British Galleries were stable and looking good. While none of this work was done without investigation and deliberation, the emphasis of the reports was on project planning and practical intervention which did not truly reflect the whole of what the Conservation Department does. To redress the balance this issue concentrates on the practical activity of finding out about objects and what they are made from, and the more academic activity of thinking about objects and their preservation.

The name often given to finding out new things and thinking new thoughts is 'research'. When that word is used in the context of conservation, the immediate assumption seems to be that research is the prerogative of science. However, the research themes that are developing within the Conservation Department and within the RCA/V&A Conservation programme are not solely scientific. The use of analytical equipment has its place in art historical and conservation studies, as is shown by the reports on scientific collaborations and on the use of Raman spectroscopy. But other projects rely on just the eye and the brain and still qualify as conservation 'research'.

Recently another word has entered the conservation vocabulary: 'reflection'. The increase in research topics that are less about scientific hardware and more about what people think is an indication of increasing reflection in conservation. The conclusion reached in discussions about conservation training and accreditation is that the fully-rounded conservator must be reflective. This means something more than appearing bright by re-transmitting illumination from another source. It means thinking about a subject both in a focused way, to enable ethical and cost-effective decision-making, and in a broader fashion so that the context of one's actions is fully understood.

It is amusing to reflect that one of the definitions of 'academic' is 'not leading to a decision'. Yet a number of the academic research projects currently in progress are aimed at providing frameworks for decision-making. The fairly simple and now well-worn concept of risk can generate reflections in a multitude of directions. While many of these may seem to be unpractical because they deal with intangibles such as value and uncertain things such as probability, they are all aimed at gaining insight into the ways we select options for protection, preservation and treatment. We need to know which values are affected by our decisions. Which aspects of value are we determined to preserve or enhance and which are we reluctantly prepared to sacrifice? Is it more important to preserve intent, information or physical material? If we talk about preserving values for the future, how many years from now does the future start and when, for decision-making purposes, does it stop?

In this issue there are articles on the global, long-term concept of sustainability and on the local and immediate potential of social events in historic houses to cause damage. These may appear to be very different yet they both raise questions about authenticity and the definition of damage. Subjects worthy of both research and reflection.

Sustainability and Precaution – Part 1

Jonathan Ashley-Smith
Head of Conservation

At a European Union research conference held in Strasbourg in December 2000, a European politician ended the proceedings with the prophesy that the key areas to watch in the near future would be 'sustainability' and 'the precautionary principle'. This was quite pleasing as I had just managed to work the precautionary principle into my last publication, and had started to think more closely about sustainability and conservation, having recently been given Jonathan Porritt's book *Playing Safe: Science and the Environment.*

Sustainability and the precautionary principle are separate concepts, but they are often linked together, most obviously in the area of the global environment. Sustainable development is the creation of new social and industrial activity "that meets the needs of the present without compromising the ability of future generations to meet their own needs"[1]. The precautionary principle is usually invoked because the potential impact of a new technology could be so devastating that it is essential to prevent all possibility of damage. There may not be time to collect the necessary evidence of harm before the harm is irrevocably done. So it has been proposed that the approach to caution should not be dependent on absolute evidence of a hazard/harm relationship. The principle was incorporated into European law in the *Maastricht Treaty* of 1992:

"the absence of certainty, given our current scientific knowledge, should not delay the use of measures preventing a risk of large and irreversible damages to the environment, at an acceptable cost"[2].

The world of museum conservation has its own traditional versions of sustainability and precaution. Museums give present-day visitors access to the collections while attempting to preserve these objects so that they can be used and enjoyed by future generations. Thus both museum collections and museum purpose are sustained. The control of museum lighting gives a good example of precaution. In order that light-sensitive objects continue to be available in the future, current exposure is restricted. Thought and action in the present prevents disappointment in the future. The conservator is protective of whole groups of objects, even where the extent of the dose/damage relationship is unknown.

Ecological 'conservation' pressure groups have been more aggressive and are more politically successful than the cultural heritage conservation lobby. The conservation of the moveable cultural heritage is not high on the political agenda. In the framing of national preservation policies, and in the descriptions of areas that will attract conservation research funding, the notions of 'sustainability' and 'the precautionary principle', borrowed from the ecological sector, have gained ground. For instance, 'sustainability' occurs in the call for applications to the European 5th Framework for Research. The Australian Natural Heritage Charter specifically "acknowledges the principles of intergenerational equity, existence value, uncertainty and precaution" [3].

In many instances when people claim that their activities are sustainable, all they actually want to sustain is their own business, without too much thought for the maintenance of existing social structures or the future of the planet. Sustainability of business rarely involves leaving exploitable stock in the exact location and condition in which it was acquired. As an example, the 'positive contribution' proposed in the Statement of Commitment for Sustainable Tourism Development seems to imply more active intervention than a museum conservator would consider to constitute the 'conservation' of the target objects of tourism.

> "We are committed to developing, operating and marketing tourism in a sustainable manner; that is, all forms of tourism which make a positive contribution to the natural and cultural environment, which generate benefits for the host communities, and which do not put at risk the future livelihood of local people." [4]

If we assume for the time being that museums are only concerned with ensuring their own sustainability, it is still not clear what needs to be sustained. By definition, all human-made artefacts

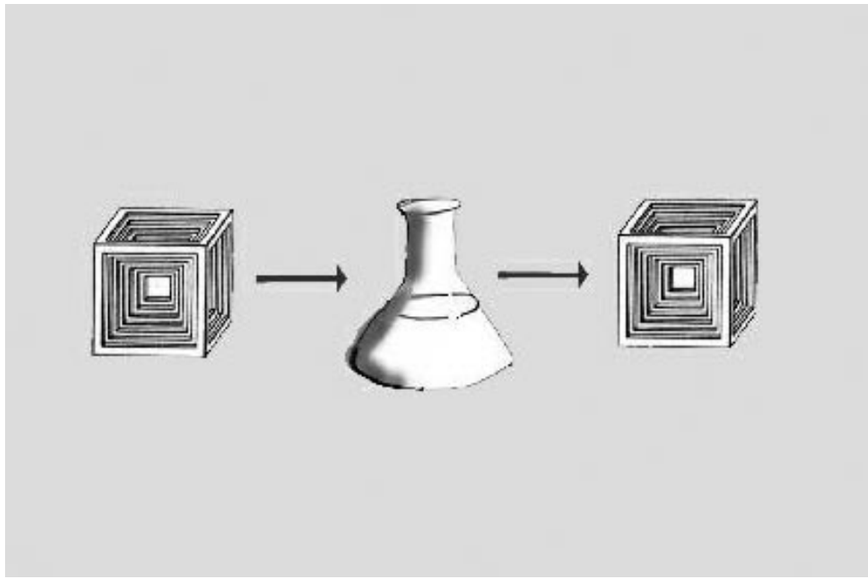

Figure 1

are non-renewable as they are not self-replicating. A museum with a fixed collection can go on for a long time but is not infinitely sustainable because certain types of material will inevitably deteriorate beyond use or enjoyment. Thus the museum will eventually have to acquire new material to stay in business. One could not therefore criticise far-thinking museum directors for acting as if their job was to oversee the continuation of the species 'museum object', rather than the stewardship of a permanent set of individuals.

Most museum objects that are kept indoors have lifetimes of several hundreds of years, which makes them permanent in comparison to museum directors or conservators. They appear permanent in comparison to maximum planning horizons that have been proposed for museum objects, which are of the order of two centuries or less.

By contrast, most living organisms have lifetimes in the low tens of years, often much less. They set about replacing themselves with virtually identical copies. A herd of zebra in the Serengeti National Park would look identical to one 10, 20 or even 100 years ago. Intellectually we would know that they were a different set of individuals. Although the molecular and gross physical structures of the zebras and their environment are the same now as they were in the past, the actual atoms that composed the first group could now be almost anywhere in the world. Scientifically a large number of analytical tests would show that the first group was identical to the second. Sustainability is seen as the continuation of appearance, behaviour and contextual relationships; summed up in the word 'significance'.

The significance of landscape is sustained through gross structural similarity over time and through the constant replacement of individual components with items of approximately the same shape, size and colour in approximately the same locations. No-one would complain that today's landscape was less 'authentic' than that of 50 years ago.

Without human interference many built structures have lifetimes that do not exceed the high tens or low hundreds of years. This is often because humans set out to change or destroy them. But inevitably the substance reacts chemically with the aggressive environment and the structure is subject to physical assault from vegetation, ground subsidence and seismic activity.

The inevitability of replacement is included in declarations about the conservation of historic sites. The fact that maintenance involves replacing original material and reproducing original intent means that it must be guided by feelings about authenticity. These considerations are expressed in the Declaration of San Antonio of 1996. The signatories assert:

"…the validity of using traditional techniques for their repair, especially when those techniques are still in use in the region, or when more sophisticated approaches would be economically prohibitive. We recognize that in certain types of heritage sites, such as cultural landscapes, the conservation of overall character and traditions, such as patterns, forms and spiritual value, may be more important than the conservation of the physical features of the site, and as such, may take precedence. Therefore, authenticity is a concept much larger than material integrity and the two concepts must not be assumed to be equivalent …." [5]

Some sites are more authentic than others:

"...those valued as the concluded work of a single author or group of authors and whose original or early message has not been transformed. They are appreciated for their aesthetic value, or for their significance in commemorating persons and events important in the history of the community, the nation, or the world. In these sites, which are often recognized as monumental structures, the physical fabric requires the highest level of conservation in order to limit alterations to their character."

While thinking about these things during 2001 I gave a talk to members of the Royal Society for Chemistry. The title I had been given was "Conservation - past and present" and the theme I chose was "the more things change the more they stay the same". I asked the audience to consider a thought experiment. A perfect crystal of common salt is dissolved in water and then a perfect salt crystal is grown from that solution (figure 1). There is no scientific test that could, in retrospect, prove that the second crystal was not the first. Intellectually one would know that they were not the same, but the appearance and the chemical and physical properties would not have changed. The significance would have been preserved. The experiment works because of the simplicity of the object and also because of its lack of association with a named human creator. It indicates that complexity and value are important factors in determining authenticity and significance.

The rate of decay also seems to be relevant. Where the lifetime of an artefact is inevitably short in comparison to that of a human, sustainability of significance is more likely to be judged by maintenance of intent, message and general appearance than by pedantic conservation of original arrays of atoms. Where the lifetime is long, the actual original material may be more important. Uniqueness, whether intrinsic in the complexity of the object or extrinsic in its association with an individual person, may lead to greater reverence for original material.

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People Watching: Monitoring Heritage Hospitality Functions in Historic Houses

Nicky Ingram

MPhil Research Student, RCA/V&A Conservation

Photography by English Heritage

Figure 1. The Red Velvet Room at Chiswick House prepared for a reception

Introduction

Sponsored by English Heritage, my research is into risk and the impact of special events (weddings, corporate receptions, dinners, etc.) on the contents and decorative finishes in historic houses. This has meant attending a number of functions at my case study sites over the last two years. My article outlines the reasons for using these case studies, the approach taken, the issues raised and what the initial results suggest.

Heritage hospitality

Assessing risk to contents and interiors during functions is a topical area of research. In today's economic climate, pressure is being exerted on managers of historic properties to supplement admission income with sources of revenue that are not dependent on visitor numbers. The benefits of heritage hospitality are often immediate and tangible, as exclusive use of a unique location offering a high standard of service and facilities can command substantial hire charges. Conjure up, however, a picture of 100 people within an historic interior, crowded closely together, sipping sticky cocktails and tucking into flaky canapés, and most conservators will pale visibly. But just how risky is this in reality? Could we be worrying over nothing at all?

The case studies

English Heritage Hospitality was launched at Chiswick House (figure 1) in 1998. One of the finest examples of Palladian architecture in England, Chiswick House in west London, was built in the early 18th century for the 3rd Earl of Burlington (1694-1753). Eltham Palace (figure 2) in south-east London opened as a heritage hospitality venue in 1999. The house is the creation of Stephen Courtauld (1883-1967), a member of the successful family of textile manufacturers. In the 1930s Courtauld and his wife Virginia incorporated the remains of an important medieval royal palace into a lavish Art Deco residence.

Why monitor?

The overall objective of the research is to develop a model that decision-makers can use to analyse and more accurately identify, quantify and rank the potential risks to collections from holding different types of heritage hospitality functions. The primary purpose of monitoring actual hospitality events is to test this theoretical risk assessment model. The use of case studies can provide both quantitative and qualitative evidence. In particular, case studies supply data to feed into the 'risk equation' that defines risk as the product of the ***probability*** *of an unwanted event* (e.g. wine spillage

Photography by English Heritage

Figure 2. The Entrance Hall at Eltham Palace set up for a function

on an absorbent surface) and the ***magnitude** of the consequence of that unwanted event* (e.g. the severity of the damage). To calculate the likelihood of something happening (e.g. an object being broken) in the future, it is useful to know the number of times a similar occurrence has happened in the past. To estimate the consequence of that single event or the impact of cumulative occurrences, the monitoring of objects, surfaces and finishes is helpful.

In addition, the adequacy of current protective measures (e.g. druggets on floors, Perspex covers for the tops of furniture) can be monitored. The effectiveness of current guidelines issued to clients and contractors (caterers, lighting and marquee hire companies, etc.) can also be assessed. This will inform one intention of the research – to propose appropriate strategies for the management of risk and the protection of contents during hospitality events. Information from the case studies will provide data to compare with the results of monitoring functions outside *English Heritage Hospitality* control, e.g. in privately managed or National Trust houses. The monitoring of functions also allows an assessment of the increased level of risk (if any) of holding such events as compared to the 'acceptable' risk of normal opening arrangements.

Monitoring the impact of functions

Functions within historic interiors can have a ***direct*** impact (damage and deterioration) on objects. Here three approaches to monitoring have been taken:

- A personal log of observations made while attending functions of differing scenarios (e.g. wedding ceremony, drinks reception with canapés, sit-down dinner, dinner-dance with marquee) and covering different components of functions (set-up, event proper, take-down). The purpose has been to monitor guest-flow and activity as well as caterer and supplier movements through the properties and to watch how people interact with their surroundings. 'Near-misses' and accidents have been logged. Post-function report forms completed by on-site staff have also been incorporated into the research.
- Wear-and-tear monitoring of a variety of objects, surfaces and decorative finishes at both case study sites. Using observations from the first functions, objects were chosen because of their proximity to function activity as well as their potentially fragile nature. A few objects were chosen as controls, i.e. of similar material but not in a vulnerable location. Wear-and-tear recording forms (figure 3) have been compiled which are updated using acetate overlays on colour photographs during monthly visits to both case study sites.
- Use and interpretation of information already routinely being produced by the case study sites. This includes environmental monitoring (especially relative humidity and pest activity).

However, functions can also have an ***indirect*** impact on collections and contents of historic properties and so the research also includes:

- Monitoring of press interest in functions at properties. A high-profile incident can damage an organisation's reputation, lead to lenders withdrawing loans, or members (where applicable) not renewing membership; this last consequence impacts on resources available for collections care.
- Talking to staff at a property to gauge their attitude to functions and the effect of working long-hours on their motivation, morale and effectiveness. Lack of motivation, for instance, can affect the amount and quality of time spent on collections conservation.
- Talking to staff from different disciplines within the organisation (e.g. hospitality managers and marketing managers, conservation and curatorial staff) to assess their perception of the risks involved and their overall attitude towards heritage hospitality. Without a consensus approach to assessing the risks of heritage hospitality, effective decision-making is hampered to the detriment of the collections.

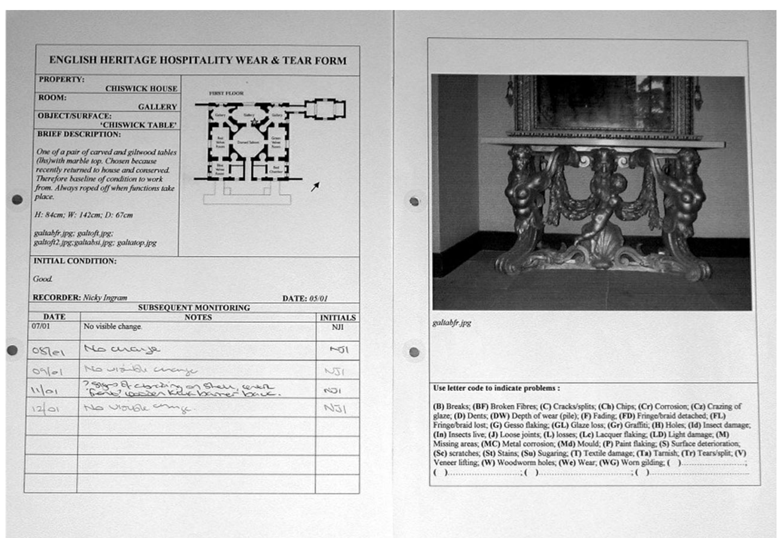
ENGLISH HERITAGE HOSPITALITY WEAR & TEAR FORM
PROPERTY: CHISWICK HOUSE
ROOM: GALLERY
OBJECT/SURFACE: 'CHISWICK TABLE'
BRIEF DESCRIPTION:
One of a pair of carved and giltwood tables (lhs)with marble top. Chosen because recently returned to house and conserved. Therefore baseline of condition to work from. Always roped off when functions take place.
H: 84cm; W: 142cm; D: 67cm
galtabfr.jpg; galtoft.jpg; galtoft2.jpg;galtabsi.jpg; galtatop.jpg
FIRST FLOOR
INITIAL CONDITION:
Good.
RECORDER: Nicky Ingram
DATE: 05/01
SUBSEQUENT MONITORING
DATE
NOTES
INITIALS
07/01
No visible change.
NJI
galtabfr.jpg
Use letter code to indicate problems :
(B) Breaks; (BF) Broken Fibres; (C) Cracks/splits; (Ch) Chips; (Cr) Corrosion; (Cz) Crazing of glaze; (D) Dents; (DW) Depth of wear (pile); (F) Fading; (FD) Fringe/braid detached; (FL) Fringe/braid lost; (G) Gesso flaking; (GL) Glaze loss; (Gr) Graffiti; (H) Holes; (Id) Insect damage; (In) Insects live; (J) Loose joints; (L) losses; (Lc) Lacquer flaking; (LD) Light damage; (M) Missing areas; (MC) Metal corrosion; (Md) Mould; (P) Paint flaking; (S) Surface deterioration; (Sc) scratches; (St) Stains; (Su) Sugaring; (T) Textile damage; (Ta) Tarnish; (Tr) Tears/split; (V) Veneer lifting; (W) Woodworm holes; (We) Wear; (WG) Worn gilding;
Photography by the author

Figure 3. A wear-and-tear recording form for one of the Chiswick tables

Issues arising from monitoring

Several issues arise from the monitoring carried out so far. Firstly, the practicality of monitoring an event where *you* need to be in a position to see clearly what is going on without being so obvious that *the guests* notice and become upset at your presence. Being amongst the guests, albeit unobtrusively, you become part of the 'experiment'. What do you do if you see something about to happen? Intervene or not? Is it better to record a 'near-miss' than an actual accident?

So far the monitoring exercise has produced little evidence of actual damage. If one is unable to use the 'classical' approach to quantifying probability by using the relative frequency (the number of times it has happened before) of an unwanted event, an alternative approach has to be found. The 'subjective' method uses expert opinion to quantify probability but issues of the 'calibration' of that expert judgement raises problems.

The monitoring of wear-and-tear on objects and surfaces raises issues of consistency – between different recorders, or even the same recorder at different times. Photographs are often used to address the lack of consistency in written descriptive terms for damage or deterioration, but photographs to record object change need to be taken under consistent conditions.

The interpretation of wear-and-tear monitoring can be difficult. Breakage or damage during a function is usually both visible and attributable. On-going deterioration, on the other hand, is not immediately obvious and is often unattributable. How can the contribution of functions to the rate of deterioration be distinguished from that of normal visiting patterns?

Calculating the impact of damage and deterioration raises questions of conflicting perceptions of damage, the value (cultural significance) and valuation (financial value) of objects, surfaces and decorative finishes, all of which are areas for research in their own right. Monitoring wear-and-tear in the way described above can only really indicate visible or surface change in condition. Does it matter what is happening beneath the surface?

Initial results

A number of qualitative observations can be made as a result of the monitoring exercise so far:

- Of primary importance is having sufficient trained staff on duty to closely supervise the set-up/take-down and the event itself.
- The riskiest time is during set-up/take-down of a function, especially if the set-up time is restricted because the event is running back-to-back with normal opening, and if the take-down doesn't happen until the early hours of the morning, everyone will be tired.
- Contractors should be given comprehensive guidelines, outlining what they *must* and *must not* do and strict compliance ensured.
- A few carefully-chosen contractors who are used to working within historic interiors, who are familiar with the property and its restrictions, and who use the same personnel each time, will reduce the risk of accidents.
- Functions are less risky when the clients can only choose from a small number of well-rehearsed scenarios and where the risks of these activities have already been assessed, mitigated and there are precautions in place to manage the residual risk.
- The reactions of distracted and sometimes inebriated guests during a function can be hard to predict and therefore difficult to manage.
- Protection used on surfaces needs to be adequate and appropriate so that it is both unobtrusive and does not put at risk what it is designed to protect.

Over the last two years, visible and attributable impact of heritage hospitality on case study site interiors has mainly consisted of spillage on floors (e.g. wine/food on stone) and some soiling of surfaces (e.g. make-up on removable covers of reproduction furniture). Whereas a heritage hospitality manager would argue that impacts of this type are to be expected, are acceptable and indeed repairable, a conservator or curator might see that same 'damage' in quite a different light. Finding an acceptable balance between the benefits and costs of functions is difficult and much depends on an organisation's core objectives. However, an initial conclusion presents itself. The current risk mitigation and management strategies implemented by *English Heritage Hospitality* are, on the whole, working for the type and frequency of current event scenarios. How changing any of the variables (number of staff, type of events, frequency of functions, choice and control of contractors, etc.) affects the level of impact, will be the subject of further study.

Ethical Considerations in the Treatment of a Tibetan Sculpture

Annie Hall
Metals Conservator

A final year MA research project for the RCA/V&A Conservation programme conducted in 2001 focused on a 14th century Tibetan sculpture of the Buddha Shakyamuni (IM.121-1910). The sculpture was being sent on loan to the Millennium Galleries in Sheffield for the *Precious* exhibition. The loan assessment and consequent conservation treatment provided an opportunity for an in-depth study of the physical aspects of the sculpture. However, the additional issue of sacred items found inside the sculpture complicated matters. What began as an investigation of the technical features and deterioration factors of the sculpture, turned into an exploration of the ethical dilemma posed by intervention with a religious object. The following article will outline some of the main points of the enquiry.

The gilded and pigmented bronze sculpture was acquired during the 1904 British invasion of Tibet, known as the Younghusband expedition. It was purchased from a gallery in London by the Museum in 1910. Traditionally Tibetan Buddhist sculptures contain relics, which are blessed to fill them with sacred presence. From a religious viewpoint the contents should not be disturbed. However, at some time in the past, probably after the sculpture left Tibet, it was opened. 13 drawings and 6 rolled scrolls, which were removed from its centre, remain in the V&A's collection but are stored separately from the sculpture. During the conservation treatment in 2001 further items were detected inside the sculpture, through a gap in the base plate. The curatorial request for the removal of this material from inside the sculpture led to a lengthy deliberation over such an action. After careful consideration by senior conservation and curatorial staff, seven drawings, two wrapped objects and one scroll were removed from the sculpture. If the other objects had not already been removed from the sculpture, it would not have been reopened.

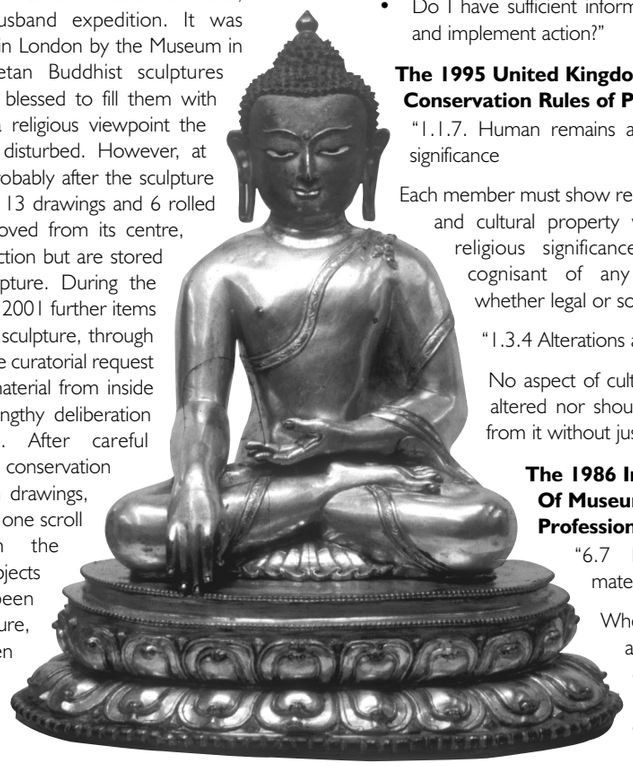

Figure 1. A Sculpture of the Buddha Shakyamuni, Museum No. IM.121-1910
Photography by Annie Hall

As the complexities of the case study unfolded it provided more examples of the questions that are introduced by such culturally significant objects housed within decorative arts museums. Ethical guidelines, particularly those of the V&A, the UKIC and ICOM were used to consider the action to be taken. They are outlined as follows: [1]

The 1994 Victoria and Albert Museum Conservation Department Ethics Checklist

- "Do I need to consult: clients, peers, other specialists?
- Have I considered all the factors contributing to the identity and significance of the object: historical, technical, sacred, maker's intention?
- What effect will my actions have on the evidence of these factors?
- Do I have sufficient information and skill to assess and implement action?"

The 1995 United Kingdom Institute of Conservation Rules of Practice

"1.1.7. Human remains and material of religious significance

Each member must show respect for human remains and cultural property which have a ritual or religious significance. He/she should be cognisant of any special requirement, whether legal or social, of such material."

"1.3.4 Alterations and removal of material

No aspect of cultural property should be altered nor should material be removed from it without justification."

The 1986 International Council Of Museums Code of Professional Ethics

"6.7 Human remains and material of ritual significance

Where a museum maintains and/or is developing collections of human remains and sacred objects, these should be securely housed and carefully maintained as archival collections and in scholarly institutions, and should always be available to qualified researchers and educators, but not to the morbidly curious. Research on such objects and their housing and care must be accomplished in a manner acceptable not only to fellow professionals but also to those of various beliefs, including particular members of the community, ethnic or religious groups concerned. Although it is occasionally necessary to use human remains and other sensitive material in interpretative exhibits, this must be done with tact and with respect for the feelings for human dignity held by all peoples."

The perspective offered by ethical guidelines for conservation is useful. However, the concepts referred to such as "justification", "cognition", "tact and respect" are far from objective. The value of the material revealed by the investigation was a significant factor in the decision to remove the objects. Ultimately however, it was the viewpoint of the museum that carried the most weight since they are currently the owners of the sculpture.

In order to come to an understanding of the sculpture in its current context, four interviews were undertaken. Each of these related to a particular aspect of the sculpture:

John Guy and John Clarke, curators of the Indian and South East Asian Department of the V&A said that, at the V&A, the sculpture is presented as a religious object valued mainly for its high quality and large scale. Because of this, it is a central feature of the Himalayan collection. The historical associations that the sculpture has with the Younghusband expedition are also significant. (However, that subject provides more than enough material for a separate research project and was only considered here from a legal perspective, where it affected the ownership of this object.) [2]

Anthony Burton, of the Research Department of the V&A and developer of the *Precious* exhibition in Sheffield was also interviewed. In *Precious,* the object was presented as an iconic image of the Buddhist religion. Its significance as an historic Tibetan object was not highlighted.

Jonathan Ashley-Smith, Head of Conservation at the V&A, suggested that the conservation of objects in the V&A do not usually focus on their religious requirements. However negotiation with members of originating communities **does** occur in the museum, as demonstrated recently for *The Arts of the Sikh Kingdoms* exhibition, where advice was given on how to display significant objects in a respectful manner.

Phuntsok Wangyal of the Tibet Foundation in London was also interviewed. He described how the sculpture would be regarded and displayed in a traditional context. As a Tibetan religious object, the sculpture is no longer being treated in this manner in the Museum. However, he also suggested that it may be a consolation for some people that the sculpture had been protected from the destruction of the Cultural Revolution by being taken out of Tibet.

Photography by Annie Hall

Figure 2. Objects removed from the sculpture

The conflicts arising from different viewpoints of how to deal with culturally sensitive material are represented by this case study. Current museum perspectives on value and representation are demonstrated by the actions taken in these circumstances. The value of such objects is implicitly bound to their origins, and therefore this complexity must be considered when any treatment of the object, physical or otherwise, is undertaken. The process by which the subject is addressed reveals and reinforces certain attitudes towards the subject matter. The choices made for conservation action are embedded in this framework and are capable of reinforcing as well as challenging these preconceptions.

Additionally, the conservation of Tibetan objects is particularly complex as the originating community is currently being threatened in, or removed from, their homeland. The conservation of such objects could be seen as helping preserve the physical heritage of a people who are physically and socially or culturally threatened. This assumption, however, is problematic as it suggests that the material and social culture of such diasporic communities is not continually developing. This is of course not true. Therefore the challenges for museums that hold collections from living cultures are increasing.

The justification for the removal of the objects rested on what was revealed. They were in good condition and when the small paper objects were unfolded they showed figures drawn and coloured with well-preserved pigment (figure 3). Each of the figures was labelled with Tibetan text indicating distinct individuals. They depict a lineage of Tibetan teachers associated with the Black Hat order. The drawings were dated stylistically to the 13th century. They are considered to have significant art historic merit because of their age and style but also provide information about the sculpture's religious connections. The removal of the contents was therefore considered justified from the museum perspective.

Photography by V&A Photographic Studio

Figure 3. The drawings removed in 2001, unfolded

In conclusion, this research began as an investigation into the conservation of a particular Tibetan sculpture, focusing on the physical aspects requiring attention. However, as the more complex meaning of the object was revealed, the research required expansion to include the spiritual nature of the sculpture and its contents. Ethical guidelines were used to consider the decision to remove the contents. The initial removal of the internal objects is an unacceptable activity when considered in the framework of conservation ethics today. The decision to remove further objects in 2001 was only feasible because the sculpture has already been disturbed. By questioning our activities and by facing the realities of situations that have been inherited within museums, a more positive framework for future action by conservators working in this environment can be achieved.

A display of the sculpture and its newly discovered contents will be on display in on of the main entrance cases of the V&A from February 18th until 10 May 2002

Acknowledgements

The author would like to thank the interviewees: Jonathan Ashley-Smith, Anthony Burton, John Clarke, John Guy and Phuntsok Wangyal and also the Paper Conservation Department of the V&A, particularly Shiho Sasaki for her assistance and advice.

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   ICOM, *Codes of Professional Ethics,* International Council of Museums, 15th General Assembly of ICOM, 1986, Argentina
2. The following conventions deal with this subject: The Hague Convention, *Convention for the Protection of Cultural Property in the Event of Armed Conflict,* 1954, http://www.icomos.org/hague; The UNESCO Convention, *UNESCO Convention on the Means of Prohibition and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property,*1970, http://www.tufts.edu/departments/fletcher/mulit/www/bh572.html; The Unidroit Convention, *Unidroit Convention on Stolen or Illegally Exported Cultural Objects,* 1995, http://www.city.ac.uk/artspol/unidroit.html

Further Applications of Raman Microscopy in Paper Conservation

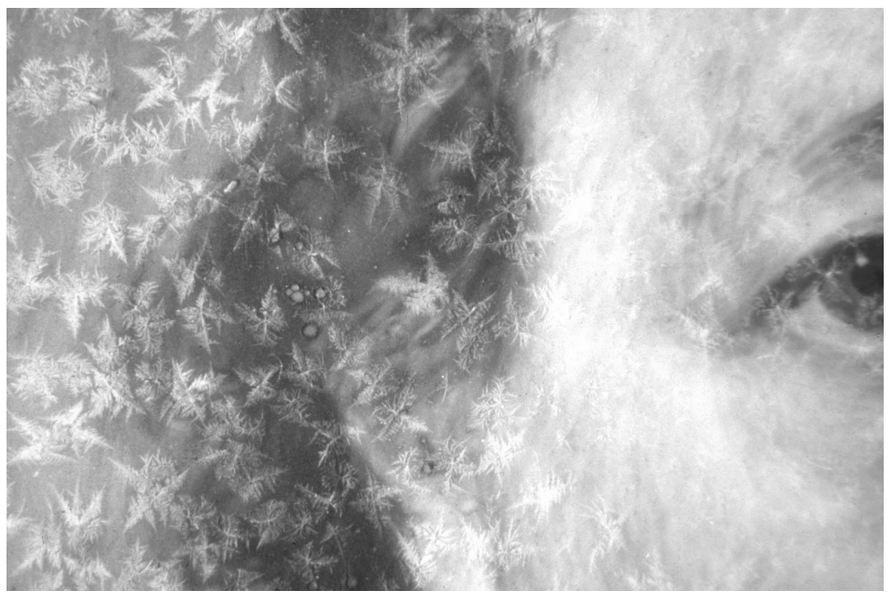
Alan Derbyshire, Senior Paper Conservator
Mike Wheeler, Senior Paper Conservator

Introduction

Raman microscopy is becoming increasingly popular as an analytical technique in the scientific and conservation departments of museums. The power of the technique stems from its ability to permit the unambiguous identification of particles of micrometre dimensions both non-destructively and *in situ*. Raman can be readily applied as an investigative tool in a variety of situations. A previous article (V&A Conservation Journal, Vol 30 1999) looked at the use of Raman for pigment analysis on different types of objects. The versatility of Raman was illustrated with successful analysis being carried out on a range of objects from portrait miniatures to oil paintings and also three-dimensional sculpture. Furthermore, with the portrait miniature, it was possible to carry out the analysis through the cover glass. The theory of Raman spectroscopy is described in the literature. In practice a low-powered laser light is directed onto the material to be analysed. The difference in energy between the original and scattered photons provides the Raman spectrum, which is a 'fingerprint' of the molecule under investigation. Identification of the material is then made by reference to a library of spectra.

Identification of Salt Crystals in European Portrait Miniatures

The phenomenon of crystal formation on portrait miniatures on ivory has been investigated using Raman microscopy. These crystals, which may grow on top of, within, or beneath the paint layer, can damage the delicate paint surface (figure 1). A restoration strategy for removing these crystals and a conservation strategy for arresting the growth of new ones critically depend on identifying the origin and chemical composition of the crystals. Previous investigations have suggested various causes of the crystals (usually focusing on pre-treatment of the ivory) but have been unsuccessful in confirming their chemical nature. Three portrait miniatures on ivory were analysed by Raman microscopy to determine the identity of tiny, white crystals, which had formed under, within, or on top of their paint layers. Some crystals also formed on the verso of the ivory support away from any paint layer. In each case the crystals were identified as magnesium hydrogen phosphate trihydrate, also known as newberyite ($MgHPO_4.3H_2O$). Small, white crystals found growing on the inner surface of ivory tusks were also identified as newberyite by means of Raman microscopy. The authenticity of a sample of magnesium



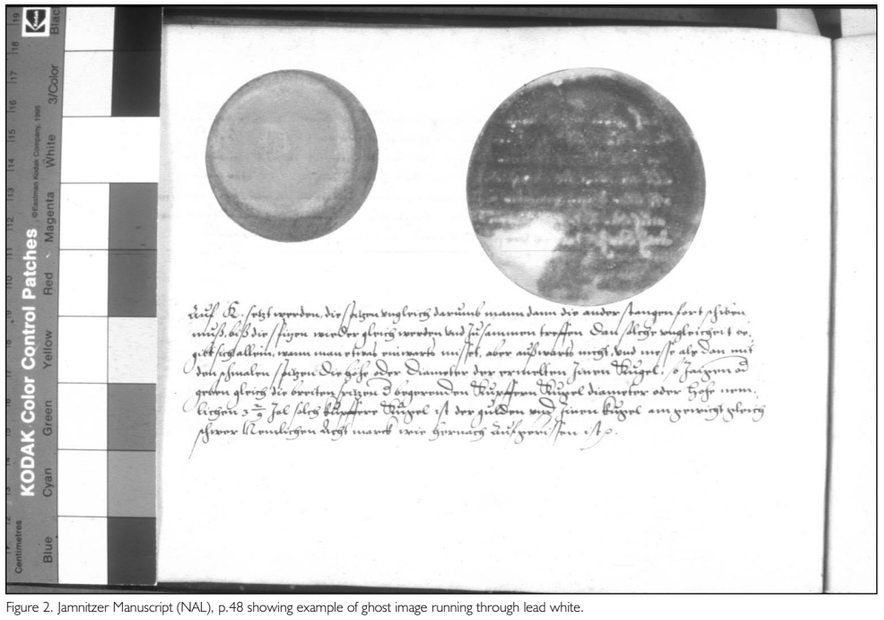
Photography by Alan Derbyshire

Figure 1. Miniature on ivory showing crystal formation (P.22-1928).

hydrogen phosphate trihydrate was checked by powder X-ray diffraction. Thus, it is concluded that the tiny, white crystals occurring on the portrait miniatures on ivory almost certainly originate from the ivory substrate – probably under conditions of high humidity.

Investigation of the effect of iron gall ink on the discoloration of lead white pigment.

This research stemmed from a recently observed phenomenon in a manuscript from the sixteenth century. The manuscript is by Wenzel Jamnitzer, a German goldsmith. It has been observed that, within the book, large areas of the lead white pigment have blackened. However, areas of the lead white which correspond directly to iron gall ink inscriptions on the reverse of the same sheet are not blackened. Effectively they remained white; i.e. a ghost image of the inscriptions can be seen running through the otherwise discoloured lead white pigment (figure 2).



Photography by Alan Derbyshire

Figure 2. Jamnitzer Manuscript (NAL), p.48 showing example of ghost image running through lead white.

To begin to understand this effect it was necessary to be able to carry out non-destructive, non-invasive analysis of a number of the pigments and discoloured pigments involved. This was successfully completed using Raman microscopy and X-ray fluorescence spectroscopy (XRF). The analysis confirmed the presence of lead white and other pigments including the little-known pigment, mosaic gold (tin disulphide). A Raman spectrum for blackened lead white i.e. lead sulphide was also obtained, *in situ,* for the first time.

Having confirmed the presence of iron gall ink and various pigments and their degradation products it was possible to suggest possible mechanisms for the ghost image effect. Observations on the possible source of the lead white discoloration were also made.

Identification of pigments in Indian miniatures – The *Hamzanama*

Raman spectroscopy was also used to identify pigments from the *Hamzanama,* a painted manuscript from the Mughal period (1526-1707). This was a joint project with the Christopher Ingold laboratories at University College London (UCL). The non-destructive and non-invasive nature of this analytical technique was especially attractive. Also the portability of the Raman microscope allowed analysis to be conducted on site.

The Victoria and Albert Museum has 27 folios from this series of paintings. The folios are of particular interest due to their large size (800 x 600mm) and the use of a bolder style appropriate to this larger format. It was also of interest to discover if there was a degree of parity in the use of pigments between the three folios chosen and how the palette from the *Hamzanama* compared to the range of pigments used to paint a folio from a slightly later dated manuscript on paper – the *Akbaranama* of 1597.

Building on previous information about pigments from three of the folios, which had been obtained by optical microscopy and UV examination, Raman spectroscopy was used to examine the pigments. Between thirty and forty sites from each painting were analysed. These were selected to provide as full a representation of the complete palette as possible. The speed and ease with which this number of readings could be taken with the Raman microscope, when compared to other analytical techniques, was a great advantage.

The palette was conclusively identified for the first time and found to be consistent across all three folios. The use of individual pigments and pigments in admixture, for shading and to expand the palette, was also discovered. This included a number that are light-

Photography by Mike Wheeler

Figure 3: The Raman microscope in use

sensitive or prone to degradation, which has considerable implications for the conservation and exhibition of the folios. One example of this was the identification of large areas of greyish blue pigment which had originally contained yellow orpiment (arsenic sulphide) mixed with the organic dye indigo to give a variety of greens. This was used to paint foliage in several of the *Hamzanama* folios in the V&A collection, including I.S. 1513-1883 – *Amar Ayaz witnessing the death of Qamir.* A small, unaltered portion of pigment along the left hand edge indicated that the grey coloured foliage had once been a pale green, but as a result of ageing a colour shift had occurred. Raman analysis showed orpiment to be still present in these areas, but it had been decolourised as a result of light exposure.

Conclusion

The application of Raman microscopy is particularly useful in paper conservation where analysis often has to be carried out on thin layers of materials and sampling is not an option. In the above examples, the non-destructive, non-invasive nature of Raman microscopy was paramount in selecting it as an analytical tool. Other advantages include the portability of the instrument, which facilitates on site analysis and the relative speed at which the analysis can be carried out allowing a large number of readings to be taken in a short time.

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A Critical Evaluation of Laser Cleaning of Parchment Documents

Marie Vest
PhD Research Student, RCA/V&A Conservation

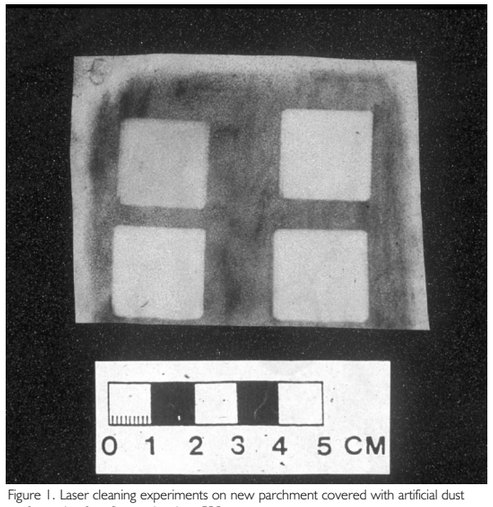
Since October 2001 I have been a part-time PhD student on the RCA/V&A Conservation programme, combining research with my job as Lecturer at the School of Conservation, Copenhagen. The title of the project is "A Critical Evaluation of Laser Cleaning of Parchment Documents with a Short-Pulsed Q-switched Nd:YAG Laser at 1064, 532 and 266 nm". This paper deals with the overall considerations made before making the project proposal which focuses on rather traditional conservation research into a new cleaning method, proposed in the age of preventive conservation.

The use of lasers for cleaning works of art and other cultural objects is a topic of great interest today. The method has become an established tool in sculpture conservation workshops throughout Europe. In particular, the Nd:YAG laser has proved its potential for cleaning sculptures made of inorganic materials such as marble, limestone and sandstone. The principle of laser cleaning is based on the difference in absorption of laser radiation in dirt and in the substrate. This difference should be large enough to ensure that dirt absorbs radiation and is ablated while the underlying substrate reflects the incident radiation after removal of dirt. This enables a non-contact, self-limiting cleaning process. These ideal circumstances for laser cleaning have not been as obvious for organic materials as for some inorganic materials and therefore the adoption of laser technologies for cleaning organic materials was much slower. Research into this area is now increasing, in part because of the perceived undesirable side effects associated with traditional cleaning methods that inevitably involve some form of contact with the object.

Parchment documents are an important part of our cultural heritage, being the bearers of historic information that throws light on the roots of our modern society. It is therefore natural that their conservation, including cleaning, is subject to discussion not only between conservators but also with curators, archivists and librarians. Today the situation is that some collections are in a very stable and good condition which means that interventive conservation is unnecessary and their care is solely a matter of preventive conservation. Other collections are of such importance that practical conservation may be considered when the object is obviously threatened and must be treated to preserve it for the future. In some such cases cleaning is considered too high a risk for the object and is abandoned to protect the script from undesired changes. However, this abandonment of cleaning is based more on the inadequacy of the known methods rather than a general condemnation of cleaning.

The aims of cleaning can be twofold. One is to enable of a better reading of the text which might be covered by surface dirt (though this is not always an automatic reason to choose cleaning as better readability can be obtained through non-contact methods such as photographic methods). The other aim is the aesthetic aspect, which can be considered of less importance for valuable documents where the long-term maintenance of a stable condition has a higher priority that the aesthetic appearance. These examples are probably exceptions and cleaning of parchment documents is still widespread in European conservation workshops.

Parchment is limed skin prepared from small animals such as sheep, goat and calf. After liming it is tied to a wooden frame and stretched in order to dry under tension. This process creates a marked change in the fibre orientation from a three-dimensional fibre network structure into layers of stretched fibres. The fibres are fixed in a position generally parallel with the grain and flesh surface and cannot revert to the original relaxed state unless water is added. As a writing material it should be opaque and white but the colour might vary and remains of dark hair roots can still be present.



(Photography by Martin Cooper)

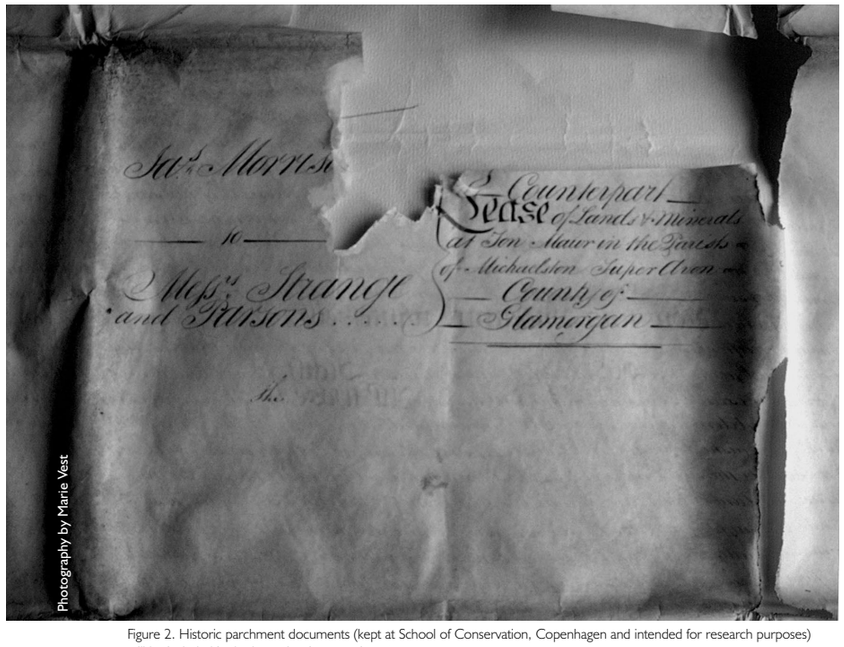
Figure 1. Laser cleaning experiments on new parchment covered with artificial dust performed at four fluence levels at 532 nm.

Traditional surface cleaning of parchment is based on methods adapted from paper conservation and includes dry- as well as wet-cleaning. Dry cleaning of parchment is carried out with different kinds of erasers, the choice depending on the surface structure of the parchment, the state of preservation and the adhesion of the ink to the parchment surface. A variety of commercially available erasers are used, most of them based on plasticised polyvinyl chloride. However, the mechanical treatment of the parchment surface may cause considerable damage to the fibre structure, fragments of ink are easily removed and ingrained soiling remains on the surface. Dry cleaning methods are usually excluded if the parchment is in an advanced state of deterioration or the adhesion of the ink to the surface is poor.

Wet cleaning methods include, among others, the use of saliva, Industrial Methylated Spirits (possibly mixed with water), and ethanol (96%(v/v) with water). The fluid is applied on cotton wool swabs and causes less mechanical pressure than the use of erasers. Nevertheless, after drying the surface can suffer from damages such as transparency or a change from a smooth to a more rough surface. These changes may be clearly visible to the naked eye. Another major problem related to water-based treatments of parchment is that a visually intact fibre structure can be transformed into a gelatinous substance by contact with water, and iron gall ink corrosion may cause other irreversible damages.

Basic research on the effects of laser cleaning, which avoids the problems of physical contact with the parchment or ink, is therefore valuable as the traditional methods are either problematic or not completely satisfactory. The purpose of the PhD project is to establish whether a Nd:YAG laser (currently the most commonly used laser for cleaning in conservation) can be safely used to clean historical parchment documents and, if so, to establish the optimum parameters for different cases. The Nd:YAG laser emits laser radiation at 1064 nm (infrared) and can also be modified to emit at 532 nm (green) and 266 nm (ultraviolet). A number of parameters including pulse energy, beam size and repetition rate can be varied during cleaning. The cleaning effect and a possible damaging effect of laser cleaning must be analysed in detail and any long- term effects of the laser cleaning process must be identified.

The current research involves extensive testing on unaged and aged samples before proceeding to a case study on cleaning an historic document. It complements a major European Union funded project on an improved damage assessment of historic parchment. Together it is intended that they will provide a good basis for developing the laser as a practical tool for cleaning parchment and other organic materials.



Photography by Marie Vest

Figure 2. Historic parchment documents (kept at School of Conservation, Copenhagen and intended for research purposes) will be included in the laser cleaning experiments.

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Building Models: Comparative Swelling Powers of Organic Solvents on Oil Paint and the Cleaning of Paintings

Alan Phenix
Research Fellow, RCA/V&A Conservation

Introduction

Non-original varnishes on paintings are often spirit varnishes, made from a natural resin, such as dammar or mastic, dissolved in a solvent like spirit of turpentine. However, these natural resins are intrinsically unstable and undergo chemical alterations over time (photo-oxidation and other secondary reactions) that change their solubility, usually necessitating a more active, polar solvent to effect dissolution. The solvent required to remove an aged, oxidised varnish may not be wholly inactive on the original paint beneath, and much of the technical skill in cleaning lies in finding a solvent capable of removing varnish controllably with minimal effect on the original paint. It is inevitable in varnish removal that the solvent reaches the paint, since varnish does not provide an effective barrier to solvent penetration. It is therefore important to consider the potential effects of solvent on the paint, in order to assess the risks involved in solvent-cleaning.

Two main risks of solvent-cleaning have been identified, both relating to the effects of solvent on the organic binder phase of the paint – the dried oil and any additives. The risk more extensively studied is *leaching,* the possible extraction of low-molecular weight components of the paint binder by the action of the solvent. The more acute element of risk in cleaning, however, is that of *swelling* of the paint through sorption of solvent. The three-dimensional polymerised dried oil network may not be truly soluble, but the polymer network may swell by sorption of solvent molecules, ultimately forming a gel. Depending on the degree of swelling, the paint will be more or less softened and its capacity to bind the pigment particles may be affected. In the swollen condition, there is a risk that pigment may be removed from the paint through the mechanical action of the swab. Swelling is a phenomenon that is tangible to the conservator and can be tested for prior to the commencement of cleaning. The magnitude of swelling caused by a given solvent is an indication of the strength of interaction between the solvent and the paint. It is known that solvents vary dramatically in their power to cause swelling of artists' oil paints. There is, however, limited data on oil paint swelling in solvents. The literature is confined to just three studies over the past 50 years, and only one of these, the comprehensive work of Stolow[1] in 1957, relates directly to artists' oil paints and to cleaning pictures. The extant data on oil paint swelling warranted re-examination, and that has been the goal of my recent research.

Describing solvent power: solubility parameters

Conservators have used various numerical systems – *solubility parameters* – as models of solvent behaviour. The most popular is that introduced in the 1960s by J.P. Teas in which the solubility properties of solvents are defined in terms of three fractional solubility parameters, f_d, f_p and f_h. These parameters describe respectively the contributions to the overall cohesion of the substance of the intermolecular forces: dispersion forces, polar forces and hydrogen-bonding forces. Despite some shortcomings, the familiar triangular Teas solubility chart (figure 1) is used like a map, allowing the conservator to identify potentially hazardous territory and to navigate a course to safe solvent selection.

Solvents located in the same region are expected to have similar properties and to be miscible/mutually soluble. The solubility of specific resins or the swelling of oil films can be represented as zones on the chart embracing all those solvents capable of dissolving or swelling the material concerned. It is important to identify the area of greatest sensitivity of the paint: the region on the chart which corresponds to those solvents that cause high levels of swelling to oil paint and, correspondingly, to potentially greater risk. If a varnish can be removed using a solvent that lies well away from the zone of high paint swelling, then the likelihood is that there will be a greater margin of safety in the cleaning process.

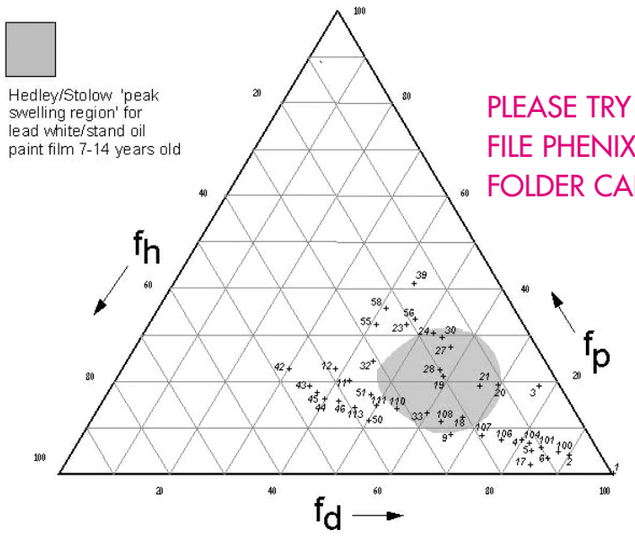


Figure 1. Teas solubility diagram showing Hedley's 'peak swelling region' (shaded area) based on Stolow's data for lead white/stand oil paints, 7-14 years old. Numbers on the Teas chart define the positions of individual solvents and solvent mixtures used in the present study. See Table 1 for key.

The use of the Teas chart model is largely based on the interpretation of Hedley more than twenty years ago. Using some of Stolow's data, Hedley[2] defined the parts of the Teas chart that corresponded to high levels of swelling, the so-called *peak swelling region* (see figure 1). Hedley's treatment clarified a number of important issues relating to solvent-cleaning; for example, that a binary mixture of solvents (e.g. ethanol or acetone mixed with White Spirits) may have a greater swelling effect than either of the two individual solvents used alone.

Developing the model: re-evaluating the Hedley/Stolow peak swelling region

The limitations of model systems often become apparent through use over time and they usually undergo a process of evolution in the direction of greater reliability and correspondence with reality. The Teas chart model of varnish removal is no exception. Its shortcomings derive partly from the constraints of the Teas fractional solubility parameter system and partly from the nature of the swelling data that feeds into the model. More specifically, the Stolow-derived data that Hedley used for defining the *peak swelling region* has been questioned regarding the extent to which it properly reflects the sensitivity of real artists' oil paints to solvent. This data set was for paint films composed of lead white pigment bound with linseed *stand* oil, but there are reasons to expect that stand oil paint films might behave differently with solvents than more conventional linseed oil paint media. It seemed appropriate, therefore, to develop the model by re-examining the swelling caused to typical artists' oil paints by sorption of organic solvents.

New swelling data

A new technique was developed for measuring the in-plane swelling of unsupported paint films during immersion in various solvents.[3] It is essentially a microscopical technique combined with quantitative image analysis and involves measuring accurately the areas of a group of paint samples over time during immersion in solvent. The result is a mean swelling curve for that paint/solvent combination from which can be determined the mean maximum degree of swelling (ΔA_{max}) and the rate of swelling. These properties have now been measured for three related paint films exposed to a wide range of solvents and solvent mixtures.

The findings[4, 5] have confirmed Stolow's observation that the ultimate swelling power of solvents on oil paints varies in relation to a number of factors, of which solvent polarity or specific cohesiveness is especially important. On the basis of their swelling powers, the various solvents have been classified into five groups (figure 2). However, the relationship between swelling power and solubility parameter ∂ was found to be more complex than indicated by Stolow's earlier data for stand oil paints. Most notable differences are among the polar solvents (high values of ∂).

Since the Teas chart approach, despite all its shortcomings, is so widely adopted in conservation it is useful to also interpret the data in this format, not least to allow a direct comparison with the Hedley/Stolow *peak swelling region.* Putting the new swelling data for pure solvents and a range of binary solvent mixtures into the Teas solubility diagram produces a rather more

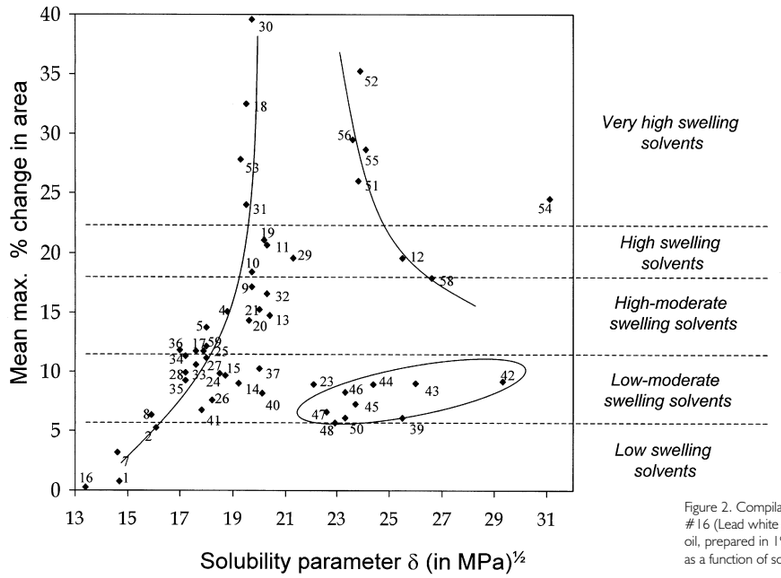


Figure 2. Compilation of swelling data for paint type #16 (Lead white and yellow ochre pigment in linseed oil, prepared in 1991, 140μm thick). Maximum swelling as a function of solvent solubility parameter ∂.

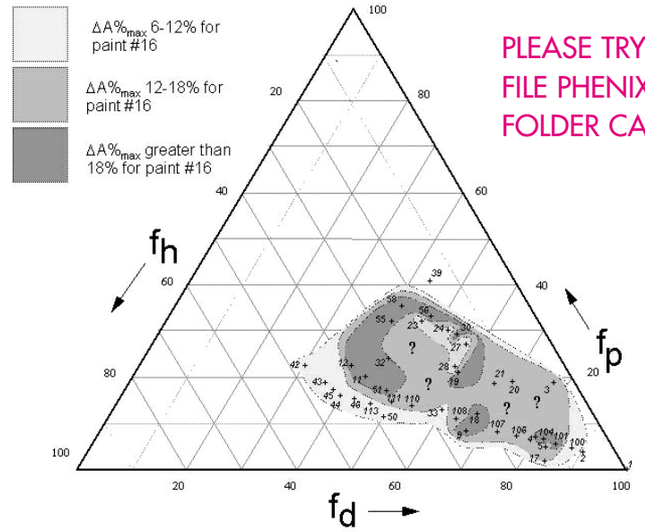
complex picture for the area of special sensitivity of oil paints than the single zone of high swelling suggested by Hedley. Figure 3 shows the zones of the Teas solubility chart corresponding to solvents giving maximum swelling values (ΔA_{max}) 6 – 12% (light shading: low-moderate swelling power), 12 – 18% (medium shading: high-moderate swelling power), and greater than 18% (dark shading: high and very high swelling power). It can be seen that solvents capable of causing significant degrees of swelling (eg. ΔA_{max} = 12% or greater) are spread over a large part of the Teas chart covering a broad range of polarities. The zone corresponding to high and very high swelling solvents is somewhat different to that presented by Hedley. A significant finding, also, is that there is something of a hole in the new *peak swelling region* (around f_d = 48-60, f_p 15-30) corresponding to aliphatic esters and ketones which are generally low-moderate or, at most, high–moderate swellers. Unfortunately, Teas parameters for several of the ketone and ester solvents tested in the present study are not available, meaning that important parts of this 'hole' are not charted, hence some of the question marks in this area. Additional data to fill in these, and other, gaps will be the goal of further studies.

Future directions

The need for further data to fill in some of the gaps in the Teas chart model of paint swelling is just one area for further work. There are several other issues coming out of this work that warrant further investigation. An assumption has been made that the degree of swelling caused by a solvent correlates directly with the vulnerability of the paint to mechanical abrasion: it remains to be demonstrated that this is indeed true. It might be expected that the physical swelling of severely aged oil paints is very much reduced compared to young paints, due to differences in internal chemistry and lower organic binder content. Dimension changes in very old paints may be so small as to approach the limits of reliable detection, yet there may still be changes to the physical properties of the paint that are significant for pigment binding. Furthermore, since both oxidative and hydrolytic degradation processes in oil paints lead to the formation of polar, hydrophilic species, the influence of water and aqueous environments on oil paint swelling is also a matter of considerable interest.

Returning to the Teas chart model of solvent cleaning, the recent results have added significantly to the corpus of data on oil paint swelling. It might now be appropriate to shift attention back to the varnish element. While much is known of the chemistry of varnish resin ageing, we still lack important knowledge on the specific solubility behaviour of resins: a more complete picture of how the solubility regions of resins like dammar and mastic change over time would certainly be useful.

It is hoped that at least some of these issues will be addressed in future research.



PLEASE TRY USING POWERPOINT FILE PHENIX FIGURE 3 SUPPLIED IN FOLDER CALLED CAPTURE

Figure 3. Teas solubility diagram showing swelling regions for paint type #16.

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Note: Alan Phenix is currently Associate Professor at the Institute for Archaeology, Art History and Conservation, University of Oslo.

Table 1
Key to solvents in figures 1, 2 and 3.

No.	Solvent
1	2,2,4-trimethylpentane
2	White Spirit
4	toluene
5	xylene
7	1,8-cineole
8	di-*n*-butyl ether
9	1,4-dioxane
10	anisole
11	2-ethoxyethanol
12	2-methoxyethanol
13	methoxypropanol
14	methoxypropylacetate
15	ethoxypropylacetate
16	perfluorodecalin
17	tetrachloromethane
18	trichloromethane
19	dichloromethane
20	1,1,1-trichloroethane
21	1,2-dichloroethane
23	acetone
24	butanone
25	methyl *iso*-propylketone
26	pentan-2-one
27	pentan-3-one
28	methyl *iso*-butylketone
29	cyclopentanone
30	cyclohexanone
31	acetylacetone
32	diacetone alcohol
33	*n*-butyl acetate
34	ethylpropanoate
35	propylpropanoate
36	*tert*-butylpropanoate
37	ethyl benzoate
39	g-butyrolactone
40	ethyl acetoacetate
41	diethylcarbonate
42	methanol
43	ethanol
44	propan-1-ol
45	propan-2-ol
46	butan-1-ol
47	butan-2-ol
48	2-methyl-propan-1-ol
50	cyclohexanol
51	benzyl alcohol
52	2,2,2-trifluoroethanol
53	hexafluorobutanol
54	N-methyl formamide
55	N,N-dimethyl formamide
56	N- methyl- 2- pyrrolidone
58	dimethylsulphoxide
59	tributylphosphate
100	Ethanol / White Spirit 1:19 v/v
101	Ethanol / White Spirit 1: 9 v/v
102	Ethanol / White Spirit 1: 7 v/v
103	Ethanol / White Spirit 1: 6 v/v
104	Ethanol / White Spirit 1: 5 v/v
105	Ethanol / White Spirit 1: 4 v/v
106	Ethanol / White Spirit 1: 3 v/v
107	Ethanol / White Spirit 1: 2 v/v
108	Ethanol / White Spirit 1: 1 v/v
109	Ethanol / White Spirit 3: 2 v/v
110	Ethanol / White Spirit 2: 1 v/v

Collaboration

Graham Martin
Head of Science Section

From a number of dictionaries, I found a reasonable agreement that collaboration has three definitions:

1 To work jointly with others especially in an intellectual endeavour.
2 To co-operate with or willingly assist an enemy of one's country.
3 To co-operate with an organisation with which one is not immediately connected.

I trust that you will agree that definition two must be left to the James Bond 007 category and does not directly concern us.

We are left with two working definitions, one intellectual and the other practical. I do not wish to differentiate between these approaches, so I will combine both and shorten the whole definition to: **working with others.**

The benefits derived from working with others must be the driving force for collaboration. These benefits can be intangible or tangible. Typically, collaborative work can be of greater worth than a series of smaller and independent tasks; they can give access to better resources (money or equipment) or greater credibility.

Collaborative projects start in various ways. The seed of the idea is a most interesting stage. This seed must come from the mind of a single individual – there is no other mechanism that I am aware of. It must be nurtured to become a real idea that can be communicated to others in order to win their support and backing. Those that are convinced will wish to collaborate. This loose project team must then seek further agreement from their peers, bosses or financial backers. At this stage the idea will be in the form of a project brief that describes and outlines the outcomes, the financial costs etc. It is this project brief that will form the basis of any contract.

The extent of collaboration is very dependent on the particular tasks within the project. To describe the extent of collaboration I am immediately taken back to my school days and Venn diagrams. Venn diagrams are those intersecting circles, often coloured, that demonstrate to me how collaboration works by the degree of overlap.

To examine some real collaborative projects in which I have been directly involved, I will need to establish some background.

The Science Section exists to:
Contribute to the knowledge and understanding of objects and their environment in collaboration with the Conservation Department, the Museum and fellow professionals by:

– concentrating on collection-centred work,
– balancing education, research, consultancy,
– meeting clearly agreed goals, in keeping with our professional responsibilities.

It is clear that collaboration was very much in mind, along with collection-centred work, when this statement was drawn up. For the particular project entitled *Assessment and Monitoring of the Environment of Cultural Property (AMECP)* [1], this clearly fitted within the statement.

AMECP was first conceived as a collaborative project in about 1990 when two sections of the V&A Conservation Department were independently approached by colleagues who worked for the Fraunhofer-Institut für Silicatforschung in Würzburg, Germany. In essence, the 'thought' was to develop a glass-based dosimeter for use in museums and galleries to assess the environmental conditions. A major funding source (the EU Framework Programme) had been identified and a third partner was required. Previous contacts with the Museu do Mosteiro de Santa Maria da Vitória, Batalha, Portugal were good and it was known that the Portuguese potential partner would be open-minded.

So far then, we had the idea, the partners and potential funding source. The requirement now was to submit a detailed project plan, financial breakdown and outline European Community benefits to the major funding source – the EU. Do not underestimate this task - my advice to others is that the preparation of a good proposal takes around three person months to complete. Then you submit the application and await the verdict of the referees. This can be a most harrowing and drawn out experience, as a minimum of six months is typical between submission and receipt of verdict. Meanwhile, there is a project team eager and willing to get on with the task, but sense must prevail.

The AMECP project did not start for another year and a half. Due to the internal institutional commitments of one of the partners it was not possible to take on the project. So, once again, we (the proposed project team) had to be patient. Then came success; all the pieces of the jigsaw were in place – contracts signed, money secured – the project could proceed. It was now a project to be completed in three years, on time and within the approximate 1.2 million European Currency Unit (ecu) budget. For the record, the project team estimated that approximately twenty person years were spent during this three year project.

To examine a project that is active now, I will turn to Smart and Techno Fabrics (S&TF). This project is led by the University of Southampton Textile Conservation Centre (Mary Brookes) and involves the V&A (Brenda Keneghan) as a partner. Essentially, the aim is to look at and move forward on knowledge of the new generation of composite fibres and associated high technology fashion. There are many new fibre systems entering the market and very little thought has been given to their longevity. Once again, the idea and partners were relatively self-selecting but what was needed was a funding source as neither institution could provide adequate resources. The Arts and Humanities Research Board (AHRB)[2] was identified as a potential funder and an application was submitted for £50k over one year. With the assistance of a dedicated funding officer (Julia Bennet) from the University of Southampton, we were successful in gaining funds about a year after original contacts were made. We will deliver the S&TF project in September 2003.

The conclusion I draw is that collaboration is between people. Collaboration exists between people and these people may be within the same organisation or outside. Collaboration is not the same as a project – the project is a definition of the task whilst collaboration is the processes by which the task may be achieved.

1 Assessment and Monitoring the Environment of Cultural Property (CEC-Contract EV5V-CT92-0144) , DGXII (Environment and Climate Programme).

2 http://www.ahrb.ac.uk

V&A New Staff

Rhonwen George
Conservation Administrator

I completed an MA two years ago and since then have undertaken a series of short term contracts and temporary posts in a variety of companies. I very much enjoyed finding out about the workings behind different establishments from my first temporary post in the Neurosurgery Department of an NHS Hospital to my final placement in the House of Commons. Most of the more rewarding of these jobs were within arts organisations with the longest contracts being at the Laurence Olivier Awards and the British Film Institute.

My job within the Education Projects Development Unit at the British Film Institute was probably the most multifaceted position. This department had been part of the Museum of the Moving Image before it closed and though it was a demanding job I found involvement in the education events very enjoyable. I think this post confirmed my interest in working within a museum.

Though I enjoyed temping I am very glad to have the opportunity to work permanently at the V&A as, since visiting the museum as a child, it has become a favourite place to visit for inspiration. I know very little about Conservation but I look forward to finding out as much as I can.

Lisa Nash
RIBA Conservator

After gaining a BA (Hons) in Fine Art at Norwich School of Art in 1993 and spending some time in a studio as a practising artist, I became interested in the materials and processes deployed in the creation of art. My growing interests in conservation led me to study for an MA at Camberwell School of Art in 1997 which included a placement at the Conservation Centre in Liverpool. I was employed as the Conservator at Hull University in the Archives and Special Collections department until 2000.

In January 2001 I started working with the Royal Institute of British Architects and in September, due to the proposed move of the collection into the Victoria & Albert Museum I was given the great opportunity to work in the Paper Conservation studio at the V&A. As RIBA's Conservator I am responsible for the preservation of all the special collections. The Drawings Collection of 500,000 works represents major British Architects from the 15th century to the present. It also includes important foreign groups, such as the majority of Palladio's drawings. The Manuscripts and Archives Collection contains papers – including letters and projects correspondence. The Photographic Collection comprises over 700,000 images, colour transparencies, postcards and albums.

The varied nature of the collection means that objects associated with architecture ranging from models, drawing instruments, medals and office furniture designed or used by architects contribute.

Christian Russell
Conservation Mounter

After graduating in Fine Art I left college wondering what I might actually be qualified to do in the real world. It was time to face the consequences of having dedicated the past three years to drawing and painting as it dawned on me that the fine art career path would not necessarily be a viable one.

Whatever I chose, I knew my time in higher education would have been wasted had I chosen work entirely unrelated and, indeed, I didn't actually want to stray too far from the fine art plot. The realisation that museums or galleries would be able to offer me the kind of work in which I was interested struck me by the time I graduated. After a brief period of hibernation I realised that some form of art handling work might be my route to career satisfaction. Consequently, up until October last year my job at the V&A was in Technical Services, primarily in the Packing & Transport team.

A vague grasp of what work in the area of conservation might entail had been accompanied by an inkling that it would be an area to which I might be drawn. Technical Services had provided a useful platform within the Museum from which to assess these fledgling aspirations. Though my time in that department passed interestingly enough, when the opportunity to move over to the Conservation Mounting Team emerged, I was grateful of the chance to sit down for a bit and enjoy a slightly more serene environment.

Conservation Department Staff Chart Spring 2002

Head of Conservation
Jonathan Ashley-Smith

Fiona Campbell

Science
Graham Martin
Boris Pretzel
Brenda Keneghan
Richard Kibrya
Lucia Burgio

RCA/V&A Conservation
William Lindsay (RCA)
Helen Jones (V&A)
Alison Richmond (V&A)
Alison Bracker (RCA)
Joanna Baden (RCA)
Esther Jones (V&A)

Administration
Tim Carpenter
Rhonwen George

Furniture
Albert Neher
Tim Miller
Christine Powell
Nigel Bamforth
Shayne Rivers
Zoe Allen
Fiona Mallinson

Ceramics & Glass
Victoria Oakley
Fi Jordan
Juanita Navarro

Stained Glass
Drew Anderson

Metals
Diana Heath
Simon Metcalf
Joanna Whalley
Donna Stevens
Sophy Wills

Sculpture
Charlotte Hubbard
Alexandra Kosinova
Metaxia Ventikou

Books
Jane Rutherston
Bridget Mitchell
Stefania Signorello

Textiles
Lynda Hillyer
Marion Kite
Val Blyth
Albertina Cogram
Frances Hartog
Zenzie Tinker
Marilyn Leader
Martina Wilson
Susana Hunter

Paper
Pauline Webber
Elizabeth Martin
Merryl Huxtable
Alan Derbyshire
Victoria Button
Michael Wheeler
Lisa Nash

Mounters
Danny Norman
Simon Fleury
Chris Gingell
Christian Russell

Paintings
Nicola Costaras

Frames
Katharine Donaldson

Students

Books
(Photograph Albums)
Elisabeth Carr, *MA*

Conservation Science
(with British Museum)
Kathryn Hallett, *MA*

Surface Studies
Pedro Gaspar, *PhD*
Charis Theodorakopoulos, *MPhil*
Marie Vest, *PhD*

Historical/Technical Study
Victoria Doran, *PhD*
Allyson McDermott, *MPhil*
Magdalena Kozera, *PhD*

Computer Visualisation
Nicholas Frayling, *PhD*
Athanasios Velios, *PhD*
Hugh Halpin, *MPhil*

Furniture
Nanke Schellmann, *MA*

Stained Glass
Sherrie Eatman *MA*

History, Ethics & Management
Pip Laurenson, *MPhil*
William Lindsay, *PhD*
Titika Malkogeorgou, *MPhil*
Maria Troupkou, *MPhil*
Nicky Ingram, *MPhil*
(with English Heritage)

20th Century Materials
Harriet Standeven, *MPhil*
Fotini Koussiaki, *PhD*
(with Tate)
Francesca Cappitelli, *PhD*
(with Tate)

Sculpture
Neil Wressell, *MA*
(with Tate)
Camilla Schaper, *MA*

Social History Objects
(with Museum of London)
Kirsten Kruse, *MA*

Interns

Metals
Jasmin Muir

Paintings
Sharon Tager
Isaline Trubert

Paper
Elsbeth Geldhof
Timea Tallian
Chris Clouter
Shima Gholami

Sculpture
Stefanie Lorenz

Textiles
Jacinta Loh
Carolin Hornig

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