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The cover shows
"The Conservation Network Tree"
by Elizabeth-Anne Haldane

V&A New Staff

June Adams
Information & Systems Administrator

My post, Information & Systems Administrator, is new to the Conservation Department: a factor which has advantages and presents a challenge.

I am an Information Scientist and Librarian. For over seven years, I was employed as a Reference Librarian by Ealing Library Service. I also worked as a Systems Librarian, running two networked computer systems. This gave me the opportunity to research and construct a community information database; writing training courses and user manuals for the new computer systems. During these years I did a Postgraduate Diploma in Library & Information Studies followed by an MA(by research) in Information Management. Prior to pursuing this interest in information and technology, I worked as a designer for eight years where I was involved in a variety of projects such as creating exhibitions, shows and courses and I acted as a consultant to a multi-national manufacturer and design director. This was preceeded by studying for a BA (Hons) in Design with International Marketing.

I enjoy working with gifted children and my membership in Mensa facilitates this interest. I am also a trained mediator and do voluntary work for Ealing Neighbour Mediation Service which underpins the doctorate I am pursuing at the London School of Economics.

I value the opportunity to exploit the variety of natural and acquired skills which I have developed through the above experiences to meet the challenges presented by my post in the Conservation Department.

Abigail Wright
Administrative Officer

I come to the V&A with a background in fine art and art history: I studied at Camberwell College of Arts for a BA(Hons) degree in the history of drawing and printmaking. This study combined both conservation and the history of art. After this I was awarded funding to study polymer science and engineering as a postgraduate at the University of North London, whilst I was working as a part-time Library Assistant for Islington Libraries. I then went to work for photographer, Martina Nicholls. This was initially to assist in setting up and later maintaining a photographic archive which would preserve her extensive collection of photographic prints, film and slides.

I accepted this position in the Conservation Department as it enabled me to use the skills and knowledge I had accumulated and gave me a sound financial base to continue undertaking studies in my spare time. I hope, eventually, to work in architectural conservation and preservation or as a buildings curator so this experience will be extremely useful to me in the future.

It was very interesting to become involved in museum administration. My duties are to provide administrative financial and secretarial support for the Department and I often work with Alice Rymill in organising tours for visitors to our Department. Dealing with queries from members of the public, on the telephone and occasionally in person, who have objects they wish to be assessed for conservation treatment is another key part of my rôle. Institutions and private conservators also frequently contact our Department seeking technical advice and recommendations for treatment from our Staff.

History of Art and Design Essays

Shayne Lang
Furniture Conservation

English Wheelchair Design 1918-1995

January 1996

7000 words

The design of the self propelling wheelchair through the twentieth century is placed in a historical and social context with a view to exploring the impact of changes in the ideological construction of disability. The central thesis is that cultural values and prejudice are embedded in design and that the history of design of wheelchairs, encompassing more than mere changes in form or technology, cannot be fully understood without reference to the ideological construction of disability.

Design does not operate in a vacuum - ideology shapes the design consensus. The hegemony of constructed disability has shaped wheelchair design infusing it with cultural meaning and symbolism which is independent of objective function. Wheelchair design reflects social and ideological change and provides a historical narrative on cultural attitudes to disability. The source of disability is located in political process rather than physical function - disablement is a result of social structures and ideology rather than an individual's physical capacity.

This paper traces the technological and ideological background which formed the basis of wheelchair design after World War I and examines wheelchair design between the wars, before exploring design which originated in the National Health Service after 1948. The challenge to the dominant ideology offered by the disability rights movement and the impact this had on wheelchair design between 1970 and the present time is considered before conclusions are drawn about the relative impact on the design of technology, ideology and the needs of wheelchair users themselves.

Editorial - What is research?

Graham Martin,
Head of Conservation Research

As part of the continuous evaluation of the content of this Journal, the editors will be providing a sounding box for a number of 'guest' editorials. This is the first of these editorials and so those of you anticipating the words of wisdom from Jonathan Ashley-Smith will, sadly, be disappointed.

Part of the structure of the Conservation Department of the V&A is the group presently with the label of Research. I know that the continuous changes that manifest themselves in the staff chart are of interest to several groups outside the Museum, some of whom have made comments on this. I can tell you now that these changes will continue. The need to fine tune the Department for efficiency and to reflect the requirements of the V&A will be a continuous process. As part of this process the rôle and function of the Conservation Research Group is becoming clearer and, accordingly, there have been discussions about the meaning and concepts of 'research'. This has taken place within the framework of the V&A Museum Research Policy.

Similar debate has taken place under the umbrella of the European Union, in the UK at two recent conferences and within the Conservation Department itself about the research needs of the conservation profession and the interface between science and conservation. Throughout these discussions and debates it has become apparent that there is confusion with the terminology and expectations. The term 'research' has been used to mean conservation or technical analysis or, indeed, true research. Correspondingly, the word 'conservation' has also been employed to mean a myriad of different things.

Some of these incorrect uses of terminology can be attributed to translation difficulties when communicating across languages. For those of us whose first language is English there can be no excuse. The V&A Conservation Department has, over the past year, been working on the necessary policies and procedures for conservation research. This has led to much debate on the usual subjects of who, what, where, when and how research should take place. This process has necessitated the use of agreed terminology.

The release, for wider consumption, of the policy and related material produced by the Conservation Department is taking place as I write this editorial. Now that the Department has a common set of agreed and understood terminology we can move forward. The significance for the UK and the wider conservation communities is that we must have a commonly understood meaning of the terms used in our profession. This is vital if we are to communicate effectively and efficiently between ourselves and if we are to bid successfully for resources at the national and international level.

This edition of the Conservation Journal is very much to do with research. The dictionary definitions of the word include the concepts of systematic investigation, establishment of facts and new conclusions. At least some part of each of the articles presented here contains elements of research. This research extends from the object-based 'Can It Go' article from Albert Neher which deals with the complexities of moving large three dimensional objects, through the ethical issues of the conservation of a Wedding Suit by Gill Owens and then on to use of standard procedures and tests by Paula Mills. All of these come within our definition of 'research'. Of particular note is the wide range of the posts that these individual authors hold: furniture conservator, textile conservator and scientist. In order to develop the ideas and concepts within our profession, it is imperative that we all participate in research. Long gone are the days of the stereo-typical scientist working away in isolation in the back room.

Attempting to provide a short definition of the term 'conservation research' has proved to be impossible. Only by providing examples of research have we been able to reach a common agreement on its meaning. By reading the articles in this Journal you will gain a clearer understanding of what is our meaning of the term 'research'.

Standards

Paula Mills
Conservation Scientist, Conservation Research

In order to compare our work to each other's, earn the respect of others, improve ourselves and become a true stand-alone profession, we require standards. The setting of standards has to be one of the most mundane topics to write about, but standards are fundamental to a profession. Not so long ago we were the craftsmen and technicians hidden in the back rooms, whereas now we attract much more attention and therefore our actions are more open to question. This change in outlook has been through minor means like participating in the educational rôle of a museum and also more high profile initiatives such as the *Conservation Centre* at National Museums and Galleries Merseyside, which deserved special merit in the 1997 Museums and Galleries Commission Conservation Awards. These would not have been possible without the standards by which to assess the work.

Before we go any further it is useful to look at what standards are. They "are documented agreements containing technical specifications or other precise criteria to be used consistently as rules, guidelines, or definitions of characteristics, to ensure that materials, products, processes and services are fit for their purpose"[1]. Equally, standards are codes of practice, non-ratified statements or personal beliefs as to what is 'right' and how we measure quality. It is important to remember the more formal definition of the International Organization for Standardisation (ISO), as it is all too easy to believe that standards are set in stone and to lose track of the fact that they are meant to be an aid not a hindrance.

Standards are developed and published by a great many organizations for example, the American Institute for Conservation or the ISO. Initially a draft document is provided by people working in the field for the profession to use and comment upon. After a suitable review the national body e.g. British Standards Institute (BSI) or Deutsches Institut für Normen (DIN), may choose to ratify this document as a national standard. It may subsequently be recommended for european or international status. In all cases the process takes upwards of five years to complete. In the meantime it is the bodies such as the Museums and Galleries Commission (MGC) and the United Kingdom Institute for Conservation (UKIC) that should be publicising the available standards and monitoring the implementation.

Having established why we need standards we must look to ourselves to produce and implement them. We are our own judges, we know what we do and why we do it and therefore are the key personnel in the production of standards we will adhere to. A standard does not have to be far-reaching to be important; often the internal standards of a workshop/studio/department are the most crucial. Scientific research has long been guided by standards and the protocols of the professional bodies such as the Royal Society of Chemistry, but conservation as a profession has not yet produced its tablets of stone; the nearest we get to these are the ethics guidelines of the AIC and UKIC. Perhaps the reason is the profession is not yet old enough. However, in order to develop fully, we must look to setting these standards and to start with adapting, or if you prefer 'pilfering', the standards of other bodies is an easy enough task. For instance, a good starting place for a conservation department would be to reassess BS5454 for archival storage, adapt ISO8756 for air quality to streamline the environmental monitoring and implement EN45001 for the operation of a testing laboratory. Not forgetting that most of what we do involves adminstration, there are various documentation standards (e.g. those produced by the Museums Association or BS4821) which should make life easier.

At a recent workshop in Amsterdam, *Centres of Excellence,*[2] it was stressed that more cooperation was needed for conservation research to be effective and that assessment of educational programmes required rationalising, both of which start with a need for standards. That is, improved efficiency only comes with clear guidelines and goals and for the global educational communities to agree on quality, for example, on whether a British MA is equivalent to the International Baccalaureate, they have to be able to establish benchmarks throughout the curriculum. Therefore, it would seem that as a profession we are waking up to the fact that these are paramount, which just leaves us to get on with it!

Notes

1. International Organisation for Standardisation worldwide web page; http:\\www.iso.ch\

2. Scholten, S. and Scholte, T. *Centres of Excellence,* Report on the European Workshop organized by the Netherlands Institute for Cultural Heritage, 15-16 May 1997 in Amsterdam, The Netherlands Institute for Cultural Heritage.

Ariana Makau
Stained Glass Conservation
Investigation of Corrosion and Cleaning Techniques on Early Medieval Stained Glass Panels
June 1997

18,436 words

This research project investigates the types of corrosion one might encounter while conserving a medieval stained or painted glass panel, and suggests various options for cleaning the glass while protecting its paint work and protective gel layer. Previous techniques are investigated and suggestions for new alternatives are made.

For this research, two panels from St. Denis, France (dated 1140-1144AD) were chosen to represent some of the problems that one might encounter when considering various cleaning techniques for the early medieval period. As there are other panels of this type in various museums, the aim was to try to identify the problems, and then devise a suitable treatment. In their current condition, they are difficult to display. Therefore, various techniques were employed to analyse their current condition and subsequent treatment.

Science Essays

Sophia Strang Steel (nee Shirley)
Metals Conservation
The Effect of Volatile Aldehydes and their Acids on the Corrosion of Lead and Zinc
April 1996

5139 words

The display and storage of objects often accelerates the corrosion of metal elements when, inadvertently, they are placed in close proximity to substances which release volatile carboxylic acids. In many instances, this is when objects are confined either in cases made of wood, or in cases which use air drying paints and urea-formaldehyde based adhesives. This paper acknowledges the particular problems in relating scientific research of predominantly outdoor corrosion to those conditions in display cabinets. In conservation terms, fluctuating temperatures and high relative humidity (RH), amongst other variables, give rise to situations that are arguably unique to a given location so it is hard to replicate conditions faithfully in the laboratory. As yet the complete mechanisms of the corrosion of lead and zinc by carboxylic acids are not scientifically understood. This paper is an assimilation of scientific and industrial data on the properties of the above metals, on acetic and formic acid (covering their formation and availability), and a brief review of some relevant corrosion mechanisms. The information is then related to the specific corrosion of lead and zinc by acetic and formic acid using previous conservation observations.

Shayne Lang
Furniture Conservation
Adhesion
April 1996

5000 words

This paper examines theories of adhesive bonding in general and the adhesive bonding of wood in particular. The process of adhesion is fundamental to conservation practice whether directly (e.g. loose joints in furniture), through the treatment of unstable or disintegrating objects by consolidants, or surface coating (e.g. flaking paint).

The first section of the paper deals with adhesive theory and therefore starts with a brief review before presenting a more detailed examination of adsorption theory. After considering the surface energy of liquids and solids and resultant effects on adhesion, conflicting theories of adhesive failure are considered. The second section of the paper examines the adhesive bonding of wood. It begins with a simplified discussion of wood anatomy in order to allow the consideration of the bulk properties which directly affect the adhesive bonding of wood - moisture content, porosity, density, surface preparation and the thickness of the adhesive layer.

Roger Griffith
Furniture Conservation
Polymers
April 1996

9583 words

It is only in the fairly recent past that "plastic" and composite materials have become a feature of many museum collections. During the past decade, the fact that such materials degrade, sometimes very rapidly, has become a matter of concern for conservators. Before appropriate treatments can be established for specific polymers, it is necessary to gain an understanding of polymeric materials and their deterioration processes, at a visual, structural and molecular level. This essay considers polymers, with particular attention to those used in the production of furniture. The introduction provides definitions, the following section considers the behaviour of plastics in a general way and the chemistry of polymer formation. Subsequent chapters consider the use of plastics in furniture, focussing on structural, surface and upholstery applications. It was not feasible to discuss all materials used in furniture so three are highlighted: nitrocellulose lacquer, polyurethane foam and glass reinforced polyester.

RCA/V&A Conservation Course Abstracts

The work of the students on the RCA/V&A Conservation Course is regularly featured in articles in this Journal. Some articles relate experiences of working elsewhere such as the one by Sophia Strang Steel, whilst others concentrate on the studio based work. However, the last issue to include abstracts from student essays and research projects was April 1997 (number 23) and as such we have a substantial backlog which we hope to put right in the next two issues. The aim remains to provide a comprehensive collection, publishing a selection as space and opportunity allows. Here we present three of the major projects completed by students in their final year, together with some of the Science and History of Design essays from first year students.

Final Year Research Project Reports

Lisa Oestreicher
Architectural Paint Studies
The Staircase, Armoury and Hall, Strawberry Hill: An Investigation of their Painted Surfaces
September 1996

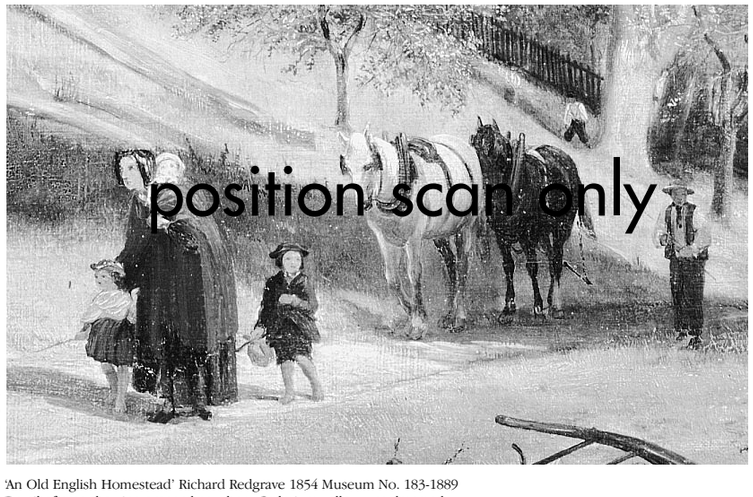
26,154 words

This report examines the evolution of the painted and gilded decoration within the main staircase and its adjoining circulation spaces at Strawberry Hill, Middlesex. Strawberry Hill is one of the most important buildings of its period in England. The aim is to discover the initial appearance of the interior of the building and those thereafter. It commences with a thorough summary of the documentary evidence available, and uses illustrations to chart the historical evolution of the Staircase, Armoury and Hall. This is followed by a section outlining how paint samples were removed from the site and examined under laboratory conditions. The findings of the analytical investigation are then discussed in detail and photographs of relevant cross-sections are included to aid understanding. Most importantly, the findings from the historical research and the analysis of painted surfaces are then married together to form conclusions regarding the development of decoration within these rooms. The appendices include sample lists, sample location plans, tables of decoration schemes, results of micro-chemical and staining tests, Fourier transform infrared spectroscopy and scanning electron microscope examinations, colour readings, examples of cross-section diagrams, bibliography, illustration sources and photographs.

Hannah Eastwood
Conservation Science
Richard Redgrave (1804-1888); a study of his paintings and work, in the context of the Victoria and Albert Museum
June 1997

20, 000 words

Richard Redgrave was a talented Victorian gentleman who played a significant rôle in establishing the South Kensington Museum, now known as the V&A. He was a self-taught painter who initially specialised in genre subjects but later progressed to landscapes in response to both the changing attitudes of Victorian society and the increasing demands on his time. This project aims to contribute to the growing understanding of oil painting materials and techniques used by nineteenth century artists. This has been attempted by examining four of Redgrave's paintings. Although particular emphasis has been placed on Redgrave's choice of pigments a discussion of media is also included. It has been found that Redgrave made use of some of the 'modern' pigments that became available during his lifetime notably cadmium yellow, cerulean blue and chrome orange. The year 1854 is now thought to be the earliest identified use of cadmium yellow on a dated English painting. This study highlights Redgrave's strong interest in painting techniques and also his concern for the conservation of works of art. His pioneering work in overseeing the control of the environmental conditions in the Sheepshanks Gallery establishes him as an early advocate of 'preventive' conservation.



Photography by Hannah Eastwood.

'An Old English Homestead' Richard Redgrave 1854 Museum No. 183-1889
Detail of area showing orange bag where Cadmium yellow was detected.

Ethics in Action - Conservation of King James IIs Wedding Suit

Gill Owens
Senior Textiles Conservator, Textiles Conservation

In 1995 the Victoria and Albert Museum acquired a suit made for King James II (of England) to wear at his wedding to Mary of Modena. The Museum was helped in this acquisition by generous contributions from the National Art Collection and the National Heritage Memorial Funds. This suit is of particular importance for costume historians as it was made in the transition period between the petticoat breeches and doublet of the earlier seventeenth century and the later streamlined fitted breeches, vest and long jacket (Figure 1). It is also reliably dated. The jacket carries the only example of a seventeenth century garter star still attached to its original support.

The wedding took place in the winter of 1673, at Dover, and the suit was subsequently given to Sir Edward Carteret, of Guernsey. It was acquired by the Museum from his descendants. This suit was made of grey wool broadcloth (suitable for the English coast in winter), lined with coral ribbed silk. Both jacket and breeches were decorated with shaped panels of gold and silver embroidery of lilies and honeysuckle; under the embroidered panels was a strengthening layer of linen. The jacket cuffs were faced with an extension of the sleeve lining and decorated with applied gold and silver lace. Wooden buttons covered with gold and silver played an important part in the overall decorative effect.

The huge external breeches pockets were lined with matching coral silk ribbon. The jacket was very narrow and when fastened would have fitted a 32"(80cm) chest. A waistcoat and matching horsetrappings were reported to have been part of the original.

Condition and Previous Conservation

Extensive conservation had taken place on this suit in the 1920s. The gold and silver embroidery was remarkably bright and untarnished considering its proximity to the woolen fabric, but when examined more closely it was found to be springing up in many places, and in areas of wear, such as between the legs, much had disappeared. Because of this wear it was possible to see every stage of the embroidery process, and the construction of the different elements; there were even traces of the wheat starch paste used to adhere covered vellum strips, which are now missing.

The wool broadcloth itself was heavily darned. The yarns used were not always identical in colour but they blended in well and did not cause distortion. Strips of a different, well matched wool fabric had been used to replace the original fabric in the back of both the breeches' legs, above the bands binding the bottom edge. The crotch area had been extensively patched with this same fabric.

Photography by V&A Photographic Studio

Figure 1. The wedding suit made for King James II (front).

The jacket lining of coral ribbed silk had been covered, except in the armholes and over the buttonholes, with coarse red cotton mesh, which totally obscured the original lining. It had faded to brown around the neck and lower edges, but still seemed strong. It was smaller than the area it was covering and was aggravating the tendency of the jacket to fold inwards between the strips of heavy embroidery. The original lining under this net was also badly faded in places and very degraded. It had been heavily couched to patches of well matched silk using lengths of thick untwisted silk yarn. Two large areas of lining at the front had been totally replaced with this patching silk.

The ribbed silk facings on the cuffs were faded and badly worn on the folds. The breeches had no lining but there were traces of a plain cream silk under the fly and waistband seams. More recently a strip of pink silk had been applied to the waistband, this too was partially missing. There were two silver hooks on the back of the waistband which must have linked onto the waistcoat recorded as being part of the original suit.

Buttons played an important part in the overall decorative impact of the embroidery.They were of wood, covered in gold and silver threads and of various sizes, according their postion. There were 48 buttons down the front opening edge - of these 32 had corresponding cut buttonholes. The remainder of the holes, being purely decorative, were not cut. The buttons and buttonholes at the top were the most worn. The pair of decorative front jacket pockets both had nine buttons remaining, corresponding to ten cut holes (some moth damage had occurred along the cut edge of one pocket flap). The five small fly buttons were the most worn and degraded of all and the large main button holding the waist band was missing.

The external breeches' pockets had gold cord loops attached to their top edges, which fastened over buttons attached to the breeches. Where these buttons were missing the pockets had been sewn in place.

The jacket had 9"(23 cm) openings in the left and right side seams. The opening to the left side gave access to a pocket of lining fabric. The decorative front pockets, too, were of this silk lining fabric.

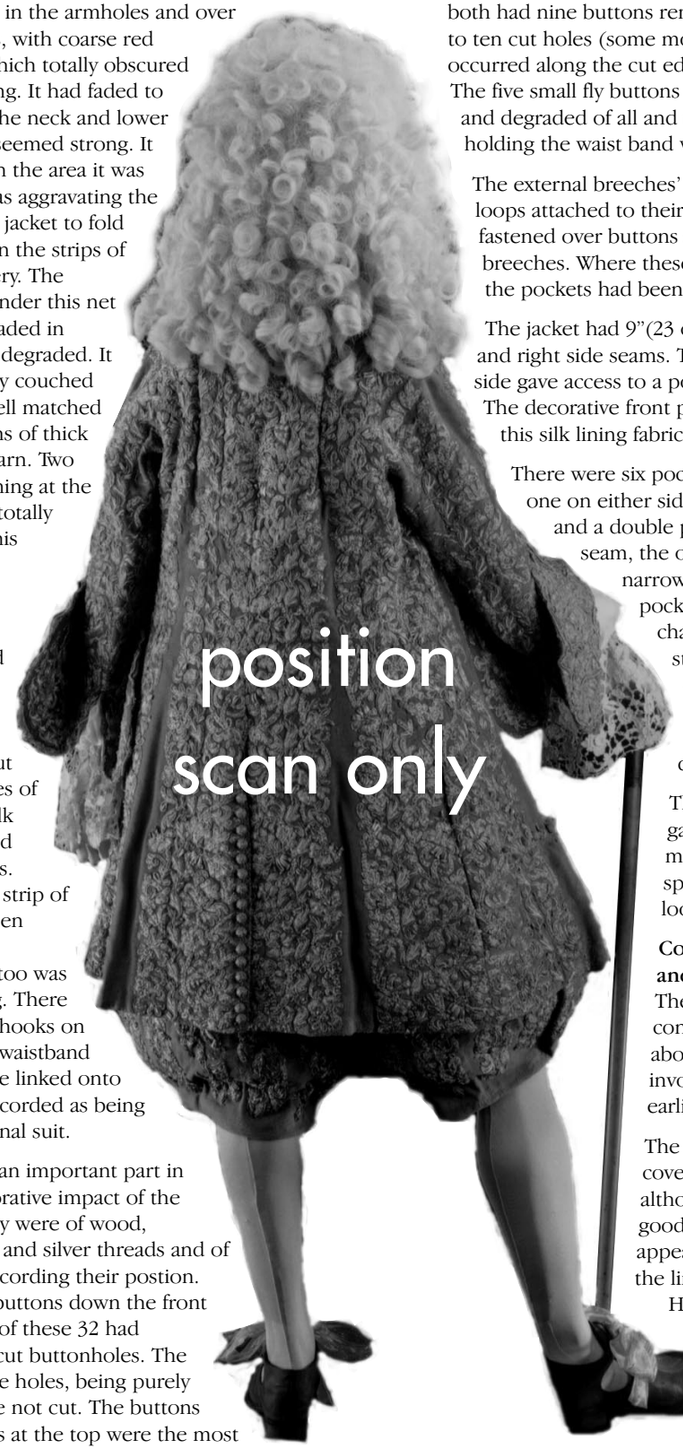
There were six pockets in the breeches, one on either side of the front opening and a double pocket in each side seam, the openings all bound with narrow fawn silk braid. These pockets were made from chamois leather which had stretched, splitting the cream silk linings, which, where they still remained, were very degraded.

The seventeenth century garter star had two coiled metal elements that were springing up and several loose threads.

Conservation decisions and actions

The most difficult conservation decisions about the wedding suit involved the treatment of earlier conservation.

The red cotton mesh covering the lining, although it did not look good, was strong and appeared to be protecting the lining adequately. However, it almost totally obscured this lining and we later discovered it was too narrow around the bottom



Photography by V&A Photographic Studio

Figure 2. The wedding suit made for King James II (back)

United Kingdom Institute for Conservation and The Victoria and Albert Museum

Conservation of Decorative Art Conference

21-23 April 1998

Victoria and Albert Museum, London

This is the first international conference to be devoted solely to the conservation of the decorative arts. It is being organised jointly by UKIC and the V&A and will be held in the Museum.

An international gathering of speakers, from both the public and the private sectors, will present papers on the conservation and restoration of diverse decorative arts objects, ranging from historic interiors and surface decoration to artefacts in current use and the treatment of individual objects. The papers will focus on decorative art in many contexts - in museums and galleries, historic houses, religious buildings and private collections. Papers will explore the interdisciplinary methods necessary to conserve objects composed of many different materials and the use of both traditional and more contemporary techniques.

A major project at the V&A is the renewal of the British Galleries, on the scale of a museum in its own right, which is currently the subject of a lottery bid. There will be the opportunity to view the galleries and discuss changing methods and attitudes to display, the application of risk assessment to the open display of objects such as textiles, environmental factors and the logistics of assessing and conserving 8000 decorative art objects. The evening reception will be held in the Senior Common Room of the Royal College of Art.

The final day will consist of visits to the Albert Memorial, a monumental conservation project in Hyde Park, close to the site of the 1851 Great Exhibition; the new Centre for Conservation and Research at the V&A, a £14 million project which includes new textile, sculpture, paper and book conservation studios and science labs; and Osterley Park House, an 18th century house administered by the National Trust, on the outskirts of West London, which has just completed a major conservation campaign.

Programme

Tuesday 21st April 1997

Morning

Robert Turner (Eura Conservation)
Roof or Sculpture - the Albert Memorial

Janet Brough (Royal Pavilion, Brighton)
History of Surfaces and Effects of Conservation Treatments

Laura Drysdale (English Heritage)
The Chiswick Tables; Testing Techniques in the Pre-treatment Phase

Randy Silverman & Maria Grandinette (University of Utah)
Conservation of Decorative Art in Circulating Library Collections

Afternoon

Robert Payton (Museum of London)
Conserving the Art of Tile Decorations

Anne Sommer-Larsen (Norway Institute of Cultural Heritage)
Conservation of a Glass Chandelier from Kongsberg Church in Norway

Sheila Landi (Textile Conservation Consultancy)
Window Dressings at Waddesdon Manor

Amy Collier (Middlesex University)
Wallpaper - In and Out of Context

Theo Sturge (Leather Conservation Centre)
Gilt Leather Wallcoverings: Options for Repair

Evening Reception

Wednesday 22nd April 1997

Morning

Pilar Caballe-Valls & Jodie Glenn-Martin (Plowden & Smith)
Snap, Cockle and Pop; Aspects of a Flexible Approach to the Conservation and Preservation of Lacquerware

Frank Minney (British Museum)
The Conservation of Burmese Lacquerware using Traditional Materials

Jane McSloy (Jane McSloy Decorative Arts)
The Problems Encountered in Papier Mache Restoration

Deborah Cane (National Museums and Galleries on Merseyside)
The Conservation of Straw Work Objects from the Decorative Arts Collection at the Lady Lever Art Gallery

Paul van Duin (Rijksmuseum, Amsterdam)
The Grachtenhuis, a mid 18th Century Doll's House

Afternoon

Alan Cummings (RCA/V&A Conservation Course)
Bonding, Business and a Billion Brushstrokes: Balancing Theory and Practice in Conservation Education for the Decorative Arts

Malgorzata Sawicki (Art Gallery of New South Wales, Sydney)
The Removal of Overpaintings from Gilded Surfaces

Christine Powell (V&A)
Gilded Frames: Techniques for Preparation

Leslie Charteris (Charteris Conservation and Restoration)
Restoration of Furniture in Bevis Marks Synagogue

Paul Tear & Flavia Philp (Wallace Collection)
Deterioration and Treatment of 18th Century Wood Marquetry

Suzette Hayes (Museum of London)
Conservation of a Trade Sign

Thursday 23rd April 1997

optional visits

Morning

Albert Memorial

New Conservation studios at the V&A

Afternoon

Osterley Park House

Conference Costs

To include lunches, coffee & teas, evening reception and published papers of the conference

UKIC members; £130
non-UKIC members; £165
students; £60

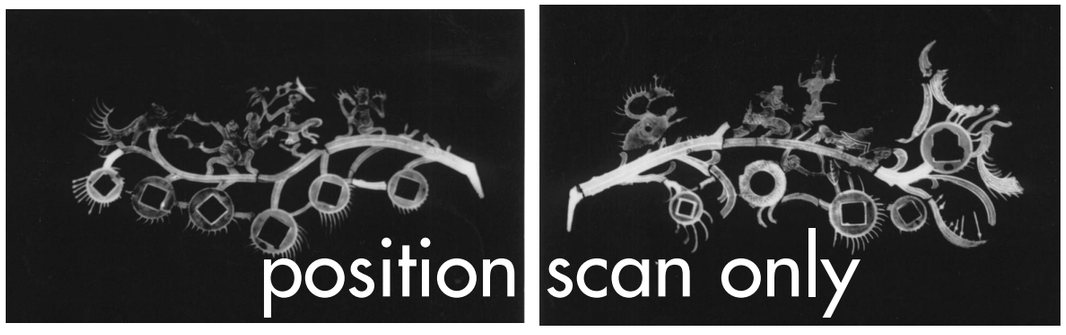
For booking forms, please contact;
UKIC
6, Whitehorse Mews
Westminster Bridge Road
London SE1 7QD
tel: 0171 620 3371 fax: 0171 620 3761

County Museum in Los Angeles as well as several other museums in San Francisco. I was involved in a public open day where conservators could be consulted and gave a brief presentation to the museum staff on my work.

In complete contrast to the laboratory work, the work at Stanford was open air, large scale and very much hands on. I was mainly helping in the maintenance programme of the University's collection of Rodin bronzes, which are displayed outdoors with a high level of public access. Our job was to wash the bronzes and re-wax them, with a high melting point paste wax, to provide protection from the weather and corrosive agents such as bird droppings. Some areas of discolouration had to be integrated prior to waxing, most obviously on the figures where the original patination process had included the application of tinted waxes. The wax layers had deteriorated, unevenly exposing underlayers of the patina which had, in turn, been degraded by weathering. Discoloured areas were tinted to match surviving patches of the original patina and then a hot wax was applied, in the same manner that bronzes are waxed when they leave a foundry today.

Overall, I was delighted to have an insight into a period of metal working that I was not familiar with - principally the ancient chinese expertise in casting and metalworking - and to encounter the associated conservation problems of archaeological patinas. Having been involved in the production end of bronzes prior to my time at the V&A, it was also very interesting to observe the long term exposure effects on bronze. In these fields I owe an enormous debt of gratitude to Tracy Power, objects conservator at the Asian Art Museum for her knowledge, expertise, patience and infinite good humour, and to Michelle Barger for her support and excellent guidance on the Rodin work.

I would like to thank Rio Tinto plc, The Friends of the V&A and The Conservation Unit of the Musems and Galleries Commission for their generous financial support of this trip. My repeated thanks go to the Matthew Wrightson Charity Trust, the Armourers and Brasiers Gauntlet Trust, the Newby Trust and the Patricia Fey Memorial Fund for their continued monetary support throughout my studies, along with the South Square Trust who have helped finance my final year.



Photography by Sophia Strang Steel, courtesy of Asian Art Museum of San Francisco, The Avery Brundage Collection.

Figure 1b. Two x-radiographs showing the structural configuration of some of the copper alloy cast branches of the Money Tree (Asian Art Museum No. 1995 79, approx 15cm long).

hem but this was not clear until after its removal. Should an adequate, if unsympathetic, piece of conservation be removed for cosmetic reasons? How important was it for the lining to be clearly visible? The answers were not obvious. Other conservation work was carried out on the jacket while the the decision was pondered and discussed with other conservators. It was eventually decided to remove the mesh. Dyed silk crepeline, a fine transparent fabric, was cut to the shape of each piece of lining. It was sewn into each seam, and attached, with a brick like pattern of vertical lines of stitching, to the body of each piece. When this process was completed, it was obvious what an improvement this restoration of the original colour (now matching the cuffs again), made to the appearance of the suit. The weak front buttonholes were strengthened with this same dyed silk crepeline, rectangles of which were placed between each hole, enabling extra strengthening button-hole stitches to be worked through each hole and this silk. The couching was left in place in the lining, as much of the original fabric would have been lost with its removal. Although it was heavy, it was satisfactory in stabilising the degraded lining silk.

The cuff facings posed some problems. Covering the worn areas with a transparent sympathetic textile seemed the best solution and dyed silk crepeline was the most suitable fabric cosmetically. To counteract fraying when the intricate shapes needed were cut out a small seam allowance was left and stay-stitching was run around the actual edge of the pattern. A line of carboxymethyl-cellulose was painted just outside the stitching line. A silk lining was made for the breeches to protect the underside of the embroidery and to facilitate mounting on a dummy.

- The most degraded fly buttons were covered with circles of dyed crepeline. These circles had been cut out to the pattern of a coin with a heated needle. The outside edge was gathered up to fit over the button and then tied. The long established trimming makers, Turners (Fitzroy House, Abbot Street, London, E8), were commissioned to make a replica button for the waistband.
- As there was now no waistcoat and no picture of it, the Textile Conservation seamstress, Audrey Hill, made a truncated silk padded waistcoat with two loops on the back. This was invisible under the jacket, but enabled the hooks on the breeches to be used to help support this very heavy garment.
- To cut down on movement of the breeches and jacket which had led to minute particles of gold and silver dropping off, the general conservation of the metal embroidery and woolbroadcoth went on as these areas were exposed by the conservation of specific areas as described above.
- Loose metal embroidery was sewn down, using a fine synthetic thread or a silk thread, as appropriate. Small areas of corrosion were removed with cotton wool swabs soaked in industrial methylated spirits.
- The wool broadcloth was vacuumed where appropriate, and some small holes darned with matching woolen yarn.
- A small area at the edge of the right front pocket flap had moth damage which exposed the brightly coloured lining. Pieces of dyed Japanese paper were inserted between the wool and the lining and couched in place.

This amazing suit had captured the public imagination and received much publicity. It is now back on display in the Dress Collection, in Gallery 40 at the V&A. A replica suit has been made which students can examine.

The Stein Loan of textiles in the Victoria and Albert Museum

Anne Godden Amos
Senior Textiles Conservator, Textiles Conservation

A brief glimpse into the history of Chinese Central Asia is afforded by a small display case located in the Textile Study Rooms of the Victoria and Albert Museum[1]. A view of old trading routes, now called 'The Silk Road', can be seen in these rooms through part of a collection known as The Stein Loan. The aim of this article is briefly to explore the history and conservation of the loan within the Museum context.

During the first two decades of this century Sir Marc Aurel Stein (Figure 1) undertook three expeditions to explore 'The Silk Road'. The road dates from at least the last few centuries before Christ and along it cultural interchange between India, Western Asia and the Far East occurred. Its heyday was during the Tang Dynasty (618-906 AD) but it eventually declined in the Ming Dynasty (1368-1644). Stein's discoveries were described by Sir Leonard Woolley, a contemporary, as "the most daring and adventuresome raid upon the ancient world that any archaeologist has attempted".

The North and South routes which skirted the Taklamakan Desert, could support life only in the few oases along the desert's perimeter. The inhabitants of these settlements left behind very cosmopolitan groups of artefacts which conjure up images of thriving, bustling caravan stations. However, one should not romanticise these trade routes which often had soaring heat during the day and freezing nights. So although this area is not conducive to human life, the arid climate aided the preservation of numerous textiles and organic objects.

The importance of The Stein Loan cannot be over emphasized, not only for what can be learnt from the vast array of technical excellence exhibited in the finds but also from insight into the trade and culture of 'The Silk Road' peoples. The display in the V&A amounts to only a handful of some 700 textiles on loan to the Museum. The remainder of Stein's collections are deposited in the British Museum and the National Museum of India in New Delhi.

Photography by V&A Photographic Studio.

Figure 1. Sir Marc Aurel Stein, 3rd from the left, with his dog Dash III (From Stein, Innermost Asia, Vol II, Figure 332).

At the time of their excavation Stein's textiles and artefacts created a great deal of interest because of their rarity and early provenance. It was Mr Fred Andrews, Stein's assistant, who in his 1920 articles, in *The Burlington Magazine for Connoisseurs*[2] *(Burlington)* stated that "the first impression of a casual examination of the specimens was the absence of general resemblence to anything in textiles with which we are familiar".

Mr Kendrick, Keeper of Textiles at the V&A wrote to Dr Arnold, the Director

An Anglo-Asian-American Experience

Sophia Strang Steel
RCA/V&A MA Conservation Course student, Metalwork Conservation

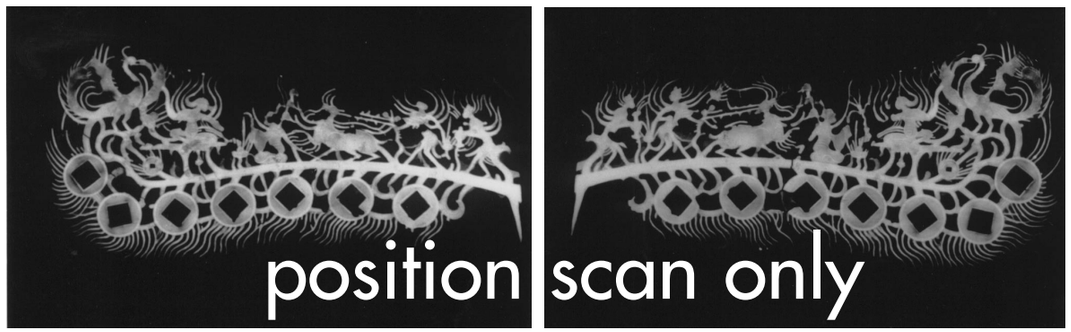
For eight weeks last summer I worked in the conservation laboratory of the Asian Art Museum of San Francisco. I also spent two weeks with a private conservator, working on a collection of outdoor bronzes located at Stanford University. This was a unique opportunity for me to compare the conservation methods of two nations, the UK and the USA, and to gain an insight into the varying Western and Eastern ideals towards conservation and restoration. Although I was concentrating on metal objects I was also able to observe conservation being undertaken on ceramics, textiles, wood, lacquer and paper as the laboratory was shared by conservators from all disciplines.

My main project at the museum was concerned with a recently acquired Eastern Han Money Tree (22-220AD). The tree consists of five tiers of branches of thin copper alloy casts suspended from a central trunk which is inserted into a ceramic base. My task was to provide a detailed condition report and treatment proposal, including considerations for display in an earthquake zone. The condition report included colour photography of all sections as a record of the archaeological patina, and x-radiography to provide an insight into structural stability (Figure 1). Spot tests were also undertaken to identify some of the salts on the copper alloy surfaces and the base, and to determine suitable solvents for the removal of unsightly old repairs.

The aged resins which made up several of the repairs were very difficult to dislodge, but I did have a chance to try several techniques to remove them, including the use of air abrasion, heat spatulas and chemicals not normally used by the V&A. The latter course of action lead to a safety comparison of chemicals used in the States and the UK. Many of the techniques I learned from working on the Money Tree were put to use on other projects. X-radiography proved useful when investigating a *Yu* (a type of vessel) reputedly of the Sung period (960-1279BC). An x-radiograph of the lid and base revealed a hidden inscription, indicating that the vessel was of a much later date than originally suggested. Taken in conjunction with other factors, it seemed possible that the vessel might actually be an early twentieth century fake.

The method used for reattachment of fragments on the Money Tree was also appropriate for an extremely dilapidated flat cast lead figurine. I investigated the possibility of consolidative lead reduction although it ultimately proved to be unsuitable for this object. However, the research proved useful in the localised reduction of an inlay of lead on a Japanese inkstone box. This is a technique which could be very useful in decorative arts conservation and is an area for potential further study at the V&A.

In line with all these projects was the need for art historical research, regular meetings with curators, and consultation with other conservators outside the museum on both the East and West Coast. I was able to visit the Getty Conservation Institute and the Los Angeles



Photography by Sophia Strang Steel, courtesy of Asian Art Museum of San Francisco, The Avery Brundage Collection.

Figure 1a. Two x-radiographs showing the structural configuration of some of the copper alloy cast branches of the Money Tree (Asian Art Museum No. 1995 79, approx 20cm long).

Modern Art: Who Cares? Amsterdam 8-10 September 1997

Brenda Keneghan
Polymer Scientist, Conservation Research

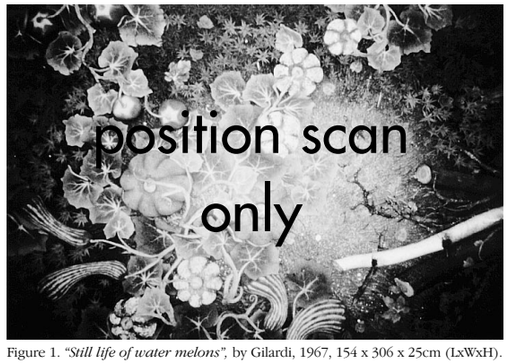
Judging by the fact that more than 450 delegates attended this conference and many were turned away, it is obvious that lots of people do indeed care about modern art. This symposium was the culmination of the work of the *Foundation for the Conservation of Modern Art,* which was set up in the Netherlands in 1994 to investigate the possibilities in the field of conservation of non-traditional objects in contemporary art. This extremely well organised symposium, which was spread over three days, reflected the project itself in the following ways:

> A wide variety of objects were discussed; these objects presented a range of ethical and aesthetic problems, as well as problems relating to the materials themselves. An interdisciplinary approach was taken, with conservators, curators, art historians, scientists, legal experts and philosophers contributing papers. Methodologies and models for registration, documentation and decision-making in conservation were proposed.

The symposium's main venue was the concert hall of the Royal Tropical Institute in Amsterdam; a comfortable chamber with magnificent carved wood decoration. After the opening sessions described the project, problems and several of the objects studied, delegates were transported in the early afternoon to the Museum Boijmans Van Beuningen in Rotterdam, where the ten pilot artworks studied throughout the project were on exhibition. Many materials were represented in these pilot objects ranging from plastic, rusting iron, birds, fabric, herbs, fluorescent tubes, to asbestos and red velvet. The oldest object was *"59-18",* a polyurethane foam sculpture by Henk Peeters dating from 1959. The foam is badly discoloured and degraded. The most recent piece was *"One space, four places"* by Tony Cragg, made in 1982 from many different types of waste material picked up from the Rhine basin. It was interesting to see what decisions and progress had been made on the conservation of the brightly coloured polyurethane foam *"Still life of water melons",* by Gilardi (Figure 1), which I had been invited to see two years previously.

The programme for the second day was divided into a morning session of presentations, an afternoon comprising of 17 separate workshops, and a "Directors' Forum" in the evening followed by a buffet in the Stedelijk Museum. The workshops were held in various locations and brought together participants interested in particular aspects of modern art conservation for discussion.

The opening speakers for the final day of the symposium had the unenviable task of addressing a depleted audience thanks to the generous hospitality of the previous evening. *"Development of a decision-making model for the conservation of contemporary art"* was not the ideal early morning eye-opener but posed a challenge to those who had availed of the previous night's free-flowing refreshments. However, many gave up the fight altogether, as speaker number two debated the finer points of Aristotlean versus Platonic philosophies regarding decision making. The best presentation of the day, in fact, of the entire symposium must go to Koen Limperg, a lawyer, whose witty slides and deadpan delivery made the legal aspects of conservation into an extremely entertaining 25 minutes. If he ever gets bored with the law, a career as a stand up comedian is assured.



courtesy of Collection Museum Boijmans Van Beuningen.

Figure 1. *"Still life of water melons",* by Gilardi, 1967, 154 x 306 x 25cm (LxWxH).

of the V&A, in August 1920, enthusing about the textiles cited in the *Burlington* article. Kendrick states that "it is of the greatest importance that these stuffs should be accessible to students, in some form, at no very distant date"[3]. Kendrick was worried that unless a detailed scientific study of the textiles was undertaken, the only knowledge would be based on the drawings published by Mr Andrews, "almost worthless for critical purposes".

Stein's main concern however was to obtain good photographic reproductions of those textiles which were to illustrate the report he was busy writing of his Third Central Asian Expedition finally published in the book *Innermost Asia*[4]. He wrote from his camp in Srinagar, in October 1922 to Kendrick that many of the textile remains "needed further systematic cleaning before they can be reproduced". He further writes that "for their cleaning and preservation some such special chemical treatment is obviously needed as our ancient paintings on silk received at the British Museum". Stein believed the British Museum's workrooms to have unsuitable conditions for his collections, nicknaming them 'Les Caves'. Ironically one of his greatest 'finds' had been in *Qianfodong* (Caves of the Thousand Buddhas) near Dunhuang. In seeking alternative accommodation it was proposed that some should come to the V&A if Stein could succeed in obtaining permission from the Government of India.

The deposition of the textiles at the V&A was therefore seen by both parties as mutually beneficial. Kendrick proposed to provide only working accommodation for Stein and Andrews, "possibly a corner in the Art-work Room". However the Museum did not expect to incur any of the cost involved over cleaning materials, even though the textiles "might be saved from inexperienced and unsuitable treatment".

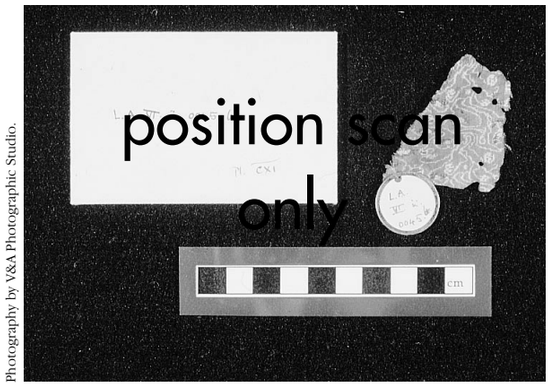
Eventually by December 1923 the V&A was loaned a group of textiles from Stein's Second Expedition and finally in 1932, 34 specimens from the Third Expedition followed. All the fragments from the second loan were described as having exact copies in either the British Museum or New Delhi collections. They display fine examples of complex weaving and design details in keeping with the Museum's collections of the decorative arts. There are glazed weaves, gauze, self patterned weaves and polychrome figured weaves plus felts and leathers. The objects include shoes, balls of yarn, items of everyday use and religious paraphernalia. All types of decorative technique have been used such as embroidery, resist and clamp resist dyeing[5] and painting.

Originally the work of restoring and mounting was entrusted by the Government of India to Miss Joan Joshua who was based at the British Museum in the 1920s. She acted as Stein's assistant in various literary and artistic capacities in connexion with *Innermost Asia.* Published in *Embroidery* magazine[6], the treatment used on some of the textiles was rare for that time, when scientific conservation was still very much in its infancy. The publication is very useful when looking at these textiles. Where possible they were cleaned by soaking in water for several hours, and some were reinforced with a chemical "restorative" cellulose nitrate solution. Finally thin strips of Japanese paper were attached to the reverse side of the textile with flour and water paste to form a strengthening lattice. The whole was then attached to pure linen mounting board using the same paste (Figure 2). This technique "offered the possibility of unmounting the textile if necessary at some future date, without damaging it, by carefully working a sharp knife between the mount and the paper strip". This showed unusual foresight.

Photography by V&A Photographic Studio.

Figure 2. Polychrome patterned silk with resist dyed 'spot' silk restored by Joan Joshua (Site number Ast.VI.2.04).

Many ethical dilemmas face the conservator when approaching these textiles now, for example the historical background, not only of the textiles but of Stein's meticulous excavation procedures. After 60 years, many of the textiles not treated by Joan Joshua are still neatly wrapped in the paper parcels and envelopes as Stein left them. Many of the handwritten labels identifying their find location are in his own handwriting. Although the metal edges of these labels are showing signs of corrosion, consideration has to be given as to whether to keep them *in situ* (Figure 3). Now, in the 1990s, some of the textiles attached to linen card are showing further signs of damage, directly due to the treatment they received. The cellulose nitrate has left them fairly brittle and differential tensions between textile and board have built up over time causing splitting.



Photography by V&A Photographic Studio.

Figure 3. Polychrome patterned silk from Lou-lan Site A with the envelope it is stored in (Site number L.A. VI.ii.0045.b).

Interventive conservation has been undertaken on a handful of textiles since their arrival in the Museum and most of these are now displayed (Figure 4). The remainder are now housed in the new textile store in the Far Eastern Collection Offices. A recently conducted survey to see how the loan was used and how best to limit unnecessary handling resulted in a programme of photography to record all the textiles. Students and visitors will then be able to look through the photographs prior to, or instead of, touching the textiles. This is somewhat reminiscent of the eager plans of those scholars in the Museum in the 1920s.

For all their rarity and academic value these textiles are not currently a high priority. This is due to limitations of resources and other commitments, which have often left them "more celebrated than studied"[7].

Notes

1. This article was adapted from 'The Stein Loan an Aladdins Cave' presented at the *Ars Textrina* conference, University of Leeds, July 1995.

2. Andrews, F.H., 'Ancient Chinese figured silks excavated by Sir Marc Aurel Stein', *The Burlington Magazine for Connoisseurs* Vol 37, 208-213, 1920, July, pp.3-10; August, pp.71-77; September, pp.147-152.

3. The V&A Museum Registry holds Nominal Files containing information regarding the Stein Loan.

4. Stein, M.A., *Innermost Asia: Detailed report of explorations in Central Asia, Kan-su and Eastern Iran,* 4 Volumes, Oxford, 1928.

5. Resist dyeing involves painting or printing areas on a piece of cloth or yarn with a resist of paste or wax, the dye does not penetrate the resist. Clamp resist dyeing involves the use of carved wooden clamps between which the fabric is sandwiched. The dye only penetrates certain areas of the carved clamps, creating a pattern on the fabric.

6. Joshua, J., 'The Restoring of Ancient Textiles', *Embroidery,* September 1933, pp.15-18.

7. Wilson, V., 'Early Textiles from Central Asia: Approaches to study with reference to the Stein Loan Collection in the Victoria and Albert Museum', *Textile History,* 26 (1) 1995, pp.23-52.

Photography by Anne Godden Amos

Figure 4. Buddhist banner on display in the T.T.Tsui Gallery (700-900 AD, Tang Dynasty; Site number ch.i.00360c).

together. The structural questions having been answered, we turned our attention to the surface.

The cleaning tests quickly moved away from the use of solvents for several reasons. The practicality of cleaning such a large object out in the galleries with solvents of any kind presented unreasonable health risks and logistical problems. Also, the solvent tests were only minimally more successful than dry cleaning with a brush. Ultimately we settled on Draft Clean Powder™ (Conservation Resources (UK) Ltd) comprising of fine granules of rubber which pick up and hold dirt (initially developed to clean pencil drawings of graphite residue). The procedure entailed liberally sprinkling the granules on the surface, gently manipulating with a soft clean brush and then vacuumed. Two treatments left the surface very clean.

Photography by Albert Neher.

Figure 2. Detail of the *minbar's* side panel. Note the colour differences in the ivory panels.

The incised ivory panels proved a puzzle. Some were the usual range of ivory colour, while others were differing shades of grey (Figure 2). We initially thought that a coating had been applied to those panels which had darkened with age. All attempts at cleaning failed to make any impression. At the same time we were puzzled by the texture of some areas of the painted surface, which was slightly blistered and had a "cooked" appearance. It had clearly been in a fire, with areas of light and moderate scorching, but from the location of the burn marks the *minbar* was probably not assembled when it occurred.

Armed with this knowledge, we stopped worrying about the ivory and concentrated on the painted surfaces. In spite of the fire damage, the general condition was good; only small areas of flaking needed consolidation and this was done with isenglas (a fish glue).

Another anomaly was that areas of the wooden structure had wet rot damage, suggesting that it had been standing in an extremely damp environment at some point. Again, damage was found in areas suggesting that the *minbar* was in pieces when the damage happened.

During the examination, two interesting features not mentioned in any of the records came to light. The first was raised decoration on the inside of the balusters which had been over-painted and only noticeable in strong raking light. The second was the surface of the octagonal structure holding up the onion dome. Hidden inside the cornice, its surface was mostly obscured and is probably original (Figure 3) - a gesso-like coating with evidence of paint and gilding, now damaged by age and fire.

Photography by Albert Neher.

Figure 3. Surface of octagonal structure showing original decoration.

It was a bold decision by the Museum to attempt the loan and both the exhibition and our understanding of the *minbar* were enhanced. Apparently inspired by its success, the question came: "Can it go...to Berlin?"

"Can It Go?"

Albert Neher
Head of Furniture Conservation

This is a question conservators at the V&A are regularly asked, the context usually being when an object in the collection is requested for an exhibition. The Conservation Department is called in to ascertain whether the object is in a condition to travel or can be made fit to do so. If all is agreed, the necessary work is carried out, the object's condition as it leaves the Museum is detailed and, finally, off it goes.

This procedure works for most objects, but when the question was asked about the Qaitbey *minbar* (Museum Object No.1050-1869), a wooden object standing approximately seven metres tall, built almost 500 years ago and whose principal decoration is a complicated geometric pattern made with joinery not even glued together, and one of the largest objects the V&A had ever considered for loan, a different approach was needed.

A *minbar* is a set of decorated steps used in a mosque from which the Imam leads Friday prayers and delivers his sermon. The Qaitbey *minbar* is elaborately decorated - the entrance doorway, sides, rails and access doors are an intricately joined moulded frame and panel structure with carved ivory panels at the centre of wooden panels, all in repeating geometric shapes. As Figure 2 indicates, the effect is mesmerizing. The frame and panels together become a panel which is bounded by large incised and painted beams. At the top of the steps is a platform topped by a cornice, within which is an octagonal support of similar construction on which rests an onion dome. This is ultimately topped by a bobble and crescent finial.

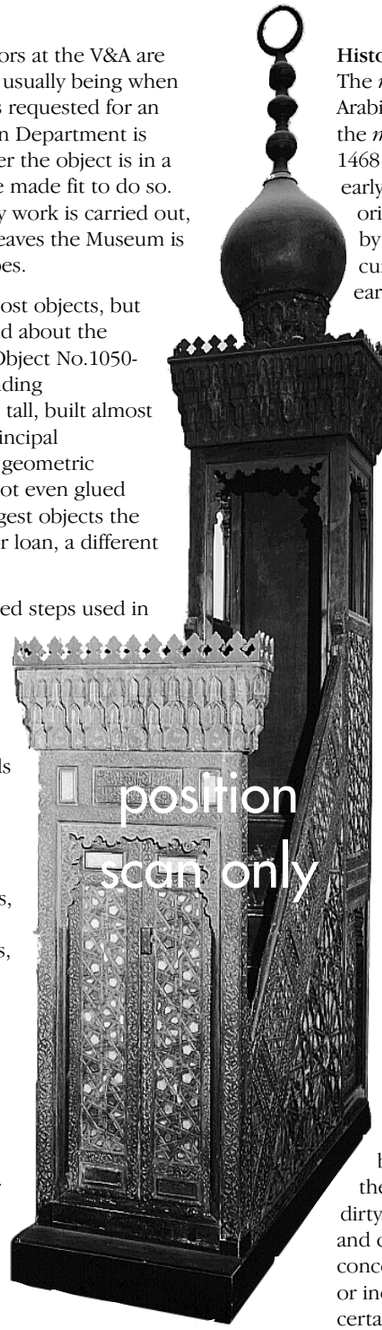


Figure 1. The Qaitbey *minbar* (1050-1869).

Photography by the V&A Photographic Studio.

History

The *minbar* comes from Egypt and the incised Arabic calligraphy attributes the generosity for the *minbar* to Qaitbey, the Mamluk Sultan from 1468 to 1496AD. It came to the Museum as an early purchase in 1869. Only about 60% is original, the rest being support structures built by the Museum's joiners. It was installed in its current position in the Islamic Gallery in the early 1960s and, except for occasional cleaning, had sat untouched until three years ago.

The Brief

The Royal Academy requested the minbar as one of several objects from the V&A to be displayed in the exhibition entitled *Africa: Arts of a Continent* (4 October 1995 - 21 January 1996). Furniture Conservation, Furniture and Woodwork Department, the Royal Academy, and Momart (the art movers who would ultimately be handling the disassembly, move and reassembly) met to discuss whether it was possible for the *minbar* to be moved and, if so, what needed to be done. It was decided to proceed with the disassembly and begin a programme of consolidation and cleaning with the understanding that if, as we progressed, it did not look practicable, the programme would be cancelled. Momart was to disassemble it under Furniture Conservation's supervision, the procedure being photographed throughout. The "*Minbar* Conservation Team" consisted of me and two independent conservators - Martin O'Connor and Clifford Deighton. The brief was to consolidate, clean and detail the condition of the object.

Treatment

Initial investigations showed a basically sound structure, albeit with odd bits of bracing and a rocky plinth. The interior, until then virtually inaccessible, was profoundly dirty. The surface seemed to be relatively stable and clean despite its benign neglect. For all our concern, the *minbar* came apart without surprise or incident. The joinery held superbly, allowing a certain amount of flex while firmly holding

Consolidating museum staff - training in the great outdoors.

David Ford
Conservation Scientist, Conservation Research

Often, it is not the obvious that reveals the obvious. Often, you need to lose yourself to find yourself. As the reader will now be aware, this is not a typical article about conservation. This is an article on a training opportunity experienced by some members of the V&A and the Natural History Museum. This is a short article on museum people, not museum objects. It is not a case study nor a definitive article on the experiences gained or events encountered. It is merely illustrative.

In mid-October last year four members of Conservation Research embarked on a five-day outdoor development programme in the Brecon Beacons with ten other museum employees. During the programme the course leaders gave each of two teams various outdoor and indoor tasks. These tasks were specifically designed to enable each team, and individual, to explore aspects of team working such as leadership or communication. Within this environment a chance for individual team members to explore themselves mentally, physically and emotionally was provided. Personal knowledge and development were placed firmly in context of interpersonal relationships within the professional environment. Independence and interdependence were an important part of the group dynamic. Another aspect of the course allowed people to respond positively to challenges, such as abseiling, that, to say the least, would not normally present themselves. The development programme, with its contrived tasks, allowed people the opportunity to experiment and learn by experience outside the constraints of the normal work situation. The great outdoors became a vast set of learning laboratories.

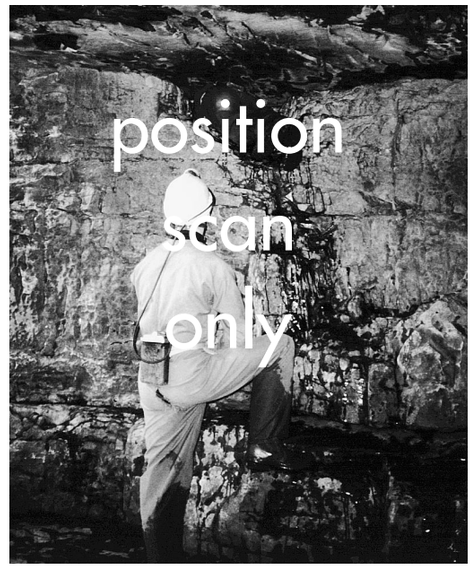


Figure 1. Entering a 'worm hole'.

One of these 'learning laboratories' involved a series of caves. A leader was chosen based on experience from the previous days tasks. The team identified an area for this individual to work on; namely to explore aspects of communication by leading one task. Effective communication was essential once inside the caves. Each individual took responsibility for the person behind and ensured that he or she had understood any instructions passed down. Lack of effective communication could have lead to dangerous situations. Lack of effective communication in the work environment can also have dire consequences. However, as in the work environment, you have to 'get on and do it'. Once the planning stage was over the only way to find out what was down that very small hole in the cave wall, was to go through it.

Each member came back changed to varying degrees. Some came back with increased zest and renewed inner-strength. Others changed their perceptions of others and how they received their perception of others' perception of themselves. For some it was an intensely personal experience while others may not yet truly understand what they experienced. Many changes to the working environment will be subtle, either on a personal or interpersonal level, but certainly beneficial.

Acknowledgements

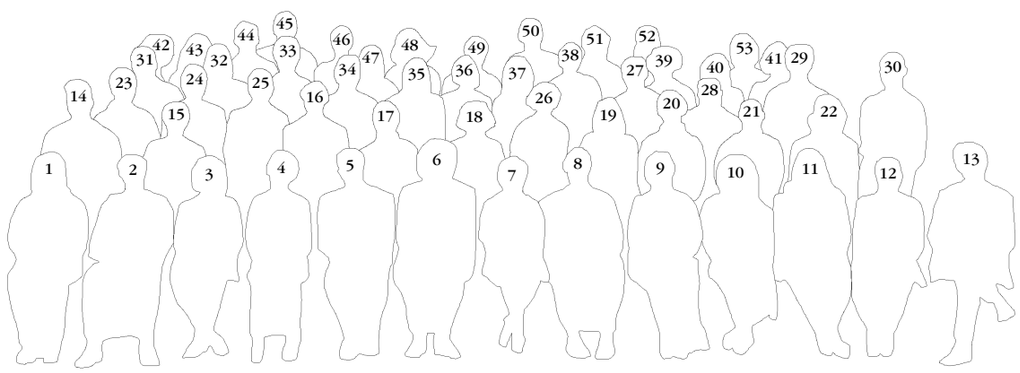
We are grateful to Human Technology Consultants Limited for running the outdoor development programme and to the V&A's Training Section for giving us the opportunity to join the course.

Photography by Graham Martin

Conservation Department group photograph

(End of April 1997)

Photography by V&A Photographic Studio



Key to Photograph *(from front row, left to right)*
1 Helen Jones, 2 Richard Cook, 3 Diana Heath, 4 Victoria Oakley, 5 Graham Martin, 6 Jonathan Ashley-Smith, 7 Helen Shenton, 8 Nick Umney, 9 Susannah Edmunds, 10 Lynda Hillyer, 11 Pauline Webber, 12 Josephine Darrah, 13 Albert Neher

14 Chris Gingell, 15 Albertina Cogram, 16 Alison Richmond, 17 Dottie Rogers, 18 Nicola Costaras, 19 Elena Barton, 20 Hannah Eastwood, 21 Roger Griffith, 22 Alexandra Kosinova

23 Juanita Navarro, 24 Fiona MacKinnon, 25 Val Blyth, 26 Jane Rutherston, 27 Carl Taylor, 28 Simon Davies, 29 Tim Hayes, 30 Nigel Bamforth

31 Derek Balfour, 32 Sophia Strang Steel, 33 Simon Metcalf, 34 Albrecht Gumlich, 35 Ingrid Barré, 36 Caroll Fierle, 37 Joanna Whalley, 38 Bridget Mitchell, 39 Brenda Keneghan, 40 Rian Kanduth, 41 Gill Owens

42 Clair Battisson, 43 Victoria Button, 44 Alan Derbyshire, 45 Danny Norman, 46 Alison Norton, 47 Stella Willcocks, 48 Merryl Huxtable, 49 Anne Amos, 50 Simon Fleury, 51 Sarah White, 52 Paula Mills, 53 David Ford

Those absent:
Alan Cummings, Boris Pretzel, Alice Rymill, Enio Panetta, Chi Asai, Reiko Kimura, Tim Miller, Christine Powell, Fi Jordan, Agnes Holden, Sophia Wills, Charlotte Hubbard, Marion Kite, Audrey Hill, Susana Hunter, Sonja Müller, Elizabeth Martin, Michael Wheeler, Katharine Donaldson, Laura Bennett, Nicholas Frayling, Shayne Lang, Andrew Lamb, Sandra Grantham, Anna Hillcoat-Imanishi, Ariana Makau, William Lindsay, Elizabeth-Anne Haldane, Simon Hogg.