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introduction

During the last three years museums and other institutions in Europe have joined hands in a large-scale collaborative project to investigate the care and administration of installation works of art. The project resulted in 33 case studies of installations that were meticulously researched, re-installed, displayed and documented - in most cases in consultation with the artist. In addition, research has been carried out into various directions that together with the case studies provide an insight into the needs and guidance for safeguarding installations for future generations. All project results have been made available via the project's website www.inside-installations.org which will be maintained for at least another two years.

As the prominent and relatively new art form of installations has been and still is acquired by contemporary art museums, numerous challenges regarding their conservation and re-installation are to be faced. Installations are significantly different to traditional objects in many aspects. One of those is the potentially endless choice an artist can make in materials and media used, and especially ephemeral and time-based media ask for different approaches than, for example, 'traditional' paintings. Other aspects include the installation's specific relationships to time, space and context and its potential variability in subsequent re-installations. Furthermore, last but not least, installations, more than other works of art, ask for communication with the artist or the artist's representatives during the work's lifespan and are in need of a wide body of expertise, not only from conservators but also from technicians, curators, collection managers, archivists, etc.

All such issues have been addressed in the case studies. The diversity of these works, mostly created between 1995 and 2005, meant that the case study results were quite specific. In order to create useful 'good practice' or recommendations, it was necessary for the project's organisers to design the research approach appropriately. The solution was to use a matrix research approach, which considered the case studies as Activity A, and designated 5 areas of special research as B Activities. Cross-links between all research activities were sought for as much as possible. The special research activities were: B1 Preservation; B2 Artist participation; B3 Documentation; B4 Theory and semantics; B5 Knowledge management and information exchange. Each co-organiser was responsible for one of the research areas, while many project partners participated in one or more (parts) of the research activities. Following this matrix, the booklet you are reading is subdivided into two main parts. Part one summarises the case studies and part two consists of summaries of the B research activities. However, to get an impression of the richness of the full research carried out within *Inside Installations*, one should explore the project's website which offers the whole range of case studies results, as well as the insights, guidelines, tools and questions coming from the special research activities.

One of the aims of the project was to build confidence in the display and appropriate management of installations enabling them to be shared and displayed at venues across Europe. Thus a requirement to each case researcher was that the work was displayed in the museum at least once during the project's duration. Another characteristic was that these complex works needed an interdisciplinary approach and collaboration between professionals, often with a variety of expertise and backgrounds. The project proved to be an incredibly fruitful environment for such collaborations and synergies. Initially the group consisted of 25 experts but this number increased considerably over the years. In order to share the experiences and knowledge gained through the project, a number of seminars and workshops were organised. Seminars could be attended by all interested professionals, students and general public, while the project workshops were only accessible for participants. As there was a common desire to share these inspiring events with those who had not been able to attend the meetings, a large number of recorded lectures have been published at the project's website.

Inside Installations has inspired many in their daily work and research activities. It also contributed largely to the 'community building' which started in 1999 with the start of the International Network for the Conservation of Contemporary Art (INCCA). In fact, the initiative for the project came from INCCA founding members and there remained a strong relationship with the INCCA group. In this new and challenging field of conservation it is of crucial importance to collaborate and to exchange expertise and experiences. *Inside Installations* has proven the benefits of this. Moreover, thanks to the commitment and hard work delivered by all who were involved, the project has turned into a fascinating journey through a landscape that keeps changing with every new turn of the road.

Tatja Scholte & Karen te Brake-Baldock, Instituut Collectie Nederland

Ignasi Aballí, Finestre, 1997-2005

Museu d'Art Contemporani de Barcelona (MACBA); Silvia Noguer

Finestre, 2005 by Ignasi Aballí is an ephemeral installation that consists of a light painting on the wall of a museum or an exhibition room, formed by the shapes of the shadows of the windows, which are the reflections of the light on the wall of the artist's studio.

Aballí started working with the traditional medium of painting, using canvas, brushes, and paint. Progressively his work moved towards other techniques and ideas, as in **Finestre**, in which the theme is the absence of the painting as an object. This installation also interacts with the architecture of the exhibition space and its primordial elements. The wall here has two functions; it is at once the support and the theme of the work.

Preservation challenges in this work are the apparent simplicity of the piece, which had to be installed in four different venues. Also, the ephemeral character of the work was central to this study; in our opinion, it makes it necessary to establish clear criteria with the artist for the perpetuation of the work.

The result of the case study was the production of the work at all the different sites, its maintenance, discussion of the kind of problems that arose during the exhibition, and its deconstruction after the exhibition closed. We did all this working closely together with the artist, while developing an interdisciplinary relationship with the other work groups involved in each exhibition.

After working with Aballí before and during the mounting, we learnt a lot about his work, which he considers like the growth of a tree, where themes and categories are in close relationship to each other. With slow and meditated elaborations, the evolution of his work begins with methodological preoccupations about vision, visibility and materials that have a realistic character, in the sense that the works include elements directly from daily life.

The record of the passing of time is the main subject of the work of Aballí. The works materialize with the exposure of objects to sunlight and the accumulation of dust over time; thereafter the objects are removed leaving a negative space as a reminder of their existence.

We made a full documentation in order to establish clearly with the artist an understanding of all the details, to allow us to perpetuate the work knowing more about the conceptual issues as well as the quality of the gel paint used by the artist, and to be able to build this installation on different sites, managing its maintenance and arguing about the deconstruction of the work.

Artur Barrio, Interminàvel, 2005

Stedelijk Museum voor Actuele Kunst (S.M.A.K.); Kathleen Wijne

On the occasion of the Barrio/Beuys exhibition in the S.M.A.K, the Brazilian artist Artur Barrio made the temporary installation **Interminàvel**, as an imaginary dialogue with the work by Joseph Beuys.

The work was made using ephemeral materials: coffee dregs lie spread over the floor, together with crumpled paper, flakes of Indian lacquer and a pile of 1,000 loaves. He knocked pieces of plaster out of the wall, applied splashes of coffee and wrote texts in felt-tip pen, adding the periods of time he had worked on them. All this was lit by a few small light-bulbs suspended from heavy cables. The entire work provides the onlooker with a multi-sensory experience.

Interminàvel takes its name from the never-ending process of evolution and transformation. The work of art is never finished and with each new production a new layer will be developed. New additions and ideas each complement the work one stage further and introduce nuances. The S.M.A.K. purchased **Interminàvel** in 2005, despite the fact that this installation no longer exists in its original form. All that remains is a CadernoLivro, made by the artist on the occasion of, and during, the setting-up process. It contains thoughts about the installation process, the materials and a number of comments.

The creation process of his ephemeral and temporary installation is considered by the artist to be of greater importance than the finished result. The re-installation or re-execution of the work of art can only be carried out by Barrio himself. Since S.M.A.K. added this work to its collection it was appropriate to investigate how **Interminàval** can be shown and kept in the future.

During **Interminàvel**'s creation process in the summer of 2005, the artist could be extensively observed. This resulted in detailed documentation. Throughout the various phases during the work's construction, photos and a film were made. Various floor, wall and construction plans were made, condition reports were compiled and product information was collected per material or object. Prints were made of the various sculptural additions Barrio introduced into the work. This resulting material is especially valuable as it provides an insight into the creation process.

In addition, a reader was compiled with conceptual texts about Barrio's work, texts by the artist himself and illustrations. These were intended to incorporate Barrio's own opinions into a suitable strategy for reinstallation. There are several possibilities. Thus, the artist himself is able to install his work himself each time – this is only a temporary solution, since after his death we will be confronted with the same question. An alternative option is that the re-execution is carried out by third parties related to scenarios or via reinterpretation based on a conceptual scheme. Or **Interminàvel** can be shown on the basis of documentation, such as photographic or video material. The CadernoLivros play an important part in this choice.

Ignasi Aballí, **Finestre**

Artur Barrio, **Interminàvel**

Krysztof M. Bednarski, **Grass just Grass**
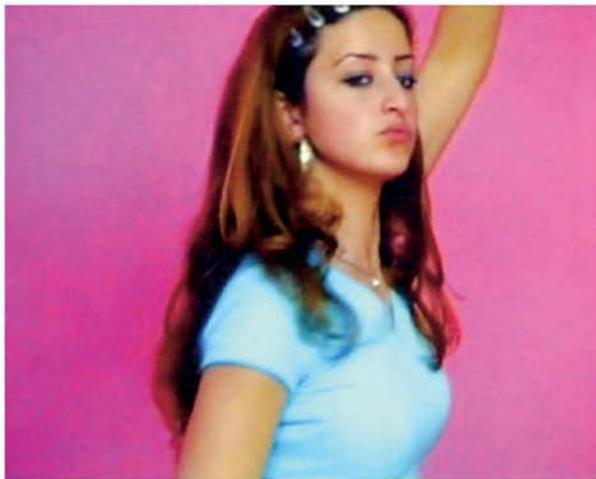
Phil Collins, **they shoot horses**

Krysztof M. Bednarski, **Grass just Grass**, 1996

Center for Contemporary Art; Monika Jadzinska, Iwona Szmelter

The artwork consists of twelve wooden boxes, 1800 m of cut, green-coated barbed wire, small red cotton balls, 'dirty' peat full of pieces of leaves, sticks, conifer needles etc., four working light bulbs, and sound from a CD recording. The viewer is faced with a simple form made of ordinary materials, affecting his/her senses and intellect. The work has been presented repeatedly in various arrangements, in several versions and adaptations. The artist puts particular emphasis on the close sensual and physical contact with the green grass with small red balls, that turns out to be the barbed wire. The artwork and artist's attitude had changed in the physical and metaphorical sense due to external and internal conditions, the passage of time, and historical and personal circumstances. The main issues were connected with misinterpretations of the meaning of the artwork, distortion of the truth, problems of re-installation, and attempts to place the work in inappropriate spaces lacking some of the integral elements like scent, dampness and sound.

A major part of the research was to establish the process of changing the artwork and the artist's intention. It revealed the lack of some inherent 'haptic-optic' elements in several exhibitions, elements which are essential to the internal unity of the work of art (contact with the earth, proper light, scent, warmth). The key point seems to be to establish the proper conditions for the viewer to perceive the artist's intention. The artwork had to be placed in the right space and context, with the proper conditions for space and exposure time. The object should be exhibited in a special room without other works around it, placed in such a way as to give the viewer a long perspective (circa 20 m) when first seeing it from the entrance, and closed, sensual contact with it by limited space around the work. A closed, even claustrophobic space for each individual is required, which can evoke a state of concentration. Light bulbs should be hung a short distance from the peat to warm it and bring out the fresh scent, and the peat should be watered.

One of the main issues was to find out what is important for the authenticity of the work. Answers were sought about the connections between the materials of the artwork, the identification of the specific space ('site') of the artwork and historical moments important for its message, firstly in a cultural and historical context, secondly in relation to the identity of the artwork, and what the viewer's perception might be in relation to the artist's intention.

We worked closely with the artist to establish the history of the work, its identity, the artist's intention and his wishes for its preservation, presentation and conservation. We carried out interviews with Wojciech Krukowski, the director of the Centre for Contemporary Art, co-operated with Maryla Sitkowska, the author of a monograph of K. M. Bednarski.

The results of the case study are:
– data registration, condition report, artist's history, documentation of elements of the object, information about the construction, storage, transport, packing
– establishing the artist's intention in terms of preservation and presentation
– identifying the materials and their significance, fabrication of the elements
– gathering documents, drawings and photos related to the creation process and subsequent exhibitions
– critical analyses of the installation history of the work
– identifying changes and durability, the role of ready-made elements, intangible elements of legacy, the influence of the natural ageing process and the process of degradation on the changing idea of the artwork
– 3D visualization for optimal conditions of presentation
– guidelines for re-installation

Phil Collins, **they shoot horses**, 2004

Tate; Pip Laurenson

they shoot horses is a two-channel video installation with sound. The two channels are each 6 hours 40 minutes in duration and the sound track consists of loud pop music. The work depicts two groups of people who are engaged in a dance marathon. The artist auditioned the participants in Ramallah in March 2004. The work's title is taken from the 1935 novel by Horace McCoy *They Shoot Horses, Don't They?*, which takes as its theme the gruelling dance marathons of the 1930s' depression. Ramallah is a city in the highly contested area of the West Bank. The filming was affected by a number of problems due to the nature of the environment in which the work was made. There were pauses due to power failures, there were moments when the dancing was stopped for the call to prayers, and one hour of the footage was confiscated at one of the checkpoints between the then occupied territories of the West Bank and Israel.

The acquisition of **they shoot horses** into Tate's Collection marked a moment in the development of Time-based Media Conservation's procedures with regard to digital video. The work had been shot on Mini DV and then copied on to DVCAM and ingested into the editing package Final Cut Pro. The editing process was fairly complex given the large amount of material (just under 14 hours) and because of a raft of technical problems associated with the work's production. For example: the head on one of the cameras that was borrowed for the shoot was misaligned. The sound that the participants danced to played back a little slow because of problems with the power supply. Hence when it came to the edit, the picture would not match exactly to the audio files. It quickly became apparent that the most appropriate way for Tate to archive the work was as a series of computer files.

Although Time-based Media Conservation had experience in storing audio artworks and assets associated with computer-based works of art on hard drives, we had not previously stored any video on file. This installation therefore presented us with an interesting challenge.

As a result of research carried out for this case study, we are currently exploring the use of an MXF wrapper in which to store the video files. In conjunction with this we are establishing a pilot, exploring different file formats and workflows, server storage and data tape storage.

Not only is the preservation material for this work made up of computer files, it is also played back in the gallery from a PC based video server using files which have been compressed to MPEG 2. The playback device is made by Pixals Ltd. and proved to be very reliable. It is important to the piece that it came on at 11am in the morning so that it would finish just when the gallery closed. This was achieved using software which started the files playing on a timer. The video server was connected to an uninterruptible power supply which provided 15 minutes back-up, after which time the PC would run through a standard close-down procedure. A back-up of the drive was created using Selfimage software.

With the advent of easy access to editing systems which run on home computers, it has become increasingly common to find examples of video based artworks where the post production is managed exclusively as digital video stored as computer files. This case study has enabled Time-based Media Conservation at Tate to begin to develop robust protocols to manage these works. This is research which we continue to build on and develop.

Angela de la Cruz, **Larger than Life**, 2004

Centro Andaluz de Arte Contemporáneo (CAAC);
José Carlos Roldán

Larger than Life, by the Spanish artist Angela de la Cruz, consists of a large installation which looks like a huge classical painting which is folded to fit the exhibition room. The design as an object is very simple, just a canvas in acrylic and oil, large (10.66 x 8.65 metres) fixed on a demountable stretcher, folded, with sticks broken or dislocated from their margins in order to adapt it to the exhibition room.

The size of the piece, the difficulties of manipulation during the mounting, and the interaction with a listed building were interesting aspects to consider, as well as the space necessary to construct the work, the need for storage, handling considerations or the public interaction.
The interactions between an old building and a modern creative project are very interesting and consist of the confrontation with the space and the transformation of the room for a new use as an alternative for the traditional uses. We also considered the internal circulation and movement in the building, the difficulties of the pedagogical narrative and the didactical services of the CAAC, and its conservation in the course of the exhibition.
At each new installation, the artist displaced the piece to adjust it in a new space. It then was aggressively manipulated, with many people and during a long process of installation.

Working directly with the artist we keep in mind the aesthetic and conceptual issues as a whole, and we had the opportunity of gaining a perspective from each part of the team: conservators, restorers and technical team interacting with the artist to find solutions according to her idea and the actual possibilities of our building.
At the beginning of the *Inside Installations* project, we proposed some places to install the work, and Angela de la Cruz chose a particular place in the Monastery that was part of the CAAC, because she wanted to place the big object within a smaller room and see the effect.
In addition, the spatial characteristics of the place had to be taken into account: an old building but at first sight it has a 'catch'. The 'catch' is the challenge of adapting the original project to make it occupy the smaller space as a new installation.
A comprehensive documentation was built up during each step of the process, from the construction of the piece and its installation working with the artist, and during the show considering the maintenance challenges, the interaction with the public and the difficulties of showing the work in our listed building. We compiled enough information to rebuild and reinstall the piece according the artist's idea, even in a new place in the museum, with no loss of information and with the guarantee of the transmission of the original idea.

Tacita Dean, **Disappearance at Sea**, 1996

Tate; Kate Jennings

Disappearance at Sea is a 16mm colour anamorphic film installation with sound. This work has been described as follows: *"The film charts nightfall as seen refracted in the Fresnel lenses of the St. Abb's Head Lighthouse in Berwickshire, cutting between a shot looking inwards at the bulbs orbiting each other and a view out to sea; it ends with the descent into darkness, evoking a sense of loss"* (Introduction by Clarrie Wallis to Tacita Dean: *Recent Films and Other Works*, Tate Publishing 2001. p.11). The sound incorporates the rhythmic clunking of the revolving beacon, and ends with a crescendo of seagulls. The work was inspired by the true story of Donald Crowhurst, who in 1969 competed in the Sunday Times Golden Globe Race. Crowhurst, an amateur sailor, quickly encountered difficulty and decided to report false positions. After several months his boat was found abandoned out at sea, and Crowhurst had disappeared. The film is 14mins long.

Tacita Dean's primary medium is film. As the number of laboratories processing 16mm is decreasing, and companies are ceasing to manufacture film stock, this is an important time for the museum to understand and document the characteristics of film and its nuances before the technology and the technicians are lost. The research focused on the following:

– Developing a greater understanding of the technology used for the production of the elements commonly acquired for the preservation of 16mm film; including prints, inter-positives, inter-negatives and sound.
– Interviewing the artist and technical experts about the work and its technology.
– Documenting the details of the equipment and maintenance procedures needed to sustain the display of a film installation.
– Reflecting on the risk of the obsolescence of film technology.
– Developing recommendations for the long-term care and management of 16mm film installations.

Documentation of the work's components. It is critical to the management of this work to understand the 'genealogy' of components created for display or preservation purposes. To this end a system of documentation was developed which visually depicts the relationship of components to each other and core cataloguing details.

– This film installation is one of a number of works in Tate's Collection earmarked for cold storage. Tacita Dean's Disappearance at Sea was used as a pilot, to benchmark procedures to be implemented more widely for the cold storage of film.
– Tacita Dean's installation was displayed for over a year at Tate Modern from December 2005-March 2007. This enabled us to develop a more streamlined approach to the maintenance of film installations whilst on display.
– Understanding how these works are produced is essential to develop an appropriate conservation plan and to improve our ability to manage the production of prints for future display.
– The opportunity to interview the artist enabled us to understand and document what it is that makes film so important to her work and develop a 'statement of significance' which will guide our conservation efforts in the future.

Angela de la Cruz, **Larger than Life**

Tacita Dean, **Disappearance at Sea**
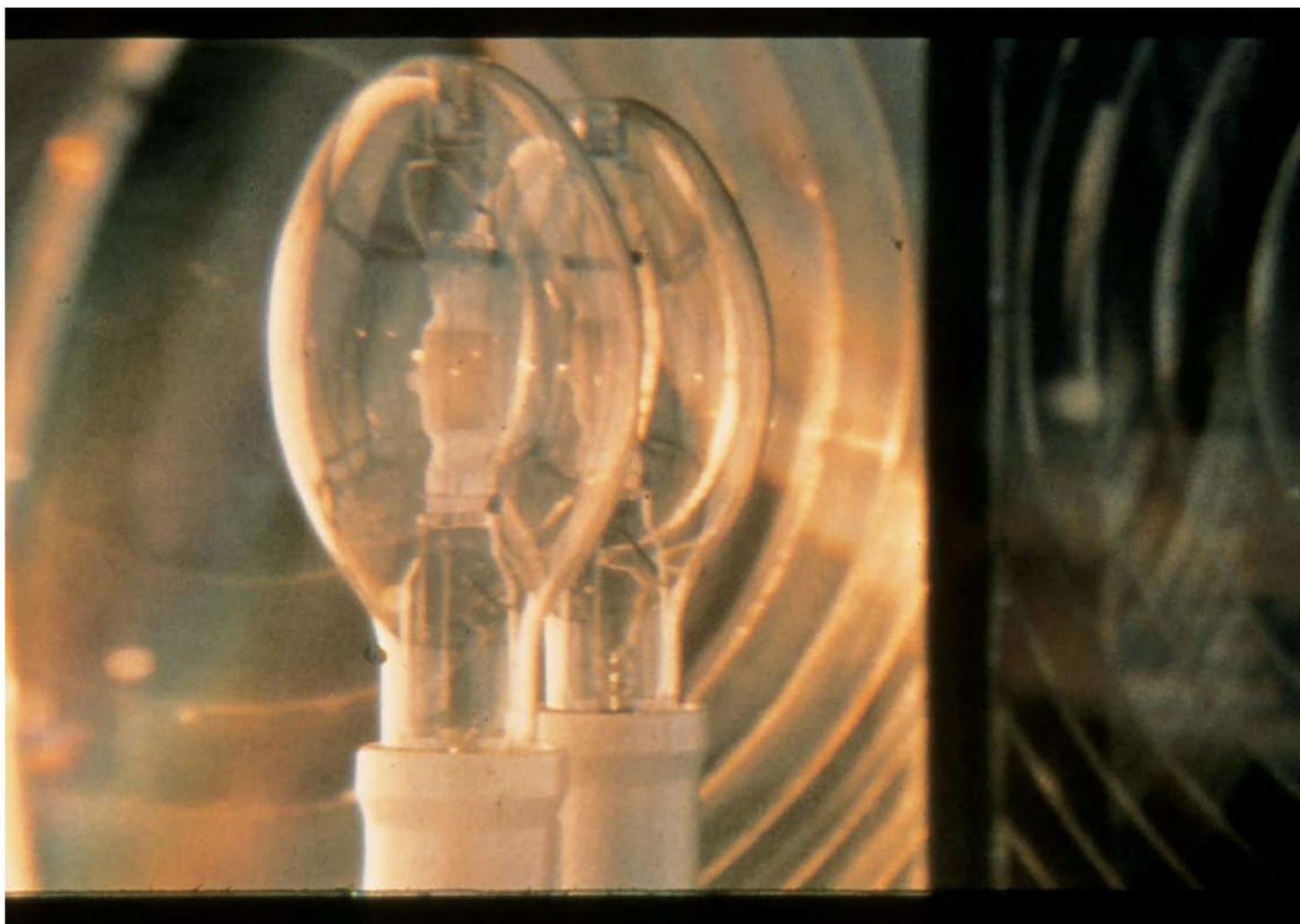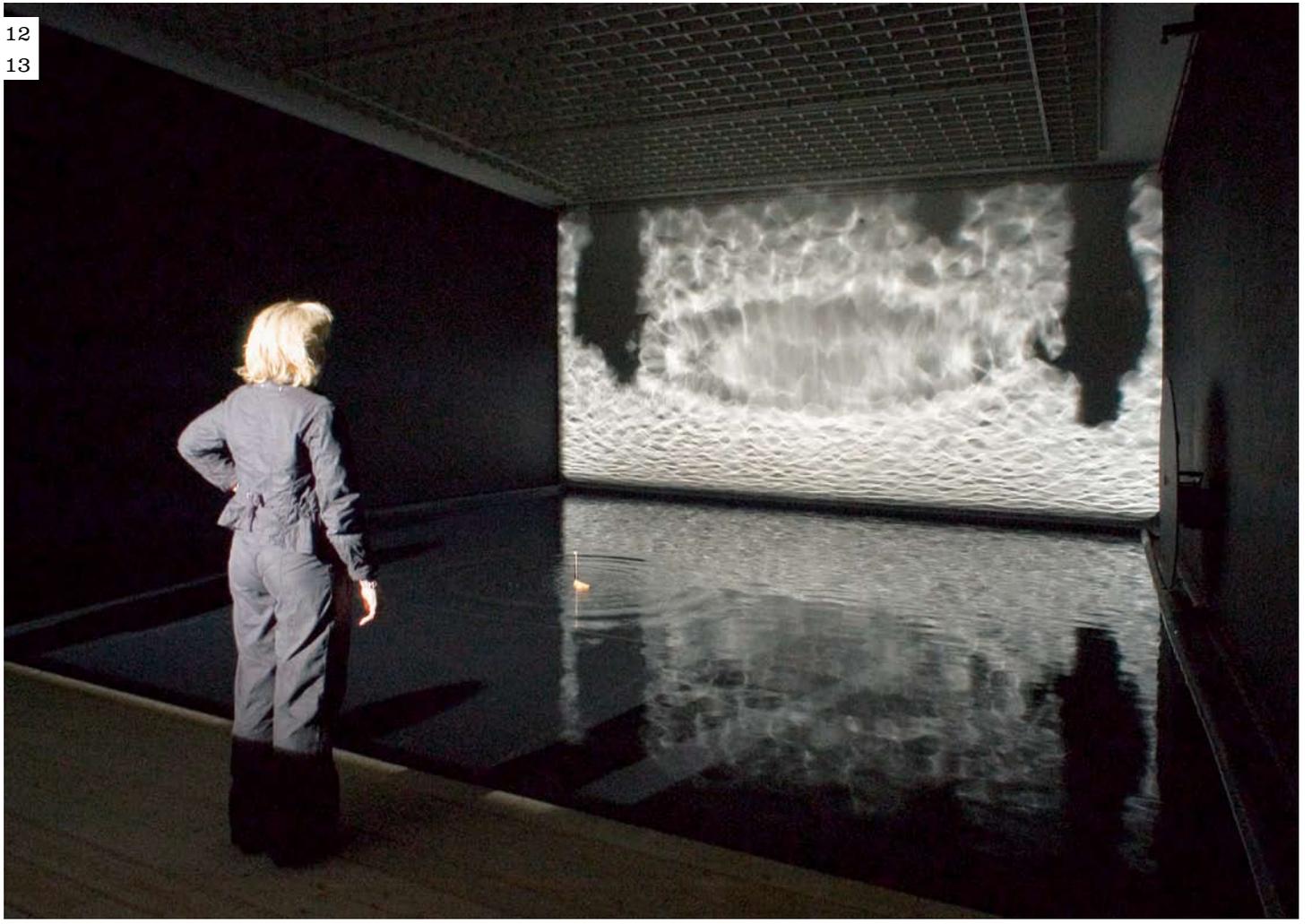
Olafur Eliasson, **Notion Motion**

Ger van Elk, **The wider the flatter**

Olafur Eliasson, **Notion Motion**, 2005

Museum Boijmans Van Beuningen; Elbrig de Groot, Jaap Guldemond

The installation, specially made for Museum Boijmans Van Beuningen, consists of three consecutive situations using water and light to visualise the reflection of the light on the water, linked to the movement of the gallery visitors. Connected by a long, elevated wooden walkway, the situations experiment with vibrations as a phenomenon that defines and reconfigures space. In his large-scale installation Eliasson explores the consequences of visitor movement within a museum space, thus drawing attention to the fact that no space is neutral or stable.

The Werkstatt / Büro Olafur Eliasson had been doing research for this project for more than a year. They prepared technical drawings and one employee came to the museum to lead the installation. **Notion Motion** was executed by a building company and the technical staff of the museum. The artist was present for the fine-tuning. The installation was acquired through the donation of a private collector, on the condition that it is shown every five years.

The project was focused mainly on the complexities of re-installation. Since **Notion Motion** is built anew every time with new materials, physical preservation has no relevance. But precise documentation, both of the material aspects and the concept are extremely important for the preservation of the work for the future. Two key aspects were unclear: whether the work was site-specific and, connected to this, the possibility of loans. The research was complicated by the fact that some of the people involved in the first installation left the museum before a proper registration or documentation of the work and its complexities could be made.

For the first time in Museum Boijmans Van Beuningen, documentation of the work was arranged thoroughly in various media, thanks to the experiences in the *Inside Installations* project so far. The different files about **Notion Motion** had to be found in almost ten locations in the museum. Upon investigating the sketches that were made during the installation and dismantling of **Notion Motion**, it became clear new construction drawings were needed. After interviewing the technicians who were involved with the first installation and after research in the documentation, an extensive questionnaire was sent to Eliasson and his Büro. An interview with Eliasson is scheduled as well. He would like to show one of the rooms of **Notion Motion** in a retrospective exhibition that will travel through the US in 2009. This means the questions of site-specifity and loan will have to be clarified in the near future.

The results of this case study are twofold: on the one hand this complex installation has become more manageable in the future, because of the precise documentation; on the other hand, the museum is still forced to rethink the ways information is gathered and stored.

A couple of key issues in preserving complex installations became apparent. At the moment of acquisition, the work is a 'hot topic'. When the first enthusiasm and some of the people involved have gone, a lot of the understanding of the work disappears, even though it might be documented.

The case emphasizes the changed conditions for preservation of a collection. It became very clear that models and new protocols to handle complex installations should be appropriate for the daily practice in museums or related institutions. Apart from this, it is important that there is a common responsibility in the museum for preservation and presentation issues.

The re-installation of a part of **Notion Motion** in the near future could be an important test to see whether the thorough documentation and registration of the work has succeeded and whether this case-study has resulted in making this complex installation more manageable.

Ger van Elk, **The wider the flatter**, 1972

Kröller-Müller Museum; Sanneke Stigter

This work consists of 10 identical chromogenic colour photographs mounted in aluminium strips in front of one another, each describing a wider angle from 90° in the rear to 180° in the front, which is flat. This triangular structure is horizontally positioned in a specific corner in front of the very same spot on the wall that is depicted in the photograph, generating a visual doubling. Because of discolouration and physical damage, the photographs were in bad condition and the artwork could no longer be displayed. The site-specificity of the artwork was questioned or actually prompted by the artist as well as the museum while discussing the case. Van Elk shows how a real angle in the corner of the museum is visually straightened out by the artwork, replacing reality by its depiction and at the same time transforming it. The idea of the artwork lies within the visual impact that is generated at the moment of perception. It is clear that the image must be in excellent condition in order to achieve the proper effect. The work was first created for the Van Abbemuseum. Then the photo showed the white painted textile covered walls the work was positioned in front of. The Kröller-Müller Museum acquired the work shortly after this show. The former director of the museum had chosen a new location in agreement with the artist. New photographs were made and replaced the old ones in 1973. A year later the work was lent out to the Stedelijk Museum Amsterdam and exhibited with a picture on the side explaining the context in the Kröller-Müller Museum. After the show the work got damaged. New prints from the old negative did not satisfy the artist and a new picture was made that was used to restore the artwork. Further loan requests were not granted any more. It was stated that the work was made for this specific site in the museum and thus could not be exhibited outside of this context.

What can be concluded from the artist's interview is that the specific wall that **The wider the flatter** is made for is irrelevant, but that it is the visual relation of the wall and the object that is essential to the artwork. This means that **The wider the flatter** can be characterized as 'site-related' rather than 'site-specific' because, to the artist, the work could be installed anywhere, as long as the photographs on the aluminium structure correspond to its surroundings. This means that the functionality of the artwork will not be damaged when the architectural setting changes as long as the photographs are changed to correspond with it.

The site is still there and it was decided not to consider a different location. Because the site had been repainted and the photographs were in such a bad condition that even after conservation they would never be able to generate the desired effect, a new photo was made for the work that was authorized by the artist. The photo was taken with a traditional technical camera, enlarged in an analogue way and printed on chromogenic paper, all similar to the original techniques. Matte paper was chosen, as the silkscreen pattern that characterized the original prints is no longer available. The new photographs are adhered in a reversible way on top of the old photographs of which the gelatine layers were first cleaned and consolidated. Only the most damaged photograph on the front strip is removed, as well as the one on the rear strip so that the original signature is saved. Because the photographic industry will eventually stop processing analogue photographs it was decided to make an extra set of chromogenic prints that are now authorized by the artist.

The final conservation treatment is designed around the essential visual balance between the image and reality that is so crucial for the experience of **The wider the flatter**, in combination with the history of the artwork and the intention of the artist.

Carlos Garaicoa,
Letter to the Censors, 2003

Tate; Tina Weidner

Letter to the Censors (Carta a los censores) inhabits a theatrically lit, red-carpeted space in the centre of which is an architectural model in the style of a classical Havana cinema from the 1930s. Small light boxes displaying black and white photographs of old Cuban cinemas surround the model. The titles of censored films, from around the world, are projected inside the cinema. The installation makes references that are both specific to Havana and global in their exploration of how countries censor their own production.

There were two main focuses to this case study. The first concerns the practical issues associated with making this complex and fragile mixed-media installation safely displayable in a busy public museum. The second explores the process by which a work such as this becomes integrated into a museum collection and the relationship and roles of the artist, conservator and the curator as they facilitate this process.

The practical problems that needed to be solved included finding a solution to the heat build-up produced by the video display equipment which was housed within a cavity in the roof of the cinema; upgrading the electrics so that lamps were accessible should they need to be changed; finding a way to display the model which enabled people to see the film titles without allowing them to get so close as to damage the model; and finding a way to document the figures before the detail of the modeling was lost due to the deterioration of the Plasticine. The fragility of the model means that any transport or display involves constant maintenance and numerous repairs; there were therefore many repairs to be carried out when the model arrived at Tate.

Resolving these issues was a time-consuming project for the Conservation Department at Tate. There were moments when it felt as if the conservation studio was an extension of the artist's studio and that we were more involved in production than the conservation of the work. This prompted us to ask – Was the work carried out really conservation? Should this be seen as an extension of preventative conservation practice? It this an example of the practice of the artist influencing the role of the conservator? These questions are explored in an on-line resource which documents the work carried out and the issues that it raised, using interviews with the artist, conservators and curators involved in the project. This is accessible via the project website.

This case study provided an opportunity to reflect and better understand the process by which a work produced in one context becomes a museum object, and the role that is played by those who facilitate this process. The case study broadened the perspective of the conservators involved in the project, challenging accepted notions of conservation and helping them to understand the artist's practice. The artist was extremely generous with his time and supportive of the case study. However he had mixed feelings about **Letter to the Censors** becoming a museum object; although he was happy that the installation would survive and continue to be displayable, he sometimes found it strange that it was no longer in his control. In the studio they jokingly call it the 'Mona Lisa of Havana' because of the degree to which the work has become a controlled and protected museum object.

Johan Grimonprez,
Inflight, 2000

Stedelijk Museum voor Actuele Kunst (S.M.A.K.);
Ann De Nys

For the 2000 work of art **Inflight**, Johan Grimonprez furnished two halls at the museum as an airport lounge. Within these spaces seating areas were created, paintings hung on the walls and sizeable palms brightened up the entire area. The visitors could stretch out and meanwhile enjoy a cup of coffee or a glass of water. The general public could watch films on two television screens, which they themselves had selected from the videotheque provided. This videotheque, consisting of 26 tapes, was compiled by the artist himself and included Hollywood blockbusters, foreign documentaries and commercial advertising ads. They all share a common topic: plane crashes, hijackings or kidnapping by aliens. Glossy magazines lie on the coffee tables, with safety-on-board cards and sick bags: three items you would normally expect to find on a plane but here they have an ironical twist. Thus, the **Inflight** magazine contains all kinds of information about hijackings. On the sick bags there is a pictogram of a plane crash and the safety-on-board cards provide information on how we should behave if kidnapped by aliens.

Originally, this work of art was selected because of the combination and diversity of its components, which create a complex entirety. We are concerned not only with the interaction demanded from the general public but also with a conceptual element such as the paintings, time-based media issues as well as the objects themselves. A first step consisted of the electronic media being digitalized and conserved. While documenting **Inflight**, in collaboration with the artist, it became clear that this installation is only one version of the (coordinating) work of art: the videotheque. Grimonprez is of the opinion that other versions of the videotheque could be screened by the S.M.A.K. Some versions closely resemble **Inflight** (lounge atmosphere), others were equipped with old-fashioned furniture and family photographs, or the video selection was significantly different. In this regard all the versions – created outside a S.M.A.K. context – have been extensively documented: the listing of the videos shown, ordering DVD versions of the films, scanning the visual material, collecting booklets which are part of the installation.

Each time the videotheque is shown, the artist adapts it. Variability is an important characteristic of this work of art; the content is determined as much by prevailing world politics or historical context, as by museum policy, the exhibition topic or museum architecture. When Grimonprez will no longer be able to re-install the work himself he suggests working in that case with the 'historical versions', of which documentation has been made. Another possibility is that curators make an interpretation, based on the documentation in the older versions.

Carlos Garaicoa, **Letter to the Censors**
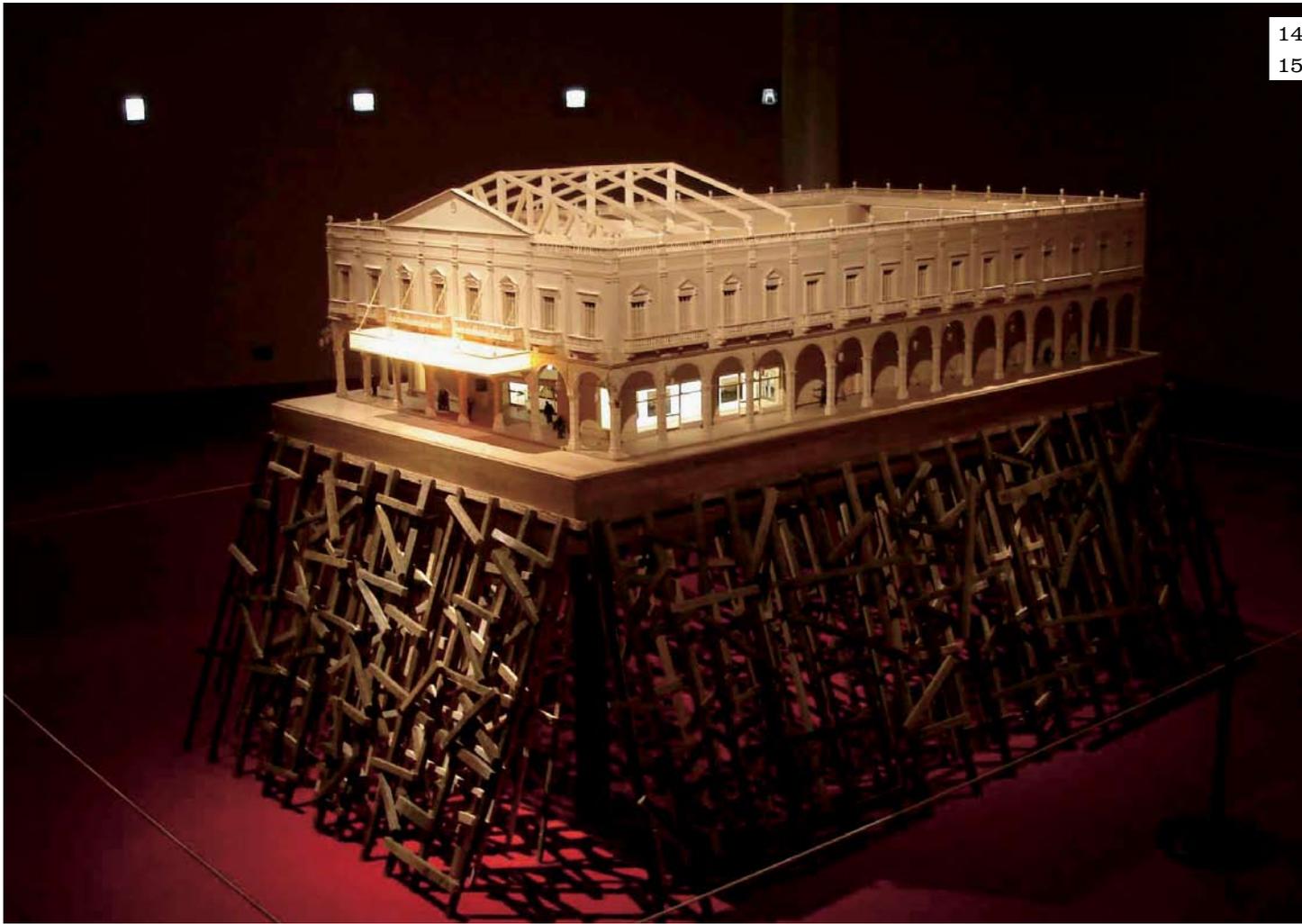
Johan Grimonprez, **Inflight**

Thomas Hirschhorn, **Doppelgarage**

Jenny Holzer, **Installation for Bilbao**

Thomas Hirschhorn, **Doppelgarage**, 2002

Pinakothek der Moderne;
Maike Grün

The artwork is a response to events before and after September 11, 2001. Hirschhorn made two walk-in units over an area of approximately 120 square metres with PVC flooring, cardboard wall covering, neon lights, numerous large-scale objects and several everyday items such as tools and books. The total number of objects in **Doppelgarage** comes to nearly 400. The artist deliberately used 'inferior' – that is, low-grade – materials such as adhesive tape as his means of artistic expression.

Research into the case study focused on two peculiarities of **Doppelgarage**: The huge number of objects that made up the installation, and the casual use of low-grade materials and their long-term problem of non-sustainability. An Installation Handbook was compiled. Together with the many photographs and video clips of the artwork, it provided a record of how the artwork was set up under the direction of the artist and his assistants. Since the arrangement and positioning of the individual objects are an integral part of the artistic statement, it was essential to have reliable documentation. For that reason, **Doppelgarage** was subject to a geodetic survey. A combination of laser scanning, photogrammetry and tachymetry was used to measure the complex geometry of the installation, thus providing every object in the artwork with fixed coordinates, depicted on floor and elevation plans. Immediately after setting-up was completed the conservators drew up an inventory with all the objects, their dimensions, the materials involved, their condition and other relevant information such as the manufacturers' trademarks. They fleshed out the inventory with extensive photographic documentation. These data ensured that no matter what changes might occur – through damage, loss or the effects of ageing – these could be identified. Storing away **Doppelgarage** posed a major challenge: the volume of the 24 (very large) packing crates had to be reduced to a minimum. A CAD (computer aided design) program proved a great help in representing every single crate according to scale and in finding space-saving alternatives for stacking purposes.

Thomas Hirschhorn was interviewed about his working methods, choice of materials, his attitude to the geodetic measurement of **Doppelgarage** and what role the ensuing plans might play in any future setting-up. Finally, he was asked what he thought of conserving **Doppelgarage** in a museum and the effects of the ageing process on the objects in the installation.

There is one example in particular that illustrates the problematic issue of conserving the installation: Hirschhorn made heavy use of adhesive tape, applying it, for instance, as a constructive element and surfacing agent for numerous objects or as a moulding mass to form lamellae of oversized mushrooms. It is common knowledge that adhesive tape is not very durable. Hirschhorn's solution to this problem is very laid back. He argues that 'the tape should be replaced'. In the long term this would mean having to renew most parts of the installation. When this need arises, the inventory, the photo documentation and the interviews with the artist will provide a sound basis for future discussion of conservation issues. The work on the case study made it possible for conservators to draw up detailed and accurate documentation on **Doppelgarage**. It became clear that this was an indispensable step towards preserving the artwork for future generations. Cooperation with the artist himself enabled us to gather important information that contributes to this objective. The geodetic survey proved to be invaluable in establishing conclusively the spatial arrangement. This, together with the installation handbook and inventory, provides someone unfamiliar with the work with a clear basis for conserving and reinstalling the artwork at some point in the future.

Jenny Holzer, **Installation for Bilbao**, 1997

Guggenheim Museum; Silvia Lindner

The piece was commissioned by Bilbao Guggenheim Museum directly from Jenny Holzer. It is placed in the Museum's Boot gallery (101), an interactive space that invites visitors to move around freely. The gallery's curvy walls, the floor and the ceiling have been coated with a shiny, mirror-like finish, where the nine thirteen-metre high LED (Lighting Emitting Device) columns are reflected. The columns consist of nine double-sided steel girders covered with a red and blue LED panel on the front and back sides respectively. The texts come up from the bottom and display a combination of letters, backgrounds, shapes, sequence of the texts, rhythm, cycles, and directions managed by the software. The texts are a variation of the Arno text and show phrases in Basque, Spanish and English.

The technical and conceptual complexity of the piece brings conservation concerns and obstacles in the short term. The foundation of this research is: the use of elements that are obsolete nowadays, the continuous technological development of equipment and programmes, both electronics and informatics, and an exhaustive study of the piece's concept and genesis.

In order to investigate, tackle, solve and prevent present and future conservation problems, the study was carried out in close collaboration with the artist and her working team. The artist's input together with the collaboration of a multi-disciplinary studio working team coordinated by the Guggenheim Bilbao Museum have ensured the success of the project. Their contributions to the project have enormously assisted in establishing a working methodology which details criteria and procedures and assures the future conservation of the piece. Jenny Holzer's contribution and the collaboration of her working team have been crucial in tackling the issue of the conservation of the piece. Being a piece mainly composed of technological elements (electronics and informatics) it was deemed necessary to allocate time to look for constant updating in order to solve issues of obsolescence. A thorough knowledge of the science involved was essential in understanding the piece and to determining the action strategy to adopt. The importance given to the piece's language and perception issues, (as opposed to the manufacturing technique), has assisted in the definition of the installation's exhibition and conservation procedures.

A thorough understanding of the essence of the piece was possible thanks to the identification of the technical elements and aesthetic concepts that the artist deems essential to preserve the integrity of the piece, i.e. those that are immovable and those that are irrelevant and eventually replaceable.

The specific actions carried out during the research were as follows:

– Establishment and management of: procedures, manuals and forms regarding maintenance, incidents and interventions.
– Technical interventions due to electronic / informatics failure, replacement of LED panels, aging process of components, specific deterioration patterns and maintenance.
– Study and analysis of the obsolete components. Acquisition of material (red LEDs) and replacement (blue LEDs).
– Improvements of the stenographical finishes.
– Establishing criteria and procedures (curatorial, technical) that support the future exhibition of the piece.

The research results have been documented in various ways: texts, photography, video, Betacam SP, drawings, animations, and several electronic folders. The speed of technological evolution makes continuous study and updating an absolute necessity.

Suchan Kinoshita, **Untitled**, 2000

Bonnefantenmuseum; Ineke Kleijn

Untitled, 2000, consists of a 'Japanese house' with four rooms, with a total floor space of 3.71 x 9.15 metres. The floorboards are made of pallets, which are visible in one room, covered with wood in two rooms and carpeted with artificial grass in the fourth room. The outside is constructed from traditional Japanese sliding doors, covered with Shoji rice paper. Each room has a specific set-up and two rooms are accessible to the public. Four different sounds play an important role in this work. The 'house' is hidden from view by a wall constructed of styrofoam sheets kept in balance with polyurethane foam and wooden skewers. The work was originally created for The Ginza Artspace in Tokyo. The change in context – shipping it from one continent to another – was one of the research issues dealt with through careful comparison. The work has been exhibited in the Bonnefantenmuseum four times, with and without the attendance of the artist, and in different rooms. The last installation was set up as part of the exhibition *Inside Installations*, for which the manual written at the time was referred to by the installation team. For the documentation, use was also made of archive material belonging to the artist. During the process, it soon became clear that 'practical' matters and 'content' matters were closely interwoven, and had a great influence on the decisions to be made.

A description of the total construction process has been made, supported by visual material and plans. This manual has been tested by a team and the result approved by the artist.

The process of installing the items in the 'house altar' in the first room (see illustration) by the artist, was recorded in photographs, worked out in a step-by-step plan and tested. A video recording was made of the construction of the styrofoam wall by the artist. She was interviewed about the performance with the 'typewriter' and a 'score' was developed. Besides the practical support, the artist also developed a vision on restoration.

By comparison with previous installations and discussion with the artist, an 'ideal' set-up could be distilled. Kinoshita felt that a major role was played not so much by the dimensions of the work, but by its positioning in the space and by the integration of a styrofoam wall setting. There appeared to be an infinite variety of set-up possibilities, of which three examples were drawn up in plans. The artist adheres to the Japanese tradition that the replacement of damaged paper should be visible. A stock of different sorts of paper has been produced and printed with texts provided by the artist. The order of use has been established. The position of the doors (open/ shut) has been determined. All items have been photographed to provide a reference in the case of replace-ment. Wherever possible, visual material has been scanned. 'Weak' links in the installation are the fridge, the record player and the TV monitor. These are old models that will be difficult to replace. The 'typewriter' and the Venetian blinds (with motor) that are fixed in the styrofoam wall, appear to be maintenance-sensitive. Reserve Venetian blinds will be made.

Four sound elements are included in the installation, which are repeated over and over again. An LP has got stuck on an old record player, and plays a permanent, indefinable sound. There is a monitor with visual material and the sound of a voice. And there is a pendulum clock and an old fridge that turns on and off with hums and vibrations. In agreement with the artist, the sound of the fridge has been recorded and is now heard digitally. The audio equipment has been placed out of sight in the original fridge.

The packing requirements for the whole installation have been recorded and adjusted.

Suchan Kinoshita, **Voorstelling**, 1997

Stedelijk Museum voor Actuele Kunst (S.M.A.K.); Fabiana Cangia and Stijn Van De Vyver

Voorstelling consists of an enclosed space divided into two equal portions. In the wall between the two parts is an opening: the window. In one of the two areas wooden benches have been arranged, on to which programme brochures have been hung. This is the area called 'public space'. The other space contains items used by a performer, whom Kinoshita calls the 'props manager', during the museum opening hours. This is the manager's space. Both parts are accessible to the public through doors with an opening. Because the installation has been positioned in the museum halls the visitors do not always see the link between the two spaces immediately.

The title, **Voorstelling** (performance), makes one think of a theatre performance. Certain elements in the installation reinforce that link (the benches, the viewing window ...). In contrast to a theatre performance (i.e. the performance associated with it) this work has no clear start or finish and the public's role also remains undefined. In addition, the performance spreads out across the various elements within the installation: space, objects, performer and the public. In the same way, narrative lines intersect each other at multiple levels creating permanently different perspectives.

The principal question in this study consisted of determining how the museum could deal with this installation work of art in a collection set-up. Without the performances this work is incomplete. Retaining the objects was an essential part of the concept – these are used frequently by the performer and some of them also by the public.

A few basic guidelines for carrying out the performance already existed. These were further developed through interaction between Kinoshita and the researcher–performer. The element of coincidence is of major significance. The artist worked out the score as a game of cards which permits the dif-ferent phases of the performance to be composed in an ad hoc fashion. All the actions in this game were charted in a structured way by the researcher–performer. This manual should help future performers to act out their part. Certain understandings were also reached regarding the props manager's profile and how he or she should deal with the public. A rehearsal plan and film should equally be a valuable support to future performers. The work of art can also function without the presence of the performer: in that case a 'still' – an intermission image – will be shown which has been set up in advance by the 'property manager'.

The installation is set out in detail on a construction plan. All items are accurately documented. In this way there is a description of the condition of each item and adapted packaging designed, such that the objects can be optimally conserved and protected from damage.

A comprehensive investigation into the materials and techniques used was also undertaken. In consultation with the artist it was decided which items could be restored, replaced or reproduced. An example of possible reproduc-tion is the polyurethane foam curtain: this fragile object was used during the performances and there is a real risk of damage. Additionally, it is a material which quickly degrades. An instruction video was made with Kinoshita to show how this curtain could be reproduced.

Guidelines were drawn up for occasions when the work of art might be reconstructed.

Suchan Kinoshita, **Untitled**

Suchan Kinoshita, **Voorstelling**

Joseph Kosuth, **Glass (one and three)**

Greg Lynn & Fabián Marcaccio, **The Predator**

Joseph Kosuth, **Glass (one and three)**, 1965

Kröller-Müller Museum; Sanneke Stigter

In this work the matter 'glass' is depicted by the material itself in the form of a sheet of glass, by language in the form the definition of glass taken from an English-Dutch dictionary and by image in the form of a photograph of the very glass plate in the installation. When the work was realized for the first owner in 1977 the photograph of the glass showed the same background as the actual scene where the whole work was installed, generating a visual connection to the site. This site-related characteristic was lost when the work was acquired by the Kröller-Müller Museum where the original photograph continued to be used. The work is one of a series the artist calls 'object definitions', all dated 1965. Kosuth explores the nature of art while he seeks to 'de-objectify' the object in art. The artwork is created by instructions on a certificate provided by the artist. The question is how to interpret and follow these guidelines. It was claimed that it would be in accordance with the artist's idea to replace the photograph of the object with a new one made at the site where the work would be installed. This practice was looked at in more detail because the necessity of replacement is not defined by the certificate. The certificate was analysed and compared with the curatorial management of similar work. This has led not only to a better understanding of the work, but to a rectification of the title as well. The work had always been referred to as 'One and three glass' analogous to similar work such as 'One and three chair'. The proper name for this work however turned out to be **Glass (one and three)**.

Interviews with the artist and the artist's writings that clarify the need for replacement of the photograph all date from after 1965 but before the first document on **Glass (one and three)** from 1973. When it was first realized, Kosuth obviously had begun to use glass for a reason. Glass served as an object as transparent as possible, similar to how a site-related photograph renders an image as transparent as possible. This makes the photograph less of an object by itself and more of an image – the only function the photograph needs to fulfil in an 'object definition'. Although Kosuth might have refined his ideas over time, from the results of the research it could be concluded that it would indeed be best practice to replace the photograph with a new one that matches the surroundings of the site where the work would be installed. This new practice of managing the artwork challenges the practice of the museums' documentation system because one of the three constituents of **Glass (one and three)**, the photograph, is thus not really part of the work when it is not installed, whereas it is a tangible part that needs storage space. This 'inactive part' can be kept as a record of the history of the work and will serve as a document. It can become an active part again when the same site is used that is depicted in the photograph. Considering the fact that the aspect of the work is determined by its surroundings, could the site be considered a (temporary) part of the work as well?
A conceptual work based on a certificate makes the conservator reflect upon his own practice, especially with regard to conservation ethics based on the idea of originality and authenticity. The aim of renewing the photograph in an 'object definition' by Joseph Kosuth however is the creation of an image of the object as transparent to its surroundings as possible, so that it can de-objectify itself as a photograph in favour of the depiction of the object through this medium. The resulting 'site-related' character could be regarded as a by-product of the visual properties of the photograph. Site-specificity is not the objective of the artwork but the result of good practice managing **Glass (one and three)**.

Greg Lynn & Fabián Marcaccio, **The Predator**, 1999

Museum für Moderne Kunst Frankfurt (MMK); Ulrich Lang

Inspired by the movie *The Predator* Fabian Marcaccio took his paintings and the ideas sparked by the film into a collaboration with the architect Greg Lynn. Lynn used a 3-D modelling programme to develop the final shape. The panels are intended to evoke the camouflage of the jungle creature in the film, and the shape relates to that of a cave. Technical details regarding the material and construction of the sculpture were determined by the standards and facilities available at the time for vacuum-forming.

The Predator has been described as 'a voluptuous painting/architecture mutant hybrid' (Beal Centre for Art and Technology, CA). The current MMK set-up includes 235 transparent polyester panels of various dimensions; synthetic foil, partly printed; silicone; oil-colour and 12 aluminium pipes which act as an armature, to provide strength and support to the sculpture. The Polyester panels are put together using cable ties and attached to the armature. Partly printed synthetic foil is attached to the interior of various panels. These prints started out as paintings by Marcaccio which were then scanned and printed on to the foil. These prints contrast with the impasto on the exterior surfaces, created using a mix of thick resin, oil paint and silicone. The spectator's experience is one of constant change between surfaces and panels which are convex or concave, colourless or colourful, transparent or opaque, smooth or impasto, open or closed. The artist's intention was to keep the spectator's brain and eye alert. The visitor should ideally be able to walk inside the sculpture to experience the three-dimensional, ever shifting layers and blurred boundaries of **The Predator**.

When the sculpture was donated to the MMK by the artists, very little information was given for the installation. Fabian Marcaccio came to the museum after **The Predator** was installed in order to repair some damage caused by transportation. Whilst working with the artist a number of details regarding the installation became clear: the need for an armature for example, and the importance of maintaining flexibility between the panels. When dismantling the sculpture some cable ties and silicone needs to be cut, and this raises issues about how the panels should be stored and reassembled in the future. Even though the sculpture has a number of elements and by now a clear set-up manual (installation handbook) every installation will alter the sculpture in some way because fixtures need to be cut, new holes have to be drilled and dyed silicone is added.

The case study research focused on:
– gaining an understanding of the idea behind the work and how it was transformed into the physical piece, including an interview with the artist.
– types and causes of damage.
– creating an installation handbook to minimize changes when installing and dismantling the work including details for storage.
– research to find the most appropriate way to record the installation.
– finding a way to deal with additions made by the artist and any newly integrated pieces.

Gustav Metzger,
Liquid Crystal Environment,
1965-66 (Remake 2005)
Tate; Tina Weidner

The installation **Liquid Crystal Environment** has its origins in a series of performances conducted in the early 1960s, starting with an event at the Theatre Royal in Stratford in the UK called 'Notes on the chemical revolution in art' in which Metzger back-projected three 'slides' which contained a thin film of liquid crystal. This idea developed and in 1966 further liquid crystal projections were shown as the backdrop to a concert by *The Who, Cream and The Move* at the Roundhouse in London. The performance at the Roundhouse required a team of people to operate 12 projectors. *"Gustav would heat the slide up with a blowtorch until it reached the high temperature end of its colour range. He would then put the slide in the projector skeleton frame and turn/ adjust the polarising filter to draw out the various visual landscapes that unfold as the slide cools down to the low temperature end of its visual range. Once the slide had cooled down and no further change was available, it would be replaced with a freshly blowtorched version and the show would continue."*
The creation of the installation form of the work was initiated for the exhibition *'Summer of Love'* at Tate Liverpool in 2005. Gustav Metzger worked with Adrian Fogarty (a freelance electronics expert who works closely with a number of artists in the realisation of their work) to create an installation which could run without the need for people to be on hand to manipulate and 'perform' the work. The aim was to mimic the effect of the earlier performances from the 1960s. The installation was acquired by Tate in 2006.

The primary focus of this case study was the technology used in the realisation of the work. The technology used to create the installation version was similar to that used in the performances, with some essential additions. The psychedelic effects of this work result from the physical characteristics of temperature sensitive liquid crystals, placed as a thin film between the glass of a square slide mount, and the optical phenomenon of Newton's rings. The variables which provide the range of effects visible in the work are: the characteristics of the liquid crystal film, the degree of heat applied, the duration of the application of heat and finally the direction and speed of the polarising filters. In the installation version, the heat source is provided by Kodak SAV 2050 slide projectors and the work was made independent of 'performers' by a custom built control device designed by Adrian Fogarty. The control device alters the amount of current going to the lamp, the speed of the fan and the movement (timing and speed) of the polarising filters.
The main task of the case study was to develop an in-depth technical understanding of the work and its requirements for continued display. Working closely with Adrian Fogarty, detailed documentation of the work has been produced, including a video showing maintenance procedures. This documentation and the knowledge acquired about the work will enable it to be installed in the future, independent of the artist and the fabricator. This process has provided an invaluable insight into the creation of this work and its development from the early performances.

In addition to the technical study of this artwork, this case study also considers questions about the status of a work that has been repurposed as a museum installation forty years after its inception. As interest increases in these pieces from the 60s and 70s, it has become more common to see reconstructions enter into museums and private collections. Lying somewhere between performance and installation, this work raises challenging questions regarding notions of authenticity.

Bruce Nauman,
MAPPING THE STUDIO II with color shift, flip, flop & flip/flop (Fat Chance John Cage), 2001
Tate; Pip Laurenson

The scale of **MAPPING THE STUDIO II with colour shift, flip, flop, & flip/flop (Fat Chance John Cage)** is daunting in terms of the dimensions of the room, the size of the images, and also its duration, which is 5 hours and 45 minutes per channel, making a total of approximately 42 hours of footage. The space in which this work was installed at Tate Modern was 19.44 meters by 13.22 meters. This loosely mirrors the dimensions of Nauman's own studio. The duration of the work makes it almost impossible for the visitor to experience the entire work, and in this sense it has a sculptural quality, in that it is 'just there'.
The first thing the visitor becomes aware of, upon approaching the installation, is the sound. The sound is far louder than one would expect, as it is not simply the ambient sound captured in one location but the combination of the sound captured at all 7 locations. As one enters the space this sound and the scale of the images creates an immersive environment, compounded by the subdued tones of the images captured with the night vision mode of the camera. The images as captured have no colour, only a greenish hue, but colour filters were applied when the material had been compiled, at the same time as the horizontal and vertical flips and flops were created.
The footage was captured on different nights, in seven different locations within the studio. Nauman would set the camera up and leave it running for an hour until the tape ran out. The first few moments of each hour are marked by the sound of Nauman leaving the room. The camera captures discarded works, an old armchair and the cat and mice which have infested the studio.

This case study and its associated e-learning package (available via the project web site) provided the opportunity to make transparent the process of acquiring and installing a major time-based media installation. Time-based media installations require a pro-active approach to their preservation. The web site takes the visitor through the work carried out, to produce preservation masters of the video and ensure that we understand what it is we are trying to preserve, and how the work is installed. The case study offered an opportunity to interview the artist and the technician so that we might understand the parameters of the work. From these interviews it became clear that three things were critical; its scale, the sound levels and its digital texture. Understanding these things enabled us to construct an appropriate conservation plan which included exploring ways of accurately recording the sound.

The on-line e-learning resource proved to be enormously popular, demonstrating a large public appetite for this type of information from behind the scenes of the museum. This was the first time Time-based Media Conservation had collaborated with Digital Programmes on this type of project, and its success has led to further opportunities to develop on-line content exploring the presentation and preservation of installation art.
As with all time-based media installations, it is only possible to experience these works when they are installed. The documentation of the sound, and the creation of an accessible on-line record which conveys a sense of the installation for times when it is not installed, is an aspect of documentation which we began to consider in this case study and continue to develop at Tate.

Gustav Metzger, **Liquid Crystal Environment**

Bruce Nauman, **MAPPING THE STUDIO II with color shift, flip,
flop & flip/flop (Fat Chance John Cage)**
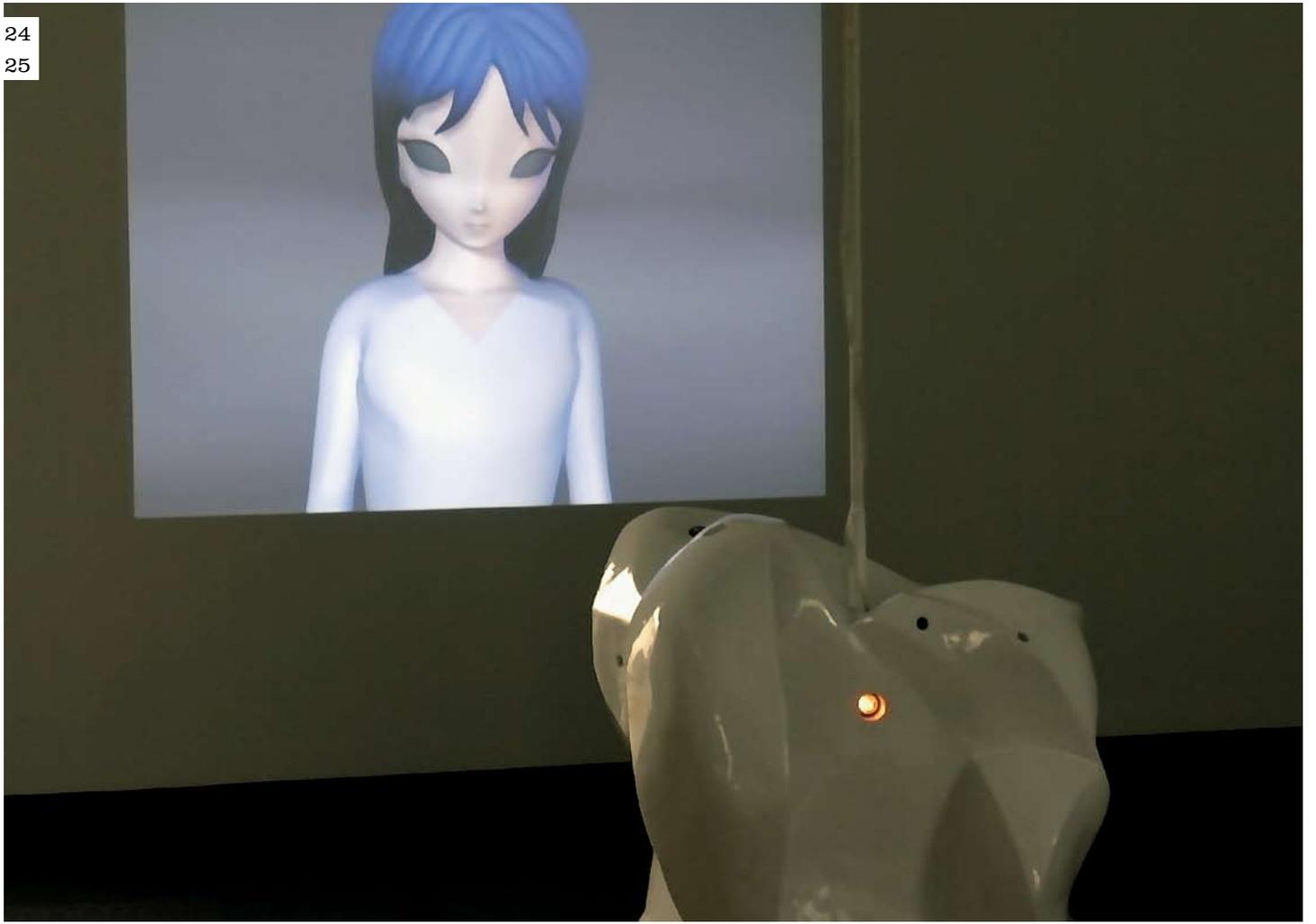
Pierre Huyghe, **Two Minutes Out of Time** (video projected by robot)
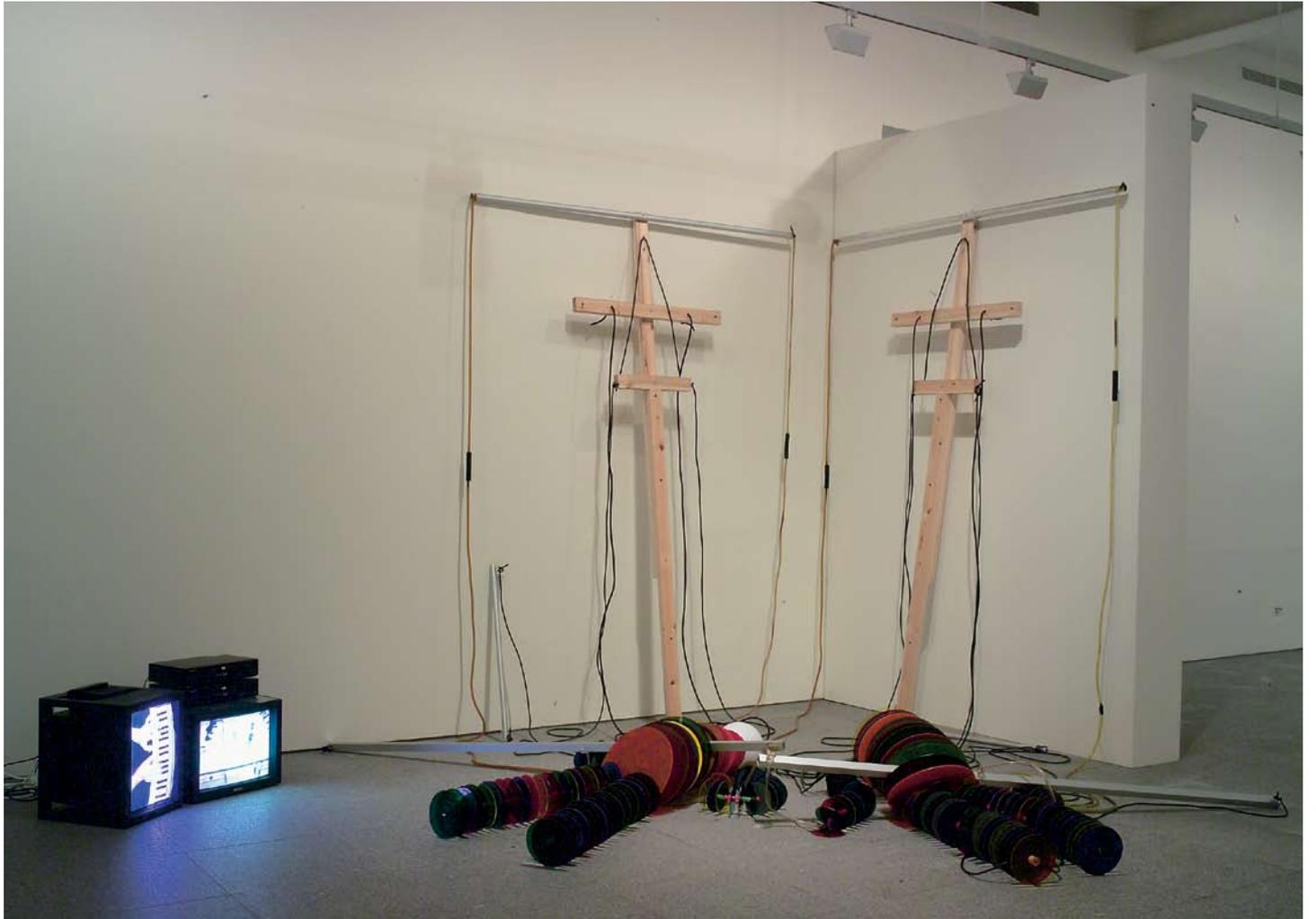
Dennis Oppenheim, **Circle Puppets**

No Ghost Just a Shell, 1999-2002
Initiated by Pierre Huyghe & Philippe Parreno,
Van Abbemuseum; Christiane Berndes

In 2002, the Van Abbemuseum bought an exhibition consisting of 28 works by 18 different artists as part of the project **No Ghost Just a Shell**. Central to this project was a virtual character made for the Japanese manga animation industry, the rights to which were bought by the French artists Pierre Huyghe and Philippe Parreno in 1999. They gave it the name *AnnLee* and let it tell its own life story. AnnLee was given a voice, a 3D form, a memory, a history, an identity. Next, Huyghe and Parreno invited other artists to use AnnLee in their own work, free of copyright, and to fill the empty shell with stories and ideas. AnnLee popped up in animation, posters, paintings, an installation, a magazine, a book and a sound work. In 2002, Huyghe and Parreno concluded the project by transferring the copyright to AnnLee to herself, giving her ownership of her own identity and making it impossible for her to be further commercialised.

The entire project was shown at the Van Abbemuseum in the exhibition 'OVER WIJ/ABOUT WE', which opened in January 2003. Pierre Huyghe and Philippe Parreno were invited to suggest the staging for the presentation, part of which featured a robot that moved through the room projecting videos on to the walls.

What does it mean for a museum to purchase such a group exhibition? What are the possibilities for showing the works and what is the impact of such possibilities on the significance of the project itself? To begin searching for answers, the project was set up again in 2005 in a series of displays. Between April 2005 and January 2006, a total of 20 works were presented in three different 'episodes'. The third and final episode contained the robot-aided projections. Unfortunately, however, reprogramming the robot for a different exhibition space within the available time and budget proved impossible, so it was given a fixed position from where it projected two videos. Others were shown via wall-mounted projectors.

Pierre Huyghe and Philippe Parreno are interested in the development of relationships, networks and processes. **No Ghost Just a Shell** is a collective project in which the figure of AnnLee infiltrates the work of other artists, authors and art historians. The project plays with concepts such as authenticity, originality and copyright in an age in which the author is increasingly disappearing into the background. Within the walls of the museum (the domain of perception and interpretation), the project develops itself still further. New networks and relationships are formed, new people are drawn in, and new questions are asked. The initiators, Huyghe and Parreno, have withdrawn, leaving the 'maintenance' of the project to the museum, which is only now slowly beginning to discover what that actually means.

Dennis Oppenheim, Circle Puppets, 1994
Museo Nacional Centro de Arte Reina Sofía; Arianne Vanrell

The installation occupies a corner in a space of about 5 metres by 4 metres depending on the space available in each location, and is made up of various materials including two puppets made of methacrylate pieces, metal cords, plastic balls, metal tubes, pieces of wood, rubber cords, two TV monitors and two DVD players showing the puppets in action. It was installed with the help of the artist, as this was the first time it had been exhibited at the MNCARS. The piece presents a play between the present and the past and the transmission of energy through actions. With **Circle puppets**, the puppets are the testimony to past actions.

For Oppenheim the support was not an important factor in the identity of the work and he considered the TV monitors and DVD players as tools, the originals of which do not have to be preserved.
The video elements were composed of two VHS videos which had been converted to DVDs because the images were of better quality and it was easier to show his work on them.
Circle puppets comprises different elements of different materials; there are a number of smaller pieces that form a whole and each piece has its own significance as a unique element. Oppenheim likes the idea of the substitution of some elements, as long as the substitution is only the response to the natural ageing process of some materials. To effect these substitutions appropriately, it is necessary to know perfectly each piece of the whole and the whole itself. To that end, there is no doubt of the importance of a good registration and documentation programme, updated regularly to increase its effectiveness.
Several subjective aspects are difficult to measure and evaluate. Among these variables, we can point out the control of sound, brightness, or more intangible issues like different exhibition spaces.
The opportunity to work with Oppenheim in the mounting of all the installations in our collection gave us the best information possible to achieve a well-arranged project. During the process of mounting we could obtain a lot of information and understand many aspects of the process of creation. Also it was interesting to see how he reacted to specific questions about the conservation of his works and their meaning, and how his ideas about conservation had changed over time. This is where documentation shows its real importance, not only as a registration exercise but as a tool for further reinstallations.
During the installation process we learnt more and in greater depth about his work, his philosophy of life, and the evolution of his work from Land Art to Installations. Working with Oppenheim, we realized the importance of the meaning vs. the aesthetic issues.
Each installation has its own considerations, problems and solutions, so the important thing is to have a good management system and a good working protocol. We have to prioritise the information that we will actually need and learn how to describe it more specifically. We have to recover all the essential information without spending too much time on documentation that may not be useful or easy to consult.

As we became more involved in his philosophy and in his work, Dennis Oppenheim was more concerned about conservation than he was at the beginning of the installation project.
During the case studies we focused our points of view, and learned to identify our goals, making it easier to determine the importance of each part of an installation and the right and simple way of transmitting the message.

Nam June Paik,
One Candle, 1988

Museum für Moderne Kunst Frankfurt (MMK);
Ulrich Lang

When the MMK opened in 1991 a number of artists were invited to install their works in the museum. Nam June Paik chose the smallest gallery to install the closed-circuit video installation **One Candle**. As one gets closer to the candle it begins to flicker. It then becomes apparent that the electronic images projected on the three surrounding walls are related to the candle. Paik gave instructions for the display, and his assistant Jochen Saueracker installed it with the help of museum staff. The first installation consisted of: A burning candle on a speaker tripod, a video camera on a camera tripod, one control monitor, a video distribution amplifier, one transformer, 6 cathode ray tube (CRT) projectors and various cables and plugs.

The image from the video camera is not stored on any form of record. The idea of this artwork is the actual burning candle and its projection on the wall. It is a feature of Paik's work that he manipulated the technology he used. In this case because the CTR projectors create their image using three separate phosphor guns of red, green and blue (RGB), Paik was able to create this splintered effect. The video camera is filming the flame of the candle and this image is relayed to the six projectors. It is important to have a central wall with two projections above each other that together create a white area in the middle. Candle and camera should be central elements and visible. The projectors are not hidden in the room and therefore have a sculptural presence.

The piece has now been on display for 16 years (more than 40,000 hours). After five years the maintenance and repair costs of equipment supplied by Paik became too costly. With the consent of the artist and the help of Jochen Saueracker the artwork was re-installed with new CRT projectors. Exhibition copies are installed by Saueracker when it goes on loan, using different equipment. By changing the equipment the experience of the artwork has changed. These changes are noticed by anyone who knew the artwork from before. The new projectors are brighter, the images are sharper and bigger and the colours are more saturated and have a different light temperature. Also the size and angle of the projected images has changed. Even the sound of the ventilation system for the projectors has become obvious.

The case study raised a number of theoretical and practical questions:

– Conservators sought to establish whether the first set of projectors could be serviced despite the fact that Advent and General Electrics ceased their production in the early 1980s. The skills and opportunities to carry out these kinds of repairs become rare even though all technical information and circuit diagrams were recovered.

– With the help of all available spare parts one projector of each kind could be re-constructed, to document and measure the quality of the images (see 'Documentation of light' p.52).

– Different projector technologies were compared. Measurements using a spectrophotometer were taken of each projection. The result proved that none of today's technology matched the quality created by CRT projectors.

When modifications within different generations of CRT projectors already led to dramatic changes in the appearance of the installation, what acceptable alternatives can be found for the future, given the imminent end of CRT technology? Even if Paik seemed to be unconcerned about technical progress it is unclear to what extent changes are acceptable. Should these changes be acknowledged in the dating of the work or is this technical progress part of it? What is the role of the conservator working with retired experts e.g. video technicians? How can all this personalised experience be documented and made accessible to future generations?

Panamarenko,
The Aeromodeller OO-PL, 1969-71

Stedelijk Museum voor Actuele Kunst (S.M.A.K.);
Frederika Huys

The Belgian artist Panamarenko has a powerful fascination for aviation and theories concerning aerodynamics. Since the mid-60s he has created his own 'air ships'. A leading example is **The Aeromodeller OO-PL**. This Zeppelin consists of a cigar-shaped balloon, 28 metres long and 6 metres in diameter, made from panels of PVC film, glued together. The silver-sprayed cradle is composed of numerous pieces of plaited cane. There are four servo-engines on the roof and propeller. The balloon and the cradle are linked by means of ropes. Two heat-resistant suits are also included. In 1971 Panamarenko actually undertook an attempt to fly but it was ruined by the strong wind. The only way to avoid losing the Zeppelin was to cut an opening through which the hydrogen gas inside the balloon could escape. The work of art was later shown at Documenta V – from that time on filled with air. It has been part of the S.M.A.K. collection since 1980.

In parallel with the *Inside Installations* project, both the balloon and the basket have undergone extensive restoration. The various PVC-foil panels from which the balloon is constructed were glued together once more. Degraded pieces of plastic were replaced where necessary. The functionality aspect is, after all, a major characteristic of **The Aeromodeller OO-PL**. In order to exhibit it as a work of art, this exceptionally large balloon needs to be seen in inflated mode, which has certain implications. Furthermore, present-day materials have been used, such as PVC-film, synthetic rubber adhesives, electronic components and silver-sprayed cane. The way in which these extremely large art installations need to be handled has not yet been studied. The entire installation process also needed to be reviewed. Based on these various issues, the work of art **The Aeromodeller OO-PL** was therefore also selected as a case study.

Functionality is a major characteristic: the balloon has to be inflated and this is carried out using an external engine. It was of critical importance to be able to regulate the air supply so as to avoid any damage to the balloon. In order to provide the ideal air pressure a frequency regulator was employed, which could be adjusted to the ambient conditions. It was important to have detailed construction guidelines worked out; the former operating procedure was completely re-examined. The balloon is now inflated on a large support net, and in this the balloon is pulled up by ropes. Then, a few ropes are pulled through under the belly of the balloon. The balloon remains on these ropes and is thus held aloft. A number of suspension points are still fixed into the ceiling but this is more for visual effect. A manual and installation video will be needed in the future to make this an orderly and comprehensible process. During the first installation process after the restoration, the artist was in attendance to give instructions. At the same time, specially adapted packaging has been designed. All of this is valuable for preventive conservation.

A significant component in this project has been the comprehensive documentation which was compiled concerning the past history, the research report (materials and techniques used) and the restoration report. The search for a suitable method of measuring and documenting this immense work of art is also part of this.

Nam June Paik, **One Candle**, 1988(left) and with new CRT projectors, 1996 (right)

Panamarenko, **The Aeromodeller OO-PL**
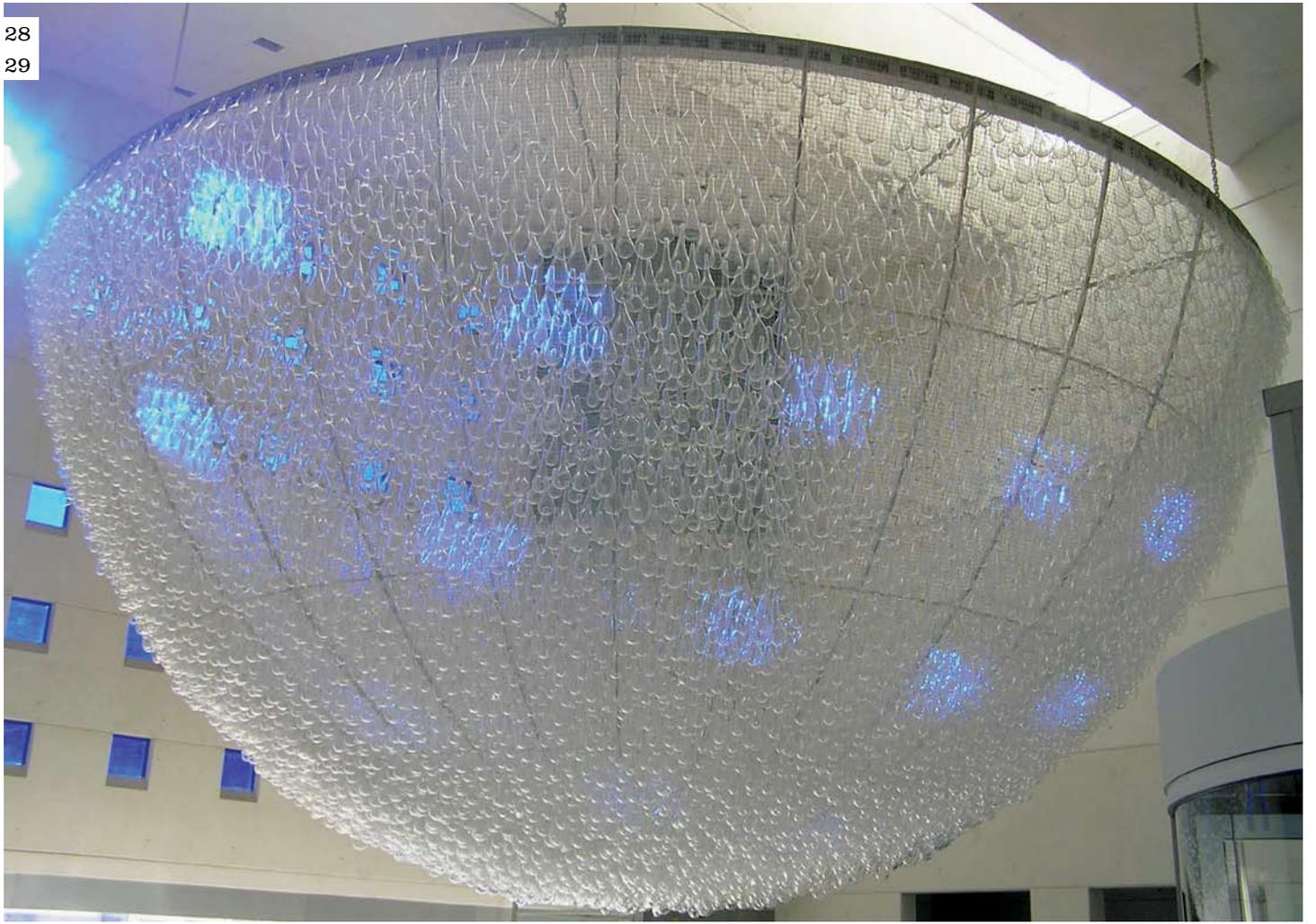
Javier Pérez, **Un pedazo de cielo cristalizado**

Fabrizio Plessi, **Liquid Time II**

Javier Pérez, Un pedazo de cielo cristalizado, 2001
ARTIUM de Álava Collection;
Emilio Ruiz de Arcaut

The work literally represents what its title says, **A Piece of Crystallized Sky**, but emphasizing our conception of the sky as a curved space. It is based on a set of 12,000 blown glass pieces, in the shape of teardrops or bulbs. They are hung from an inverted dome structure, which vibrates due to an electric motor, the sound generated by the knocking together of the glass pieces being a very important part of the piece. It is completed by creating an indigo atmosphere in the exhibition. It was created for the Spanish Pavilion of the Venice Biennial held in 2001. Currently, hanging over the entrance stairway of ARTIUM, it has become the piece that welcomes visitors to the museum.

Its permanent exhibition forced the museum to look for solutions for regular maintenance, without the advantage of the usual de-installations.
Its dimensions, and the quantity of its components, increased the challenge. The necessity of the treatment was evident because of dirt on the surface of the components, which hid the shine and the transparency of the glass. Due to some drips from the air-conditioning system, water accumulated inside the components and began to be noticeable.
We studied the genesis of the work in order to establish the main aspects of the display. We established differences between what we call 'Components', which include the replaceable physical objects, and 'Perception Elements', fundamental for the real understanding of the piece and which define it on a conceptual level, including all the sensual elements such as the proximity, the light, the sound and the movement.
The artist was consulted to establish the most appropriate method of intervention He highlighted the importance of the rhythm created by the precise location of the parts in relation to their size. A method has been established which permits us to maintain the current position of each glass piece thanks to a production line on the scaffolding, by numbering the pieces as well as their corresponding locations. This method does not alter the original work. The system was put into practice with great thoroughness. We had to use a complicated infrastructure to carry out the cleaning of the glass pieces, together with the metal structure, with a team of more than twenty people, at a high cost. During the intervention we required the artist's presence in order to analyse the effects of the layout, combining the different sizes of the glass pieces, together with their movement and sound when knocking together. Having done that, it is possible to systematize the whole installation without the necessity of the artist's presence in future complete installations and re-installations of the work. Throughout this process a very interesting documentation was compiled, and it is our intention to include this in a future exhibition of the artwork. We will include models, pictures and sketches from the first Installation in Venice, together with the different interviews with the artist. In that way we are designing a documentary which contains a visual monitoring of the creative process of the work.

The *Inside Installations* Project has also prompted us to reflect on the definition of the term Installation and on the new registration fields, and increased our knowledge and comprehension of the work, applicable not only to our specific case study but to many of the Installations at the ARTIUM Museum Collection. In the light of the conclusions of the Project, we intend to check the entire ARTIUM art work inventory in order to consider possible changes for the components and their treatment in the data base.

Fabrizio Plessi, Liquid Time II, 1993
ZKM Zentrum für Kunst und Medientechnologie;
Thomas Zirlewagen

Liquid Time II (Tempo Liquido) was realized as a freestanding sculpture in 1993 for the *'Internationale Funkausstellung'* (IFA 93) in Berlin. It is an upright iron wheel reaching a height of more than five metres and turning slowly above a long steel tank with water running through it. The set is that of a rusty mill wheel – however, TV monitors showing video footage of cascading water replace the 21 scoops. The heavy steel structure is built up of more than 100 elements. The central water tank consists of five main elements; at one end it is surrounded by an expanded base. The mill wheel is composed of 7 segments and driven by a powerful electric motor. All visible steel parts are artificially rusted and show a matt and delicate surface. The steel tank contains 3500 litres of water moved by an electric water pump. **Liquid Time II** is a single channel video installation and the video equipment, including 21 TV monitors, is mounted into the segments of the rotating mill wheel.
From September 2005 to October 2006 the work was presented in the ZKM Media Museum.

One of the focuses of research was the documentation of such a monumental, kinetic video artwork and the verification of the possibilities of descriptions of technical data. A 3D programme was tested for graphically representing all elements of the artwork and complex technical details. For the first time a comprehensive installation manual of the work was worked out, including video registration. Another focus of research was the daily handling of the artwork in long-term exhibition. A maintenance plan had to be formulated and solutions had to be found to reduce time-consuming treatments on unstable technical components without altering the artwork.

The original medium of the video is a laserdisc, which in the past has been saved as a copy on a Digital Betacam tape. During the project the video material was digitized by the Laboratory for Antique Video Systems at ZKM, and now the digital data is stored on a server for long-term preservation.
A number of conservation treatments and modifications of the video equipment had to be evaluated and realized.
One of the main preservation problems of **Liquid Time II** is the ongoing corrosion of the steel structure due to the circulating water. In some areas splashing water caused considerable progression of the corrosion during long-term presentation. In order to solve this problem, external specialists have been consulted and research is still continuing.
In addition, research will go on to find a practical solution to the problem of the limited lifetime of the TV screens and their potential replacement in the future.

One of the interesting points of this case study arises from working with the 3D programme and video registration for additional documentation and visualization of the artwork. It opens up the possibility of showing technical details of **Liquid Time II** as coloured, true-to-detail images, motion-sequences as animated film sequences or visualizing hidden technical components in engineering drawings. This will make a better understanding of the complexity of the artwork and its functioning possible.

Ulrike Rosenbach,
Don't think I am an Amazon, 1975

museum kunst palast; Gunnar Heydenreich,
Heike Könitz, Martina Pfenninger and Cornelia Weyer

The installation **Don't think I am an Amazon** (Glauben Sie nicht, dass
ich eine Amozone bin) has its origins in a performance first presented at the
Biennale des Jeunes in Paris in 1975. Ulrike Rosenbach shot 15 arrows into
a black and white photograph of Stephan Lochner's Maria im Rosenhag. The
performance was re-presented a number of times, and an independent video
film of it was made. The video shows the images of both the Virgin and the
performing artist superimposed. The individual elements of the installation, like
the target, the video film and numerous photographs were arranged together
for the first time in 1976 for an exhibition in the Neue Galerie – Sammlung
Ludwig, Aachen.

A central aspect of the study was the documentation of the evolution of this
installation, which is closely linked to the history of its exhibition and also
influences its present appearance. The origin in a performance posed specific
questions. The different rates of deterioration of the materials used
(polyester-urethane arrow vanes have completely deteriorated, the video
technology of the 1970s is obsolete and photographs have changed in colour)
resulted in a heterogeneous appearance of the installation. The case study
focused on the development of a preservation strategy to enable individual
elements to be adequately preserved and experienced as essential elements of
the installation and at the same time the installation as a whole to be presented
in conformity to the artistic intention.

The totally decomposed remains of the original vanes and adhesive residues
were removed and new vanes of identical material fitted. Further sets of
vanes were stored for future use. The original colour photographs will be kept
under suitable conditions and new photographs were made for presentation.
For these, the artist provided well-preserved 35 mm slides. The slides were
scanned and the colouring of the digital images was adapted to that of the
70s. Mechanical damage (cracks, bends and scratches) to the target photo-
graph was stabilised and optically reduced. Reassembly provides for magnetic
fastening to the frame instead of the pins originally used.

The various U-matic tapes in the archive were evaluated by quality and the
best preserved tape transferred to digital Betacam. An early NTSC colour video
which turned up in the process of video preservation and which documents the
performance from the camera's point of view was likewise transferred. Digital
processing of the video signal was deliberately not undertaken in order to show
the work as authentically as possible. In future the video will, if possible, be
presented on an historical b/w monitor.

The importance of the individual elements of the installation and their history
and methods of preservation and presentation were discussed at a number of
meetings between the artist, the curator and the restorers.

Tino Sehgal,
## This is Propaganda, 2002

Tate; Pip Laurenson

Tino Sehgal does not allow any documentation of his installations; his work
attempts the complete disavowal of material remains. He rejects the use of
certificates and instructions, photographs or videos, avoiding the possibility
that these might, in time, come to stand in for the work. The installation is made
up of no tangible thing. It is present, 'installed', for all of the hours the gallery
is open. What follows is Tino's description of the work during an interview with
Hans Ulrich Olbrist; *"when you come into the space, there are people who are
employed as guards, at the normal rate that guards get, but who are also sing-
ers. So we will get guards who can sing, they turn away from the spectators and
they sing very loudly. The lyrics they sing are 'This is propaganda. You know,
you know, this is propaganda. You know, you know...' and then the guard says
Tino Sehgal, 2002, courtesy the artist."* Once this work was acquired by Tate this
became *"Tino Sehgal, 2002, Tate Collection".*
The details of the installation are more precise and complex than is suggested
by Tino Sehgal's description. It is part of Tino Sehgal's practice that when
one of his works is bought, he not only conducts the transfer of title as an oral
contract but he also teaches the new owners how to install the work. He calls
his teaching method 'body to body transmission' referencing the way in which
an experienced dancer might teach a young dancer the steps of a dance. In
practice this involves choosing a space in which to install the work, learning how
to audition the 'interpreters' and how to teach them their paces to ensure a good
installation of the work.

This case study took as its focus the question of how far this completely intangi-
ble work could be incorporated into the museum's standard processes and sys-
tems. These systems and processes have been developed to deal with material
objects and it was informative to identify where the points of friction arose. The
case study also considers the impact on staff of the responsibility for not only
remembering the work but also teaching it to future curators and conservators.
By making explicit the artist's act of teaching the new custodians how to install
the work, Tino Sehgal highlights this activity for a broader group of complex
artists' installations. The role of artists and their assistants, in teaching conser-
vators and curators how to install their work, is an under-acknowledged part of
the process of integrating newly acquired contemporary works into a Collection.
Being prohibited from documenting the installation was difficult; however it
caused us to reflect on the limitations of even the best documentation and the
role of memory in the museum. Museums are seen as sites of memory and
continuity; this case study caused us to reflect on the limitations of written
documentation and the importance of personally handing on knowledge of a
Collection from one generation of staff to the next. Museums were once slow
changing sites of stability, whereas now they are fast moving worlds of regular
re-hangs and organizational restructuring. Memory as an invisible tool for the
care and management of a Collection is easily overlooked.

A conservation strategy needs to ensure that we continue to be able to show
this work and that the details of how to 'install' it are not forgotten. Similar to
a schedule of migration for video art, one possible strategy would be to ensure
that there are regular opportunities to refresh our memories. We are currently
exploring the idea of hosting a gathering every few years with the 'original'
interpreters. Of course the other option is to display the work often. This is not a
work which will fare well in storage. Unlike a watercolour that deteriorates from
exposure, the conservation of this installation is enhanced by being on display.
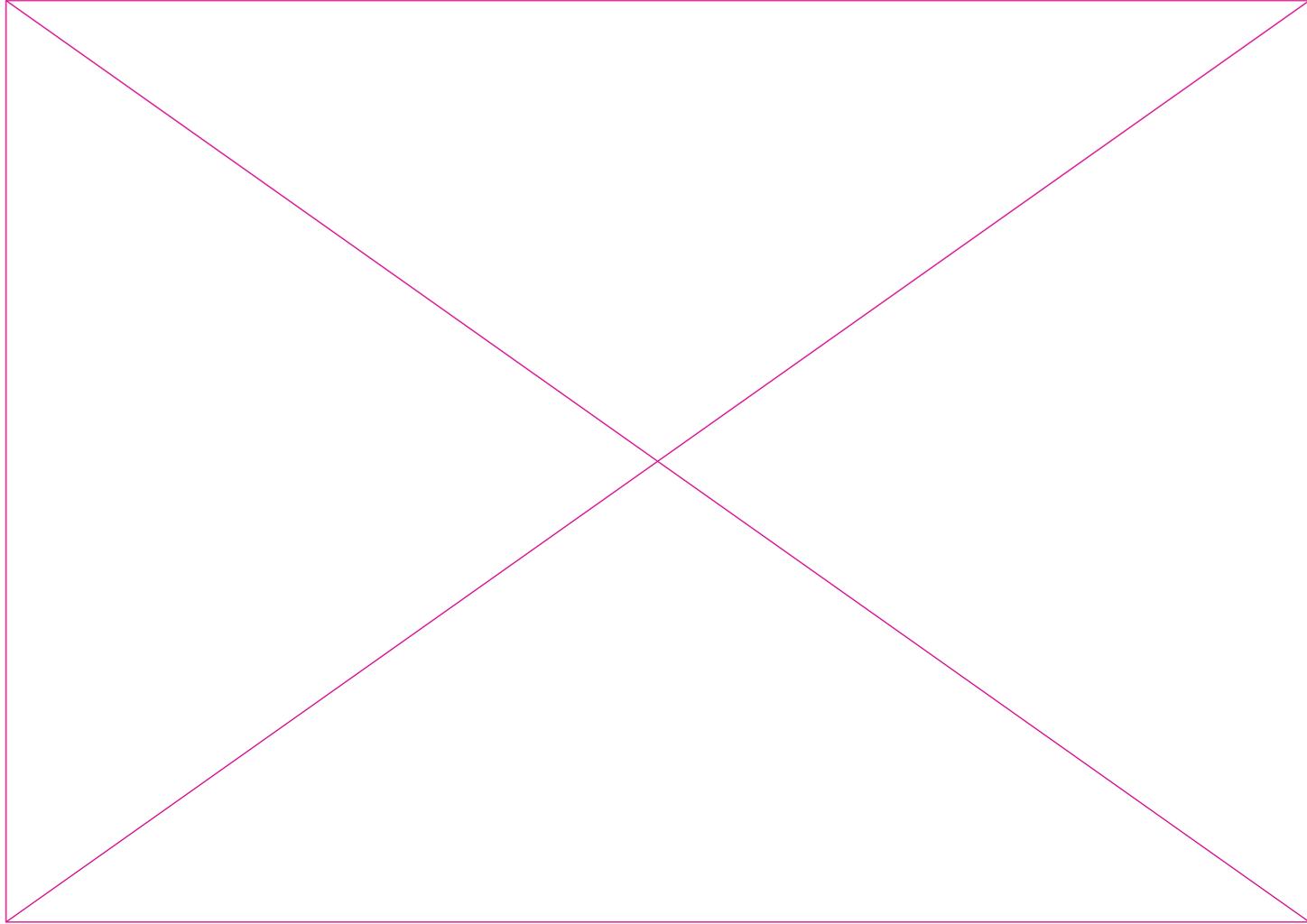
Ulrike Rosenbach, **Don't think I am an Amazon**

Tino Sehgal, **This is Propaganda**

Jeffrey Shaw & Tjebbe van Tijen, **Revolution (a monument for the television revolution)**

JOURNEY TO THE EDGE OF THE WORLD
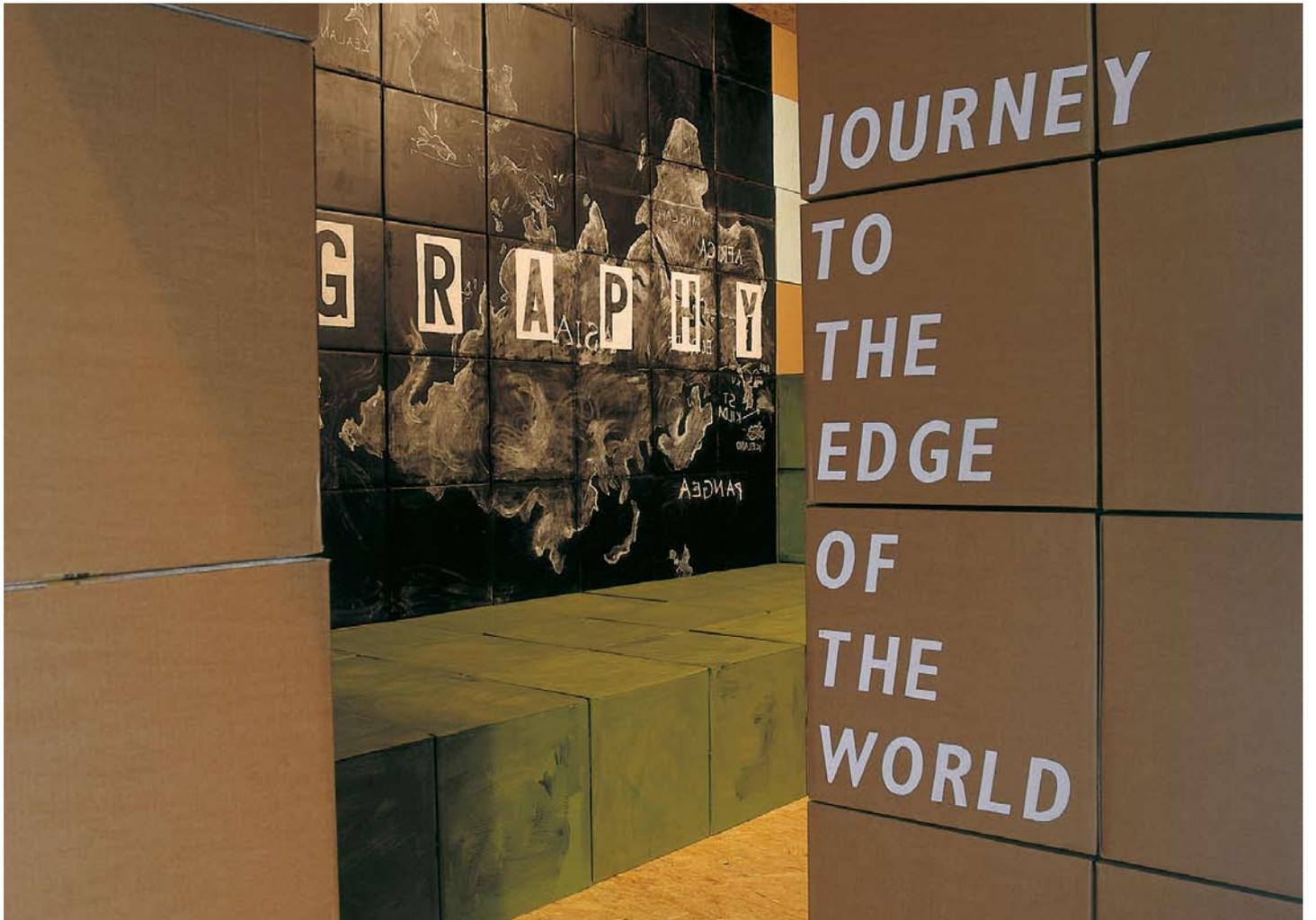
Ross Sinclair, **Journey to the Edge of the World - The New Republic of St. Kilda**

Jeffrey Shaw & Tjebbe van Tijen, Revolution (a monument for the television revolution), 1990

ICN Collections; Simone Vermaat

The installation consists of a man-sized column with a monitor mounted in it, placed on a round base of compressed wood. By pushing the bar that protrudes from the column, you can rotate it. If you rotate clockwise, 180 'images of revolution' appear, based on iconographic material dating from the same periods as the revolutionary events, thus offering an overview of two hundred years of revolutions. If you push the bar anti-clockwise, the monitor screen shows a millstone grinding grain to flour. The viewer is an essential part of the installation: without the viewer nothing happens.

As **Revolution** had long been in storage the existing registration and documentation, which were incomplete, were checked and assessed. A trial installation was set up and all the components were registered in detail, photographs were made and instructions for setting up the installation itself were drafted. The team also interviewed the Dutch artist Tjebbe van Tijen, who as a result has more clearly been identified as co-author of the work. During the second trial installation the team took part in a risk assessment session in order to identify the high risk elements of the installation.

All images of **Revolution** are stored on laser disc. In case this technology should fail or if the disc and copies should be damaged or lost, the installation would stop functioning. The other vital element for sound, image and inter-activity of **Revolution** is the custom made 'Comlink' or Eprom audio player of which the source code is unknown. An emulation plan 'in case of' was no excessive luxury. Instructions were drawn up describing the construction procedure step by step with photographs to illustrate it. A film version shows the setting up and dismantling of the installation in accelerated motion. Specialist Paul Klomp researched the possibilities of an emulation plan as a means of conserving the installation long term. He used the 'black box principle' (only the in- and outgoing signals are being analysed) to analyse the behaviour of the used technique. The hardware of the installation was emulated on the basis of this analysis. Video- and audio material were digitally preserved and the exact reaction/interaction of the installation was recorded so that the emulated installation shows the same behaviour as the original installation. A complete registration of the installation was made according to the installation registration model designed by NIM / Montevideo. This includes not only a description and material specifications of each component, but also of the properties, function and meaning of that particular component. The video data were registered and documented. The context and setting in which this work was created and the exhibition history have been researched and documented. Because of the results of the first trial installation, the work has been on loan to the exhibition 'Moving parts'' in Graz and Basel for six months. Precautionary steps for preserving the installation when the 'old school' technology will finally wear out have been taken. The emulated version is ready to take over if needed.

We all have benefited from working closely as a team with many different specialists (curators, conservators, conservation researchers, archivists, technical and new-media specialists). Some of the results will have implications for the conservation of a wide range of installations and will prove to be fruitful as we move on to other installations in our collections. Other problems, such as the life span of monitors and storage and maintenance guidelines for hardware and software elements of installations to name a few, need further research.

Ross Sinclair, Journey to the Edge of the World - The New Republic of St. Kilda, 1999/2002

Hamburger Kunsthalle / Galerie der Gegenwart; Barbara Sommermeyer

In **Journey to the Edge of the World – The New Republic of St. Kilda**, Ross Sinclair has arranged three rooms with video and slide projections. The rooms are set out in the space of 16 x 6.50 x 3.70 m with walls constructed of more than 800 cardboard boxes. Some of the boxes are inscribed with words. Entering the installation there is a large chalk drawing of a reversed map of the world.

The work reflects on the history of the Scottish island St. Kilda: its inhabitants were cut off from civilisation for over a thousand years; they developed their own way of life in a small community; in 1930 the island was evacuated.

To better understand the set-up and to get an idea of what would disturb the perception of the visitor, the artist was interviewed about his intentions of the installation and some aspects of the making.

In contemporary art materials and equipment are not necessarily original and therefore might be treated with differing strategies. Because of the varieties of cardboard boxes regarding design and originality a hierarchy of importance was established. Because of the large number of boxes most of them will have to be unfolded and stored flat. Only the chalk drawing boxes stay folded.

Consolidation treatment of the chalk drawing was necessary and was carried out by a specialist conservator who had completed her research in this technique.

The electronic media of the installation has generally been migrated to archival formats (audio CD's to DAT, video tapes have Betacam sp format). Slides generally discolour very easily when being projected; therefore exhibition copies replace the original master slides when on display. Research was carried out regarding the duplication of slides. It revealed that the digital method of duplication is more lacking in sharpness than was expected. The duplication was therefore carried out using the analogue method.

In cooperation with a graphic designer adequate ways of visualising the architectural set up of the installation were discussed and tested. The resulting floor plan and wall elevations made with Adobe-Illustrator® were used for documenting condition and set up. The graphic data brought out errors in reasoning of the documented set up, which could then be resolved.

The project has given us the opportunity to take a detailed look at various aspects of this artwork. Information was gathered and recorded in text and image. Part of it will be made available via the projects' website. The artist was very cooperative and provided us with valuable information, which proved beneficial to the research. A variety of research aspects were covered within the project that provided interesting solutions – with positive as well as negative outcomes. The positive results will be applied to future conservation projects of other installations.

Bill Spinhoven,
Albert's Ark, 1990/version 2007

Netherlands Media Art Institute / Montevideo;
Gaby Wijers

The installation consists of a monitor, a computer (program), a camera and a sundial sculpture. The camera is mounted in the upper section of the pole, a mirror is attached to capture the movements and images of the spectator, while the monitor screen projects these images. The time stretcher technique deforms the images due to the fourth dimension: time. The viewer walking around the installation will, at a certain point, see the distorted image of his body on the monitor. By trying various movements, he will literally be able to wriggle into the most unlikely postures. The work is representative of the technological 'state of the art' of the 1980s and early 1990s, which is at present rapidly becoming obsolete. This was the first version in colour of the Time Stretcher, hand-built by the artist from existing computer components.

Focus for this case study was to explore if emulation based on documentation is a good way to preserve the work when a comparison with the original is not possible. Documentation and similar source code was the source for emulation. For a better understanding of what is important in the preservation of this installation and how to make future presentations possible, the artist was asked to work together with the preservation team to write an emulation proposal and to re-install the work to working condition. The artist suggested including a modular instruction manual in the installation. He gave a public presentation of his research and an emulation proposal while the work was re-installed.
The experience of this installation is determined by the audience. So functionality, was given more weight in this case than authenticity of the work and historicity of the apparatus.
The results of this study were documented in text, images and video.
Since the original camera, computer and computer program were missing, documentation became extremely important. The original blueprints were not available, but the artist's archive contained blueprints of a slightly older (black and white) version that gave an indication of parts used, and of the effects on the output of the original apparatus. Video documentation of previous presentations together with the knowledge (and memory) of the artist and technicians illustrated the camera and type of monitor used.
The original time stretcher was hardware based, but when emulating the time stretcher, similar look and feel can more easily be achieved with software. To avoid future obsolescence, open-source software was used. Given time and budget restrictions capture software and the computer platform were based on Microsoft. The original camera was replaced by a similar CMOS camera. By comparing the video documentation and the current camera images the artist was able to reconstruct near- original image quality. One of the problems faced was the lack of available research and knowledge on how to describe image quality. The monitor is rapidly becoming obsolete and is nowadays replaced by flat screens. Visually and technically **Albert's Ark** depends on the size and type of tube monitor.
Interesting conclusions and remaining questions:

– It's now the time to preserve computer based installations from the 80s;

– Monitors are still an unsolved preservation problem;

– What is the lifespan of computer based installations?

– How to describe image quality;

– Is this reconstruction retro kitsch? (remark by an artist in the audience)

– Storage and maintenance of hard- and software;

– Description/notation models of image qualities;

– Emulation of software and platform.

Joëlle Tuerlinckx,
Ensemble autour du MUR, 1998

Stedelijk Museum voor Actuele Kunst (S.M.A.K.);
Maryline Terrier

Un ensemble autour du MUR is a variable installation and a work in progress. Originally it consisted of projecting the word MUR onto a white museum wall. During the three erection moments which followed, new elements were added. This typifies the artist's mode of operation. Her starting point is the experiences and affinities she has with a certain space. This space is discretionary and she borrows certain characteristics from the context. Tuerlinckx works with the aspect of time in relation to various materials, colours and shapes. Objects can change: transform, discolour, degrade. These processes of change in her work can be fixed or boosted. Tuerlinckx's work is a good example of how complex art installations can really be. The artist interprets the context and translates this in her work. The interpretation of the context leads to the choice of combinations of certain elements from her installation. The museum wanted to investigate how this variable installation work of art could be dealt with, and which interpretations could be made.

Thus, within the investigation process the accent was on making an installation protocol and establishing guidelines for the conservation of the various objects in close consultation with the artist. During the summer of 2005 a museum hall was put at our disposal to carry out various experiments for this variable installation. After each 'new' installation moment, the artist was invited to give comments or suggestions. In most cases she was not in complete agreement and introduced changes. This process resulted in eight different construction scenarios – 'experimentations'. These were comprehensively documented: everything was accurately charted by way of descriptions, construction plans, photographs and films. It is clear that interpreting installations is really not so simple. Both the museum and the artist need to decide the extent to which this is acceptable and how to handle the interpretation aspect.

The research resulted in a manual which included a reproduction of the installation story. The object inventory was further extended and explored in depth. Additionally, the rights concerning possible reproduction or transformation of the various objects were laid down. The artist provided guidelines for presenting the various items. Finally, the documentation of all the construction scenarios – 'experimentations' – was recorded. These scenarios were analysed with the installation history. In this way a model came into being which can be used to construct the work of art in the future.
A third party will test out the manual. This way, more references can be collected. Both the S.M.A.K. and Tuerlinckx herself encourage this mode of operation.

Bill Spinhoven, **Albert's Ark**

Joëlle Tuerlinckx, **Ensemble autour du MUR**
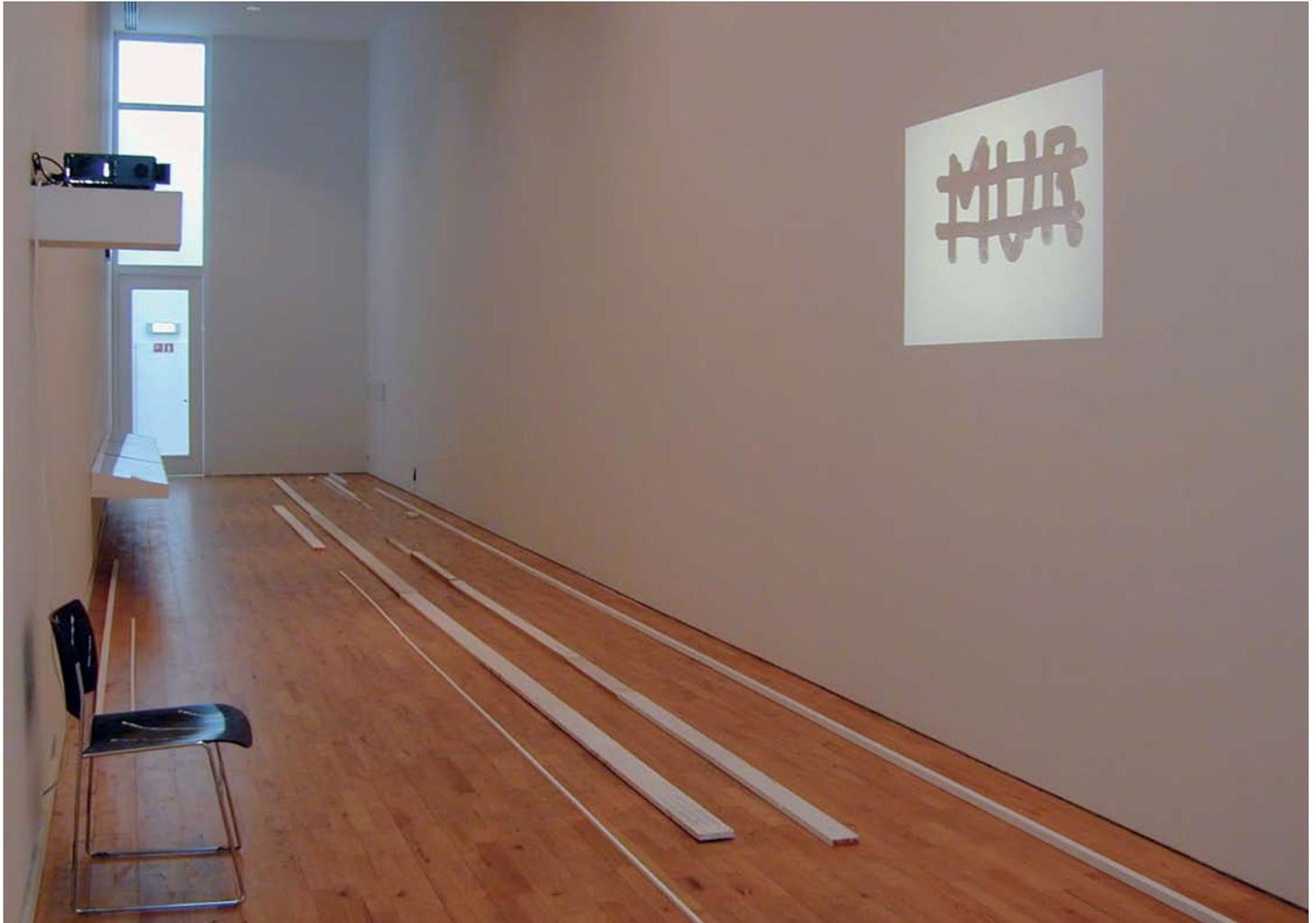
Eulàlia Valldosera, **Flying #1 New York**

Franz West, **Clamp**

Eulàlia Valldosera,
Flying #1 New York, 2003

Colección de Arte Contemporáneo Fundación
'La Caixa'; Cecilia Illa Malvehy

According to the artist's statement, this work explores the ways in which perception of movement affects our perception of space, and our sense of belonging to a place or a social system.
Through ten projectors, ten mirrors and ten small electric motors a continuous moving image is projected on to the walls of the gallery which surrounds the spectator. The image, inspired by the events of 11 September 2001 (a sort of Manhattan sky line), appears and disappears every 60 seconds.

Many difficulties were encountered in maintaining the work during the exhibition and much time (and money) was spent ensuring the proper functioning of the work. In that sense it has been the most problematic art installation within the Contemporary Art Collection. Slides, projector bulbs, and other spare parts had to be constantly replaced, and the projectors needed to be sent for repair, etc. Substitution of the spare components was complicated in itself, and furthermore that operation implies the de-synchronization of the ten projected images; to re-synchronize them was quite a complicated and time-consuming job. It was obvious that the original analogue projectors were not designed to be used for normal exhibition periods.

In order to better understand what is important to preserve in this art installation, conservators and technicians worked closely with the artist to understand the artist's intention; the projected images should as far as possible be identical with the original ones.
The results of this study were documented in video, photographs, texts and plans. Replacing the original analogue projectors by digital projectors seemed to be the best solution to the technical problems, since analogue technology is about to be superseded. As more effective digital projectors are constantly being developed and new models become available at increasingly affordable prices, it does seem possible to resolve these difficulties. We are still in the process of selecting the best option.

This case study has enabled us to explore a complex installation in detail, working closely with the technicians and the artist to create invaluable primary material for the future care of this work, and to resolve the technical difficulties involved in this installation. The correlation of the slide projection with the new digital projectors is quite a delicate operation that has to be very closely supervised by the artist, since many variables are implicated.

Franz West,
Clamp, 1995

Kröller-Müller Museum; Sanneke Stigter

The **Clamp** is an environment that is based on the artist's former studio with the actual floor of his studio included. Colourful objects made out of painted plaster and papier-mâché are placed in and around the **Clamp** as well as benches and tables made in a style that is typical of West. The visitor can make himself at home in this 'environmental collage' and make a telephone call: the walls are covered with pages from the local phonebook. **Clamp** is an object-based installation characterized by interactive as well as site-related aspects. The history of the exhibition shows that important initial features have changed gradually or even disappeared. It became apparent that loss of memory and lack of documentation on the actual role and nature of both the tangible and less tangible components that constitute the **Clamp**, could have led to permanent loss of specific aspects of the installation. The research focused on the history and development of the work, as well as documentation combined with the practice of reinstalling the work to obtain a better understanding, and develop a better way of managing the artwork.
Documents of the exhibition history show how the **Clamp** has changed over time. The installation has been put together freely on every other occasion, changing its constellation, which is according to the artist's ideas. The biggest change appeared after the first show. At that time the visitors could actually use the telephones that were provided within the **Clamp**, but this feature was never seen afterwards. The role of the telephone within the work is obviously an important one considering the fact that some of the works are called 'Telephone sculptures', there are phonebook pages on the wall, and the public was welcome to make a telephone call. The note on a Post-it in the museum archive stated that West had changed his instruction that 'two telephones' had to be part of **Clamp**, because nowadays everyone has a mobile phone. Further research unearthed a different text that was used during the second exhibition of the **Clamp** and that does not mention the telephones. The disappearance of the actual telephone(s) and the explanatory texts from the installation, the history of the walls that had weakened severely once they were cut with a jigsaw before transport to Otterlo and the reinforcement of the original floor panels, have all had a big impact on the character of the **Clamp**. The walls and floor can only be installed according to a certain layout without weakening the material any further. The original floor tiles were fixed upside down permanently, so that the paint stains referring to the artist's studio can no longer be seen. These alterations have had a big impact on the use and experience of the **Clamp**, but were not documented by the museum before. Detective work in the archives has uncovered new and interesting information. This has helped to answer some questions raised at the beginning of the project and made it possible to reinstall the work according to the ideas of West. Conservation treatment has been carried out on several objects and preventative conservation measures have been taken to ensure that the various materials do not have a damaging effect on each other. Supportive constructions are fabricated for the transportation and storage of the fragile components and guidelines for handling and installation have been developed. The installation is thoroughly documented and it will be investigated how best to incorporate the information within our registration system.
The conservator needs to understand the physical and the less tangible aspects that constitute an installation, in order to consolidate the functionality of the artwork. A sound documentation is needed that foresees future conservation and installation problems. The artist's ideas should be clearly defined and the different forms in which an artwork may have existed should be documented.

Gilberto Zorio,
Los Zorios, 1995

Instituto Valenciano de Arte Moderno (IVAM);
Maite Martinez

The work **Los Zorios** by Gilberto Zorio is a sibilant, mobile, aerial installation, combining movement, light and sound as processes that express the perpetual flow of energy and the changes it brings about, in this case, in our perception as observers of a plastic act. It is made of different materials: some are organic (leather wineskins) and others are inorganic materials like aniline, vaseline, lanoline, alcohol, steel, copper, a glass crucible, copper sulphate in water, compressors and halogen lamps. It needs to be installed with not less than 6 metres of space around it, because its material dimensions are 3.68 x 3.50 x 6.65 m, and it is constantly moving.
It is made up of the following 12 components: Glass crucible: 123x37 cm, Leather wineskin with a metal bar: 383x155 cm, Compressor: 67x35 x19 cm, 1 copper bar: 183 cm, 6 metal bars: 90 cm, 296 cm, 223 cm, 290 cm, End with orifices: 123 cm, Extension bar: 75 cm, Halogen lamp: with 4 m cable, 12 screws of 3, 5 & 7 cm.

Gilberto Zorio created the work **Los Zorios** for display at the Galeria Luis Adelantado in Valencia in the exhibition of this artist's work held in 1995. It had never been installed again since it was disassembled after the exhibition and purchased by the IVAM in 1997. Its state of repair was poor and the documentation about it clearly insufficient.
The interest in documenting this piece is based on its relevance in understanding the concept of installation, the poetry and wearing down of materials, and the transformations effected by the space and the artwork itself, given that its motion and the creation of sounds are generated by air compressors.
On the other hand, in its creative process as a representative piece of Arte Povera, Zorio used materials of a basic nature, which he combined by creating a poetics addressing energy and the changes it brings about, of which this work is a good example.

The most significant part of the research focused on gathering information directly from the artist himself, who participated in the restoration process and the installation of the work, in an interview that was recorded on digital video, transcribed in the original version and translated into English and Spanish. During the interview the artist was asked about the creative process, his interest in using the different materials characteristic of his work and Arte Povera, the importance of the ageing of these materials, matters related to the conservation and restoration of the piece, and documentation of the assembly, operation and maintenance of the work.

In the first place, it is important to mention the artist's interest in defending the concept of the artistic act over and above the material aspect of the work as an object. Although the survival of the materials is a subject that worries him, he has no qualms about replacing them when their state of deterioration so requires. That is why it is of prime importance to maintain a preventive conservation policy during the process of installing, wrapping and storing the work in order to reduce the ageing of the materials of which it is made. Every one of these processes has been documented.
In the second place, the foremost concern was the experience that this work creates for the observer, who stands in the exhibition gallery in the presence of a moving articulated body where a strange blue liquid looks as though it is boiling while giving off a jarring sound. This immaterial aspect has to be considered just as important as to its survival as the material objects.

Gilberto Zorio, **Los Zorios**

workshop Risk Assessment (left) Evaluation workshop (right)

EVALUATION WORKSHOP

At the final project's workshop in Tate the project participants evaluated the results of their case studies in conjunction with the lessons learnt, insights and remaining questions of the B research activities. Assisted by mediator George Gawlinski several interviewing rounds were held for case researchers to present their cases and explain what aspects of the B activities had been addressed in their research. This way the matrix of case studies and additional B activities became a useful instrument to learn from each other's experiences and share thoughts about the issues addressed. At the end of the day all groups came up with a number of 'headlines' based on the research of this project which may just as well serve as guidance for research in contemporary art conservation in the future.

The preservation of installations

RESEARCH FOCUS

The research for the B1 Preservation activity took as its focus two main themes:

– Firstly, the use of risk analysis as a tool for developing conservation plans which addressed the complex needs of artists' installations;

– Secondly, the exploration of the shifting role of the conservator and curator in response to the preservation and presentation of artists' installations.

B1 activity researchers also contributed to B3 Documentation in working with S.M.A.K. to develop a structure for the organisation of conservation records.

RISK ASSESSMENT

Traditionally, risk assessment has been used in conservation to examine risks to entire collections and to establish priorities, often with regard to preventative conservation measures[1]. Recently this approach has been expanded to consider the risks associated with 'ensembles'; for example rooms in historic houses[2]. This work indicated interesting parallels to artists' installations, in that in both cases the value of the individual components is, in part, determined by its relationship to the whole ensemble.

THE BENEFITS OF RISK ASSESSMENT

The risk assessment approach provides the following benefits as a method of developing a conservation plan for a complex artwork:

– It provides a more or less rational ranking of risks based on their expected magnitude which allows for setting priorities in treating or reducing them;

– It facilitates the involvement of key stakeholders in shared decision making; politically this can help create 'buy-in' for conservation efforts across an organisation;

– It requires that participants think more holistically about what it is that is important to preserve for the whole installation. For example it encourages decision makers to consider both the tangible and intangible aspects of an installation rather than simply considering the material elements;

– It pools expertise in considering where the greatest risks lie of not being able to display the work in the future;

– It encourages strategic thinking.

Although clearly the main goal of any risk assessment is to come up with a plan which will benefit the long term care of a work of art or collection; the process in itself has a number of added benefits. In particular it provides a space for structured thinking about the assumptions of the different stakeholders and their notions of value and risk.

METHODOLOGY

Following two meetings in Amsterdam and building on the work carried out by the Dutch case study researchers for Jeffrey Shaw's work **Revolution**, Agnes Brokerhof adapted currently used methodologies to be applied to installation artworks. A group of 13 case study researchers were recruited to work together to learn more about risk assessment and test the methodology on their case studies.

This group of case study researchers 'met' via conference calls every week during the months of October and November 2006. During each conference call the group was introduced to a consecutive homework assignment in preparation for a two day workshop at Tate Modern, London. During this workshop each participant carried out the actual qualitative, semi qualitative or quantitative assessment of the risks to their installation.

The stages of the methodology are as follows:

1. Establishing the anatomy of the installation
2. Developing a 'Statement of Significance'
3. Determining the relative value to the whole of the elements identified
4. Developing scenarios and identifying the risks
5. Exploring the possibility of recovering lost value
6. Carrying out a qualitative or (semi)-quantitative assessment of risks

RESULTS

Given that risk is expressed in terms of expected loss of value in the future, risk assessment proved to be a valuable tool for creating a dialogue within the museum about what is important to preserve for any given installation. Where traditional preservation is very much oriented towards the material aspects of an artwork or collection, the preservation of installations focuses much more on the intangible. This exercise allowed participants to reflect on their perception of the 'object' and on their working practice and also to gain insight into their decision making processes. 'It rationalises your intuitive everyday way of working' was the comment of one participant.

THE VALUE OF A STATEMENT OF SIGNIFICANCE

Understanding the significance of a work of art is vital to designing an appropriate preservation strategy. 'A statement of significance should be a reasoned, clear summary of the values, meaning and importance of an object or collection'[3]. One very practical way for a conservator and curator to jointly develop a statement of significance, is to relate it directly to the process of interviewing artists about the preservation and presentation of their work. This builds on the value of artist's interviews as a key element in the development of good practice for the care and management of installation art.

RECOVERABILITY

Traditional preservation has a strong emphasis on 'authenticity' and 'originality' of material. Hence, in risks assessment the possibility of restoration of lost value is usually considered separately from the actual assessment. For works of art which include technology-based components or elements that are mass produced, replacement of parts and recoverability of lost functionality are often considered as part of standard maintenance. Therefore for these works it was considered important that the possibility to recover lost value was brought into the risk assessment. This uncovered a shift in thinking for conservators and meant that the specific value associated with 'original' components proved more complex than that assumed in traditional risk assessment.

TIME

All museums, including contemporary art museums, plan for their collections to last 'a very long time'. Within a contemporary art context, the survival of a work of art is not always synonymous with the survival of a specific unique material object or set of objects. In some installations elements can be substituted without significant loss to the work and in others, the fact that the work has no permanent material remains is central to its nature. In the case of traditional objects the two main models of deterioration are: gradual accumulative damage or catastrophes. Eventually the small, but high probability, accumulative effect of minor losses will lead to the same magnitude of loss as the low probability catastrophe. Hence probability and consequence have a similar weight on the final magnitude of risk. Does this model work as well for all contemporary works, in particular technology-based works of art?

Technology based works of art have different modes of failure – in some cases we can predict at what point (after how many hours of usage) a piece of technology will fail. As its function is usually very important to the installation, this failure brings about sudden high loss. This loss can, in many cases, be mitigated by repair and the value recovered. Obsolescence is another very particular type of failure. How then can we best factor in to our risk assessments both the way in which these elements fail and their recoverability?

SHIFTING ROLES

Because the risk assessment methodology highlighted the different risks and vulnerabilities of artists' installation it provided a point of focus for the participants to reflect on their changing role as conservators. This linked to the second point of focus for the B1 activity (see below).

AREAS OF FUTURE RESEARCH AND DEVELOPMENT FOR THE RISK ASSESSMENT METHODOLOGY:

– The development of a framework for assessing the value of different elements of an artist's installation and a method of determining their 'relative value';
– A method for incorporating recoverability in the final assessment and evaluation risk ;
– The development of reference scenarios specific to the risks associated with installation art;
– The generation of applicable data on the rates of loss and 'mean-time-to-failure' of materials and components used in installations.

THE SHIFTING ROLE OF THE CONSERVATOR

The impact of changing artistic practice was considered in relation to the changing role of the conservator and the curator. This theme was explored in two ways: firstly the changing role of the conservator was explored through a series of interviews conducted with conservators involved in the project; and secondly, via a conference held at Tate Modern in March 2007 entitled *Shifting roles and shifting practices: Artists' installations and the museum*. This conference invited curators, conservators, art historians and an economist to reflect on the impact of changing artistic practice on the role of the curator and as well as the conservator and ultimately the museum. Universities across Europe were invited to join an on-line forum to discuss the issues. The archive from this forum and a web-cast from the conference are available via the project website.

Six in-depth interviews were carried out with conservators and two with conservation researchers. These interviews provided a wealth of information regarding: their training as conservators; their thoughts on having made the transition from working on traditional media to contemporary art; their experiences of working with artists; their professional influences; and where they felt gaps in their knowledge lay. Metadata from these interviews will be made available via the INCCA database. This study was done in collaboration with activity B2 Artist participation.

KEY FINDINGS

Knowledge gaps: Of the conservators interviewed, all had been trained as traditional conservators before specialising in contemporary art conservation. It was clear that they valued their traditional training highly and felt that, in order to deal with the complexity of artists' installations, it was an advantage to have a firm grounding in traditional conservation which covered a range of materials and types of collection, as well professional ethics, the history of conservation and collection care strategies. They felt that their traditional conservation training had provided them with decision making and problem solving skills and that they had built on this, in their work in the field with artists' installations. The conservators interviewed had different views on whether there were major gaps in their training. Some felt that there were major gaps in specific areas of materials research; in particular plastics and electronic media. Whereas others felt that although further research was needed in these areas it was not necessarily something they would expect to gain from their formal training but rather experience that they would learn in the field. Interestingly none of the conservators interviewed thought that their training should have provided them with skills in collaborative working, negotiation, and communication which clearly were key aspects of their roles as contemporary art conservators. All of the conservators saw themselves engaged in ongoing learning and were in the habit of reflecting on their practice.

KEY DIFFERENCES BETWEEN WORKING AS A CONSERVATOR OF ARTISTS' INSTALLATIONS AND MORE TRADITIONAL WORKS:

A number of conservators interviewed mentioned the need for a slightly different skill set when working with artists' installations.

– Firstly, many found that documentation had a different role and status for artists' installations. One of the primary meanings of the term 'documentation' used by conservators is to describe the process of recording structure and condition. Documentation for artists' installations has a more dynamic meaning, referring to a conservation tool designed to mitigate the risk of not knowing how to install and display the work correctly in the future. Because artists' installations only truly exist in their installed state, a critical aspect of their conservation involves knowing how they should be installed.

– Secondly, a number of conservators described the need to work with a broad group of people in the care and management of these works and draw on a broad range of expertise.

– Thirdly, the conservators involved in the project had all experienced the process of working with the artist to ensure that they understood what was important to preserve and to develop strategies for conservation and display. In many cases this involved close collaboration over a number of months, if not years. Conservators often provided valuable solutions to enable the artworks to continue to be displayed. In some cases, conservators had become involved in aspects of the production of the artwork, whereas other conservators felt it was important to keep these roles distinct. There is sometimes a fine line between the role of the conservator and the producer; where problem solving can become a part of production. Although becoming involved in production can feel uncomfortable for conservators, one conservator expressed the view that this gave them a better understanding of the artist's practice and helped them to develop appropriate conservation plans for the work. All installation works require a moment when the artwork is realised in the space. In some cases, for example an instruction piece (maybe a sand carpet or wall drawing), the work is produced entirely by members of staff in the museum following the instructions provided by the artist. Understanding how to do this requires learning the skills important to the proper execution of that

work, often from the artist or their assistant. This is another example where conservators may become involved in the production of the work, often being responsible for the documentation of the process and, along with other museum staff, holding the memory of how to install the work for the museum.

ONE OF THE QUESTIONS ASKED WAS 'WHAT WOULD YOU TELL A CONSERVATOR NEW TO ARTISTS' INSTALLATIONS?' HERE ARE SOME OF THE ANSWERS
– Make sure that your organisation understands what it is you are trying to do and is on-board
– Build a network of other conservators working on similar problems
– Think into the future – what will people need to know in 50 years' time?
– Look for information and support from a broad range of sources – don't expect conservation literature to have the answers; many of the problems you come across will have little precedence in conservation.
– Step back and look at the artwork as a whole, don't only focus on the preservation of the material elements.

THE IMPORTANCE OF NETWORKS
Many conservators spoke of how important it had been in their careers to have had opportunities to meet other conservators working on similar problems. Many gave credit to *Inside Installations*, *Modern Art: Who Cares?* and INCCA for building these networks.

CONCLUSION
Contemporary art conservation remains a small field and many museums and arts institutions which show and collect artists' installations do not have access to conservators with this expertise. It is therefore important to recognise that it is not only the roles of conservators which have shifted due to changes in artistic practice but also the roles of a range of other professionals working in the arts. Across Europe different structures are emerging as institutions try to address the challenges of these works. The project participants recognise the need to reach beyond the conservation community and those already familiar with contemporary art conservation. The challenge of the long term care and management of installation works of art is best met collaboratively and the hope is for the results of this project to reach the broad range of professionals who are charged with making decisions about the preservation and presentation of installation art, for example, directors, trustees, collection managers, researchers, archivists, installation managers and registrars.

Those participating in the work as part of the B1 activity were as follows Bart Ankersmit, Reinhard Bek, Bryony Bery, Agnes Brokerhof, Anne de Buck, Paulien 't Hoen, Frederika Huys, Kate Jennings, Pip Laurenson, Vivian Van Saaze, Tatja Scholte, Sanneke Stigter, Arianne Vanrell, Tina Weidner
Interviews were conducted with Anne de Buck, Reinhard Bek, Bryony Berry, Maike Grün, Frederika Huys, Pip Laurenson, Arianne Vanrell, Thomas Zierlewagen.

Pip Laurenson, Tate

NOTES

[1] Examples include the work of Rob Waller – Waller, R.R. (2003) Cultural property risk analysis model: development and application to preventive conservation at the Canadian Museum of nature. Acta Universitatis Gothoburgensis, Goteborg, Sweden and Jonathan Ashley Smith – Ashley-Smith, J. (1999) 'Risk assessment for object conservation', Butterworth-Heinemann, Oxford, 358 pp. and Stefan Michalski – Michalski, S. (1990) 'An overall framework for preventive conservation and remedial conservation'; in Preprints of the 9th Triennial Meeting of the International Council of Museums Committee for Conservation, Dresden, ICOM, pp. 589–591.

[2] Brokerhof, A.W., Luger, T., Ankersmit, H., Bergevoet, F., Schillemans, R., Schoutens, P., Muller, T., Kiers, J., Muething, G., and Waller, R. (2005) 'Risk Assessment of Museum Amstelkring: Application to an historic building and its collections and the consequences for preservation management'; in Preprints of the 14th ICOM-CC Triennial Meeting, The Hague, pp. 590–596.

[3] Australian Heritage Collection Council 2001 *A guide to assessing the significance of cultural heritage objects and collections*

Artist Participation

Each period in the history of art makes specific demands on the researcher. Research into contemporary art requires a range of tools and approaches that differ fundamentally from the methods applied to earlier periods in art history. Not only has the versatility of production increased exponentially since 1950, but in addition the way in which it is embedded in society, both physically and philosophically, has changed profoundly. The conservation departments of institutes concerned with art production during the latter half of the twentieth century are confronted with this on a daily basis.An entirely new arsenal of materials, and especially combinations of them, has found its way into museums. In the field of conceptual art, the idea takes precedence over the materiality and the erection of installations outside the museum walls challenges restorers in more ways than one. At the same time, there is a whole new range of opportunities and possibilities because the context in which contemporary art is being produced has fundamentally changed compared to earlier periods. For example, the source material, which can be analyzed by scientists, can give new dimensions to scientific research and restoration. And one of the most crucial opportunities for the conservation researcher is that the artist himself can often be consulted as a primary source, through an interview or in direct collaboration.

PRIMARY AND SECONDARY SOURCES

A historical source is an object or text which provides us with information. We can speak of a primary source if the information comes to us directly, for instance, in the form of an eyewitness report or an interview. Secondary sources are based on primary sources (or other secondary sources); they are processed by an original source. It is not only the artist who is a primary source. Also contemporaries, colleagues and others who are part of his circle can contribute important information as eyewitnesses.

The further we penetrate into the artist's network, the more cautious we need to be in dealing with the data we collect. Thus, in many cases a gallery manager may have been closer to an artist for a longer period of time than, for instance, a fellow artist who worked with him or her for only a brief period. In this case, one could say that the first one mentioned will be more useful as the stories passed on to others and the insights based on information acquired from others, are secondary sources. However, secondary sources may still provide valuable information. All sources must be appraised critically within their own right and information must always be checked. This can be done by comparing them with other sources; information from an artist about materials can,
for example, be compared with the results of scientific research.

RESEARCH FOCUS

In agreement with its long-term research into artist participation in the conservation of contemporary art, the S.M.A.K. organized several activities for the *Inside Installations* project. Based on various available methods and source material from diverse scientific disciplines, the research started to take shape. The broad framework, to which the actual artist participation is a significant contributory factor, was studied in the light of anthropological and sociological reference works.[1] What we learned form the field of anthropology, is that social interaction always indicates observation, participation and communication. 'Communication' is often arranged in the form of an artist interview, in which data is assembled. 'Observation and participation' are often organized as collaboration between artists and conservators with an exchange of experiences. Both approaches provide an opportunity to examine why and how an artist is working the way he does.

METHODOLOGY

Based on the research material gathered from diverse partners in the project, it became clear that the form or way in which information is being transferred depends on the choice made by the researcher and artist together. Artists also often put forward their own ideas about information transfer. Because this information is entwined with the artist's individuality, a first step in the approach can be distilled from the artist's activities in this respect. In practice, it will gradually become clear where the information gaps are and, with this in mind, questions can be formulated, based on the artist's mental framework, and in relation to future conservation activities, presentations and changes to which the oeuvre is likely to be subjected. The interview arranged with the purpose of acquiring general guidelines for dealing with a body of work in all its aspects requires intensive preliminary investigation. Works of art, which represent the nucleus of that body and use diverse media within it, may be the backbone of the interview structure. In fact, an artist interview is a research interview. A qualitative research interview aims to listen to and learn from the stories, told by the subject, and told from his or her perspective. This kind of interview adheres to a certain structure and targets a

clearly-defined goal. In terms of actual conservation practice, this means hearing the artist's opinion on the re-installation and conservation of the oeuvre.

The research group of B2 Artist participation participated in the 32nd Art and Art Historians Annual Conference in Leeds (5-7 April 2006), in which a two days session on the topic 'The Artist Interview: Contents and Contentions in Oral History/ Art History' was organised.[2] Oral history was investigated as a research tool in museums, galleries, conservation departments, archives and libraries. Starting from the historiography of this format in the early 1960s, the widespread availability of the recording equipment (and then other digital communications technologies later on) has meant that researchers can not only listen to recordings, but can also easily conduct such interviews themselves. Oral history became an important component of inter-textual thinking, forcing the reconsideration of other documentary sources and drawing attention to the mediated nature of interpretation.

The complicated status and function of the artist interview, recorded on tape, film, video or DVD was discussed with an international group of researchers. Subjects like the character and directness of the spoken word and how to deal with the differences between the edited and unedited versions of the interview were examined. Also the authenticity of the artist's voice as a primary source and the role, position and expertise of the interviewer are also of major importance within the field of Art History.
Methods for interviewing and artist participation within the project were further investigated by doing interviews with conservators and conservation researchers. The study was developed in collaboration with B1 Preservation. The practice of interviewing and collaboration is present in every participating institute. Various opinions about pre-research, interview structures, transcripts and analyse methods as well as the evaluation of the results, were shared.

Based on the B2 Artist participation research, some general insights emerged:
– Often a combination of communication methods is used to investigate an installation artwork (such as an exchange of letters, telephone calls, questionnaires, interviews, other forms of collaboration);
– We are dealing with people; the influence of emotions on the process of cooperation should not be forgotten;
– An interview has an individual and subjective character, the relation with the artist has a big impact on the result;
– It is recommended to conduct the interview in the artist's studio or gallery;
– Language differences between the interviewer and the interviewee can be overcome by using multilingual vocabularies;
– Conservators of contemporary art are also facilitators ;
– Before doing the interview, it is important to make a reconstruction of the history of the artwork within the institution to find out what was bought and witch parties have been involved
– Never forget how 'pragmatic' a motivation can be;
– The idea of artist participation can be expanded into participation with the general public. Besides an artist interview, a discussion with the artist and the public can bring new insights.

INTERACTIONS WITH ARTISTS AND WORKS OF ART
With a view on the research taking place into installation works of art, we have noticed that the interaction with the work of art within a collection can differ strikingly from the situation of setting up a temporary exhibition. Often, an installation is part of a temporary exhibition in the first place and is then acquired. From the moment the work is included in a collection, there are usually several conservation aspects to be investigated. For us as conservation institutions it is important to investigate this interplay with the work of art, for example the way in which installations are exhibited and conserved. Installations have extremely diverse characteristics and are probably the most difficult cases to chart. Aspects like variability, reproduction, performance, electronic media and interaction are incorporated in many works. Ready-made answers for dealing with these works do not exist. Here, research lies at the heart of the quest for solutions and is preferably the framework for an interactive thought process between artist and

Suchan Kinoshita

researcher. Interactive research resulting in guidelines for individual works of art is the basis and often the only guarantee for the continued existence of the work. Should no communication exist in this regard, then one would have no idea of how to tackle these works after their initial installation. An installation might remain 'unvaryingly' installed and often disintegrate because of its fragility.

EXPERIENCE: A LIVING SOURCE OF INFORMATION

Contemporary artists often see the process itself as 'material' of their work, as an array of possibilities of which they are fully aware. The work process becomes part of the product and the product is shown within a certain context. The variable aspects are part of the work and need to be included in the technical specifications. A specification is an ongoing discussion, is not finite but does acknowledge constant relationships. It is a living source of information, never finished, the fruits of experience. How we describe experiences and whose experiences they are, is relevant in this research question. Everyone is agreed that the artist's experience is the corner-stone here. Additionally, in a collection, the administrators' experiences are related to the work. In this way, they provide a framework for the work and transport it further in time.

SEMINAR ARTIST PARTICIPATION

In October 2006 and as co-organizer of *Inside Installations*, the S.M.A.K. organized the seminar 'Artist Participation'. The gathering, which enjoyed broad public attendance, aimed at positioning the interactive tools available to assist artist participation in a broader setting. An effort was made in compiling the program to highlight common ground with other disciplines. Several results of co-operation between artists, conservation researchers and museums were presented at this seminar. Professionals with experience in interviewing artists shared their knowledge and a general framework was given by theorists from other disciplines, including anthropology and sociology. In the course of the day a number of possibilities in the field of artist participation and the results were elucidated: the e-interview, collaboration in executing variable installations and creating a performance manual were included in the program.

INTERVIEW TRAINING AND TRANSCRIPTION WORKSHOP

Although conservators are often confronted with interviewing an artist, the majority of conserva-tors have never undergone training for this. Nevertheless, in their communication with the artist they need to be familiar with certain basic principles so that the required information not only is acquired efficiently but also that the interviewee is not offended in any way. Thus, on the second day of the seminar, a workshop for interviewing techniques was organized. During the interview the interviewer usually collects copious amounts of information. This material also needs to be processed; it must be usable and therefore applicable in relation to the conducted research. Furthermore, it is clear that the information also needs to be accessible for third parties, such as in our field colleagues within and across museums. In other words it is advisable that the interview be transcribed. A workshop on this topic was also organized. By means of these two workshops, the interview training and the transcription workshop, a possibility was created of applying the acquired knowledge at a scientific level in the field of the conservation of contemporary art.

Frederika Huys & Anne de Buck, Stedelijk Museum Aktuele Kunst (S.M.A.K.)

Interview workshop / Kie Ellens & Gaby Wijers (top)
Patrick Lebret (bottom)

NOTES

[1] Kvale, Steinar, 1996. Interviews: An Introduction to Qualitative Research Interviewing. Thousand Oaks, California: Sage

Publications Chirban, John T., 1996. Interviewing in Depth: The Interactive-Relational Approach.Thousand Oaks, California:

Sage Publications Marshall, Catherine, 2006. Designing Qualitative Research. Thousand Oaks, California: Sage Publications

Turner V.W. and Bruner E.M., eds., 1986. The Anthropology of Experience. Urbana and Chicago: University of Illinois Press

Moustakas, Clark, 1994. Phenomenological Research Methods. Thousand Oaks, California: Sage Publications

[2] http://www.henry-moore-fdn.co.uk/matrix_engine/content.php?page_id=3037

Documentation Model (2IDM)

RESEARCH FOCUS

The *Inside Installations* Documentation Model (2IDM) provides a formal structure for recording the evolution of artworks, in particular installations. The model aims to increase the understanding, preservation and accessibility of contemporary art. It provides a guideline how to structure information and relationships in any management system. The model is understood as a proposal for documentation specialists, curators and conservators to formulate requirements for information systems. It does not attempt to detail all of the information required from an administrative or collection point of view.

Documentation of contemporary art covers a wide spectrum of technical and conceptual aspects, i.e. the documentation of light, sound, space, movement, video, interaction with visitors, tactility and olfactory, etc. In order to preserve, present and understand these art works, innovative instruments and structures are required. Without adequate documentation and conservation management, many of these works will not be accessible in the future. Today many museums are using digital collection management systems for documentation and maintenance of their artworks. These systems have been developed for traditional artworks such as paintings and sculptures. Complex multimedia installations are at present not considered, while there is an extremely urgent need for adequate documentation of these works for future preservation and re-presentation. The related media management is a major challenge for many museums.

Within this project it was the aim to develop new strategies, tools and templates for the documentation, administration and maintenance of contemporary art. The 2IDM provides an information-architecture for and can be integrated into different collection management systems or other information systems.

THE MODEL

The model was developed in collaboration between conservators, art historians, scientists and developers of information systems; it also considers existing models. It is an example of synergised experience, as it is the joint approach of professionals from various institutions. The 2IDM aims to inform developers of information systems as a guide, in order to effectively structure and relate information according to the needs of conservation professionals. It may also serve professionals and students to structure documentation without a digital information system.

The model is represented with 12 diagrams (pdf-files which can be downloaded from the project's website). A general overview is given in the Data-Model Map (based on the case study Lichtraum) which includes all basic elements of the information management system and shows different types of relations between artworks, records on artworks (artefacts) and their respective elements, as well as relations to archives and special modules.

The 2IDM considers four basic modules that are: Identification and Description (ID), Material and Technique (MT), Location and Exhibition History (LEH), and Condition and Conservation (CC). Further, the model provides instructions for documentation procedures, e.g. the creation of new records within different modules, as well as additional records describing evolution over time and the work's conservation history. Special features include links to various archives and thesauri as well as several checklists for recording information. Finally, the Data-Model Scenario illustrates the practical use of the model in the occasion of a loan request procedure.

The model does not attempt to design a complete collection management system; it rather provides a proposal from the view point of conservation professionals. As for example new technology continuously provides other possibilities for the documentation there is no doubt that the model continually needs to be re-examined and where appropriate, further developed.

Concept and realisation of 2IDM Gunnar Heydenreich, Martina Pfenninger, Ulrike Baumgart, Reinhard Bek, Maike Grün, Ulrich Lang, Barbara Sommermeyer, Thomas Zirlewagen. **Contributors** Karen te Brake-Baldock, Craig Gordon, Mellissa Klotz, Tatja Scholte, Gisela Schulte-Dornberg, Cornelia Weyer. **Map Design** ammora fhrobs, Markus Ort, Andreas Schwankl

Gunnar Heydenreich, Restaurierungszentrum Düsseldorf
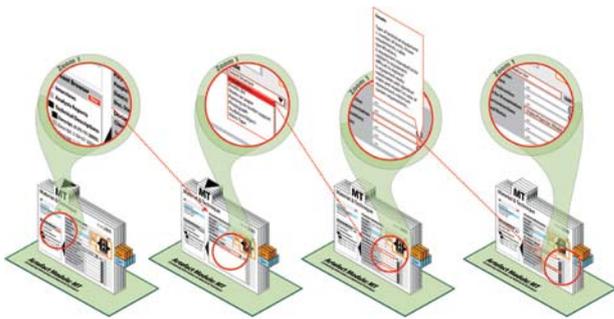
DIAGRAM DOCUMENTATION MODULE
CREATE STRUCTURE FOR MATERIAL & TECHNIQUE MODULE
To record information the user has to select a document category first (e.g.Technical Description, Analysis Report, Interview...).

Subsequently, the user has to select a pre-designed structure for data entry, which is organised according to object type (e.g. Installation art, Painting, Sculpture...). There is also an option to create specific structures if needed.

ADD TECHNICAL INFORMATION GUIDED BY CHECKLISTS
In addition to the proposed structure each text field is also combined with a specific checklist. The checklist provides guidance as to what is appropriate or essential to record. Checklists can be used as they are or modified according to need; they may be displayed as long as the user is adding information. Each text field is unlimited and may be enlarged for text entry.

GUIDED INPUT ADDED TO MT DOCUMENT
If the user has confirmed his/her input, the checklist will disappear, but can be re-displayed.
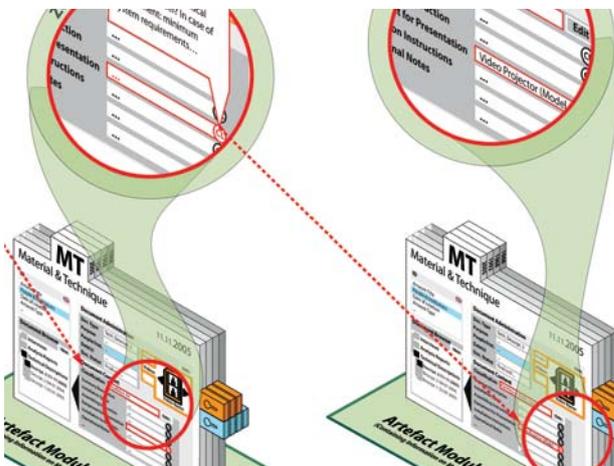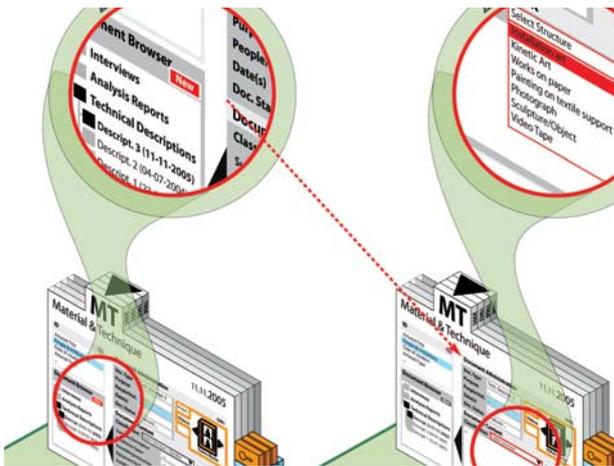
Documentation of installation art

A COLLABORATION BETWEEN TATE AND S.M.A.K.

THE GOALS OF THE RESEARCH

Conservation and research files for installation artworks are extensive and complex. It is important to the core work of the museum that information held in the artwork record is easily accessible to both members of the conservation department and other members of staff (for example collection managers and curators).

Recognising a shared need to improved current methods of managing the documentation associated with installation artworks, Tate and S.M.A.K. decided to cooperate. The core goal of their research was to establish a 'documentation structure' with which to organise the complex records associated with artists' installations.

The aim of this 'documentation structure' is to:
– enable efficient storage of information
– make it possible to quickly find core information held within a file
– manage the range and diversity of documentation associated with artist's installations.

METHODOLOGY

A workshop lead by the information management consultant Mrs Liz Orna[1] was organized. The workshop started by collecting several existing index pages, which had been made for case studies in the installation art project and some older research files and conservation records. All of these index pages were compared and 'common patterns' were sought. From the comparison of these records, a general 'documentation structure' was established. The structure was then tested by examining the documentation from the case studies and checking that each subject fitted within the framework.

This structure or 'index' is the result of the functional analysis of a range of conservation and research files for installation artworks. The resulting 'documentation structure' is being used by both Tate and S.M.A.K. as a method of organising their paper records for installation artworks. The researchers from Tate and S.M.A.K. also consider it a useful basis for developing methods of organising digital records for installation works in the future.

Those involved in creating the documentatioon structure were as follows Frederico Fazenda-Rodrigues, Kate Jennings, Pip Laurenson and Tina Weidner (Tate); Anne de Buck, Frederika Huys (S.M.A.K.)
Information management consultant Elizabeth Orna.

NOTES

[1] *Information Handling in Museums* by Elizabeth Orna and Charles Pettitt. Published by Clive Bingley 1980, *Managing Information for Research* by Elizabeth Orna, Graham Stevens Published by Open University Press 1995, *Information Strategy in Practice* by Elizabeth Orna Published by Gower publishing 2004, *Making Knowledge Visible: Communicating Knowledge Through Information Products* by Elizabeth Orna Published by Gower Publishing 2005

The measurement of installation art

RESEARCH FOCUS

Over the past five years, installation art belonging to the Sammlung Moderne Kunst (Modern Art Collection) at the Pinakothek der Moderne in Munich has been geodetically surveyed. This surveying work has been carried out by applying various methods such as tachymetry, photogrammetry or laser scanning, and has resulted in a number of documents such as floor plans and different views of the particular installation artwork.

The primary objective of these measurements has been to document the artwork. Installations usually consist of several objects whose effect and significance are decisively influenced by their spatial arrangement. A geodetic survey provides highly accurate and fixed coordinates for every object. By contrast, hand drawings based on visual judgement, photographs or video recordings can only define the exact locations of the objects to a limited extent, which leaves room for interpretation.

The installations measured at the Pinakothek der Moderne to date have been installed by the artists themselves or by someone representing them. The recording of these original arrangements has provided vital data relevant to the history of the artwork.

Once the installation artwork has been dismantled and stored away, it automatically loses its spatial context. In the light of this, the survey plans can provide much assistance or even the definitive basis for setting up the artwork again in the event of subsequent reinstallation.

RESULTS OF THE SPECIAL STUDY

The special case study consists of two investigations into the subject of measuring room installations.

The essay by Maike Grün '*Measurement of Installation Art. Methods and experience gained at Pinakothek der Moderne*' focuses on the expansive artworks of the artists Joseph Beuys, Pipilotti Rist, Fred Sandback, Mark Manders, Thomas Hirschhorn and Olaf Metzel at the Pinakothek der Moderne. In the same way that these artworks all differ from each other, so, too, do the individual surveying techniques, depending on the particular demands and objectives placed upon them by the installations.

Following on from the detailed description of the artwork, objectives, procedures and survey plans an evaluation was made of the methods from the restoration point of view. Wherever possible, the artists were asked for their personal opinions on the measuring and use of the surveying plans for reinstallation. Each case study is illustrated with images of the artwork, the measuring process and the recorded plans.

In her essay '*Überblick über mögliche Verfahren und Instrumente zur Vermessung von Rauminstallationen*' ('*Overview of possible techniques and instruments for measuring room installations*', which is available only in German),
Alexandra Czarnecki investigates the basis for measuring techniques. She illustrates how the different measuring instruments work – for instance, the tachymeter or laser scanner – and provides the reader with insights into the processes of selected methods of measurement.

The special case study presents for the first time an overview of standard professional methods of measurement and their application to installation art. Museum professionals now possess a structured overview of the different kinds of measuring techniques that provide a basis for preserving spatially complex artworks.

Maike Grün, Doerner Institut

Documentation of light

Possibilities and restrictions of documentation and measuring light in the context of installation art

RESEARCH FOCUS

Light is used as a direct medium to express artistic ideas as well as an indirect medium to gain access to artworks, artworks which include light as an immediate experience or in a transformed state which embraces the room and the spectator from any point of view. They sensitise the visitors for the room and their perception.

The perception of an artwork with electric light or a light installation is not only determined by the light used by the artist (such as lamps, illumination intensity, colour temperature, etc.) but also by the location. The specifications of the room such as dimensions, surface texture (colour, structure, gloss, etc.) absorption and reflection of light are important components and influence the appearance of the artwork. In addition, light of different quality often overlaps, for instance if the light of an incandescent lamp, a video projection and some 'neon light' from an adjacent room coincide.

Probably nothing else within an installation changes so constantly as the light itself. Any light source will change over time and many techniques and technologies become obsolete (such as early high voltage light tubes). Thus, the documentation, re-installation or reconstruction of a site-specific installation may require consideration of different aspects.


METHODOLOGY

This study focused on methods and techniques to document the quality of light. Possibilities were discussed to measure light and its different aspects. Criteria were listed to enable conservation professionals to document existing artworks so as to be able to recreate intensity, resolution, colour and appearance of light in the future. Measuring methods were compared with the aim to establish a 'guide for good practice'.

An exhibition at the ZKM Karlsruhe of around 380 light-art objects resulted in establishing a glossary of light technology so the technical terms used remained consistent. The glossary focuses on the description of lamps as they represent the most important part of these objects. It also lists and explains important terms used in electrical and light technology. The explanations are based mostly on German standards and do not claim to be complete. Terminology to describe light installations and their three dimensional effect was not dealt with. This preliminary study intends to support the documentation of lighting objects and to facilitate the communication between conservators and lighting specialists.

Concept and realisation Franziska Herzog (ZKM Karlsruhe), Ulrich Lang (MMK Frankfurt), Ulrike Baumgart (art-documentation.com, Bonn). **Contributors** Markus Berger (Director Video Dep., Satis&Fy), Katharina Haider (TU Munich), Patrick Gleich (KonikaMinolta), Tina Weidner (Tate), Thomas Zirlewagen (former ZKM) **Photo** Ulrike Baumgart.

Ulrich Lang, Museum für Moderne Kunst Frankfurt
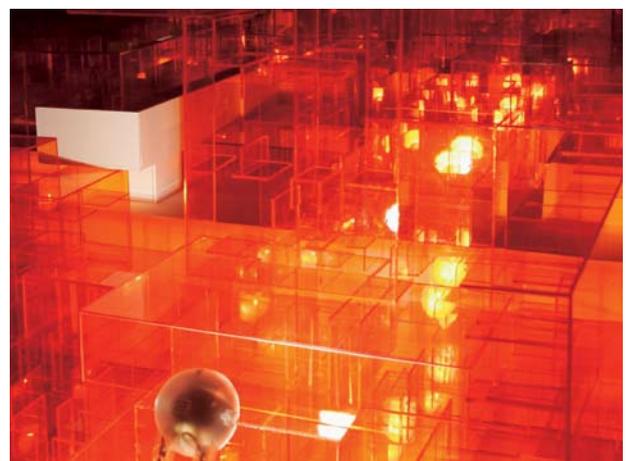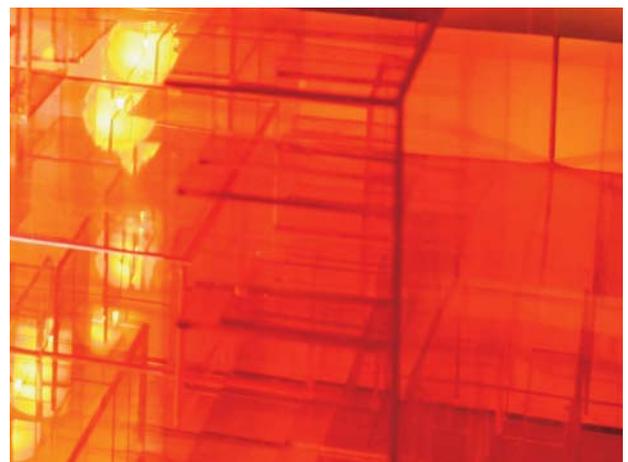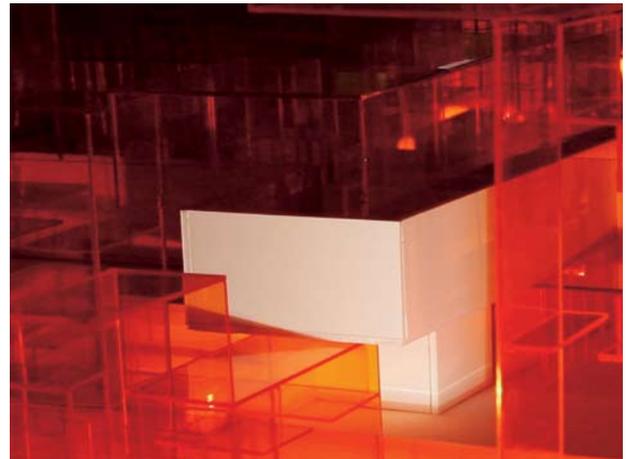
Documentation of movement and sound

INTRODUCTION TO THE DOCUMENTATION OF KINETIC ART

Artists of kinetic artworks set their works in motion. They rotate, leap, or roll – calmly, quietly, sublimely, or quickly – and produce noises in the process. Such ephemeral forms of expression produced by movement are problematic from the point of view of conservation: wear and damage to the motors result. In addition to questions of the ethics of restoration in practice, the most important task for a conservator is to document the movements and materials of a work as early as possible. Within the scope of this project's research activity, an essay has been written on the documentation of movement.

DOCUMENTATION AND VISUALISATION TECHNIQUES

Photographic methods – film and computer-aided 3D video analyses – are particularly well suited to documenting moving artworks.
Modified photographic methods are well suited to analyzing the size of movements. They are simple to produce, have a format that can be read visually, record a great deal of information, and lend themselves well to additional processing. A guide for good practice has been prepared by Christian Lindhorst in cooperation with Museum Tinguely.

3-D VIDEO ANALYSIS

This procedure, in which a moving object is recorded by two video cameras simultaneously from two different angles, is the only method for an objective documentation of a moving object in space over time. A study of this method has been made at the Museum Tinguely.

DOCUMENTATION OF SOUND

The sound of modern installation art can be an important and integrative element of artworks. In such cases, a separate and professional documentation of the sound is necessary. Important topics are the significance of the size of an object for the acoustic perspectives, the acoustics of the exhibition space, microphone recording techniques and the postproduction of the recording. In cooperation with Museum Tinguely, Robert Hermann prepared a study and a guide for good practice.

PRESERVATION ISSUES

An important reason for documenting kinetic works is that movement and wear frequently cause individual parts or areas under particular strain to fail or wear out, and thus require action. It is often impossible, or at least utopian, to preserve all of the parts of a moving artwork. That is why it is necessary to draw a clear line between restoration and replacing parts. Behind such questions of the ethics of restoration, however, are the issues of wear and tear and failure. In practice, two aspects in particular emerge in this thematic complex.

FRICTION AND WEAR

The moving parts of a kinetic work cause friction and wear. Sacrificial layers or lubricants can be employed to prevent this. An essay of the most important lubricants and their properties has been written.

ELECTRIC MOTORS: INTRODUCTION AND MAINTENANCE

Many kinetic works are driven by electric motors. These motors and the surrounding mechanical parts are often weak spots in maintaining a work's function. For that reason, a summary of the essential construction types of electric motors used in kinetic artworks and aspects of their maintenance has been produced.

Reinhard Bek, Museum Tinguely
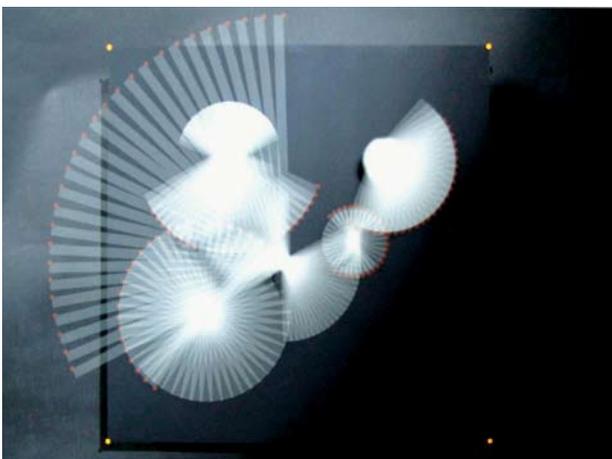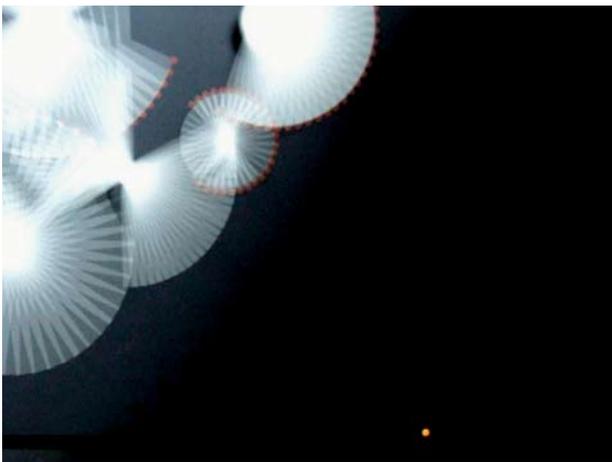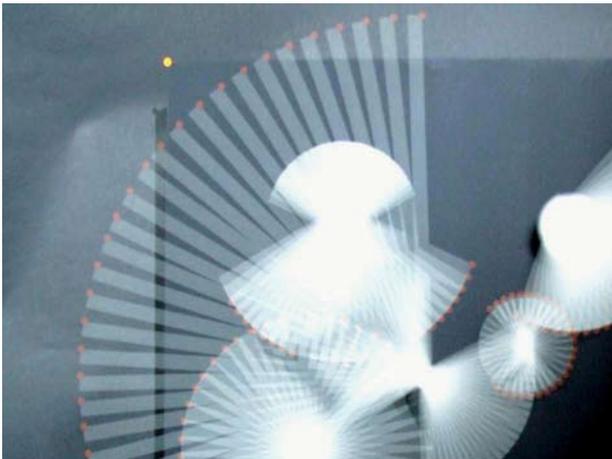
Visualisation of installation art

RESEARCH FOCUS
– Approaches to documentation and registration.
– The use of high resolution spherical views for the purpose of ocumentation.

Temporary and site-specific installations are an increasingly prevalent phenomenon in contemporary art. Installations within spaces that have been specifically conceived or produced by an artist facilitate a relatively consistent experience of the art work. However, our perception of site-specific installations characterised by their arrangement in space is subject to a number of variables.

In such cases, the artist's intention is manifested both in formal relationships between the objects constituting an installation, and the relationship of these objects to the space in which they are located. Factors such as the architectural features of the site thus assume greater significance. The visualisation and documentation of complex installations within a given space has to date depended on recordings produced by means of photography and video. By virtue of the media employed, the spectator's view is defined by the fixed perspective from which the installation was documented.

METHODOLOGY
This study investigates the potential for spherical panoramic photography as a tool for the documentation of complex installation views. A key feature of such VR (Virtual Reality) panoramas is that their use allows a viewer to determine the direction, angle and scale (close or long views) of the work's representation. A viewer can explore the entire space of the installation from the camera's position (along 360 degree horizontal and 180 degree vertical axes). The intention of the study was to critically assess the merit of such documentation with regard to professional standards.

For these purposes, the technique was applied to a range of art works: Joseph Beuys' *Beuys Raum*, Kassel; Edgar Arceneaux's *Drawing of Removal*; Won Ju Lim's *Longing for Wilmington*; Mario Merz's *Isola*, Kassel; Mark Dion's *Frankenstein in the age of...* and Fabian Marcaccio & Greg Lynn's *The Predator*, Frankfurt.

The strategy for documentation was modified on a case-by-case basis to suit each art work. This conveys an overview of the benefits inherent to this method. As a point of departure for the visualisation of site-specific, spatially contingent installations, a viewpoint that is as neutral and comprehensive as possible is desirable.

Two further aspects of spherical documentation were also examined. First, its potential as a tool for use with condition reports on individual components of an installation was considered. In addition, its value as a guide for future reinstallations of an art work (by supplying a 'visual manual' for such purposes) was assessed.

A summary of the various recording techniques and equipment required for such documentation is available as a short technical report.

Concept and realisation Ulrike Baumgart, art-documentation.com, Bonn
Spherical photographs Markus Weiß, spheron, Fischbach (Won Ju Lim); Lutz Schmidt, art-documentation.com, Bonn

Ulrike Baumgart
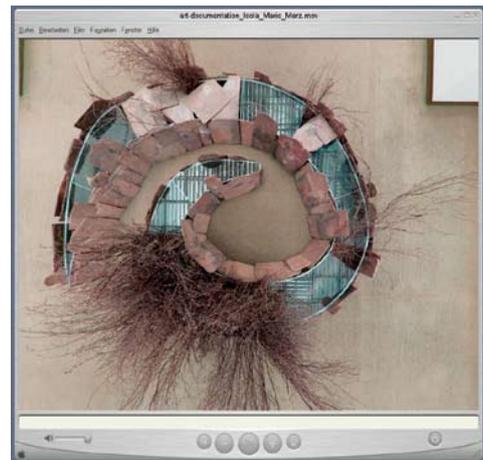
3D documentation of installations

RESEARCH FOCUS

One of the most significant limitations in the representation of installations is the two-dimensional nature of the documentation material such as photographs, videos or descriptions: the physical experience of space is just not there. An installation often has a specific relationship with its spatial environment. Due to its three-dimensional volume it takes possession of the surrounding space and transforms it. The relationship between the work of art, the space and the viewer's own body is an important part of the perception of the work. The internal spatial relations and the position of an installation in space are difficult to represent two-dimensionally, but are at the same time essential elements of the installation's description and re-installation.

Thanks to the possibilities of information technology, a great amount of data that are preserved in two-dimensional form, but in fact represent a three-dimensional reality, can be 'restored' to a form of visual representation that provides an insight into the spatial dimension:

– 3D-technology enables us to reconstruct installations and to make them accessible on the screen in such a way that researchers can obtain a more intense experience of the work including its spatial dimensions than by studying two-dimensional documentation.

– Animations can be used to enable a more complete viewing of the works of art (e.g. rotation on screen, panoramic photos, taking objects apart).

Therefore, both 3D models and animations could be welcome additions to the existing documentation techniques.

METHODOLOGY

Within the B3 Documentation research the Netherlands Media Art Institute (NIM) has conducted research into 3D documentation of installations. In this context, Gaby Wijers presented a paper on 3D research in the prevalent documentation practice and provided an overview of currently used techniques and experiences with 3D modelling from the partners of the *Inside Installations* project. Within the Netherlands Media Art Institute software has been tested and selected for 3D registration and production. In collaboration with the Vrije Universiteit van Amsterdam (VU) and the Hogeschool voor de Kunsten Utrecht (HKU), two different models were made for the installation *Revolution* by Jeffrey Shaw. Starting from this case, the HKU developed a concept for a tool to represent installations using 3D modelling: *the Virtual Installation Research Project*. Furthermore, installations of Marina Abramović from the collection of NIM were modelled in 3D, and information from an artist interview with Marina Abramović was made accessible via a 3D interface designed by VU (in collaboration with ICN).

To create 3D drawings and functional 3D environments is costly, in terms of money as well as time. It is rather obvious that in the future 3D modelling will develop from a high-tech application to a generally accepted tool for artists, technicians, exhibition builders and researchers in their respective ways of being involved with installations. As a means for practical installation instructions, the precise reconstruction of installations in 3D technology is however quite intensive; within the current day-to-day documentation practice it could hardly be applied on a broader scale.

Gaby Wijers, Netherlands Media Art Institute / Montevideo

Video documentation of installations

RESEARCH FOCUS

Although video documentation of installations, performances and other temporary artistic events are commonly used in contemporary art, research and good practice on this subject are rare. In video documentation, time and space are differently organised than how the viewer experiences them in a real installation. The ability to jump from a close-up to a long distance shot, for example, is only one among numerous other ways to manipulate the documentation. A video will be adapted to the installation (content) on the one hand, and to the language of film at the other hand. Perhaps certain aspects are not very significant for the installation but interesting to look at. Also, it might be difficult to capture in video documentation certain distinctive features of the installation. For example, how to present an overall impression, visual aspects of its components, the relationship between components, the relationship to space/architecture, sound, movement, choreography/trajectory, time-specific aspects, interactivity, presence and experience of the audience? How to present different parts/activities simultaneously? What are the most suitable camera points, how to edit and when?

METHODOLOGY

The research approach of this study on video documentation carried out by the Netherlands Media Art Institute was two-fold. It included literature research into current documentation practices (examples delivered by project partners and beyond) as well as analysis of existing video documentation of installations. The videos analysed came from case studies within the project as well as some from Montevideo's own collection of video documentation (1976-2006). Research aim was to develop a 'guide to good practice' for making video documentations of installations. That is: how to utilise video to give insightful information about a specific installation, including components, context, and information on how to re-install the work? As a result of this study two papers were produced which together make up a guide for good practice for video documentation of installations: *Video Documentation of Installations* by Gaby Wijers & *Guidelines for documentation of (video) installations* by Sami Kallinen. The first paper is more theoretical and can be seen as the context for the second paper, which is a more practical and technical guideline. Both have been adapted for the project's website and are available as an on-line course titled *Video documentation of Installations*. The course includes numerous clips of example video recordings.

QUESTIONS ADDRESSED

There are too many questions to answer at once and they very much depend on the purpose of making a video documentation in the first place. The first question to ask is then: What is the purpose of video documentation and what would be useful scenarios? When defining the purpose it is useful to think about the intended effects of the recording. For example, recordings for publications and education for a broader audience explicitly try to show the main characteristics of the installation in an attractive fashion. Videos for promotion of the work are used to present the installation to curators and other professionals with the aim to include the work in an exhibition or festival. For such kinds of presentation, images that raise curiosity and are meaningful are needed, next to proper editing. For documentation and research purposes, the whole atmosphere and experience needs to be captured so that the viewer experience is included. For the purpose of re-installation, it is essential to capture the exact order of actions as well as the positioning of the parts in relation to an overview of the installation.

LESSONS LEARNED

Video documentation can be an important addition to the existing documentation techniques of textual documentation, pictorial i.e. visual documentation, because sound (synchronous to the action as important feature for experience), time specific aspects and perhaps even a residual atmosphere can be shown in a video. Research into video documentation is still almost virgin territory with no clear definitions and is in need for further research to investigate how video documentation could provide insight into the special relations of the installation with the architecture and audience, its movements and interactivity. Also the need for and the level of additional textual information next to the video documentation needs further exploration. It's a work in progress! Each installation is different. Therefore, it seems inappropriate to suggest that a definitive set of recommendations for video documentation of installations should be provided. These guidelines must thus be seen as a collection of instructions and issues to consider for those who plan to make a video recording of an installation.

Gaby Wijers & Sami Kallinen, Netherlands Media Art Institute / Montevideo

Stills Video Documentation

Bill Spinhoven, **I/Eye**, 1994

Peter Bogers, **Portrait**, 1992

Madelon Hooijkaas/ Elsa Stansfield, **Outside/Inside**, 1982

Theory and semantics

The aim of this research activity was to contribute to a conceptual and semantic framework for the conservation of installation art. As theory and semantics can be considered two sides of the same coin, the activities were sometimes overlapping; also conjunctions with other research themes were established along the way. At the start of the project a B4 working group that included representatives from all co-organisers was formed. A number of meetings and conference calls helped to specify the objectives, while the seminar held in the Bonnefantenmuseum Maastricht was dedicated to theoretical reflection (May, 2006; organised by SBMK and ICN jointly). Below, some of the questions addressed by theoretical research will be described and as for semantics the online *Inside Installations* glossary will be briefly introduced.

RESEARCH FOCUS THEORY

Conservation practice has undergone major changes in response to installation works of art and therefore the B4 group identified a need for reflection on certain key questions, without however wanting to narrow things down. Diversity and individual approaches were appreciated and stimulating discussions were considered valuable contributions to the project even if not crystallized in written form. Concrete contributions were delivered in various instances by individual participants of the working group who presented lectures or published articles in professional journals, in which certain key questions were addressed from a theoretical perspective. These outcomes are available on the project's website and are listed under the respective seminars and workshops.

KEY QUESTIONS
PROFESSIONAL ROLES

One such question that received attention throughout the project was how installation art changes the museum practice and what its impact is on professional roles, for example, those of conservators, curators, technicians or archivists. During a panel discussion *Installation Art in the Museum Context* (Maastricht seminar), museum director Alexander van Grevenstein and artist Suchan Kinoshita, together with conservators and art historians of the panel, discussed the implications of acquiring installations in the light of their (future) re-installations. Open-ended works of art, such as Kinoshita's installation in the Bonnefantenmuseum, are especially challenging for a museum organisation in that these works induce subjectivity and interpretation by curators and conservators. In addition, if a work is of a living artist, how does this collaboration with its creator(s) affect traditional professional roles? How does the museum as an organisation respond to these new 'negotiated' relationships with the artist? According to a statement at one of the discussions, a museum should engage deeply with these works and keep them alive by 'embodying the work in the collective professional domain of the museum'.

These questions, discussed during the Maastricht seminar, were also a prelude to the last project seminar held in Tate Modern, London, in March 2007, *Shifting roles and shifting practices: artists installations and the museum* (reported in the B1 Preservation activity).

RESTORATION THEORY

Another key question was the position of restoration ethics in relation to installation art.

Terms like durability, authenticity, minimal intervention and reversibility are guiding principles for restoration practice but these concepts may fall short in view of installation art. In her lecture given in Maastricht, Cornelia Weyer asked why proven positions in restoration theory fail when attempts are made to apply them to installation art. Based on careful examination of restoration theory on the one hand, and by drawing up some characteristic features of installation art on the other hand, she looked for potential conflicts and offered a 'relational theory' as a possible solution. "*That does not mean undertaking just any restoration measures without rules. Rather it means taking a step back from the usual attachment to material and technique which requires a high level of ability to assess the impact of a work. It can therefore not be stressed too often that larger restoration interventions in installation art require aesthetic appreciation of the work and a readiness to engage with its perhaps puzzling idiosyncrasies.*"[1]

Pip Laurenson, in her lecture given in Maastricht, *Authenticity, change and loss in the conservation of time-based media works of art*, explored the question 'What is it that we are trying to preserve?' and considered whether traditional conservation's conceptual framework is inadequate to guide decision making in the conservation of installation art.

QUALITATIVE RESEARCH

Vivian van Saaze presented her paper *Doing Artworks. An ethnographic study into a case study of the Inside Installations project* at the London seminar (March 2007). Her five year PhD research had a strong link with *Inside Installations* in that she researched several case studies with a view to the working practices of contemporary art museums and their approach to presenting and preserving installation artworks. Through empirical research into actual cases, the researcher's aim is to gain a better insight in the complex processes of presentation and preservation problems, and the different ways of problem solving. The research takes an interdisciplinary approach and builds upon insights from preservation theory, art historical and art theoretical studies, and constructivist science and technology studies. Van Saaze uses methods derived from ethnographic research such as participant observation and interviews. (The publication is due to appear in September 2008).

Throughout the project it appeared that methods used in social studies (especially qualitative research) can be extremely beneficial for the issues we are dealing with in preserving and presenting installations works of art. Not only are interviewing techniques widely applied in collaboration with the artist (as is shown in the B2 Artist participation research), but also professionals themselves are a rich source of information. B4 members have been involved in an initiative taken by Pip Laurenson and Frederika Huys to interview fellow conservators from the project. This activity has been fully described in the B1 Preservation report.

Reflection on the project from a sociological viewpoint was given by Dr. Jan Marontate from Acadia University, Nova Scotia, Canada who attended most of the project's meetings and gave an inspired 'feedback talk' at the Maastricht workshop.

VARIABLE MEDIA APPROACH

In 2003, the Variable Media Initiative (VMI) introduced a detailed questionnaire to be used in recording information from living artists with the aim to define artworks independently of the medium in which they were produced. The questionnaire relies on a classification scheme that identifies core features of an artwork and relates the work's 'behaviours' to a typology of conservation strategies.[2] During a session at the Madrid workshop (June 2005), Ysbrand Hummelen presented the VMI and initiated a discussion on the usefulness of 'medium independent' classifications and strategies. Although some questions remained unanswered (e.g. regarding the qualification 'independent of the medium'), and attendants showed restraints in applying these terms in practice, a positive response was heard on the general concepts introduced by the VMI. The conclusion was that discussions like these on terminology and underlying professional concepts should take place more often and that a 'shared language' was still lacking.

WHAT IS INSTALLATION ART?

A fruitful link between theory and semantics was also made at a few occasions when project participants addressed the question 'What is installation art?' At the Karslruhe workshop Cornelia Weyer elucidated on the etymology and history of the term 'installation art', and invited B4 group members to speak about identifying characteristics, such as site and space, time, and the spectator's involvement. For example, Ysbrand Hummelen explored an applied semiotic model for mimesis as a tool for identification of the 'negative space', the space between the objects in installations, in relation to the characterisation of activities during re-installation in terms of imitation, repetition, copying and representation.

Anne de Buck, in her lecture *Installations by another name* (Maastricht workshop) gave a critical reflection on the classification of works of art as 'installation', especially for conservation research. After the term had come into use in art history and critique, it was adapted as 'rest category' by the conservation field. Categories in conservation (like 'material') usually relate to an activity or strategy (such as preventive conservation measurements for clearly defined material groups). With the category 'installations', however, which is divers and undefined, this could never be the case and the classification as such is thus an empty box. De Buck presented an alternative framework for the conservation of these works during her lecture.

Interestingly, immediately after the lecture a working session was held on the naming of types of installations in relation to the case studies. Indeed the question returned whether installations should be classified according to their 'medium' or whether a decisive perspective should be that installations need to be *installed* (as a verb and profession-al activity). As expected, these discussions did not bring final solutions, but they contributed to a deeper understanding of the complexities of describing installations as artworks.

RESEARCH FOCUS SEMANTICS

INSIDE INSTALLATIONS GLOSSARY

Since the international collaboration started in projects on contemporary art conservation (Modern Art, Who Cares?, 1996-1999, and International Network for the Conservation of Contemporary Art, INCCA, 1999-today), conservators had the desire to develop a shared vocabulary. This is however not an easy task. First of all, the domain of materials, techniques and media used in contemporary art is 'indefinite' and idiosyncrasy of the artworks adds to the problem of classifying potentially useful terms. Secondly, issues of the conservation of contemporary art are widely diverse and clear-cut boundaries of a shared vocabulary can not be set so long as new concepts are being introduced, not only by the art produced but also by the professionals working in this field. These dynamics are inherent to an emerging discipline and the B4 group had to take them into account when developing the *Inside Installations* glossary.

APPROACH

Although a set of terms for installation art would only cover part of the entire contemporary art domain, the problems of semiotics described above are more or less the same. A vocabulary including term *definitions* (scope notes) would thus be too ambitious and, instead, the aim was to match the current situation by using *quotations* selected from literature and other sources which explains how terms are being used within specific contexts. Usually, this is the first step of building-up a vocabulary. Because the online *Inside Installations* glossary will remain accessible through the project's website and is provided with feedback facilities, it can be expanded in the future and be developed into a consistent vocabulary within the INCCA network when the time is ripe.

The first step was to mark out a number of sub-categories in order to organise terms in a meaningful way. The following 6 categories were identified: 'Typology of installation art', 'Characteristics', 'Identity of the artwork', 'Behaviour of the artwork', 'Status of the conservation object' and 'Conservation strategies'. Relevant terms were listed according to these categories and for a number of terms, definitions could be derived from existing vocabularies, such as the Art and Architecture Thesaurus, Variable Media Approach, Capturing Unstable Media and a glossary provided by Netherlands Media Art Institute.

The main research activity however consisted of an extensive literature search, which delivered a rich compendium of quotations for the glossary. Also the case studies and other outcomes of the *Inside Installations* project (such as presentations during project's meetings) were investigated for the terminology used and any possible linkages with the terms of the glossary. In many cases direct hyperlinks from the glossary to presentations at the *Inside Installations* website could be made so that users of the glossary can explore the term's context in this way.

Another aspect of the *Inside Installations* glossary is its attempt to provide translations into Spanish and Italian for a number of selected terms. To this end, the on-line glossary includes a language switch option for translated terms. As the glossary is largely based on quotations much attention was paid to mentioning the sources, meaning that each abridged reference which is added to a quotation is directly linked to the full reference, which is included in the glossary's bibliography. Although the bibliography mirrors much of the state of the art at the time of the *Inside Installations* project it could never be complete and shortly the current list will be overtaken by new publications. It should therefore be stressed again that the current glossary needs to be developed further in the future following the on-going discussions and publications made by the professional community in contemporary art conservation.

Those participating in the B4-Theory and semantics working group were Karen te Brake-Baldock, Anne de Buck, Ysbrand Hummelen, Frederika Huys, Pip Laurenson, Vivian van Saaze, Tatja Scholte, Arienne Vanrell, Cornelia Weyer. **With the help of B4-partcipants, the glossary was created by** Tatja Scholte and Lora Markova (intern Maastricht University). **Translation of terms into Spanish terms by** Arinne Vanrell, MNCARS. **Translation into Italian by** Caterina Paolisso, MNCARS.

Tatja Scholte, Instituut Collectie Nederland

NOTES

[1] C. Weyer, 'Restoration theory applied to installation art', *Beiträge zur Erhaltung von Kunst- und Kulturgut, Verband der Restauratoren*, Volume 2, 2006, p. 40-47.

[2] Depocas, A., Ippolito, J. and Jones, C. *Permanence through Change: The Variable Media Approach.* New York/ Montreal: The Solomon R. Guggenheim Foundation/The Daniel Langlois Foundation, 2003.

Knowledge management and information exchange

RESEARCH FOCUS

It was almost universally acknowledged and said many times in different ways, during the project, that installations by their very nature required more work, (a lot more work) than traditional types of art, not only in manipulation, conservation, maintenance and exhibiting, but also in managing the necessary documentation. Installations are complex and highly variable as witnessed by the variety seen in the case studies. Each can present unique and difficult problems to solve, given that the artist's intent should always be respected, the concept reproduced as faithfully as possible wherever the work might be exhibited. In the second instance, many went on to say that structures, systems, precedents and the like didn't exist and they documented their activities in whatever way was convenient or possible. But this really is central to the purpose of the project as a whole, which was to undertake studies to see what problems were encountered and then find strategies to deal with them.

Without any discussion, the unspoken assumption was that many of the solutions lie with Information Technology (IT). And undoubtedly this is true. IT is in fact where the majority of the solution lies, but also with technology, in the sense of gadgets, systems and tools that measure, analyse, determine and remove doubt. IT can and demonstrably does improve productivity if it is correctly focused and applicable to the situation, is user-friendly, and allows a greater quantity of data to be handled or repurposed.

Even though the focus was, during the project, on doing case studies and the efforts made to understand, illustrate and document installations, probably the burden of documentation is not much less for normal day to day activities concerning installations. It was cited on various occasions that to work properly with an installation and the artist, one had to understand the artwork and the artist's intentions. Then analyse it from many angles (practically and conceptually), and try to put this on paper, film or whatever medium would be appropriate in order to transfer that knowledge – gained by the experience of working with the work and the artist – to those that might work with the installation in the future.

Within the scope of B5 Knowledge management and information exchange it was decided to undertake several tasks that could enlighten or make easier the work within the project or day to day activities within the restoration field where installations are concerned.

Various activities were collaborative efforts and crossed the boundaries between activities. Further elaboration on these cross-boundary activities will be found within the respective project summaries and published material.

RESULTS

WWW.INSIDE-INSTALLATIONS.ORG

Primarily, the website was created as a publishing medium for the documentation, findings and deliberations of the participants during the project's life-span, and finally to present the deliverables from the project and its activities. Work of the B5 coordinator centred on consulting with the ICN (the organisation responsible for creating the site and its online content management tool) about the nature and content of the website and the means by which the site was developed. As B5 was coordinated in Spain and ICN was based in Holland, this was necessarily carried out through a series of emails and some conference calls, not to mention side-line discussions during seminars and workshops.

THREE EDUCATIONAL PACKAGES

Secondly, 3 educational packages were included in this activity.

In February 2006 Tate produced the first e-learning package for the project. Taking as its subject matter the case study of Bruce Nauman's **MAPPING THE STUDIO II with color shift, flip, flop & flip/flop (Fat Chance John Cage)**, 1991, the aim was to look at whether it was possible to make information about the presentation and preservation of installation art available to a wider public. In preparation for this, Time-based media conservation worked closely with Tate's e-learning curator to look at what kind of audience would be appropriate for this type of content. In the month of March 2006 alone the site had 3,000 visitors. This was very encouraging and demonstrated the public interest in this type of content. Tate fed back their work to the project participants in two presentations; the first by Nadia Arbach (E-learning curator) who spoke about on-line learning at the first project workshop in Amsterdam in November 2004; and the second by Rosie Cardiff (e-learning curator) and Pip Laurenson (Head of Time-based media conservation) at the meeting in Karlsruhe in December 2005. This was the first time that

Time-based media conservation had collaborated on a project of this sort with Digital Programmes at Tate and the project provided a unique opportunity to learn about developing this type of content for a museum website. It was a steep learning curve for the conservators involved but one which has lead to a greater awareness of the website as a means of communicating conservation to a broad range of publics. The results are presented via a microsite for the project within the research area of Tate Online and also linked to via the main project website.

Two other educational packages fell directly within the B5 activity remit. Through various co-ordinating conference calls, the topics of each package were decided. These are about the project itself (a virtual tour) and video documentation of installations. The virtual tour is meant for all visitors to the website to explain the richness of the project, its results and how to access these results within the project website. The online course on video documentation of installations was created with museum professionals in mind (summarized in B3 Documentation and accessible through the project's website).
A document outlining the philosophy, policy and creation of e-learning packages was also researched and created as an adjunct to this educational package activity. It hopefully provides the conceptual overview and more technical guidance and good practices necessary in the creation of e-learning packages in general.

CROSS-LINK WITH B3 DOCUMENTATION ACTIVITY

B5 worked also with the B3 Documentation research as they are interleaved and interdependent activities. While defining the project deliverables at the project initiation meetings, there was a suggestion to produce a database or a similar product for managing documentation. However, this was regarded as too ambitious within the resources and timeframe of the project. Within the research activity of B3, several deliveries were contributed regarding management of documentation of installation art: a comprehensive documentation model was developed by the German partners (2IDM), and from collaboration between Tate and S.M.A.K. a files organising structure emerged (both deliveries are summarized under B3 Documentation).

SOME THOUGHTS ON KNOWLEDGE MANAGEMENT

To transfer any sort of knowledge one has to first put that knowledge on to some medium that will carry it into the future for the benefit of those to come. This essentially is the core of 'Knowledge Management'. However, to transfer this knowledge, several challenges have to be faced and solved. There is implicit knowledge which is gained by having experienced something (working with a particular work for instance), more concisely, it is the knowledge you possess in your memory. Then there is explicit knowledge, which is far easier to transfer as it already exists in some form such as books, papers, files, manuals or a medium like video and sound. To start with, one has to evaluate what knowledge to commit and then create that documentation and keep it organised. It has to be stored on some medium that will allow access to others (also in the future), and furthermore it has to be found again (searches). To make gains in productivity, this information has to be found quickly; a lot of time can be lost by not being able to locate necessary information at the time it becomes pertinent.
To support such knowledge transfer processes these functions should be implemented in a 'physical' system. A documentation system, however, is not intelligent in itself; it only provides a container and a structure; it takes human activity to make it work properly, human activity that correctly analyses what is necessary to input, in a rational, logical manner and then, as completely as possible, compiles the necessary information so that future users can correctly locate and then interpret the information.

DOCUMENT MANAGER

With this in mind, a further, originally unforeseen deliverable is an application related to documentation management. The application has the aim of integrating some (or eliminating some) of the concerns outlined above and to provide a structure within which to document or simplify documentation practices and procedures. This idea evolved from the analysis put forward by the B5 coordinator in a project's workshop held in Karlsruhe (December 2005), namely that even when dealing with highly complex and variable things (like installation works of art) many processes and aspects remained the same. This in fact is the very idea on which 'business blueprinting' is based: 80% of any process is documentable, analysable, constant and repeatable; in the remaining 20%, which is variable (which can sometimes make it seem as if two situations have nothing in common), it is left to the users to find immediate solutions to the situation at hand. These findings have paved the path to creating this application, for which the basis was also shaped by the concerns of project participants and project objectives voiced throughout the years.

PROTOTYPE

A prototype of the document manager can be easily downloaded from the project's website. It was designed to be simple to use, flexible and adaptable from a user's point of view. It is not intended as a replacement or substitute for database systems, nor should it compete with other management systems; however it could be used as intermediate solution to having a fully integrated database or perhaps as a support system to such a database. It uses only free to download and use components and requires no paid licensing in itself (but does rely on Windows as a platform and Microsoft Office as the productivity applications which are licensed). It should work on Windows based systems from Windows 2000 onwards.

The document manager provides a structure within which to place documentation. While the hierarchy of folders and their contents remains open to user's interpretation and implementation, some guidance is given on what is thought to be a suitable hierarchy to organise the compiled information. Furthermore, it provides a container for institutional templates that can be developed further to incorporate the policy and necessities of the implementer. The menu that provides access to these templates is created dynamically on the application start-up. These templates provide datasheets, institutional document templates and check sheets that assist the documentation procedure. Also, it provides a simple document versioning capability.

The real benefit of this system, however, is the incorporation of metadata which is contextual information about the resource at hand (the file). To that purpose the document manager provides a consistent interface to the data (files) and the associated metadata. It allows an expanded set of information to be kept and synchronised with the file and is the basis upon which searches are made. Alongside the metadata, a preview is possible for media file types without the need to open each file individually while searching for the required information. The prototype and guidance to use it are provided at the project's website.

Craig Gordon, Museo Nacional Centro de Arte Reina Sofia

Phil Collins, **they shoot horses**, 2004
© Phil Collins, Courtesy Kerlin Gallery, Dublin | Tate Collection (T12030)

Tacita Dean, **Disappearance at Sea**, 1996
© Tacita Dean, Courtesy Frith Street Gallery, London | Tate Collection (T07455)

Olafur Eliasson, **Notion Motion**, 2005 | Photo: Hans Wilschut

Carlos Garaicoa, **Letter to the Censors (Carta a los censores)**, 2003
© Carlos Garaicoa Manso | Photo:Tate Conservation | Tate Collection (T11864)

Pierre Huyghe, **Two Minutes Out of Time**, 2000 | Photo: Peter Cox

Greg Lynn & Fabian Marcaccio, **The Predator**, 1999 | Photo: Gregg Lynn Studio

Gustav Metzger, **Liquid Crystal Environment**, 1965–66 (Remake 2005)
© Gustav Metzger | Tate Collection (T12160)

Bruce Nauman, **MAPPING THE STUDIO II with color shift, flip, flop & flip/flop (Fat Chance John Cage)**, 2001
@ ARS, NY and DACS, London 2005 | Photo: Tate Photography | Co-owned by Tate (T11893), Pompidou Centre Paris,
Kunstmuseum Basel

Nam June Paik, **One Candle**, 1988 | Photo: Axel Schneider

Tino Sehgal, **This is Propaganda**, 2002
No photograph available as the artist does not allow any documentation of his installations.