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V&A Conservation Journal No 20

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The cover shows
The new Research & Conservation of Art Centre
Photography by Nicholas Kane

table, so they could be joined together for, amongst other things, 'batch' archive work. There are three mobile light boxes (two A2, one A1) again at the same height as the benches, and mobile trolleys for rolls of materials, including Melinex and polythene. There is also a mobile trolley for pegging out parchment, as well as the two mobile drying trolleys. These latter trolleys were all designed in conjunction with manufacturers, which took a lot of time, but as a general observation, the more the 'end-user' was involved with something, the more successful the result has proved to be.

All the mobile furniture has locking castors. The only items we were unable to have on castors were the bench chairs, ironically on the grounds of health and safety. Mobility was a guiding principle, both for future flexibility and for minimising the risks to people and objects.

General equipment such as laying presses and board cutters are centred in the middle of the room, the floor loading calculations having accounted for, amongst other items, 4 ton standing presses. An area by the door accommodates computers, filing and reference books, with appropriate lower level furniture.

The majority of materials are stored in a large 5-bay metal unit. Boxboard is stored at waist height, is decanted into a trolley, moved and then stored vertically. Heavy rolls of linen and cloth are stored at waist height on retractable shelves, as is leather. Great care was taken to design this unit to be inert, as it also incorporates the storage of books and objects. It was required to be dust-sealed and to open quietly, as the doors are in constant use. Other areas of the studio are loosely designated for gold tooling and finishing, for photography and examination.

Assessment

Has it worked? Basically yes. It is beautiful. My two main fears were that firstly there was something glaringly obvious that had been overlooked, and secondly that like some American facilities Jonathan Ashley Smith referred to in his editorial in volume 18 of this journal, there would be a beautiful new 'Marie Célèste' facility with no-one in it. Thankfully neither have materialised so far. There are inevitable snagging and teething problems. The 'move' itself was extremely complex and I must pay tribute to the stamina and good humour of the Books Section. But the basic concept appears to have worked, the benefits of reduced travelling time, of increased sharing of knowledge, ideas and materials have happened. An assessment in a year's time will be an interesting exercise.

In my previous troglodytic existence I looked out onto people's feet and calves for a decade. Now as I'm writing I look out onto a clear blue sky punctuated by a solid, brilliant white '30s apartment block and pierced by a needle-thin golden spire. Ivory-towered eyrie? All I know is that the importance of the working environment is too often undervalued.

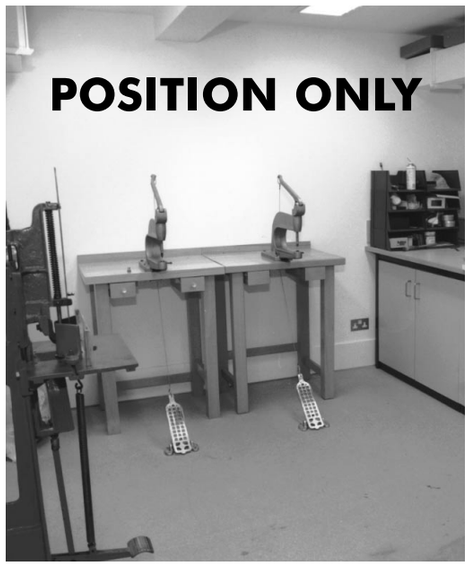
Photography by V&A Photographic Studio

Figure 3. The new Book Conservation Studio.

system. A reverse osmosis system was specified.
6. To improve on known irritants from the previous workshops, such as insufficient leg room to sit at workbenches and computers and insufficient space around equipment.
7. To minimise health and safety risks to people. Vastly improved extraction was incorporated. Layout and storage were designed to minimise handling of heavy board and rolls of cloth.
8. To minimise physical risks to objects. The books would be stored flat in metal drawers with high level security.
9. To incorporate as much flexibility and mobility as possible.
10. To re-examine and improve work practices and use the opportunity of the move to rethink work flow and the functions within the studios rather than blindly emulating what was done before.

The top floor of the RCA block used to be the painting studios of the Royal College of Art. It was a huge double-height space with enormous north and south facing windows. Rather than divide it up into little rooms, the concept was to keep this space as large and clear of divisions as possible, both for a sense of lightness and airiness and for flexibility in the future. Therefore, the principle was to have most of the conservation work being carried out in the main studio and separating out:

a. dirty and clean processes;
b. wet and dry processes;
c. noisy and quiet processes;



Photography by V&A Photographic Studio

Figure 2. The box making room.

Clean, dry and quiet book conservation was to be in the main area. A small workshop was designed for 'dirty' processes such as leather paring, board sanding and tool sharpening. This workshop was equipped with a cabinet maker's bench.

A wet area contains a double heated sink with integral light boxes, an island sink, mobile drying racks, a fume cupboard (for non-aqueous deacidification, retannage of leather and mould removal) and ventilated chemical store. The sinks have laminar flow extraction, so can be used for solvents without cumbersome additional extract. A bench with a chemical resistant surface has plenum slot extract for making up solutions, again without irksome trunking or cabinets. There is a sink for washing glassware in the main workshop and one 'elephant's trunking' extraction, but generally 'wet' and solvent work is in a separate area.

Thirdly, the machinery for boxmaking is housed in a sound-insulated room. These machines, such as the creaser, can be noisy and could not only disturb the rest of the books studio, but the Mountcutters above and the textile curators below. The different processes of box making were studied and could be divided into the quiet and 'noisy' parts. Only the noisy parts are done in a separate area; the rest is on a large worktable with board cutter adjacent to the boxmaking room.

Therefore, these three functions were separated from the main studio, in single height rooms. It was decided not to have a separate materials or object store, as these were in constant use and should be an integral part of the main studio.

Layout
When designing the layout within the main studio, the starting point was to use the north light to best effect. Each of the seven workbenches are at right angles to the windows, with an inset nipping press bench at the other end. Benching under the window is for 'paperwork', as previously benches had also to be used for deskwork, and there is a worktop on top of cupboards behind each person. Consequently each conservator has a 'U' shape of benching.

As mentioned before, flexibility and mobility were aimed at. Everything is the same height (915mm) and wherever feasible, mobile. One of the workbenches (which measure 2400mm x 1090mm) is mobile, as is the 2m^2 boxmaking

Editorial

Jonathan Ashley-Smith
Head of Conservation Department

This journal is a celebration of a major move to improve the quality and organisation of the Conservation Department's accommodation. It comes at a time when further management reorganisation is underway (compare the staff chart on the back of this issue with that on last quarter's).

Seen in a historical perspective, the Conservation Department has always been changing and moving. Specialist sections have been created, have flourished independently and then been absorbed into larger groups. As sections have grown they have colonized any available pockets of space at South Kensington and off-site. There has been continuous recognition that these outposts of empire were often totally unsuited to their purpose. They were so widely scattered that management was difficult and communication between conservators and curators severely hampered.

Over the past twenty years there have been at least six plans to rationalise the situation. Perhaps the most unpopular was the proposal to move the whole Department to what is now our major off-site store in West London. Possibly the most exotic plan had the Head of Department's office in the vertex of the central glass pyramid of the roof over what is now the temporary exhibition area.

While these plans lived their short, butterfly-lives, the Conservation Department continued to cast an envious eye on the Royal College of Art paintings studios with their high ceilings and glorious north light. However when it was finally announced that the studios would eventually become vacant, the desire to occupy the space was shared by many more than just the conservators. The idea of rationalising Conservation accommodation by concentrating it in the RCA block was given impetus in a report called "Towards 2000" written in 1985 by three young curators given the brief to bring radical thought to bear on the future of the Museum's galleries. Further justification was given by Elizabeth Esteve Coll when she gave evidence to the Public Accounts Committee in 1988 following the National Audit Office report on the state of the National Collections. She explained that the conservation backlog could not be solved overnight but needed the initial steps of training the conservators and giving them the space on site to carry out the work.

When the whole scheme is completed there will be space for more conservators, scientists, students and interns. If we ever reach full complement there will still be increased space per person which should lead to greater efficiency. The most important benefit is the geographic consolidation of individual sections and the integration of the whole Department. This geographic integration is important because it improves communication. Planned meetings become easier and the probability of accidental encounters is improved. Many of these chance meetings are more timely and productive than the planned ones. But the benefit of increased contact does not necessarily lie in the content of the information exchanged but in the fact that communication is possible. The new building is the medium and the medium is the message.

Photography by V&A Photographic Studio

Dottie Rogers and Jonathan Ashley-Smith in his new office.

Introduction

Helen Shenton
Commissioning Editor, Conservation Department

This issue of the journal is devoted to the new conservation facilities into which half the Conservation Department moved at the end of 1995. The building, originally known as the 'RCA' block as it used to be part of the Royal College of Art, is now called 'The Research and Conservation of Art Centre'. Scheduled over three phases, it will house curators, researchers and conservators.

The design which received government approval in 1992 comprised Paper, Book and Science Conservation, Mountcutting and Administration moving into the RCA building, with Textiles and Sculpture Conservation moving into new purpose-built single height studios on an adjacent site. Together with the Textiles Collection, Records and the Photo Studio, this is Phase I of the project and was completed at the end of 1995. Phase II includes the majority of curators, the Research department and the three MA courses run by the Museum, including the Conservation Course. This has just started. Phase III is the refurbishment of the remaining conservation studios, namely Furniture, Metals, Ceramics and Glass and is currently scheduled to start in October 1998.

There follow several articles on the conservation component of the first phase of this complex building project, which has involved, among others, a V&A project team, architects, structural and service engineers, quantity surveyors, project managers, contractors, specialist advisers (dealing with extraction and the X-ray room) and 'endusers'. The project leader, the architect and the designer have written about the building scheme as a whole and aspects common to all the studios.

A conservator or scientist who has been closely involved with each section in Phase I has written an account of their accommodation from the point of view of enduser. These personal accounts cover the thinking behind the design, the design process, the practicalities of moving and early assessments of what has been achieved. The Conservation Department took the opportunity to examine working practices within all the department, not just in those sections who were moving, and there is a short piece on the aims and outcome of this working group.

In addition to being a major occupant of the building, the Conservation Department played an advisory role over services such as water quality (including levels of acidity and conductivity and materials for pipes), lighting (high frequency, tri-phosphor, fluorescent uv filtered daylight tubes at 500 lux at bench height), glazing (recommending uv absorbing glass rather than uv films which would need replacing), window blinds and wall colours. As well as advising on the materials for use in the fit-out, recommending the minimal use of fibreboards and the use of stove enamelled metal for object store[1], the Science Group also undertook the testing of the glass and measuring of light levels.

The importance of project management, consultation, liaison and communication cannot be overemphasised on a project of this scale. The Conservation Department set up its own working party when the scheme first became a possibility to analyse work practices and develop design ideals. Jonathan Ashley-Smith, the head of department, was on the Museum's project team. In the later stages of the project, the department set up a group of endusers who met regularly to pinpoint problems, co-ordinate moving and share very practical information. This group is about to hand on the baton to those conservators engaged in Phase III of the project, namely Furniture, Metals and Ceramics and Glass Conservation. Experience and observations can be passed on, for example, that generally services, particularly extraction, seem to have been some of the most vexed areas. Phase III, which will involve the affected studios moving into temporary accommodation, is scheduled to start in 1998.

Phase I of the project is now in the 'snagging' period; defects are being identified and

Book Conservation Studio

Helen Shenton
Head of Paper and Book Group, Conservation Department

When the Book Conservation Section moved into the new studio on the top floor of the RCA block in December 1995, it converged from four separate workshops, up to two miles apart. Since 1962, the main workshop with most of the equipment had been in a basement with no natural light, next to the Printing section. Through an organic process of pragmatism and practicality, the other workshops had grown in answer to different functions. The studio situated in the National Art Library housed *in situ* conservation and was sparsely equipped. Its role was to carry out first aid conservation treatments to books which had been identified, through use, as needing repair. There were two workshops at Blythe House in Olympia. One was equipped for phase-box making. The other was set up for long term book conservation projects, firstly the Heals Textile sample books and latterly Charles Dickens' manuscripts. So the section was disparate with the obvious disadvantages of lack of cohesion and daily contact and time wasting in having to transport materials and objects between workshops.

When I became involved in the design of the new book studio in 1992, there were several principles aimed at. Some of these principles were identified by the 'New Accommodation Group' which the Conservation Department established in 1989 to examine the ideals for studios when the project was first mooted. Other aspirations were specific to Book Conservation.

Aims and Principles
1. To bring all the different book workshops together in one location.
2. To be close to associated sections, namely Paper conservation and the Mountcutters for the sharing of materials (including paper and board), of expertise and equipment. For example, the ultrasonic encapsulator had been a ten minute walk away.
3. To be close to the rest of the Conservation Department, including the library. The book studios were amongst the furthest satellites of the Department.
4. To accommodate seven people; five permanent book conservators, one contract conservator and one MA student. The section had identified and quantified the enormous need the Museum had for the conservation of books, but did not have adequate space or facilities for the planned number of conservators. In addition, although Book Conservation was to have been one of the subjects offered at the beginning of the RCA/V&A Conservation Course, no studentship could be offered due to lack of space.
5. To improve on services and facilities from the previous workshops. For example, the deionised water was a cumbersome, refillable cylinder

Photography by V&A Photographic Studio

Figure 1. The new Book Conservation Studio.

through it was able to communicate more positively with the Project Team.

It was important to oversee and insist on good drawings for every bit of specialist furniture and equipment, especially if more than one manufacturer was involved in making an item. Poor drawings for the laminar flow bench in the wet area has resulted in major misunderstandings, leaving the bench unusable at present. However, a tight specification on the sinks in the wet area ensured we had the leeway to have them corrected when they were built contrary to the specification, otherwise we would have had standard sloping sinks again which for years before had made it difficult to float-wash objects evenly.

After years of 'making do' one of the more difficult things was to cultivate a breadth of vision to incorporate future working procedures and break old work habits. In trying to achieve an open plan area, we had to balance the flexible use of as much of the space as possible with a need for the individual's space required in which to concentrate. Removable low level screens were installed between workbenches where work areas felt exposed and were removed from between butted workstations where the full double width of the table was more important. Telephone extensions were equipped with answering systems to encourage the ringing tone to be switched off when concentration is needed. Staff also have access to quiet office areas and a library within the building.

Additional Benefits

Moving into the new space has generated opportunities to reappraise and improve equipment and working procedures from a Health and Safety angle. Many unnecessary chemicals and potentially hazardous pieces of equipment were safely disposed of before the move.

The vastly improved storage space for museum objects allows a more effective flow of work through the room because there is now room to store objects for an entire exhibition rather than have deliveries staggered.

The drawing together of the paper-related sections (Paper Conservation, Photograph and Miniature Conservation, Oriental Conservation and Conservation Mounting) adjacent to Book Conservation has resulted in improved communication and for conservators working *in situ* in the collections, there is now the room to give them a base in the Section, with better opportunities for training and a sense of involvement within the Group. The extra space also enables us to offer studentships and placements for established conservators. With all the sections together it is now feasible to channel the unavoidable waste of high quality card and paper offcuts into a recycling programme to a level which generates some funding for the Museum.

The atmosphere and light is good for working on paper; the high frequency strip lighting and the option to use the more directional louvred natural light from both the north or south windows prevents the usual eye strain caused by glare as light bounces from paper. The light, softly coloured floors and work surfaces are easy to keep clean and it is planned that there will be an annual deep clean and high level clean of the studios to coincide with the curatorial departments' annual stock take.

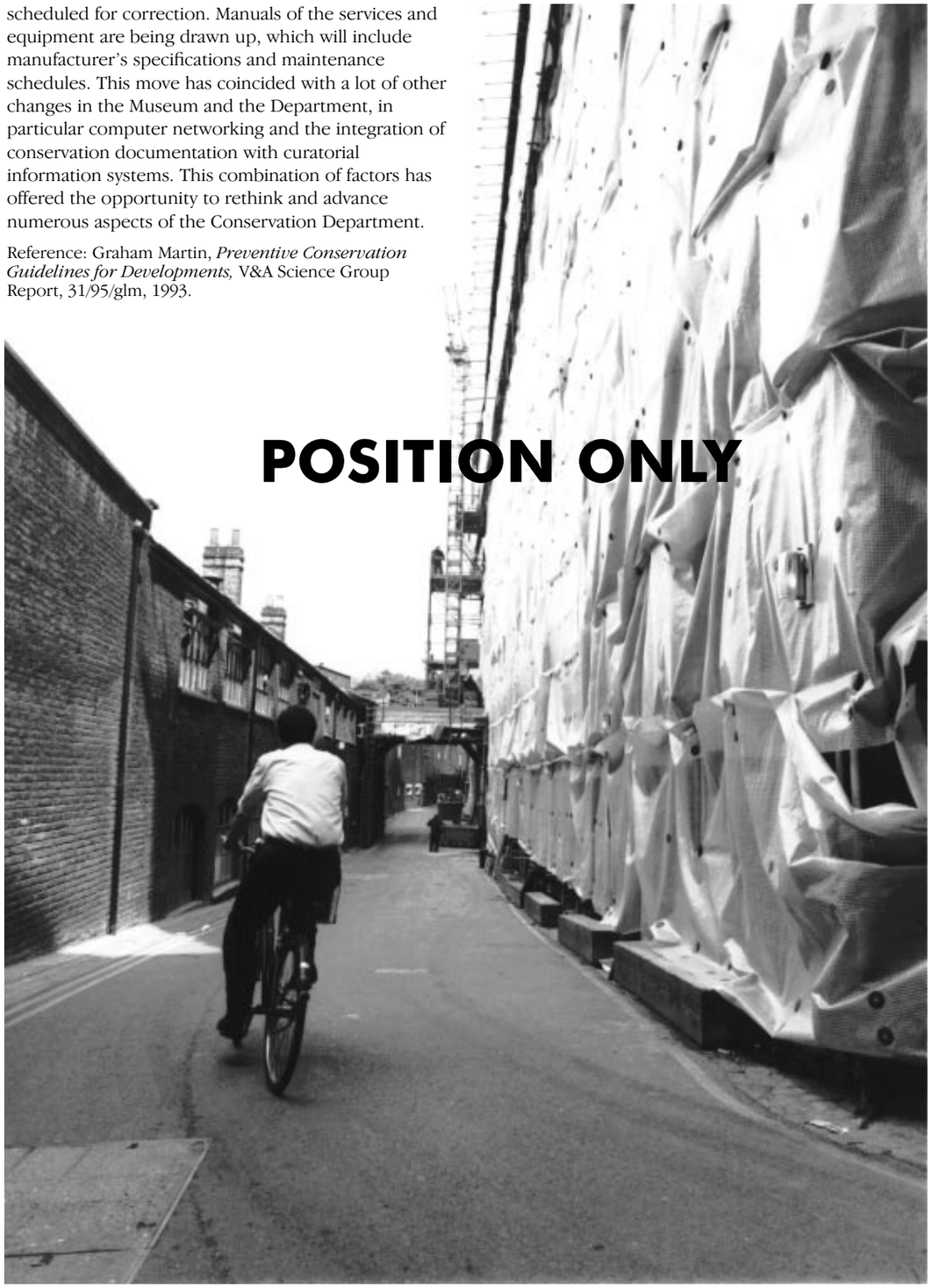
The architects have created an impressive space considering the complex range of activities and interactions the Paper Sections undertake and unlike hospitals or many industrial sites, we do not always have clearly defined requirements which are published and recognisable to architects and the construction industry. Generally the working environment is safer, more pleasant, cleaner, roomier and a more efficient space to work in. It was interesting to note that shortly after occupying the space every single work surface was in use and yet space could still be generated (by using the plan press storage or by extending one of the tables with trestles and a portable worktop).

Photography by V&A Photographic Studio

Figure 3. The Conservation Mountcutters' mezzanine.

scheduled for correction. Manuals of the services and equipment are being drawn up, which will include manufacturer's specifications and maintenance schedules. This move has coincided with a lot of other changes in the Museum and the Department, in particular computer networking and the integration of conservation documentation with curatorial information systems. This combination of factors has offered the opportunity to rethink and advance numerous aspects of the Conservation Department.

Reference: Graham Martin, *Preventive Conservation Guidelines for Developments,* V&A Science Group Report, 31/95/glm, 1993.



Photography by V&A Photographic Studio

The outside of the RCA block during conversion.

The Research and Conservation of Art Centre

Gwyn Miles
Head of Major Projects and Collections Management, RCA Project Leader

The buildings of the V&A, started in the 1860s and completed in 1909, extend across the entire 5.5 hectare site. Nearly all the buildings were designed for the display of objects – only the small secretariat block on the eastern edge gave the Museum purpose built offices. However, a modern museum needs other facilities in addition to offices. We require workshops, studios for conservation and photography, and laboratories to service the collections and provide for the public. Over the years these facilities were provided by taking gallery space for curator's offices and tucking conservation studios here and there in 16 separate locations across the site. In 1987 Michael Hopkins & Partners produced a Masterplan for the use of the building. To increase efficiency they proposed that staff should be grouped more closely together – towards the back of the building.

The opportunity to rationalise staff working spaces came with the removal of the Royal College of Art's Painting Schools to their new building on Queens Gate in 1991. A space audit was carried out which demonstrated that the old painting schools would indeed provide excellent working space; in particular, it would act as the focus for bringing together all staff working on the collections – curators, conservators, photographers, scientists, technicians, and provide a home for the newly created Research Department.

Plans for the RCA development were drawn up and an option appraisal undertaken. The rationale for the new building was to provide excellent facilities for the examination, study and conservation of objects. Better, more streamlined methods of treatment would allow us to increase the throughput of objects through conservation and mounting, thereby improving the overall welfare of the collection. By grouping the operational areas together we intended to avoid overhandling objects and thus reduce the risk of damage. The appraisal showed the best option, that provided most space, was a £22 million scheme. This, however, was rejected by the Office of Arts and Libraries. A reduced scheme, giving the best value for money and allowing us to keep some double height spaces, was agreed by the Minister for Art, Tim Renton. The OAL allocated an additional £5 million towards the £14 million cost of this scheme.

The benefit of the scheme was that it used the RCA as the centre for activities connecting existing spaces to the west and east, not as a 'stand alone' development. This will become apparent once Phase II (the West and South Wing) and Phase III (the East Wing) are completed. The RCA will provide much needed horizontal and vertical routes through the building. The North Wing is served by a goods lift which will benefit the Henry Cole Wing and East Wing. The South Wing will provide a much needed passenger lift to the Lecture Theatre and Seminar Rooms.

The design of the spaces has been a challenging task. The original scheme and rationale was developed by Norman Ullathorne of David Leon and Partners. The detailed design and execution was carried out by Peter Lyon of Austin-Smith:Lord. We were determined that the spaces should provide a calm and elegant environment in which people could work happily. A key component of the scheme will be the new staff common room on the ground floor of the West Wing. A major work of art has been commissioned from Wendy Ramshaw. This will be a screen which will include all the different types of material within the Collections, and will stand at the entrance to the common room helping to provide an appropriate atmosphere for an informal meeting place for all members of staff.

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Designing the Furniture and Equipment
In the new studio it was decided to keep the fixed furniture to a minimum: side benching running the full length of the external walls. To that are butted workstations, some of which are on wheels and others which form static islands. If necessary all these workstations can be resited. In addition in the large central floor space, worktops on trestles can be clustered in various configurations and mobile equipment, such as the vacuum suction table, can be wheeled in. By being able to completely clear the central space the floor can be used as a work surface on which to treat oversized objects such as large cartoons, wallpapers and billboard posters. Part of the specification for the floor was that it should be able to tolerate water treatments and have a continuous smooth surface. Because it is a raised floor with services running underneath, a compromise had to be made on the size of the area and the working procedure when the floor is used for washing objects.

For the trestles, a range of lightweight portable worktops have been made to standardised sizes which match the size of the *kari bari* (oriental drying boards) which are too are often placed on trestles. The standardisation of the sizes allow the worktops to be stored vertically in the same storage systems designed for the *kari bari,* namely channels mounted in the floor and in the ceiling. The sizes also reflect average sizes of Museum objects such as posters and have been designed to make handling easier, in terms of arm span and weight. Having learnt from the Chinese mounters that a lacquer-red surface is easier on the eye when de-backing paper objects, each worktop was made with one red surface. An unvarnished wooden trim on all the worktops provides a pasting surface and securing strip for staples and tapes when the objects are being treated. In order to ensure the worktops were light and yet rigid, it was specified that either Ciba Geigy Aerolam™ or Aeroweb™ honeycomb ranges were used in their construction.

Storage units were designed to accommodate drying boards, worktops and frames in a vertical position. Two banks of removable round sectioned metal uprights, the ends of which are located into a line of recesses in the floor and ceiling at 3-5cm intervals, form fully adjustable bays into which boards can be placed. By removing the uprights on one side of a stored frame it is possible to walk into the storage space to lift a frame if necessary.

Flexibility in the use of furniture included designing lightweight lids for fixed items, such as the sinks and laminar flow extraction bench, so that they could convert to work surfaces when necessary. The lids can also be used as work surfaces on trestles when the sinks are in use.

Photography by V&A Photographic Studio

Figure 2. The Oriental Paper Conservation room.

Warts and All
There have been some very definite pluses and minuses to the project. Major lessons learnt during the project were that there are no second chances and it is never too early to question plans for the siting of the services such as water and power. An example of this is the main water supply to the building which should ideally be outside and at low level and not, as has happened, inside and at high level.

Liaison and communication are key elements in developing a building such as this, both between the various elements of the project and within the Conservation Department. Towards the end of the project, the endusers met regularly to pinpoint, compare and sort out common problems. As the enduser representative for the various sections in Paper Conservation, I found this group very helpful and

Time for a Change - The New Paper Conservation Studios

Merryl Huxtable
Senior Paper Conservator, Conservation Department

The School of Painting vacated its studios in the old Royal College of Art in 1991. Shortly after, pending the refurbishment of the building, Paper Conservation had the opportunity to make a temporary work space in the building for two students specialising in wallpaper conservation. The extra space was marvellous; we were able to treat large format objects and decide what types of furniture and features would work well in a new studio. We appreciated the creative atmosphere which still hovered between the historic, paint-daubed walls and while we were sorry to see this go, the transformation of the building's interior into light, spacious studios and offices is spectacular. The best feature of the old building – the north and south light sources – has been retained and a new atmosphere is evolving as people get to know the building.

Papering Over the Cracks

The old studio had been filled with large benches, tables and a wash table which were necessary for treating large, two dimensional works of art. However, the room's restrictive size, access and wedge shape dictated the size and quantity of work that could be treated. Some of the furniture was on wheels but the limited floor space did not allow much flexibility and the furniture had not been designed to fold away.

With such cramped conditions in the old room, functional work areas such as a wet area and a drying area overlapped and were not clearly defined. While staff juggled and made do, it had become difficult to initiate students and interns in good working practices without the proper space and equipment.

Designing the New Space

Access to the new space is good, having both stairs and a goods lift in which large objects and trolleys of work can be delivered directly into the main Paper Conservation studio. There are two smaller studios off this main area for the treatment of objects which are particularly fragile and require a more controlled environment. One of these rooms is used for the treatment of photographs and miniature portrait paintings and the other for the treatment of oriental objects, including scrolls. The Conservation Mounters occupy most of the mezzanine above the main paper studio, enabling objects to be mounted after treatment without having to leave the room. All these sections have full access to the space and equipment.

In the new studio there was sufficient room to allocate space to specific functions so that there are now clearly defined areas for encapsulating, washing or pressing objects. As the project proceeded, some of the original plans had to be adjusted as space was lost to plant rooms, service trunking and 'phantom' measurements. The resulting restricted access to some areas meant that in retrospect, some facilities such as the materials store and wet area may have been better sited elsewhere. A three dimensional model of the building would have been very useful in determining the ergonomics of the space allocated to Paper and Books.

Photography by V&A Photographic Studio

Figure 1. The new Paper Conservation Studio.

The Victoria and Albert Museum, Royal College of Art Building Project

Peter Lyon
Architect, Austin-Smith:Lord

Austin-Smith:Lord were commissioned in 1992 to prepare designs for the conversion of the Royal College of Art Building following a recent masterplan by Michael Hopkins and a number of feasibility studies. The parts of the Museum affected were the North Wing, East Wing and the North Yard, just south of the RCA building. The total area for the RCA Project will amount to 5320m².

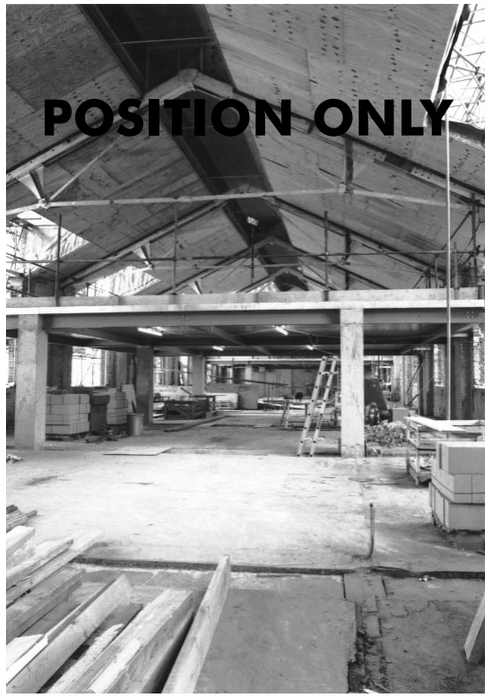
The aim of the project was to bring together all of the Museum's conservation sections which were widely distributed around the Museum, and the West Kensington and Osterley Park outstations, in a new custom-made facility. The project also involved moving curatorial, research and educational departments, as well as administration offices. It was to be carried out in a rolling programme of three distinct phases. The building is Grade I listed, and English Heritage were involved from the outset.

The first section of the work entailed refurbishment of the North Wing. Subject to budget, the Museum wished to maximise the potential area available. A strategy was developed, supported by English Heritage, to insert mezzanines in the RCA building (Figure 1), increasing the amount of usable space and increasing the internal area by 50%. A new building in the north yard added a futher 580m².

The North Wing, built in 1862, was still very much as described at the time. Load bearing brickwork skin and cast iron columns supporting wrought iron beams with concrete floors. The pitched roof was formed by trusses, timber rafters and wrought iron ties with cast iron connections, surmounted by the ventilating lantern. The large windows, facing north and south, afford high levels of natural light and make the spaces ideal for conservation work. The windows (up to 6m by 3m) had been much altered and the roof was in such a bad state of repair that daylight was visible from within.

English Heritage required the retention of the exposed wrought iron beams and these, together with the column heads, were treated with intumescent (fire-protectant) paint to give them the required fire resistance. The columns were encased in concrete which not only gave them adequate fire resistance, but also stiffened and strengthened them to support the new loads imposed by the new mezzanines inserted between the floors.

Originally it had been proposed to underpin the columns, thereby increasing their load bearing capacity, whilst reconstructing the ground floor slab at a lower level. However the discovery of mosaics, which formed the flooring of the cloisters, resulted in the underpinning of the



Photography by V&A Photographic Studio

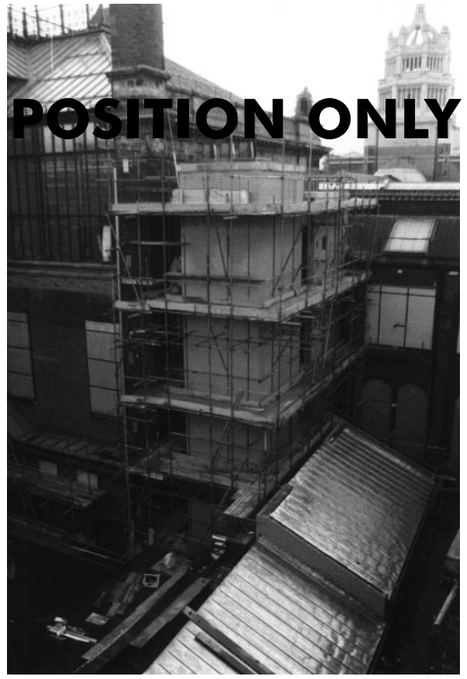
Figure 1. Installation of a mezzanine level.

column bases with a grid of mini bored piles through the mosaic. The mosaics were recorded; since they were incomplete, and of modest quality, the Museum decided that they should be protected and covered by new floor finishes.

The windows were remade to the original pattern, but with concessions to modern standards and the requirements of the Museum. The glazing units were specially manufactured by Pilkingtons and incorporated uv absorbing glass.

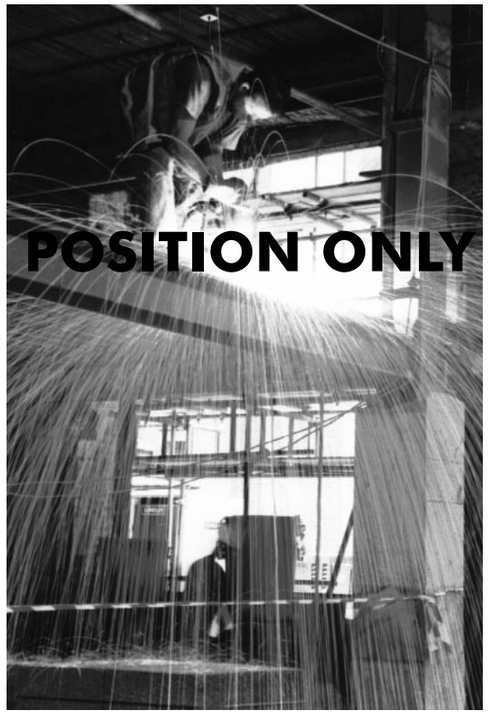
It had been intended originally to clean the brick work but, on the advice of English Heritage, only a limited process of repair and lime mortar repointing was carried out. The whole façade was washed in a soot/water emulsion to conceal the effects of the many repairs and alterations in the brickwork since 1863. A new insulated roof deck was constructed with Welsh slate and lead work, with a continuous louvred lantern at the ridge to match the original.

With the agreement of English Heritage and the Museum, all the new interventions in the North Wing were to be modern rather than pastiche. In the conservation studios all of the mechanical ventilation systems, the specialist extracts, lighting, cable trays and conduits and the emergency systems are fully exposed and



Photography by V&A Photographic Studio

Figure 2. Construction of the new lift tower.



Photography by V&A Photographic Studio

Figure 3. Work progressing on a mezzanine level.

carefully co-ordinated with the roof trusses and structure.

Outbuildings in the North Yard were demolished and a new single story, double height, studio was constructed. A new stair and lift tower (Figure 2) has been created to provide easy disabled access to the lecture theatre and for students attending the courses run jointly by the RCA and the V&A.

The layout for each studio and laboratory took into account the re-use of existing equipment, working practices, specialist extraction, the supply of specialist gasses, reverse osmosis water, task lighting, black out facilities and smoke and fire detection systems. Finishes to benches and floor are resistant to mechanical and chemical damage, surface textures and colours designed to minimise glare colour cast and reflection. Floors in conservation areas are generally finished in robust vinyl sheet, with a non-slip finish. The curatorial and administrative offices are fitted with heavy duty carpet tile of low electrostatic properties.

The first section of the RCA project was completed and occupied by Christmas 1995. Work continues in the South Wing and the refurbishment of the West Wing is to commence shortly.

New Working Practices - Could we do it like that?

Matthew Smith
Senior Administration Officer, Conservation Department

The move to new accommodation within the Museum was seen as an opportunity to review how the Department currently operated and how it could be improved.

A working party of three conservators – Marion Kite (Textiles), Pauline Webber (Paper) and Fi Jordan (Ceramics) – and I were chosen to look at this issue. The work done by this party applied to the whole Department and not solely those sections that were moving into the new building.

Five key areas were identified for examination: *communications, work practices, improving the working environment, common space* and *any 'other' issues.* We started to tackle these subjects by asking all members of the Department for their input and opinions. From the responses we received it became clear that we had some sensitive subjects to consider.

Communications focused primarily on information technology and office automation and how the Department could best harness the resources that it already had available to it. The discussion ranged from how to structure network drives and identifying the need for "voice mail" to where to put the photocopier.

Photography by V&A Photographic Studio

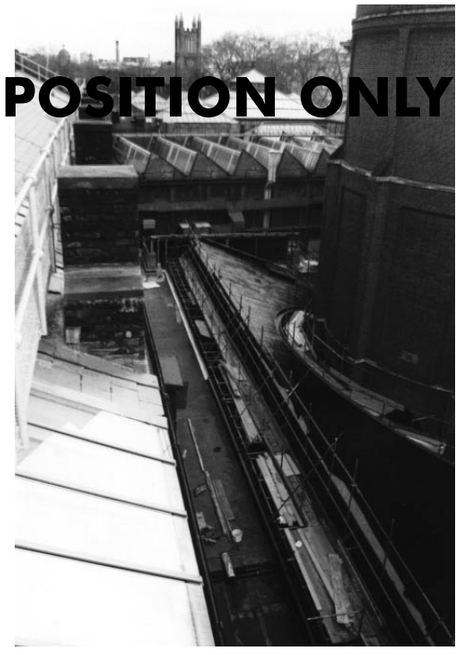
Figure 1. The Conservation coffee lounge.

The most sensitive area of our brief proved to be that of *work practices.* We discussed what percentage of a conservator's time should be dedicated to "hands on" object treatment and whether it would be feasible to have certain days during the week as "Conservation Days" when the Department effectively closes its doors to the outside world to concentrate solely on object treatment. We also looked at how enquiries could be dealt with in a uniform and efficient way and debated the issue of whether private work should be allowed to be performed in studios, outside working hours. These proved to be emotive issues for some members of the Department, which would require a change in the Department's culture to be resolved.

Better Working Environment concentrated on the maintenance and cleanliness of the studios and we identified basic standards that should be adhered to. As with most large organisations, the same issues are often addressed from different angles, and the majority of our recommendations on this topic have been implemented in the new studios.

Common Space provided an agreed framework for the use of shared resources such as the coffee lounge and library, to eliminate possible conflicts in the future. *Other matters* was mainly concerned with how we communicate externally and identified the need for focused and informative handouts.

Aside from agreed studio maintenance schedules, little as yet has changed following the submission of our recommendations. However, I am grateful for the opportunity to work with people whom I would not normally have the opportunity to. It also provided a great insight for all concerned into the issues facing other sections in the Department. Forming this party shows a positive step by the Heads of Groups to improve both how the Department runs and the environment in which we work. Hopefully when resources are available – both time and money – the other issues that we raised can be addressed and resolved.



Photography by V&A Photographic Studio

Figure 3. The roof over Sculpture Conservation, showing the Gamble Room arc.

but it is still troublesome because the Gamble room impinges on the site in a big arc across one of the corners of the rectangle (Figure 3). The architects have managed the design very well in a difficult area.

Many of the ideals have been achieved in the new studio. The light in the studio is adequate except for the polychrome area where the skylights are a little on the small side. The extraction room is already proving to be very useful and keeps the fumes away from the rest of the studio. The access is very good and the ceiling height is correct. The only really annoying thing is a strange vertical ladder to a storage area that is impossible to use. The size of the crane room and the storage area could both have been larger, but space is a constraint in central London. The polychrome room needs climate control, but that will happen. The crane and the X-ray equipment are coming soon. The studio has a very pleasant ambience about it and is extremely practical.

I must thank all the people concerned who have achieved this work space. The design process has been a little traumatic at times but the result is most certainly good.

Photography by V&A Photographic Studio

Figure 4. The new Sculpture Conservation Studio.

Designing the Interior

Elaine Clerici
Designer, Austin-Smith:Lord

The complexity of moving six of the most highly serviced and equipped areas in the Museum to a new location cannot be underestimated. The task required patience and understanding on all sides and close co-operation between all those involved. The sections requiring new studio laboratory space in the first phase of the RCA project were Book Conservation, Paper Conservation and Science which were to be moved into the listed North Wing. Sculpture Conservation and Textile and Tapestries Conservation were to be moved into the new purpose-designed building in the North Yard. The head of each section was interviewed on the intricacies of their section. They were asked about conservation methods, how the section would operate in the new location, Health and Safety regulations, on working practices, benching and storage needs, servicing, as well as specialist water requirements.

The furniture, equipment and fittings to be moved to the new location were all carefully surveyed and scheduled. Dimensions were listed as well as service requirements and any specialist services. New items to be purchased were then added to the schedules.

The areas were planned out, the plans were discussed with the section heads, who took them back to their sections for comment and modifications were made as required. The process was repeated until the plans were agreed and signed off. The studios were designed with serviced, fixed benching along the walls. The services contained in the trunking (power, voice and data) were fixed to the top of the bench at the rear. Pairs of worktables were positioned at right angles to the fixed benching. This configuration maximised the daylight falling onto the work surface. The studios also needed to be flexible to accommodate very large objects that occasionally required work so the furniture in the centre of the studies was designed to be mobile.

Work areas were provided off the main space for highly serviced specialist equipment or equipment working at high noise or vibration levels. Specialist consultants were brought in to advise the design team and heads of sections. These areas were then designed in detail.

The new laboratory furniture and storage were custom designed to meet the brief and the Museum's policy regarding materials used in areas where objects may be present. Materials could not contain any substances emitting gasses that harm objects. The MDF used in the laboratory furniture was zero formaldehyde rated and many other precautions were taken in the manufacture of the furniture.

Studies were also carried out to determine the optimum standard working height for the benching and work tables, resulting in the section heads agreement on three different heights. Where users stand or use a high chair to carry out tasks, the height of 915mm was decided upon, 750mm for computers or microscope work and 790mm in Textiles and Tapestries Conservation to match the height of the existing furniture.

A number of worktop types were developed with the section heads to meet various requirements. Firstly a laminate-faced work top with beech lipping, (the lipping was left unsealed in Paper Conservation as the edges are used for pasting out repair tissues), a chemical resistant work top, and a load bearing work top for Sculpture Conservation.

A mushroom beige coloured laminate was selected for the worktops in most areas, because this colour caused minimal glare and is restful to the eyes. The fixed benching, mostly running under the windows, was designed primarily for undertaking desk work, leaving the work tables free for the conservation process. The fixed benching had open metal under-frames to accommodate movable cupboards, drawer units and tool pedestals, aiding flexibility. The worktables were designed with the same flexibility, some with light boxes and castors and many of the work tables were powered.

Sinks were integrated into the runs of fixed benching and designed to suit the space and the brief. The sinks were manufactured either from chemical resistant stainless steel or polypropylene and the water requirements to each sink were specified by the section heads.

The Museum's policy regarding the storage of objects meant that the object stores could only be manufactured from inert materials. All the object stores, plan chests and some of the materials stores were designed down to the last detail. The units were made from mild steel with an epoxy powder coating and were fitted with a special silicone seal to prevent the infiltration of dust.

The chair type was given careful consideration by the Museum. The chair selected was available in different height options, all having adjustable seat heights and back rests. This flexibility allows the conservators to adjust the chair to give optimum support whilst working on objects.

Textile Conservation Studio

Lynda Hillyer
Head of Textile Conservation, Conservation Department

Until December of last year, Textile Conservation occupied three separate sites. The main studio was situated at the top of the lecture theatre stairs and had been used for some form of conservation activity since 1909. For many years it was known as the Art Workroom and a curious combination of sculpture and textile repair was carried out side by side. In the early 1960s, tapestry and carpet conservation moved to the North Yard and remained there until the beginning of 1993 when the studio was demolished to prepare the site for the new RCA building. In the interim period, tapestry and carpet conservation moved to temporary accommodation at Blythe House, at Olympia. A third studio was established in the 1970s under the direction of Sheila Landi, former Head of Textile Conservation. This was housed in the converted stable block at Osterley Park House in West London and was specifically designed for the conservation of very large objects and long term projects.

The separation of activities into three areas had some advantages. Specialist skills developed in each of the three studios. The main studio dealt with an enormous range of smaller objects, encompassing costume, accessories, flat textiles (up to a manageable size) and ecclesiastical and archaeological textiles. Tapestry conservation inevitably involves very long term work, generally carried out on a frame and needs a different kind of skill. Osterley concentrated on very large projects such as Indian *palampores* (covers), bedhangings and some large costume projects; it also offered conservators a rare chance to work on practical projects without interruptions. Three locations also provided opportunities for students and interns to benefit from three very different working environments and areas of expertise within one institution.

Photography by V&A Photographic Studio

Figure 1. The new Textiles Studio.

The disadvantages were obvious. It was often difficult to maintain unity within the team; there were frequent problems with communication; staff working at Osterley, albeit an idyllic setting and one of the most beautiful studios in the country, were often isolated and felt out of touch with the main focus of the Museum. Coming into the Museum for meetings and seminars was time-consuming and this problem was magnified when tapestry conservation was forced to move to Blythe House. Equipment was duplicated, but in many cases objects had to be moved offsite to take advantage of specialist facilities such as the washing floor or the vacuum hot table at Osterley.

The primary concept behind the planning of a new central studio was to integrate these three separate areas and provide a facility worthy of both an unparalled collection of over 100,000 textiles from many different cultures and a highly skilled and dedicated team of conservators. In the initial stages and in consultation with conservators, the designers looked at the essential functions which are necessary for a textile conservation studio. These included the separation of wet and dry areas including a purpose built washing floor, large flexible spaces which could be used for a variety of activities, defined areas for the use of dyes and solvents; efficient fume extraction, adequate storage for materials and dummies, and enough space for each conservator to embrace work not only on a variety of textile types but also to have individual areas for paperwork. In addition there had to be enough space for filing, slides and reference material and improved access to computer facilities.

Photography by V&A Photographic Studio

Figure 2. The organic and polychrome room.

quality of light in the sculpture studio and the adjustable tables in the furniture conservation rooms. I went to Liverpool to look at the new studio in the Great Western Railway building which houses sculpture conservation for the National Museums and Galleries on Merseyside which was planned by John Larson and Anne Brodrick. The rooms were set out for large objects on the ground floor with good access and cranes over the studio. The height was good but the light was not as good as my ideal would have been. There was a division for air abrasion and other unpleasant conservation processes. Work on small objects and microscope work were carried out on the first floor with access to a goods lift. The crane interested me as it was a double beam with four independent lifting points. This would allow heavy objects to be manipulated from four points with great accuracy. I have visited other studios when I can as it has been a general interest of mine for a long time: the Tate Gallery sculpture studio has the space, the light and the height of which I have always been envious whenever I have visited.

I felt that we should approach our new building from the ideal. But what was the ideal for this sculpture studio? It is a question not only of the variety of materials, but also the sheer scale of the objects in the V&A's collection. On many occasions, I have looked at an object and immediately started to look for somewhere accessible to work on it. The variety of the materials and conservation techniques dictate a minimum of three rooms in the studio, excluding an office, storage areas and an X-ray room. Each of these rooms are required for different types of objects and for different processes.

The organic and polychrome room needs to be small enough to control the environment but large enough to take some of the larger wooden objects such as the life size crucifix which is in the sculpture collection. There is a need for a room for the wet, the dusty and the smelly jobs, a position for the stone saw and somewhere to lift the heavy objects. We also required a large, adaptable room where most of the conservation could be carried out, big enough for the occasional use of an 'A' frame crane. Each of these rooms should be well lit and have good access and should be high enough to be able to take a loaded stacker with its mast raised. One of these rooms should have total blackout facilities so that uv photography can be carried out.

The work that we undertake, includes technical investigation which has always been restricted by the access both for X-ray and for uv photography. A room that would take a 1.5m^3 object and that had a more powerful X-ray head was a priority.

The site for the proposed building was the one I knew well – the pickling shed and the stained glass studio in the North Yard. These would be demolished, giving a clear site (Figure 1). It has one drawback. It is surrounded on all sides by high walls. The work area would have to be top lit by daylight but there would be little problem from solar gain. The planning had the benefit of a clear site without the conflict of other studios

The Hole in the Ground - Sculpture Conservation's New Studio

Richard Cook
Head of Sculpture Conservation, Conservation Department

We are in our remarkable new studio at last. It is strange, but it seems as if we have been here for ever. Somehow we have already filled the space with large objects and even other people. Metalwork Conservation has already used our extraction booth for lacquering a large bronze and cleaning a large silver wine cooler. The new studio is miraculous compared to the accommodation that Sculpture Conservation has had previously.

In the early 70s, sculpture was conserved on the top floor of the conservation block. Ken Hemple, who was then head of the section, used to have all the marble busts carried up three flights of concrete stairs to be cleaned. There was a ground floor shed occupied by two masons, Jim Ellis and Bob Barns (whose father had helped build the Museum). Legend has it that Bob Barns cooked his breakfast at the end of the room each day and did all the large masonry jobs in the same room – attitudes about health and safety have changed a little since then! As a young conservator, John Larson began to work in this room because of the easier access. Later, as Acting Head, he brought the studio down to the quadrangle behind the Gamble Room. The studio was long and thin and slightly raised from the surrounding ground. All trolleys had to go up a ramp which was cursed by object handlers for two decades. It was at this point that I joined the Museum and I worked for 15 years in the 'pickling shed' as it was referred to. I have never been certain what was pickled, maybe someone knows better. There was however a lead lined sink at this time that stretched the whole length of the room.

An extra room for polychrome work was obtained by converting a nearby gentleman's lavatory. The organic and polychrome room was very awkward to work in. The roof sloped to a low point so that only a small part of the floor space could be used for objects on easels. The environment of the room was impossible to control as the wall joining it to the stained glass studio was difficult to seal. At the rear of the pickling shed there was an open yard which was later roofed over with clear plastic and also a small shed with extremely thick walls which had meat hooks in the ceiling. This meat store was used for the storage of materials and equipment. Later, a wooden shed was built to allow air abrasive and other hazardous conservation activities to be carried out. None of the rooms were interconnected and it was obligatory that sculpture conservators were waterproof.

From the first murmurs of the building of a new studio, we began to think very seriously about the design and what we had seen of other workshops. Fortunately a courier trip to New York came at the right moment and I met Lisa Pilosi who had worked in our studio. She showed me round the newly refurbished conservation department at the Metropolitan Museum. She also introduced me to Jack Soultanian, Head of Sculpture. Two things immediately caught my attention: the perfect

Photography by V&A Photographic Studio

Figure 1. Site of the new Sculpture Studio before construction.

Photography by V&A Photographic Studio

Figure 2. The dyeing area.

The initial layout of the studio was possibly the least complex part of the planning. The space allocated was the largest that could be offered and had easy access. A ground floor location was essential for moving large objects in and out of the studio. There was little debate about the location of the main functions – the wash floor and wet area, the main working areas and the separate area for dyeing and the use of solvents. Three major difficulties emerged at this stage. The studio did not provide enough wall space for the construction of sidebenching (for paperwork and the use of computers); there was not enough storage for materials and haberdashery and there was the major question of how we could accommodate the amalgamation of work from two studios dealing primarily with very large and long term objects (some projects at Osterley utilised table space for a number of years rather than months). Extra wallspace was provided, with some reservations, by the construction of a low partition dividing the main working space into two areas, one designed to deal with larger objects and housing two tapestry frames and large mobile tables; the other designed to cope with smaller objects, equivalent to the function of the former main studio. Extra storage space was negotiated in a room opposite the studio which is fitted with an object store and roll racking for support fabrics. Additional storage for haberdashery was achieved by utilising a mezzanine area. We also obtained a second, smaller studio on the fourth floor as a very necessary overspill space for projects which may involve the concurrent conservation of a number of large objects.

The finished studio is architecturally beautiful. It is a clear, streamlined and exciting space with 13 workstations. With a team of nine this gives us the scope to include students, contract workers and interns who can all benefit, as we can, from observing a whole range of different conservaton projects being worked on in one location. The ceiling height of 4.5m is not only visually stunning but a real bonus when assessing very large objects. The mezzanine store replaces an invaluable facility which existed at Osterley – the ability to view an object hanging on the hoist from above and assess it from a distance. The large washfloor will be complemented by a lightweight gantry which will enable us to reach the centre of large carpets and tapestries during wetcleaning. Almost all of the equipment is mobile, giving us an infinite variety of flexible space which can be used in any way according to the demands of the project. Tables designed for the conservation of large objects are adjustable in height for those occasions when it may be easier to stand when working. Each conservator has a much more generous space around their workstation and tables can be moved into different positions to facilitate the addition of frames.

Moving into a new studio is a bit like moving house. Not everything is exactly as we imagined it would be and as we continue to work with the new studio we become more conscious of adjustments that still need to be made. However, for the first time in many years the textile conservation team is in one location. This is a wonderful new freedom and is already releasing many fruitful ideas. We look forward to the opportunities which this new integrated studio will produce.

Photography by V&A Photographic Studio

Figure 3. The new long-term project room.

The Michael Snow Laboratory

Graham Martin
Head of Science Group, Conservation Department

The name of the laboratory may be unfamiliar to you. It is dedicated to the memory of Michael Snow (1932-1990) in appreciation of his selfless support which enabled the Museum to start the reconstruction of the Research and Conservation of Art centre.

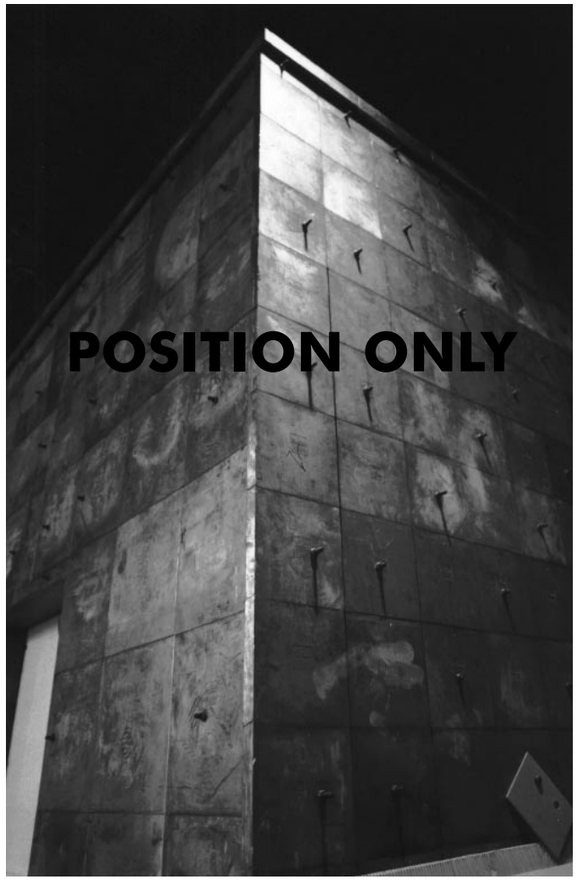
The new laboratories for the Science Group have enabled, for the first time since the Conservation Department was formed in the 1960s, all the scientists to work in the same geographical area. In the past we have been separated and spread across the South Kensington site of the Museum on up to five sites, separated by stairs and corridors. Bringing us all together gives a valuable opportunity to learn a lot more from each other and the total will be more than the sum of the individuals.

Based on the ground floor (level one) of the refurbished building, we share a corridor with the Museum's Photographers, Sculpture Conservation and Textile Conservation and so we feel very much involved. The accommodation is large, with separate areas for our desk-based work away from the bench based work; a division of tasks that, until now, could not be achieved.

The design of conservation studios is now considered to be more complex than that of a hospital. Such is the complexity of services required that detailed planning and detailed implementation is a necessity. It is the post installation snagging that is proving to be the most personally testing period. The 'tweaking' and minor modifications that are required to get the accommodation fully functional is time consuming.

Enough of the building – let's turn our attention to the staff. Having come from separate laboratory spaces to one large space requires a change in many of the work practices that individuals develop over the years. Breaking down these established work practices is painful for all concerned, after all we do not willingly volunteer for change – it is usually thrust upon us. This again causes individual frustrations as systems must be adapted to encompass the new set-up. A period of around three months has been necessary to 'bed-in' and develop some of the new patterns of work required. There will be an estimated period of a further three or so months before everything – both the building and the new work practices – are functioning to an acceptable standard.

The future is the most interesting part of this project. We have established a core group of scientists who are building up knowledge and expertise about the collection and about how to best store and display it. The big question now is how to effectively and efficiently disseminate this information. Once again change is thrust upon



Photography by V&A Photographic Studio

Figure 1. The X-ray room during construction.

Photography by V&A Photographic Studio

Figure 2. Bench work area.

us – this time in the guise of the computer. For many years now I have been requesting the provision of a fast and effective computer network. We need a network to spread the information we generate across the whole Museum and beyond. There are the obvious 'customary' techniques such as this Journal in which we can pass the word on. However, on another level, and with a more rapid-response, modern computer network we have the ability to communicate on a one-to-one basis at minimal cost over large distances. So, we have the internal computer network that allows us to rapidly spread our reports to the people who need them and also maintain our own internal information management systems. Beyond the confines of the Museum we do have an obligation to a much wider audience and it is our intention to fully utilise the Internet to allow access to at least some of our files. This is most likely to take the form of access to the V&A's home page and then into copies of the abstracts of our reports.

I have attempted to give a brief overview of the moves with indications of the gains involved. The path of these changes is not always smooth but always interesting.

Photography by V&A Photographic Studio

Figure 3. Emergency shower.