

MODERN ART: WHO CARES?

An interdisciplinary research project and an international symposium on the conservation of modern and contemporary art

MODERN ART: WHO CARES?

This publication was made possible with the financial support of the following institutions and companies:



VSB FONDS



Archetype Publications Ltd, 6 Fitzroy Square, London W1T 5HJ

www.archetype.co.uk

First published 1999 by the Foundation for the Conservation of Modern Art
and the Netherlands Institute for Cultural Heritage, Amsterdam

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Sammy Herman

Photography research projects: René Gerritsen

Realisation: Dionne Sillé, Daniela Petovic, Vivian van Saaze and Tatja Scholte

Printed and bound in Italy by Printer Trento Srl

ISBN 1-904982-02-6

An interdisciplinary research project and
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Editors IJsbrand Hummelen & Dionne Sillé
Text editor Marjan Zijlmans

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FOREWORD BY *Evert van Straaten*

In the early 1990s the Dutch government presented a Delta Plan for the Preservation of Cultural Heritage, enabling the country's museums to tackle the backlog of maintenance on their collections. For the Kröller-Müller Museum this offered an opportunity to fundamentally redefine its conservation and restoration policy. The many pressing issues that the assessment of the condition of individual contemporary works of art raised, led curator Marianne Brouwer to consult on a wide scale with colleagues at other museums with collections of works with new and unconventional materials.

Yet while the problems turned out to be neither new nor unique, throughout the world only a limited amount of research on the subject was available. It was this realisation that prompted the Conservation of Modern Art project and led to the establishment of the eponymous foundation. Although the project was set up by Dutch modern art museums, it was clear that its effects would have to be international and that the results had to be made internationally available.

The project got under way in 1995. Today, four years on, it is clear that the science of conservation of modern art has been raised to a higher level and that expertise has increased, while access to available information has been made easier. A source of particular pride is the methodology for the preservation of modern art established in the two models published by the foundation.

Dutch museums combined forces and also co-funded the project – the first time in their existence that they financed basic research into the maintenance of their own collections. The museum staff members showed enormous enthusiasm in bringing this first phase to a successful conclusion. A crucial aspect was the collaboration of curators, conservators, directors and external experts in the various working groups. The foundation hopes that this fertile ground will prove the seed bed for the development and implementation of new research plans.

I would like to express my gratitude to the Dutch museums and the staff members who participated in the project. Their names are listed in the final pages of this volume. My thanks also to the Mondriaan Foundation for generously supporting the research project and its presentation at the symposium as well as in this publication.

In particular, I would like to thank Agnes Gräfin Ballestrem, director of the former Central Research Laboratory for Objects of Art and Science, now part of the Netherlands Institute for Cultural Heritage, and IJsbrand Hummelen, coordinator of the Institute's Conservation and Restoration Research, for their generous support. My thanks also to the project staff – particularly Dionne Sillé, who steered the project from its early beginnings to the symposium presentation and finally this publication, and Lydia Beerkens who contributed so much of her expertise as a conservator/researcher. I am grateful too for the efforts and constant support of Anne van Grevenstein, director of the Limburg Conservation Institute, and Pieter Keune, director of the Foundation for Artists' Materials. Finally, my thanks also to VSB-Fonds and the sponsors for the financial support that has made the publication of this volume possible.

On behalf of the board of the foundation,

Evert van Straaten

chairman of the Foundation for the Conservation of Modern Art and director of the Kröller-Müller Museum

FOREWORD BY *Rik Vos*

When the Netherlands Institute for Cultural Heritage was founded in April 1997 the Conservation of Modern Art project had only just finished. This initiative of the combined modern art museums of the Netherlands, under the auspices of the Foundation for the Conservation of Modern Art and supported by the Mondriaan Foundation, resorted under the Central Research Laboratory for Objects of Art and Science – which became part of the Netherlands Institute for Cultural Heritage in 1997.

The Laboratory's role in this project was taken over with enthusiasm by the Netherlands Institute for Cultural Heritage. After all, its aim was identical to the Institute's own mission: to improve the quality of the preservation of the nation's heritage. I was equally enthusiastic about the way the Conservation of Modern Art project realised its objectives: in close contact with the museums, interdisciplinary, project-structured and aiming at international cooperation.

The issues involved in preserving modern and contemporary art are so diverse and concern so many different disciplines that it is impossible to generalise on an institutional, let alone on a national level. The effort required can only be made through international collaboration. So we were tremendously excited when no less than thirteen international partners – museums of modern art and research institutes – immediately recognised the need to work together. Thanks to the collective efforts of these partners, and the financial support of the European Commission's Raphael programme, it proved possible to start the International Cooperation on the Conservation of Modern Art project and to organise the subsequent *Modern Art: Who Cares?* symposium. For the Netherlands Institute for Cultural Heritage it was only natural to follow up the national project by coordinating the international collaboration.

I would like to thank the European Commission for making the necessary funds available. My thanks also to the partner institutes (listed at the back of this volume) and their staff members for their tremendous efforts in realising this international project, and for the pleasant atmosphere that has characterised this international network. This naturally also applies to the staff members and project assistants at my own institute.

Together with the international partners and the Dutch museums of modern art represented in the Foundation for the Conservation of Modern Art, the Netherlands Institute for Cultural Heritage will continue to work on the development of ways to preserve contemporary art. We realise that these methods – including interviews with artists, documentation of artists' methods and materials, registration of performances, recording of installations and temporary visual art on the streets or in natural surroundings in image, word and sound – may be unconventional in the world of conservation and restoration. Yet in my view it is part and parcel of the modern art museum's function to conserve.

In this respect, there is much to be done in the future. A key task is to collect and exchange the data required to ensure the preservation of 20th-century visual art at an international level. I hope that this book contributes in some way to the development of this terrain.

Rik Vos

general director of the Netherlands Institute for Cultural Heritage

PREFACE

If there is one thing that the Conservation of Modern Art research project and the resultant international symposium *Modern Art: Who Cares?* have shown, it is that the development of visions and ways to ensure the survival of modern art requires expertise and experience in a wide range of disciplines. It was impressive to see the determination and enthusiasm of the various representatives of these disciplines – art historians, physicists, philosophers, lawyers, conservators, artists, art managers and critics – in their contributions to the debates on the conservation of modern and contemporary art.

In fact, the interdisciplinary approach to conservation-related research is not a recent invention. To an extent, this volume follows in the tracks of previous symposiums on the conservation of modern and contemporary art, such as the *International Symposium on the Conservation of Contemporary Art* (National Gallery, Canada, 1980), *Conservation and Contemporary Art* (Sydney, 1984) and *From Marble to Chocolate* (Tate Gallery, 1995). Moreover, in 1998 – a year after the symposium *Modern Art: Who Cares?* – the Getty Conservation Institute organised the congress *Mortality Immortality? The Legacy of 20th-century Art*.

In preserving and conserving a work of art, the professional necessarily emphasises different aspects of its meaning than those supposedly intended by the artist. These choices will always be open to debate. It is precisely because artists continually use their imagination and creativity to add new meanings that the preservation and conservation of contemporary art should not be a static process carried out behind the closed doors of the museum: it must be maintained in a dynamic and open discourse with the world around.

The implications for conservation in practice can be seen in the first section of this volume. As part of the Conservation of Modern Art project, the discourse was tested against conservation problems relating to ten prominent objects, and resulted in an integrated proposal for action on the basis of a reciprocal interplay of insights gained from various disciplines. Perhaps the most important aspect of this publication is the way the decision-making process and the deliberations have for the first time been exposed for all to see.

The second part of this book contains contributions to the international symposium *Modern Art: Who Cares?*, held in Amsterdam from 8 to 10 September 1997. A number of key issues relating to an integral approach to the preservation of contemporary art were developed into a programme in discussions with thirteen partners from various countries. It was concluded that if much of contemporary art is not to be lost for the future, the time was now ripe for an improvement in international collaboration between institutes and professionals, making use of modern means of communication. For this reason, the symposium included seminars aimed at producing recommendations and actions for the future.

As a result, almost a quarter of the 450 participants were actively involved in the symposium in one way or another. Electronic meetings were held and time schedules adapted to couriering trips to facilitate meetings for the international preparation of the seminars. Thus the symposium was able to benefit from the contributions of the many professionals who face the dilemmas of conservation of contemporary art on a daily basis. Their contribution proved enormously stimulating for the programme committee and the organisation team.

To facilitate the readability of the present volume, the internationally accepted term *conservator-restorer* for the professional involved in preserving the material integrity of works of art has wherever possible been abbreviated to *conservator*. In some countries, the term restorer (French: restaurateur; German: Restaurator) is

still used. To avoid confusion: the term conservator used here is not the same as the German Konservator or the French conservateur – meaning curator, the person in charge of a collection.

This publication marks the conclusion of both the research project and the symposium. We would like to thank all those who participated. As is obvious from a glance at the list of names in the final pages of the book, it would be impossible to mention all those whose enthusiasm and engagement provided the energy that enabled this enterprise to succeed. We would, however, like to express our particular gratitude to the authors whose contributions are included here.

IJsbrand Hummelen & Dionne Sillé
editors

Note on this Archetype edition

This Archetype edition is identical to the original edition with the exception of the contribution from Annemarie Beunen entitled “Moral Rights in Modern Art: An International Survey” (pp. 222-32) which has been updated.

PART ONE

Dionne Sillé INTRODUCTION TO THE PROJECT

Dionne Sillé was project manager at the Foundation for the Conservation of Modern Art.

Over the centuries, a structural approach to conservation and restoration has been developed for old masters' art. Practice, theory and training have resulted in clear guidelines. But what about modern and contemporary art? The materials used here are often far more fragile than those of traditional art; moreover, they may have a diversity of meanings. Nevertheless, when faced with the problem of conservation, many museums have to make it up as they go – sometimes with tragic results. A famous example is the controversial restoration of Barnett Newman's *Who is afraid of Red, Yellow and Blue III* at the Stedelijk Museum in Amsterdam, which made such an impact in 1990. Apart from the lack of expertise in the materials and techniques involved, in this case there appears to have been a particular absence of an understanding of the artist's intentions when using these materials. The legal complications precipitated by this restoration also came prominently to the fore.

Without an insight into the intentions behind the way modern artists have used their materials, it is hard to select the right conservation and restoration approach. This became apparent when, a few years later, a discussion at the Dutch Kröller-Müller Museum raised similar problems. Here, a mural by Sol LeWitt had been smeared with dirty finger-marks and the question arose how it should be restored. The curator maintained that it could be remade, since it was a work of conceptual art in written form and could therefore be executed by others. The conservator, however, objected that this contravened the current code of restoration ethics. Because other objects in the Kröller-Müller Museum's collection raised the same kind of questions for which there were no ready-made answers, the curator asked various curators elsewhere in the Netherlands whether they had to deal with this problem.

This led, in 1993, to the formation of a committee of curators and conservators, drawing on representatives from six main museums of modern and contemporary art in the Netherlands. They surveyed the problems of the conservation of modern art and made some preliminary conclusions:

- 1 There are no generally accepted methods and criteria for assessing or solving the conservation problems of non-traditional objects of modern art.
- 2 No inventory of the expertise of conservators and curators exists.
- 3 There is little insight into the nature and use of modern materials.
- 4 Knowledge concerning the composition and ageing of modern materials is difficult to access.

A methodical approach

With these points in mind, in 1993 the committee set up a project entitled Conservation of Modern Art. Its aim was to find a methodological approach to conservation that took the complexity of modern art into account. This was to be achieved by combining theoretical study with practice, with research into conservation problems relating to particular concrete examples, and by interdisciplinary debate. This was necessary precisely because modern art is so complex in its use of materials and meanings. Conservators, art historians, scientists, experts in various technical fields, even legal experts and philosophers took part in investigations to cover every aspect of conservation.

In order to obtain a series of pilot objects reflecting the wide range of ethical, aesthetical and material conservation issues, each Dutch museum with a large collection of modern art was invited to submit three objects that the museum had no idea how to conserve but which they considered worth preserving. Of the fifty objects submitted, ten modern art works were selected as suitable for this project: works of art-historical value that constituted a challenge not only in a material sense but also from an ethical standpoint; works presenting a range of as yet

unsolved conservation problems – which, moreover, were reflected in several categories of modern art: plastics, kinetic objects, monochromes and works consisting of mixed materials in which the course of the degradation is determined by the weakest element.

The final selection comprised:

- **mixed media** *Città irreale* by Mario Merz (1968; Stedelijk Museum, Amsterdam), *One Space, Four Places* by Tony Cragg (1982; Van Abbemuseum, Eindhoven), *Marocco* by Krijn Giezen (1972; Frans Halsmuseum, Haarlem), and *De overwintering van Willem Barentsz. op Nova Zembla* by Woody van Amen (1969, Centraal Museum Utrecht);
- **kinetic objects** *Gismo* by Jean Tinguely (1960; Stedelijk Museum, Amsterdam);
- **plastics** *Still Life of Watermelons* by Piero Gilardi (1967; Museum Boijmans Van Beuningen, Rotterdam), *M.B.* by Marcel Broodthaers (1970; Bonnefantenmuseum, Maastricht), and *59-18* by Henk Peeters (1959; Netherlands Institute for Cultural Heritage, Amsterdam);
- **monochromes** *Achrome* by Piero Manzoni (1962; Kröller-Müller Museum, Otterlo).

The tenth object, *Campi arati e canali d'irrigazione* by Pino Pascali (1968; Kröller-Müller Museum), presented a special problem: while the work could not be publicly displayed because its asbestos content represented a health hazard, the museum stood by the object's value and importance.

The story of the investigations into these objects is told in the following chapters. Two significant categories of modern art were not covered in this survey – installations and video art – for the simple reason that no representative works were submitted. These themes are discussed further in this publication.

Investigation of the pilot objects

Questions relating to conservation are usually decided on the basis of technical considerations and the practical possibilities and impossibilities of restoration. Here the research was therefore divided into two separate, but nonetheless interdisciplinary, working groups: one theoretical and the other practical, both comprising curators, conservators, conservation scientists and a variety of experts. Their monthly meetings, each on a particular object, were prepared by the project staff (a coordinator, two researchers, a general project assistant and various trainees and undergraduates) while a steering committee evaluated the developments and guided the research where required.

It proved difficult to stop the discussions in the working groups from straying beyond their boundaries. The theoreticians found it hard not digress onto what was and was not possible in relation to materials, while the practitioners tended to wander onto their counterparts' terrain, discussing the ethical acceptability of solutions to material problems. Moreover, it took the theoretical group some time to learn to formulate the right questions for their counterparts. This showed once again how difficult it can be to communicate between different disciplines – and the need to keep theoretical and practical aspects separate if the discussion is to remain unconstrained. The research on each object proceeded as follows:

- 1 In each case, the research began with an 'intake' discussion at the museum concerned. This was to find out as much as possible about the artist, the methods and materials, the previous owners of the object, its exhibition and conservation history. The project staff interviewed the curator and conservator as well as any other museum staff members with relevant information, like the technical staff responsible for the object's future maintenance, or the current or former director who had originally bought the piece who would remember its appearance and condition at the time of purchase.

These interviews revealed how much information was lacking, particularly on matters of material and technique. This information is essential for ascertaining the object's condition and assessing the meaning of the artist's materials and methods. So various sources outside the museum were also consulted, and where possible, the artist. Unfortunately, in four of the ten pilot cases the artist had already died: Broodthaers, Manzoni, Pascali and Tinguely. In their place, people were contacted who were intimately acquainted with the artists' methods – the widow, the artist's assistant, gallery owners, curators, conservators.

- 2 Investigation into the object's history was accompanied by research into the art-historical context and the materials. Scientists investigated the nature and degradation of the materials; the project's conservator/researcher assessed the work's condition as objectively as possible; relevant literature was studied in order to place the object and the artist in an art-historical context. Files were compiled on each object containing articles about the artists, movements to which they belonged and the objects themselves.
Expert opinions were also sought at this stage, depending on the conservation problems the object posed. Where available, experts on specific problems were consulted or invited to take part in the working groups' meetings.
- 3 After the preparatory research, the theoretical and the practical working groups held meetings at the museum concerned. Here the curator sketched the artist's methods, the meaning of the object and its art-historical context; the conservator/researcher detailed the material's technical condition; and each working group made a comprehensive study of the object in question.
The theoretical working group discussed the object's conservation problems first. They assessed the work's condition, any discrepancy between the object's condition and its meaning, and attempted to define the condition that should be aimed for. Finally, they set terms for the conservation work – whether or not parts could be replaced, for example.
The result was a list of questions relating to conservation that were presented to the practical working group.
- 4 The practical group's meetings were introduced in the same way as those of the theoretical group, but since their job was to give a dispassionate diagnosis of the object's condition, their discussions concentrated mainly on the ageing of the material. After debating the initial investigation of the materials, they would decide whether further research was required. To answer the points raised by the theoretical working group, which occupied a large part of their time, they often called in experts – as when technicians of TNO, the Dutch national institute for applied technical research, were asked to determine how dangerous Pino Pascali's asbestos plates were.
The key aspect of this stage, however, was the assessment of possible methods of conservation.
- 5 Eventually, the theoretical working group weighed the conservation options, took a final decision and advised the owner accordingly. A full research report was drawn up on each object containing photographic documentation, the results of specific investigations into materials and ageing phenomena, the results of theoretical research into the meaning of the materials, as well as conservation recommendations, a treatment plan (including cost estimate) and advice on storage and display.

Registration and decision-making models

The aim of this research was to arrive at a method for the conservation of modern art based on a variety of cases. It became obvious that crucial information about modern works of art was often lacking. Trying to retrieve this at a later date can be far more complicated and time-consuming than collating it when the object is

actually acquired. Moreover, obtaining the multitude and complexity of essential data posed major difficulties.

For these reasons, a special information structure for the conservation of modern art was devised. A working group on Registration and Documentation developed two interdependent registration models alongside the investigations of the objects:

- a model for data registration, to ensure that the documentary information needed for a work's conservation is available;
- a model for condition registration, essential when assessing whether a work has subsequently deteriorated and assessing the basic problems.

The methodical approach, the only way to find out about the materials and meaning of a work and to get to the heart of the problem, culminated in a decision-making model. Developed by a special working group, this was tried and tested during the investigation and will help future conservators and curators to disentangle their various theoretical and ethical deliberations. Together, these models are essential for a sound approach to modern art conservation.

Public awareness

In 1996, with the Conservation of Modern Art research having run over six months, the project group held an interim symposium on the subject at the Kröller-Müller Museum. Besides professionals, this attracted interest among the general public, while the press gave the project wide coverage. At first, the question was whether it was actually worth preserving art that had been so shoddily made, but gradually interest in the problem and its research parameters grew. Art and culture editors in the press published articles on the subject, contributions appeared on the science pages, and television joined in with special programmes on the subject. A general awareness developed that modern art required conservation too.

Achievements

Four important results were achieved by the project:

1. Start of national and international collaboration for the preservation of modern art

Perhaps the most important result of the project was that museums began to realise the scope of the problems surrounding the preservation of modern art and that they started to communicate with each other on the subject, both in the Netherlands and internationally. As the research progressed, an extensive network of international contacts developed encompassing staff members from thirteen foreign museums and research institutes. Foreign colleagues were regularly consulted about objects, material research and new conservation techniques.

From the start, the objective was to evaluate this project with foreign colleagues – as at the symposium covered in the second section of this volume. Before this, a small conference was held in Amsterdam in March 1997. Representatives of sibling organisations, from the Tate Gallery to the Restaurierungszentrum Düsseldorf and the Guggenheim Museum, underscored the need for international cooperation in tackling the problems relating to conservation of contemporary art. A structural interchange of information was considered a priority. All the participants agreed to make their information available to each other and to share research results.

2. Development of a method for conserving modern art

The cohesive models for data and condition registration and for decision making constitute a universally applicable conservation method for modern art. The models form a step-by-step plan: a structure for the collection and storage of data, a method for assessing the actual condition of the work and the real conservation problems, and finally a set of criteria for deciding on matters relating to conservation.

3. Inventory of international expertise

The project provided renewed insight into international expertise on the preservation of modern art. Numerous experts in various disciplines were consulted and the meetings of the groups were accompanied by considerable exchange of existing Dutch and international expertise – both for the Conservation of Modern Art project and for the participating museums. An inventory was kept of the experts consulted. At the same time, the Foundation for the Conservation of Modern Art compiled a bibliography of publications consulted in the context of the project as well as numerous articles on conservation and restoration of modern art in general.

4. Exchange of expertise with relevant courses

Greater attention has been paid in art and conservation courses to the specific problems relating to conservation of modern art. That is why the project emphasised the need for exchange of expertise with the relevant courses. Staff at established Dutch institutes teaching preservation and conservation (Limburg Conservation Institute, Reinwardt Academy, conservation course at the Netherlands Institute for Cultural Heritage) took part in the working groups, while a number of art-history undergraduates and trainees on these courses participated in the research project.

Conclusions

Research on the ten pilot objects and the development of a method for conserving modern and contemporary art resulted in the following conclusions:

- 1 The problems of deterioration in modern art cannot be solved within a single discipline. An interdisciplinary approach to conservation is therefore required. This has the added advantage of forcing the various participants – curators, conservators, and scientists – to formulate unambiguous opinions and questions.
- 2 A well-founded decision on the conservation of modern art requires considerable research, and not just in a scientific sense. Besides material analysis, art-historical and theoretical research is above all required to establish the criteria for the conservation of modern art.
There is still a backlog in this area. Museums must carry out more internal art-historical and theoretical research and join forces to persuade other institutes – like universities – to stimulate and undertake this kind of research.
- 3 Documentation of and research into artists's materials and techniques, and their implications, should become a structural part of the preservation of modern art.
None of the museums in the project had registered data on materials and techniques systematically, let alone documentation about their meaning – while that information is of crucial importance to the conservator. Artists often attribute a specific, highly individual meaning to an apparently trivial object or method. If the conservator is unaware of this, errors can soon be made and the wrong conservation decisions may follow.
In many museums information about the modern art collection is sporadic, and in some cases nothing at all has been registered. As a result, it may only be possible to reconstruct just a part of the original appearance of a work. Often, the condition of an object has not been previously noted, making it impossible to chart the ageing process.
Interviews with artists are a key instrument in preventing conservation mistakes. The project showed that consulting the makers of an object produced valuable information. A separate study will therefore be devoted to this subject.

Photo documentation is one aspect of a successful data and condition registration. Moreover, where appropriate, installation data, sound, motion, light and smell should also be documented.

- 4 An international network should be established to exchange the collated information. To facilitate effective communication about modern art, a thesaurus of modern materials should be developed: considerable terminological confusion exists among curators and conservators, especially regarding synthetic materials, which can also lead to errors in conservation.
- 5 To ensure a proper diagnosis of a conservation problem and the prescription of an appropriate treatment, a methodical approach is required. If the condition of the work is known, and the discrepancy between the condition and the meaning has been established, the actual conservation problem often turns out to be quite different to that originally envisaged. Museums often labour under preset views on the approach to conservation. After thorough research, this project resulted in almost every case in an adjustment of these views.
- 6 Instruments for managing the conservation of modern art should be developed:
 - by testing the models developed in this project on entire collections as well as individual works;
 - by adjusting guidelines relating to new purchases of works of art – guidelines affecting the registration of data and condition, photo registration, recording the artist's views on the preservation of the work etc;
 - by establishing the minimal conservation needs of each object, and including these in the structural maintenance budget, as standard procedure;
 - by testing risk-management methods on modern art collections, e.g., by charting the main deterioration risks.
- 7 Structural scientific research into the composition and ageing of modern materials in modern art, especially of synthetic materials, is essential for the preservation of these works. In all the objects containing synthetic materials, these materials were the first elements to deteriorate – they were the weakest link. However, these objects are difficult to treat, for the following reasons:
 - The type of synthetic material (composition, manufacture) is often difficult to recognise, making the stability of the object hard to define.
 - Even where the composition of the synthetic material is known it is not always possible to predict its durability. Little is known about the ageing process of many synthetic materials; research into degradation processes has only recently started.
 - Little expertise exists on the conservation of objects containing synthetic materials (like the cementing or consolidation of polyurethane foam).
- 8 Methods and techniques for passive and active conservation of modern materials, especially synthetic materials, applied electronics and prefab parts must be developed and tested.

This article was written by the editors in cooperation with Lydia Beerkens, then conservator at the Foundation for the Conservation of Modern Art.

Even when motionless, this *Gismo* by Jean Tinguely can hardly be described as static. But the moment the electric motor is switched on the miraculous machine really springs to life: a jumble of drive belts turn wheels and rods as if in a colourful circus, crankshafts and rods lift hammers and let them drop to strike dented cans, pots, pans or an old army helmet, each producing a different sound.

At the front of the 'trunk' a long rod with a belt protrudes like the neck of a giraffe, at the end of which a bicycle wheel with half a fork has been attached. Here, a small hammer taps a red saucepan every now and then. The other nine instruments in this pots-and-pans orchestra follow more slowly, each with its own rhythm. Pieces of sheet steel welded to rods descend onto an enamel jug, a shallow pan with a narrow handle, a small can of unclear origins and a rusty water jug supplied with a pan because the bottom has disappeared. A round rod hammers at a rectangular oil can. A rusty, ribbed, 5-litre tin is beaten by a plate nut. A food can spins around, rattling on a rod attached to the rear axle, while a thick tube on another axle does the same, sliding with a light grating sound across a number of other rods. The old army helmet is served by a bundle of wires, though some of this has broken off. Rods and wheels grate and squeak and a rhythmic tapping, knocking and drumming echoes on all sides. In between, attached to a rod on the front right, a child's pram jolts back and forth.

A jumble of objects

Gismo is an impressive vehicle, more than two metres high and almost six metres long. Yet the openness of the structure gives it a fragile and vulnerable appearance. It is also quite obviously made from materials gathered from a rubbish tip, scrap-iron in particular. The trunk is a metal bed – or door frame (it's hard to say precisely) – which has been stood on end and combined with the carcass of a car boot. Onto this a range of rods have been welded, including the frames of a red three-wheeler and a purple, metallic child's bike, which give the construction its width: 1.5 m wide, with the 'pram' included. Other rods and shafts are attached to this frame, together with a colourful collection of thirty-one wheels. Almost all of these are able to turn, as evidenced by the tangle of shafts.

Apart from the 'orchestral' instruments, a number of knick-knacks are also attached to the trunk: half a clothes peg, the electrical innards of what was once perhaps a calculator and an old barber's spray with a red, rubber pump hanging on a rod at the front of the trunk. The whole structure appears to be supported on three wheels: two metal wheels on an axle at the front and a green, wooden wheelbarrow wheel with iron fittings at the rear. But appearances can be deceiving. The machine in fact stands on metal legs positioned beside each wheel.

Increasingly rickety

In its current condition, and almost forty years old, this is *Gismo* at its best. Amsterdam's Stedelijk Museum bought this piece directly from the artist, Jean Tinguely, in 1974. Since that time the construction has deteriorated to such an extent that the belts slip from the wheels within thirty seconds of the piece being switched on and consequently stall the machine. The hammers no longer always hit the intended sound elements. Also an even shade of brown has spread over the original colours of the found objects, rods and frames. Traces of the original paint are only visible in a few places: the red of the three-wheeler and the front fork, the purple of the child's bike, the red, white, grey and green of various wheels and the red, white, grey and black of the enamel pans. A white tyre has almost entirely perished.

Most of the belts are made of green plastic and were clearly added at a later date. Until recently the technical department of the museum intervened ad hoc to

Left Jean Tinguely's *Gismo* in 1974, when the Stedelijk Museum acquired the work. Photo: Stedelijk Museum, Amsterdam
Above Front and side view of *Gismo*'s 'trunk', 1996. Photos: René Gerritsen

keep the machine running. However, as long as the axles turn and hammers strike the wear and tear continues, making the construction increasingly rickety.

This raises the question about whether *Gismo* can continue to be conserved and, if so, how. Jean Tinguely's work occupies an important position within the Stedelijk Museum's collection, which comprises a whole series of works by the artist. Furthermore, the problems regarding its conservation and restoration are representative of the dilemmas presented by many other objects. This is why the museum decided to present this particular work as a research object for the project The Conservation of Modern Art.

Historical research

The entire research process began with *Gismo*, because this was the most multifaceted object and therefore the one that presented the most complex problems. The project's aim was to develop a systematic approach to the conservation of modern art in general, working from the practical towards the theoretical rather than the other way around: to deduce general guidelines from systematic research into the conservation of ten pilot objects. The approach used for *Gismo* was further developed for the other objects. A decision-making model grew out of this process which was then tested with the conservation of this particular object.

The importance of art-historical research became apparent during the first phase of the research: without reference material about the original work and records of the alterations that have been made to it over the years, it is almost impossible to determine what is actually wrong with it. 'Intake' conversations were held first with the present curator Jan Hein Sassen, the conservator Kees Aben, technical assistant Herman de Waal and the former curator Ad Petersen, a friend of Tinguely's, who has been acquainted with *Gismo* almost since its creation. Attempts were then made to establish the material history of the object and its art-historical background using photographic, video and written documentation. Other museums with large Tinguely collections were consulted to aid the orientation process: the Musée National d'Art Moderne in the Centre Pompidou, the Kunstmuseum Basel, and the Musée Jean Tinguely, also in Basle, where Tinguely's former assistant Sepp Imhoff works as a conservator. The researchers wanted Imhoff to look at *Gismo* and advise them, but were unsuccessful.

In the meantime, *Gismo*'s current condition was further examined and, en route, new models for data and condition registration were established. Many models already existed, but none of them were entirely sufficient. During the project a variant was developed that is tailored more closely to the conservation of contemporary art.

The research was carried out by two separate multidisciplinary working groups comprising art historians, scientists, conservators and curators. Other experts such as mechanical engineers were also consulted about specific aspects.

To map the history of *Gismo* and Tinguely's intentions, the theoretical working group gathered the required information from every conceivable source. The practical working group analysed the object's current condition and the use of materials to gain an insight into both the technical aspects of the original object and earlier repairs. By comparing the material and art-historical data it was then possible to determine the extent to which *Gismo* still reflected the artist's original intentions. From this, the theoretical working group was able to formulate guidelines for further conservation research – that is, which aspects are characteristic of Tinguely's work and should therefore be conserved as far as possible. The practical working group then presented a number of options for the object's conservation. These were weighed and tested against conservation ethics, after which the project groups were able to present the Stedelijk Museum with a treatment plan.

Jean Tinguely's New Realism

When the Swiss artist Jean Tinguely (1925-1991) created *Gismo* he was thirty-five years old. He had begun building such playful machines when still a child, as becomes apparent from several standard works on Tinguely's oeuvre – such as *A Magic Stronger than Death* (1987) by Pontus Hultén. At the age of twelve, in the woods around Basle where he spent his childhood, Tinguely built a structure made from wooden cogs and food cans and placed it in a stream. To each cog he attached a single protrusion to ensure that the cogs turned irregularly, jammed and released a hammer which then hit a food can. The cans, some rusty, others not, all produced different sounds. "The pine forests had the acoustics of a cathedral," Tinguely related. "The sound was spectacularly amplified. The objects, which produced sounds in different rhythms, were placed five or six metres apart so that the concert spread hundreds of metres through the wood."

A few years later, when he was sixteen, he attended the Ecole des Beaux-Arts. However, according to the catalogue *A Curator's Camera* (1982) of Galerie Bischofsberger in Zürich, Tinguely had no patience with formal education. He painted, experimented with wire constructions and threw himself into politics: when he was eighteen he became a member of the illegal, communist organisation Free



Youth. Five years later, in 1948, he moved to Paris to design accommodation for members of the communist-feminist movement. However, he rejected Stalinism, turned to Trotskyism and finally, at the age of twenty-four, became an anarchist. It was at this time that he began his kinetic experiments by placing objects on a rapidly turning motor. In 1953 he took up permanent residence in Paris where, a year later, he had his first exhibition at Galerie Arnaud.

Tinguely's motorised reliefs, described at the time as 'automatons', attracted the attention of the journalist and art historian Pontus Hultén, who later became the founding director of the Moderna Museet in Stockholm. He suggested calling these objects *Méta-mécanique*. The Stedelijk Museum owns three of these reliefs from around 1955: *Méta-Malevich*, *Relief Méta-mécanique* and *Méta-Matic 10* (from the series of drawing machines). The bulletin *Op het tweede gezicht* explains that with these largely pictorial compositions of white constructivist forms moving against a black background, Tinguely wanted to create objects that would constantly change. While Abstract Expressionism was expressing individuality, spontaneity and emotional freedom, Tinguely was designing his *Méta-Matics* which mechanically produced 'informal drawings': an iron arm holds a moving plate in the air



1 13 May 1960: in the courtyard of Tinguely's studio in Impasse Ronsin in Paris, an imposing, proud *Gismo* sees the light.

2 Spring 1971: frontal view of *Gismo* at the exhibition in the Centre National d'Art Contemporain in Paris. Photo: C.N.A.C.

3 Spring 1973: view of gallery taken diagonally from behind during the Tinguely exhibition at the Louisiana Museum of Modern Art in Humlebaek, Denmark. Photo: Jorn Freddie

4 1974: the Stedelijk Museum acquires *Gismo* and documents it in photographs. Photo: Stedelijk Museum, Amsterdam

with a piece of paper attached to it, while a second robot arm applies the drawing.

It is not surprising that Jean Tinguely was seen as one of the New Realists, though he later distanced himself from them. The New Realists were also a group of comrades: Tinguely had been a friend of Daniel Spoerri since 1949, and he had met Yves Klein in 1955 at the exhibition at the Paris Salon des Réalités Nouvelles where Tinguely exhibited his first *Relief Sonore*. The group Nouveaux Réalistes was the idea of Pierre Restany who also called upon Arman, César, Dufresne, Hains, Raysse, Rotella and Villeglé to join forces. The New Realists found Abstract Expressionism too self-satisfied; they wanted to root art in daily life, in the wasteful consumption of hectic industrial city culture. Jean Tinguely addressed this in a pamphlet he wrote, entitled *Für Statik* (To Be Static). In 1959, during a solo exhibition at Galerie Schmela in Düsseldorf, he dropped 15.000 copies of the pamphlet on the city from an aeroplane. It read:

Everything moves. Nothing is still. Don't allow yourselves be mastered by existing concepts of time. On with the hours, the seconds and minutes. Stop resisting change. BE IN THE NOW – BE STATIC, BE STATIC – with movement. To be static, in the now happening NOW. Resist those fearful attacks of weakness that stop movement, petrify the moment and kill what lives. Give up creating values that always end up imploding. Be free, live!

Stop 'painting' time. Stop building cathedrals and pyramids that crumble like sugar cubes. Take a deep breath, live in the now, smarten up and in time. For a beautiful and absolute reality!

Düsseldorf, March 1959

Tinguely

Exploding sculptures

These were the days of the first 'happenings' which also addressed space and time, thus appealing to all the viewer's senses and, moreover, to his/her engagement. In March 1960, in the sculpture garden of the Museum of Modern Art in New York, Tinguely built his first purpose-built suicidal machine: *Hommage à New York*. He welded pieces of scrap metal together, turned them into a massive construction which he filled with gunpowder mixed with pieces of wood, smoke bombs and fireworks. He painted the whole thing white and let the public in to see it. On 17 March 1960, at 7.30 a.m., he held a flame beside the sculpture – which exploded in a shower of sparks. Within twenty-three minutes *New York* had destroyed itself. The next day Tinguely collected the remains to take them to a rubbish tip.

Many other such works followed. In 1961, for the Danish opening of the famous travelling exhibition Movement in Art ('Bewogen Beweging': Stedelijk Museum, Amsterdam; Moderna Museet, Stockholm; Louisiana Museum, Humlebaek/Denmark), Tinguely created *Etude pour un fin du monde* – 'monstre-sculpture-autodéstructive-dynamique et agressive' as he himself described it – which also exploded with an enormous din. A year later, the American television company NBC asked him to fill a television programme. He collected good-as-new objects from a local rubbish tip and, in the Nevada desert near Los Angeles, constructed *End of the World No. 2*: 'l'opéra-burlesque-dramatico-big-thing-sculpto-boum!'

From these actions it was later deduced that Tinguely may have intended all his machines to auto-destruct. But this was certainly not the case: he repeatedly repaired his machines when they broke down. *Gismo*'s history is proof of this.

Gismo in perspective

Jean Tinguely created *Gismo* during a highly productive period of his life, just after he returned from New York. The history of this work was reconstructed from photographs, letters and interviews. The photographs provided good material for comparing *Gismo*'s original appearance with its present state. These are the most characteristic features:



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The first picture (left page) is dominated by a strong horizontal arch at the top, namely the 'neck' which ends in a bicycle wheel with saucepan. Above it, another high structure with long wires which control hammers at the front still protrudes. The belts appear somewhat thicker than the current ones. The axles are all more or less horizontal, with the wheels attached perpendicularly. The original electric motor and drive shaft is clearly smaller than the present one. The motor and wheel were switched around at a later date, and also the rear axle was originally placed the other way around.

At the time there was a metal wheel alongside the wooden wheelbarrow wheel. A number of other objects have also disappeared: some 'instruments' such as the tall, dark pan (later replaced), a sort of medicine cabinet with doors in the lower right of the frame, the pram's shiny hubcaps and the large, rectangular (oil) can inside it – later exchanged for a smaller version.

To emphasise the lightness of his machine, Tinguely played with the lighting in the exhibition space: using spotlights he projected a dance of shadows onto the walls, thus creating a new, two-dimensional pattern. In later exhibitions he also liked to play with the lighting.

Photographs 2 and 3 illustrate that the aforementioned changes took place before 1974 when the Stedelijk Museum acquired *Gismo* (see photo 4). The tall construction beside the 'neck' has disappeared – a saw cut on the 'trunk' shows that it was sawn off. Tinguely probably did this himself to make it easier to transport the work. He made it possible to dismantle the long arch of the neck and added an extra leg in the place of wheels on the rear axle.

The machine had to travel to several exhibitions; during the periods in between it was parked in Tinguely's studio or, more probably, outside. *Gismo* therefore suffered a great deal, on top of the fact that it had always been somewhat rickety. To keep it in working order, Tinguely constantly had to straighten or repair different elements. But he was accustomed to this: he almost always worked on the machines before they were exhibited to get them moving again and ensure that the parts made the sounds they were supposed to. As a result, the work's appearance, movements and sounds gradually changed.

7

Up to this point, *Gismo* had remained in Tinguely's possession. It looks more or less the same in these photographs as it does today (see photos 7 and 8).

In 1981, however, the machine was to be lent to the exhibition 'Westkunst' in Cologne. Kees Aben, head of the sculpture conservation department at the Stedelijk Museum, went to prepare it for transportation. Only then did it become apparent that *Gismo* had been seriously damaged while handling it the previous year: the legs had given way, the 'neck' had snapped, axles and wheels had bent and some wheels had broken off (see photo 5). Kees Aben saw no way of restoring the work. The then-director, Edy de Wilde, asked the artist for help. He received a letter (see photo 6) that was typical of Tinguely.

8

The artist and his assistant went to the Stedelijk Museum to apply first aid. With a little pushing and shoving they managed to get *Gismo* on its feet, more they couldn't do – the 'Westkunst' exhibition was waiting. In a report on its condition, Kees Aben noted: "Because of the shortage of time, Tinguely limited himself to reconstructing the piece. The machine is out of order. The cogs and axles are still unaligned. Drive shafts are broken, the rubber has perished." In Cologne the machine was further repaired in an effort to get it moving. Though this treatment was not registered, the results were later documented in photographs. These show a rickety *Gismo*, a shadow of its former, proud self of 1960.

5 1981: *Gismo* is badly damaged due to careless handling in a depot of the Stedelijk Museum the year before. Photo: Ad Petersen

6 Letter with reconstruction drawing from Tinguely
7 and 8 December 1996: *Gismo* in its current condition – side and frontal view. Documentation recording for the project The Conservation of Modern Art. Photos: René Gerritsen

Thus, *Gismo*'s life can be divided into three phases:

- | | |
|-------------------|---|
| 1960-1974 | with the artist in his studio; |
| 1974-1980 | beginning of its museum existence, rudely interrupted by the handling accident; |
| 1980-present time | continued museum existence and ad hoc repairs. |

Gismo has been repeatedly exhibited since 1971 and has been made collapsible. All major changes date from the first period of its life. Even though the handling damage has seriously affected its movements, its appearance has barely changed since 1974: the most striking elements are still present.

The documentation photograph from 1974 is therefore representative of the work. As for its original movements and sounds, one can only guess at these because the required film and sound recordings could not be found. The first video recordings, made by the audio-visual department of the Stedelijk Museum, date from 1984. The machine was then already twenty-four years old.

Deconstructing the art work

While the historical research was being carried out, the practical working group analysed *Gismo*'s current condition. This revealed a whole range of problems. Due to the handling damage the 'trunk' had been twisted and many of the axles and wheels had become unaligned – which led to the belts slipping off the wheels. The smooth arch of the 'neck' was lost because the bicycle wheel with fork at the front of the rod tended to drop down; the drive belt hung loosely around it.

It also became apparent that the direction of the drive belts had been reversed in some places. This, combined with the crooked wheels and axles, had caused further damage: wheel rims had become worn, axles had broken off and had been welded together again following Tinguely's own, somewhat botched mechanics as closely as possible. Up until 1960 Tinguely had always used autogenous welding, with just a flame to fuse the parts together. But in New York he was forced to weld using electricity – arc welding – which requires a welding rod made from another material to join the parts together. *Gismo* clearly illustrates how Tinguely learnt to use this method through trial and error: there are careless bobbles of weld around the joins.

The altered direction of various drive belts probably caused drastic changes to *Gismo*'s movements and therefore also to the rhythm and order of the sounds – the crack and squeak of the axles, the beats of the hammers in the pots-and-pans orchestra. It was impossible to reconstruct the turning movements to what they must have been when the piece was acquired. Some belts were missing, so that some movements and sounds had completely disappeared. Other belts had stretched, slowing down the rhythm. The sound was further affected by the degeneration of a number of the 'sound boxes'. The hammers beat constantly on the same places and had worn them out. In the past, some pans and tins had been turned to counteract this. The oil can, for instance, is encircled with holes and dents.

The machine also made less of a grating noise because ball bearings had been smeared with grease. To support the turning shafts, Tinguely had used simple metal plates with a hole in them or sometimes a large nut, but had deliberately not greased them because the grating sound was part of the 'music'. The grease in the ball bearings had spread, particularly in the areas around them, and had caused dark stains on the shafts.

Gismo was made largely from scrap iron which has rusted in the course of time. The various, sometimes striking colours of the metal 'objets trouvés' are slowly disappearing and the rust has turned them brown. This corrosion, however, is not active: it does not produce the orange flakes of rust. Dust that has gathered over the years has also caused the colours to fade. Among the other materials, plastics

and rubber have deteriorated particularly badly – the red barber’s pump is the worst. Most of the belts, originally made from rubber and canvas, have already been replaced with green plastic belts. The wood of the green wheelbarrow wheel has contracted causing the iron fittings to become loose.

The work can be dismantled into four parts:

- the ‘trunk’ with its range of objects, axles, wheels and legs;
- the undercarriage of the child’s pram;
- the long rod of the ‘neck’, with two bolts to attach it to the top of the trunk;
- the bicycle wheel and fork with saucepan that has to be slotted over the end of the ‘neck’.

The expressiveness of an absurd machine

Gismo stems from Tinguely’s ‘junk’ period: at this time, in accordance with New-Realist ideas, he worked with recognisable objects which he found on rubbish tips. This changed a few years later. His constructions became more solid, he began to use ball bearings and, although he continued to use waste materials, he concealed this aspect by coating everything in black paint. In an interview with Alain Jouffroy in 1966, quoted in the Stedelijk Museum catalogue of the exhibition ‘Jean Tinguely’ (1973), the artist answered a question about when he began to paint everything black as follows:

“I began to do this in the spring of 1963. To a certain extent the black serves to turn the form into a single entity. I would almost say that it is a return to conventional sculpture – in appearance at least. Of course, the movement makes it strange again. It remains a phenomenon that is not classical. The black is a way of enabling the found objects to disappear. This is an utterly anti-Nouveau-Réaliste gesture.”

Whatever the case, *Gismo* is significant as a representative sculpture from Tinguely’s New-Realist period. But what does the sculpture mean in its own right? The bulletin *Op tweede gezicht* (1994) published by the Stedelijk Museum reads: “The wheels on which the whole object ‘stands’ – two wheels from a child’s pram and a wheelbarrow wheel – do not support the object. *Gismo* brings a light-hearted monumentality to the inevitability of technological progress.”

The wheels would not be able to support the object, which weighs around 150 k, but this is only one aspect. By comparing the object’s art-historical background and the phases of its material life, the researchers were able to isolate a number of important features. Although these may now seem obvious, this was not the case at the beginning. *Gismo*’s essence lies in the visible use of scrap iron and ‘objets trouvés’, and in particular in its movements and the different sounds these objects produce. From the material-technical analysis it was also possible to deduce that the machine was supposed to look rickety and wobble when it moved: it had always been this way – the roughly welded rods should grate and squeak on un-greased bearings. The wheels were intended to be positioned upright alongside or behind each other, otherwise the drive belts would come off and prevent the machine from working.

The theoretical working group defined the ‘expressiveness’ of this object in the following terms: a sprightly impression; a nimble play of lines, wheels and belts; sounds; an improvised and immediate, personal character – “One feels inclined to identify with the work as if it is a living thing”. The work is characterised by absurd movements and sounds produced by an equally absurd machine made from found objects. The thirty-one different wheels clearly indicate their purpose: *Gismo* has to move, otherwise it does not ‘live’.

A static *Gismo* is also unacceptable to the Stedelijk Museum. Its characteristic sounds are unmissable: “You can hear it from way off – ah, that’s *Gismo*!” said the curator Jan Hein Sassen.

Discrepancies

In view of this 'expressiveness' *Gismo's* current condition was compared with its original presence. The discrepancies that surfaced as a result reaffirmed the importance of the art-historical research; the problem of these discrepancies came to light in all subsequent test objects. *Gismo's* original appearance could be reasonably well deduced from the available photographic documentation. However, the absence of film and sound recordings from that period made it impossible to determine the original sounds and movements. Although museum workers were able to indicate how *Gismo* had moved and sounded, this was inadequate. Yet, from the photographic and material analyses it is possible to deduce that the discrepancies must be quite substantial.

Originally, *Gismo* was a grand construction standing tall on its legs; the neck formed a smooth arch and the wheel protruding at the front was prominent and proud. The numerous wheels and rods made complex and absurd movements whose grating and squeaking, complemented by the tapping of the drum-sounds from the pots-and-pans orchestra, could be heard several rooms away. Now, the machine is still impressive to look at – as it was in 1974 – but its bubbling vitality has disappeared. Its 'legs' have given way and it can only run for a short while, producing drastically reduced sound, then it jams. Its characteristic piercing squeak and grind has also disappeared because the bearings have been greased.

According to the former conservator Ad Petersen, however, three-quarters of the total sound is still intact. He adduced that Tinguely did not select his pots and pans for their specific sounds – he was rather concerned that the range of sounds and rhythms should be surprising. The artist was easy about replacing components during repairs and had replaced belts which, in turn, had irreversibly altered the original sound.

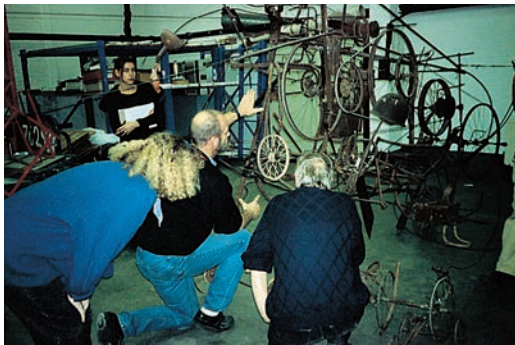
The theoretical working group had stated that the machine's movements and sounds had to be maintained along with its appearance. But in what condition? Its authentic state from 1960? When one reduces *Gismo* to specific life phases, it is apparent that it was given a new look prior to 1974 and the most drastic changes were probably carried out by the artist himself. Conservation ethics disallow major interventions to return the work to its original form. Besides, this would be impossible: *Gismo* has simply reached a certain age.

After the necessary deliberations, it was decided to take the object's appearance from 1974 – the year the Stedelijk Museum acquired the work – as a guide. Because sound or film recordings from this period are lacking, repairs to the sounds and movements would have to be achieved through an 'acceptable' reconstruction. Yet the big question remained about the extent to which conservation was possible and how far this could be carried out using the existing materials. The practical working group researched the possibilities.

Constructive options

To gain a better insight into the conservation problems, a strength/weakness analysis was carried out. First the help of two metal restorers was requested. They pointed to the combination of different materials and unsuitable welding material as being the main cause of the problems: too much tension was placed on the joints. The project group was unable to go further with this information. They concluded that the restorers had focused too much on the material and not enough on the construction. Another attempt was made, this time with conservators who were experts in different kinds of constructions – conservators with a knowledge of tools, clocks and motors.

Their analysis was simple. The reason for the stagnation of *Gismo's* movements and sounds could be traced back to a single cause: the central frame had become crooked. As a consequence of this the wheels had moved diagonally in relation to each other, axles that turned had worn down, hammers no longer hit their inten-



Construction experts analysing *Gismo* in 1996.
Photo: Lydia Beerkens

ded targets and the drive belts had come off their wheels.

These construction experts supplied the most important conservation option. They suggested lifting the frame bit by bit, slowly enough to allow the construction to adjust to the new position. It was possible that the axles and wheels would then shift into better positions of their own accord. If this would not happen, they could then be moved into place by hand. In collaboration with these advisors, the practical working group arrived at the following options:

- strengthen parts that support weight, using (invisible) welded rods or plates;
- check drive belts and replace where necessary;
- remove grease from bearings;
- replace worn bearings with a slightly softer material (bronze) so that the original bearings can be retained, while the softer ones can be replaced whenever necessary;
- restore the line of the 'neck' by raising the bicycle wheel and fork again and by tightening the long belt that turns this wheel;
- seal holes in the sound-producing containers or invisibly place a new piece inside;
- strengthen weak welds in the way Tinguely would (untidily);
- remove dust and dirt (little can be done about the grease that has been absorbed by the material around the bearings);
- retard rust formation and fix rust flakes;
- tighten the iron fittings on the wheelbarrow wheel.

Cautious advice

The conservation options were weighed up by the theoretical working group. This included assessing the extent to which component parts could be replaced. Rubber and plastic objects, for instance, have fallen prey to irreversible decay, which is especially awkward in the case of the barber's pump: it is so prominent at the front of the 'trunk' that it serves as a signal there. But no definite answer was reached. According to one person the pump could easily be replaced with something that looks very similar, while someone else believed that it would be a fake, in effect conning the viewers.

In interviews, Tinguely said that all parts could be replaced in his machines, but this probably only applied to the mechanical components: his chief motive was to keep the machine moving. It was finally decided that parts should only be replaced if there was no other alternative and if they are vital to the work's ability to function. As far as the pump and other found objects were concerned, the Stedelijk Museum would have to decide each case individually.

The guideline was established that the art work should be respected as a unity. Interventions are secondary to this and should therefore not be obvious. The construction is also more important than the object's authenticity: the work was not made crooked, so it has to be straightened again. Only once everything is working as it should can one check whether the hammers and sound boxes are functioning properly. If not, a solution should be found for each part: repair the metal of the hammers, turn the sound pieces so that the hammers hit another part, or repair these pieces – if necessary by inserting a replacement. The instrument that hammers the helmet, now an indeterminate bundle of wires, should in any event be replaced; the remaining 'instruments' still produce sounds, though these may be somewhat weaker than originally intended.

Whether all these interventions can be carried out within the terms of conservation ethics will have to be proven in practice. Only once the entire construction is being dealt with will it be possible to judge the effectiveness of the suggestions. In order to preserve all aspects of the sculpture, video and sound recordings must be made before any restoration work is begun. But with a bit of luck, *Gismo* will soon work on its own again: high on its legs and proudly upright.



A pot from Tinguely's orchestra in 1996, damaged by the hammer. Photo: Lydia Beerkens

Gismo's barber's pump in 1996.
Photo: René Gerritsen

***Dionne Sillé & Marjan Zijlmans* THE PLAYFUL WORLD OF JEAN TINGUELY: AN INTERVIEW WITH AD PETERSEN**

*Dionne Sillé was project manager at the
Foundation for the Conservation of Modern Art.
Marjan Zijlmans is translator and editor.*

Ad Petersen, former curator at the Stedelijk Museum, Amsterdam, knew Jean Tinguely very well. They were friends for almost thirty years, from 1962 until the end of the artist's life. In his dual role of friend and curator, Petersen answers some questions on the artist's intentions.

When did you first meet Jean Tinguely?

"It was in 1961 at the 'Bewogen Beweging' (Movement in Art) exhibition that Daniel Spoerri had organised for the Stedelijk Museum and the Moderna Museet in Stockholm. The exhibition was an historical review of movement – mechanical movement that is – in modern art, from the Futurists to Tinguely. There was one room devoted to his work, but he also created a fountain for the pond and a sculpture for the front façade. Somehow or other this exhibition has remained in people's minds as a kind of Tinguely exhibition. His work caused such a fuss – it was so obviously there – that it put all the other work in the shade."

Did you know his work before then?

"No, actually I didn't. I had studied art history at Groningen University in the fifties and it was only in the latter part of the course that I came into contact with contemporary art, and then it was only older artists from De Ploeg group, like Jan Wiegers, Job Hansen and Wobbe Alkema. I graduated with a dissertation on De Ploeg and Apollinaire. In the world of art history at that time it was very unusual for someone to graduate on the subject of modern art. I came into contact with Jan Martinet, my predecessor at the Stedelijk's print room, and through him I also met Hans Jaffé and Willem Sandberg. Thus a week after I'd graduated I already found myself at the Stedelijk Museum. Tinguely showed me another world altogether. He was a brilliant artist, someone who really changed things in art. And for Sandberg, after CoBrA, Tinguely represented a new burst of energy and non-conformism. These were aspects he really enjoyed. I did, too; it very much appealed to me."

How did you get to know Tinguely personally?

"In 1962 we held the exhibition 'Dylaby' (Dynamic Labyrinth), based on an idea of Tinguely's. He had hatched a plot with Sandberg not to have the usual kind of exhibition with work on the walls for once, but to make a kind of labyrinth which

Jean Tinguely in the early sixties.
Photo: Ad Petersen

Jean Tinguely in a workshop at the Stedelijk
Museum, Amsterdam, preparing for the exhibition
'DyLaby' in 1962. Photo: Ad Petersen

people were supposed to move through. They had to go through the art works as it were. He had certain vague ideas about this. At the end of August the participating artists, including Tinguely, Martial Raysse, Niki de Saint-Phalle, Daniel Spoerri, Robert Rauschenberg and Per Olof Ultvedt, an international group, got together in Sandberg's office. He asked them: 'How far have you got with your plans?' It then transpired that no one actually had a plan, and Sandberg was supposed to go abroad the following day. He took the group on a tour of the museum in order to show them the available space and materials, what services they could expect from the technical staff and then he introduced me. 'This is Petersen, he will assist you on behalf of the museum's curators.' It was then that I got to know Tinguely really well since he was the leader, the central figure."

What kind of work did he create for the exhibition?

"He had an elevated floor built, about two metres high, I recall, which you reached via a small ladder. The floor, roughly four by four metres, was covered with coconut matting. In the middle was a hole and sticking out of this were bars from which hung old pieces of material, clothes and so on. Under the floor was a complicated machine, which now and then sent the bars with the cloth into overdrive. Tinguely called the whole thing an homage to Anton Müller, a Swiss psychiatric



The artist at work: welding his *Hommage à Anton Müller* (1962). Photo: Ed van der Elsken

The top of *Hommage à Anton Müller* (1962). Photo: Ed van der Elsken

patient who spent his entire life making machines that didn't work. Tinguely was a great admirer of this. He was also fascinated by the 'facteur Cheval', the postman in the south of France who had built his own castle, and by the Watts Towers in Los Angeles. He found all those kind of marginal oddballs fantastic."

How did the collaboration on the exhibition go?

"In the Dylaby catalogue there is a kind of diary that I wrote with Tinguely – it is in my handwriting – which describes what everyone did every day. It is somewhat off the cuff, an amusing description of what went on, but doesn't really represent the hard work involved. Rauschenberg could absolutely not work with this team – he also didn't speak any French – and therefore he always worked at night. Tinguely was always an early-morning person, who was already working at seven in the morning. The attractive thing about him was his extraordinary power and vitality. His energy was boundless. But even if he was a bulldozer, on the one hand, he was also an extremely charming and poetic man. He was not only the leader of the team, but helped the others with their work, especially Niki."

Did you ever find out what drove him?

"Not really, I think. But that's always difficult to discover with any artist. That boundless energy is something I found quite extraordinary. There are some people who emanate so much energy you can recharge your own batteries from it. At the same time he was very generous. And as Niki de Saint-Phalle once wrote about what she really appreciated: 'He was never afraid to make a fool of himself.' He could afford to be like that because he didn't have to pretend. He was himself and this shone through in every way. That's why it was so incredibly enjoyable to be in his company. In the museum world I too sometimes had the urge to smash a window, that's why I felt drawn towards what he did. I felt very close to him."

Tinguely once proposed that we apply jointly for the directorship of the Kunsthalle in Bern, when Harald Szeemann, I think, was leaving. He thought we would be a good, mutually complementary team. I didn't take it seriously then. However, the last time I spoke to Tinguely, he mentioned it again and said he thought it was a shame we didn't have a stab at it at the time."

Do you recognise Tinguely's personality in his work?

"Yes, of course. If there was ever an artist whose life and art were one and the same, fitted seamlessly together, it was him. You felt that the instant you entered the Auberge du Cheval Blanc, the old café where he and Niki lived and worked."

How did he work exactly?

"In the beginning he knocked his work together with thread, tin and solder. The welding and the use of heavier electric motors were only introduced in 1960. He was a good welder and he was technically okay with the machines, but he did everything as it appeared, he improvised. He wasn't a technician. When he suddenly started to make a lot of money in the sixties, he began driving around in a Ferrari. Once there was something wrong with it and I asked him whether he repaired the car himself. He replied: 'No. Have you ever looked under this bonnet? I wouldn't dream of doing it!' That kind of thing was all too much for him. He looked at the type of movement a motor made in order to see how he could use it, how he could translate a regular movement of an engine into something irregular, something unexpected. But he was always full of admiration for the technical expertise of others."

He loved going to exhibitions of agricultural machinery, which he thought were incredibly interesting – new developments and how machines could take over complicated human tasks."

Was that out of social concern?

“His work was seen as kind of ridiculing technological society, our technological civilisation, but that is only one side of it. He was also Swiss through and through, and many Swiss people I know have a kind of ‘Selbsthass’, a loathing for that flawless aspect their country has. Everything is so under control it often gets on the nerves of the people there. I think Tinguely was someone who generally wanted to provoke people into looking at things in a different way, to free their minds. The same, of course, applies to much American Pop Art which also often ridiculed consumer society and pulled a face at it. I actually think that Tinguely was more con-



cerned with this, with an anarchistic, provocative enjoyment of things. However, he was always concerned with the effect of his work on the public in everything he did. His work is theatre, every sculpture is a performance.”

To what extent is Tinguely different from today’s generation of artists?

“I don’t know many of today’s generation of artists. However, I see much theorising and debate around me, and a lot of introspection. This would have been completely alien to an extravert like Tinguely.”

Didn't that also have something to do with the spirit of the times?

"There was no more a spirit of the times then than there is now. Tinguely was friendly with Yves Klein who was into all kinds of theories and esoteric ideas. Tinguely, on the other hand, was a natural talent. He was not that well trained, he drew his strength from himself. You have artists who are a source, from which their work automatically springs up. Others look around to the right and to the left and concoct a small garden that they cultivate. Tinguely didn't need to do this, in the same way that Dubuffet or Roland Topor didn't need to."

As a young boy, Tinguely built his first installation with movement and sound in a stream. Do you have any idea about this?

"Yes, he made a kind of small windmill in the water and he made it tap against tins and pieces of junk. This is a well-known story that Tinguely often told. It therefore seems that his work developed very early on in a single, direct line. It reminds me a little of Claes Oldenburg, who once wrote – and I freely quote – 'All my work is completely original, I made it up when I was a little kid'."

Do you see any link between the constructions from his youth and his later work?

"Yes. The essence of his work is movement plus a more or less improvised construction from waste and found materials which were easy to find. That's what he found so appealing about Amsterdam. During the Dylaby exhibition everyone stayed at the De Beurs hotel in Warmoesstraat, which had an all-night bar. The hotel was a bit suspect and very cheap as none of us had any money. Tinguely had arrived in Amsterdam in his Citroën and every morning he drove to the Waterlooplein flea market. That was his Amsterdam landmark. From there he could find his way to the two most important points in the city – the Stedelijk Museum and Nijkerk's old scrap metal storage depot. Nijkerk was a man who also collected wonderful bibliophile books and was a friend of Sandberg's. His book collection is now in the Stedelijk Museum."

Could you explain how Tinguely made his works?

"You first need to have seen his studio. At first sight it looked a mess, as is often the case with sculptors, with old iron, bits of engines, bits of this and that, all jumbled together. From out this the objects were made with what he had around him. He was always on the lookout for old iron, wheels, engine parts and so on. That's why he couldn't work in Switzerland, because it is such a neat country where everything is tidied away. He thought France was a great country because you had far more scrap there."

Did he have particular collection places?

"He always needed to be at scrap-metal merchants where they sold metal by the weight. He had an entire network of places where he knew he could get what he needed – metal rods and tubes, angle iron or old engines, although he mainly bought his engines new. He had a nose for places where he could find things."

Did he for instance go looking for a particular part on the basis of a drawing he made?

"Not on the basis of a drawing. He didn't really make working drawings, just sketches for himself. However, particularly with his larger sculptures he had certain measurements in his head, for instance, for large wheels, and then he looked for those. But I'm convinced he also got ideas from what he happened to come across. Tinguely was a maker, a real go-getter, who improvised with the material he collected and that was quite something!

Around 1968, the Seriaal gallery opened, which was run by Wies Smals, a friend of mine who had met Tinguely. One day she asked me, 'Could you ask Jean if he

Jean Tinguely and Per Olof Ultvedt rummaging in a scrap-metal heap, preparing for the exhibition 'Dylaby' in 1962. Photo: Stedelijk Museum, Amsterdam

Jean Tinguely making a sculpture for Wies Smals, 1969. Photo: Ad Petersen

has a sculpture for the gallery?’ So next time I visited him I put the request to him. He said: ‘No, I haven’t got anything, but I’ll make something.’ He set to work while I was standing there. He took a piece of iron, an engine, a coil sawn out of wood, fitted a few parts together, quickly painted them black, and there you go. After an hour it was ready. A quick look to see if it was working, another quick look to check the movement and the sculpture was ready. Wies sold it immediately.”

How did Tinguely define a good movement in the early days?

“His machines made very unexpected movements. Something slowly rises, falls down with a wham and then is slowly hauled upwards again. Take for instance his fountain in front of the Kunsthalle in Basle from 1976/77. Attached to this are the most preposterous things, such as a very large sieve on an arm that pushes it into the water. You could see that this put an enormous strain on the motor, that it couldn’t actually be done. But that wobble and instability is precisely what he liked about the piece. He enjoyed inventing his machines in this way so that, while they appeared to be completely chaotic, they functioned properly and kept on running. He was very proud of this.

In the early period he often worked with movements that far too quickly led to the mechanism becoming worn, by for instance putting too much pressure on one point or by a transporter derailing. The work *Gismo* also suffered from this. As more people began to buy his pieces he was faced with the necessary repair work and he realised that he had to do things differently. At a certain point he was selling his sculptures for a lot of money and he felt a certain responsibility. Thus he acquainted himself more with technology and began using ball bearings for instance to prevent wear and tear. He also had assistants like Sepp Imhoff, his right-hand man, who were much more precise and technically minded than he was and were able to come up with solutions to the problems that Tinguely’s sculptures created.”

How important were sound and movement to Tinguely?

“He was endlessly preoccupied with sound and movement – everything evolved around that for Tinguely. It was important that it made sound. Every little thing had to have its own sound, and it had to be amusing, in the same way the movement had to be entertaining – offbeat, daft, unexpected. You were not actually supposed to hear the regular sound of the electric motors. He would also have preferred the movements of his sculptures never to repeat themselves. If Tinguely were still alive and saw *Gismo*, he would say, ‘We’ve got to do something about this. Shall we just try...’ I can easily imagine that the conservator Kees Aben would then say, ‘No, I don’t want that because then you’ll change the object.’ But obviously this is the viewpoint of a museum person. Of course the artist can always step in and make changes as long as the work is still his, and Tinguely did this on many occasions. In a museum, however, a certain fossilisation occurs; you can’t do anything about this.”

Did Tinguely ever mention why a work had to look a particular way?

“He occasionally said things about the use of a certain kind of material or an idea for a certain form in the interviews he gave. Obviously, however, that doesn’t touch on the real reason behind the work, although he also said things about this that have been published. Your question is a typical art-history one of course. In the first place Tinguely was involved in the actual making, with the doing, and that is a highly complicated and largely unconscious process, which occurs in a very natural way but is difficult to put into words.”

He didn’t make any technical calculations beforehand?

“Not many. Look, you take a small wheel, put a big one behind it and then put a

belt over the wheels. The small wheel then turns like crazy, while the large one goes more slowly, and then you can attach other things to this. He worked with the kind of mechanisms that gave instant results. That doesn't mean he didn't think about more complicated movements and transporters. Sometimes he clarified his thoughts, also for himself, by making a sketch."

Why did he use certain materials, did he ever say anything about this?

"Why he didn't use new materials, or aluminium that doesn't rust? I don't think this interested him at first. He chose materials and parts because they happened to be suitable for what he was working on at that particular moment. If he happened to see a rubber band or an old jug lying around, he would try to incorporate it into his machine."

Could you describe the work Gismo as it looked when you first saw it?

"I'm pretty sure it wasn't in the 1962 'Bewogen Beweging' (Movement in Art) exhibition. You should have seen Tinguely's room at the exhibition, it was a witches' brew! All the machines were thumping, turning and carrying on. If *Gismo* was



there it would have seemed muted alongside the others, with its quiet plunking and the small child's pram next to it. In a certain sense it is a highly intimate and very simple work. There were machines in the room that made an ear-splitting racket and overshadowed everything else. It was only later that I saw *Gismo* properly, the first time it was in Stockholm, I think. It is of course a frenzied thing with all those wheels and things sprouting out of it. It is so utterly typical of Tinguely – the absurd movement, everything at sixes and sevens, the rusty iron, the subtlety in the movements and those small sounds, then a sudden loud bang, and that small pram that clumsily moves back and forth. It is actually very poetic and touching. I think *Gismo* is a perfect work. It is the most beautiful piece of Tinguely's we have at the Stedelijk Museum and one of Tinguely's greatest works from this period. There are so many aspects to it..."

If you look at all those objects in Gismo, the child's pram, a tricycle...

"Yes, all those childlike things, that playfulness, that was hugely important in his work. He always enjoyed children. He also made things for children, such as *Rotozaza*: a very big machine with kind of cones attached into which you had to throw

balls. These rolled right through the machine and were then thrown out again. Children adore that kind of thing. When I arranged to meet Tinguely in 1988 in the Centre Pompidou, Paris, where he had an exhibition, I found him surrounded by ten or twelve primary-school age children, just like the Pied Piper of Hamelin. The children were using his drawing machines and he was busily enchanting them. He was good at that. I know for sure that with many of the sculptures he made he had an audience of children in mind."

Did Tinguely incorporate everyday objects into his work because of their function or mainly because of their form?

"Initially, I believe, because of their form. The function just happened when he decided he could use a certain form, for instance a wheel. It was often old, found material. In the early sixties he began painting his machines black so that the form of the objects he used were absorbed into the entire sculpture. These machines, such as *Hannibal*, in the collection of the Kunstmuseum, Basle, were also much quieter, while *Gismo* is actually from the early wild years, when Tinguely found himself."

Did Tinguely perhaps choose objects for the sound they made?

"It is quite possible that he picked up a jug in the flea market, tapped against it and thought, 'Heh, wait a minute'. But he may just as well have chucked something away at home and a year later suddenly decided to use it. He collected masses of material about him and out of this chose what he could use."

*Why did he use an old army helmet in *Gismo* for instance?*

"Oh well, he certainly knew what a helmet was for and the associations attached to it. If you were to ask him, 'Why use a thing like a helmet?', if he was in the right mood he would tell you an entire story about it, but if he couldn't be bothered, he'd say, 'I haven't clue'."

Was colour very important to Tinguely?

"Very much so, in the beginning and especially in his later work. In *Gismo* certain things have colour, I think, but in that work it is not so important. Of course Tinguely liked to apply a little colour in his work, it also lent itself to it. And look at his letters and drawings, they are full of colour."

Can you remember how he reacted to the damage caused by transporting his work in 1980?

"I don't think the damage was caused in transit, but by being handled roughly. This is something Tinguely often ran up against. This really bothered him. I think he was actually quite angry about the damage. But he could also imagine that people were a little careless with his work sometimes – even he didn't always treat it gently. And what can you do about it as an artist? After it's happened you can personally repair the damage or come and explain what exactly has to be done."

Tinguely arrived at the Stedelijk Museum with his assistant Sepp Imhoff?

"When the accident occurred with *Gismo* the two of them turned up together in order to assess the damage. They flew Business Class to Amsterdam in overalls and carrying large bags of tools and walked into the Stedelijk looking like this."

For how long was Imhoff Tinguely's assistant?

"Until he died, and actually he still works as his assistant but now at the Tinguely Museum. Initially there was also Rico Weber for many years. Both men also worked for Niki, and in the seventies they all worked on the enormous *Monstre dans la Forêt* at Fontainebleau. This work was huge, about fifteen metres tall. Tinguely



couldn't do that entirely alone, so at one point he had two or three assistants. Of these, only Sepp remains. Weber was more an artist and went on to pursue his own career. Sepp was the calm worker, technically highly trained and thus very important to Tinguely. He actually couldn't have done without him, especially in his later large works."

How were the roles shared when a work was being installed?

"Sepp was largely the executor, but he knew every work and Tinguely's mind like the back of his hand, so he could often do a lot of the work by himself. Tinguely was the ideas person and the boss. He was always present for the installation of exhibitions and made the real changes himself.

Another matter is the lighting. Tinguely loved theatrical lighting – large spots in darkened rooms with huge moving shadows of his works on the walls. He occasionally called in a lighting expert from the theatre in Geneva. This was the case, for instance, at his exhibition in the Louisiana Museum in 1986, and it looked stunning."

Did Tinguely approve the installation of the works?

"He knew exactly what he wanted, but he was also aware of the relative possibilities of various museums. In the old building of the Moderna Museet, Stockholm,

where he once had a large exhibition, there was coconut matting on the floor. This gave him, or someone else, the idea to hide the switches of his machines under the matting, so that when people walked through the exhibition the machines would suddenly start to move. Whether he thought of this or someone else did wasn't important to him. He simply thought it was a fantastic idea as it was, in keeping with his sense of playfulness and surprise."

How do you think he would have reacted to Gismo in its present state?

"I believe artists are only interested in how their work looked at the time they made it. The later owner looks at it in an entirely different way to the maker. At a certain moment the work is finished for an artist. This is preceded by the making process. The work comes into being little by little. When it is finally finished the artist lets go and the work is exhibited. We look at the finished result, but for the artist this is just a moment in his or her work process. This applies particularly to Tinguely, who was very easy about changing his sculptures. However, he didn't at all approve of others doing it off their own bat. Let there be no misunderstanding about that."

Would he for instance have been bothered by the deterioration of the red barber's pump?

"Perhaps, but he might just as easily have liked it and said that, although it's rotted, let's leave it the way it is. But he might have thrown it away and replaced it with another. That's also highly possible."

If you now switch Gismo on, the drive belts come off the wheels and this prevents the characteristic movement.

"Obviously you can't have that. I think Tinguely would have been very irritated by this. He would have instantly fixed it, since it bothered him if things didn't work. When he made *Gismo* I don't think he had any idea that this thing would wind up in a museum and would have to last for a long time; that it would be put in the care of conservators without any possibility of consulting the maker. Tinguely himself would have tried to get *Gismo* going again in some form or other."

Every intervention, however, influences the movement and the sound. What is your opinion on this?

"A wire or a drive belt should not be allowed to come off, so I would adjust the wheels so that the belt stays on. If that then produces another sound, I wouldn't make a point about it, as long as it makes more or less the same sound. There isn't a score for *Gismo's* sounds! Tinguely cobbled together these things and then they emitted a certain sound that he liked, but he would have also accepted a slightly different sound. He was used to that happening when he was making his sculptures. In fact, between making *Gismo* in 1960 and the Stedelijk buying it in 1974, he made various small changes to it. This is the freedom an artist has, which the conservator simply doesn't. But *Gismo* needs to live, not become a stuffed bird and, with courage and understanding, repairs and minor changes should be possible."

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the Netherlands Institute for Cultural Heritage.
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the Foundation for the Conservation of Modern Art.*

On first seeing Henk Peeters's work *59-18* in its present state with its jagged tears, burnt holes, parallel ridges on the surface, missing pieces and discolorment, it immediately begs the question: how far are such noticeable visual disfigurements a part of the artistic concept?

Peeters created the piece in 1959 by working a square piece of polyurethane foam with a gas burner. Roughly in the middle were a horizontal row of six brownish-black patches where the heat has coloured, scorched and melted the material. In four of these, the heat has burnt a hole straight through the foam, behind which the artist added a strip of white material to enhance the visual effect. He then glued the whole onto a slightly larger piece of softboard, painting its edges white.

The reverse side of the work is signed, dated and illogically numbered '59-08 Henk Peeters 1959'. Why 59-08 and not 59-18? When the Netherlands Office for



Fine Arts (RBK in Dutch, now part of the Netherlands Institute for Cultural Heritage) bought the work from Peeters in 1984, the artist explained that according to his own numbering this was a mistake and should read '59-18' (inventory label completed by the RBK's Frans van Burkom). Thus the work is now known by this title and has been on loan to the Centraal Museum Utrecht since 1988.¹

Peeters the Zero artist

When Henk Peeters aimed his gas burner at a sheet of polyurethane foam in 1959 he was not primarily concerned with the preservation of the work or the material. Peeters, like Armando, Jan Henderikse and J.J. Schoonhoven, was a leading exponent of the Dutch Zero movement, and interested in working with new, industrialised materials.² Originally he was a geometric abstract artist, but from the late fifties on he chose modern, unconventional synthetics like foil, plastic bags, down and foam. These were drastically treated as in the work *59-18* or were used in combination with each other. Peeters also preferred everyday, soft 'female' materials

Left Henk Peeters, *59-18* (1959). The oldest photograph, in black and white, taken in 1965. The work is than still undamaged and not framed. Photo: Truus Nienhuis

Right The work's condition in 1996. Photo: Tim Koster

like foam rubber, down and cotton wool, which he used in conjunction with such elements as fire, water and light. His objective was to make cheap, simple art works for a wider public and since the mid-sixties he has made multiples in large editions. His earlier 59-18 work, however, has been preserved as an original.

The Dutch Zero Group maintained close contact with each other and regularly exhibited with fellow kindred spirits elsewhere in Europe. The leading German Zero artists included Otto Piene, Heinz Mack and Günther Uecker; Italian notables were Piero Manzoni and Lucio Fontana, while Yves Klein was the prominent French exponent. All of them rejected the revival of traditional painting in the fifties and strived to eliminate all mythical elements from their work while using materials in a depersonalised way. These artists had an evident love of unpretentious, standard products, which in their neutrality did not invoke associations with traditional artist's materials. They focused on making the commonplace visually manifest. Such an approach, they believed, combined with the use of new materials and working methods, led to a heightened experiencing and rediscovering of the everyday environment. The starting point for Zero artists was 'back to zero point' and 'a new beginning for art history'. Their work lent expression to the view that painting was dead. Peeters's choice of materials was also a means of rejecting and rebelling against painterly traditions and conventions. The movement avoided the use of colour and personal signatures as this was considered too subjective.

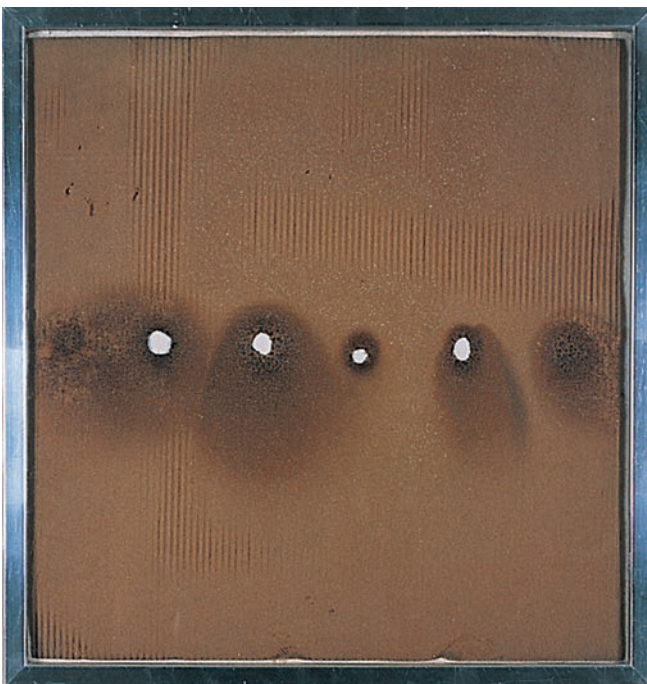
Peeters's work 59-18 belongs to his series of pyrographics – plastic objects each with a row of holes burnt into them. Like the rest of the series, it has an element of performance art to it – the act of burning holes into an unblemished surface. The work does not represent anything, it only refers to the artist's intervention. The perfection and smoothness of a manufactured piece of plastic has been radically damaged by the gas burner's flame, and the significance of the work lies in this transformation. The title is purely for administrative purposes, to indicate that this is work number 18 from the year 1959.

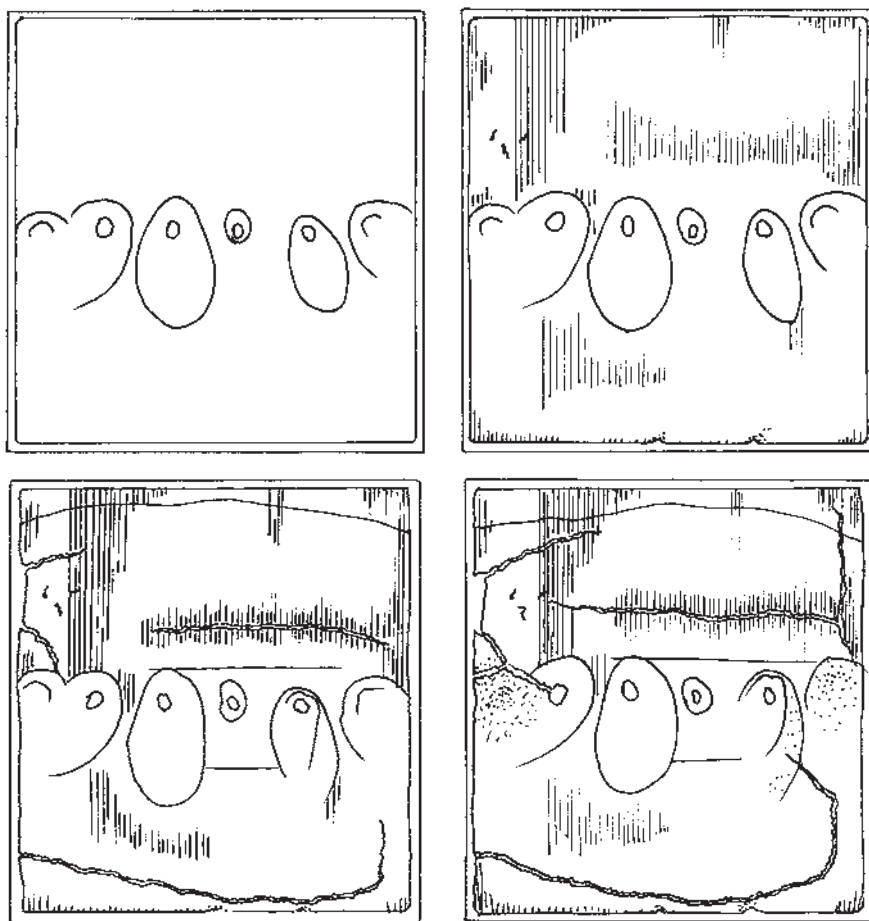
Historic picture material

When registering the work for the Centraal Museum Utrecht, in 1992, the furniture conservator J. Creman noted on the card 'large tears in the foam rubber'. The discovery that the splitting and crumbling material was visibly deteriorating was the reason for submitting the work for investigation. This duly began in 1995.

1984: the first colour photograph of 59-18 after it was purchased by the Netherlands Office for Fine Art and framed behind glass. Note the pattern of ridges in the foam. Photo: Netherlands Institute for Cultural Heritage

1993: this picture shows the first large tears in the work as well as the white efflorescence in the middle and at the top. Photo: Centraal Museum Utrecht





The starting point for the investigation was old photographic documentation, used to gain an idea of the work's original appearance and of the damage and inherent degradation to the material. Initially, the latter received most attention, as it was only after its history of decay had been evaluated that the theoretical working group could assess how much 59-18 had changed.

The most recent picture (see page 43) dates from 1996, when the frame added by the artist – possibly in the early eighties – was removed. Next to the original scorch marks and burnt holes the work shows various signs of degradation. A patternwork of vertical ridges is clearly visible, in places the foam has jagged splits (two of these run from a burnt hole to the edge of the work), and part of the foam is missing. On certain parts of the surface is a white film. Some damage has been caused by the foam having been eaten away by insects.

In the oldest surviving photograph, a black and white one taken by Truus Nienhuis in 1965 (see page 42), the foam is still in good condition – the smooth surface reveals no anomalies. The edges of the work are not visible. The first colour photograph (see page 44, left) was taken in 1984, after the Netherlands Office for Fine Arts bought the work. This registration picture shows 59-18 behind glass in a silver frame. In the foam is a pattern of ridges, but as yet no splits can be seen. The material is a light yellowish brown, which is the standard colour of old, originally uncoloured polyurethane foam. When a picture of the art work was taken four years later, there were still no visible tears in the foam. A colour picture from 1993 (see page 44, right), however, does reveal large splits, which have doubtless appeared because the material is now thirty years old. In subsequent years the work has deteriorated even more – existing tears have got bigger and new ones have appeared (see figures above).

Schematic representation of the degeneration of 59-18. From top left, clockwise:
 1965: art work still intact
 1984: imprints of corrugated cardboard on the polyurethane foam, two finger imprints in the lower rim, traces of insects upper left
 1993: foam torn in four places
 1996: more tears and they have become longer; the surface has begun to pulverise near the burnt holes.

Figures: Lydia Beerkens

Reasons for degradation

Already in 1984, when the Netherlands Office for Fine Arts bought 59-18, one of its employees Frans van Burkom registered 'foam crumbling' when making an inventory of the work's condition. Since then the foam has crumbled even more, especially the scorched parts. The splits have probably occurred because the foam became brittle, shrunk and lost its flexibility. On the one side it is glued to the sheet of softboard, on the other the glass plate presses against it, so there is no space for it to move freely. There is also a degree of play between the frame and the edge of the softboard, enabling the latter to shift about. This could also have caused further tears in the foam.

During an interview with members of the working group, on 9 February 1996, the artist explained how the ridges in the work had come about. "The work was bought at the time by Evert van Straaten for the Netherlands Office for Fine Art. He came to visit me and picked something out. The work was packed in corrugated cardboard. What I liked about the foam rubber was being able to touch it and push it in with your finger, but because it's vulnerable material, of course, I had it framed in the silver-coloured frame with a sheet of glass in front. As a result the tactile element of the work was lost."

Thus the ridges in the surface are imprints left by the corrugated cardboard in which Peeters had packed the work and left it standing for a long time. In the early eighties the soft foam was already no longer flexible enough to revert back to its original shape.

Another story concerns the damage caused by insects. On the day of the interview Henk Peeters arrived at the laboratory of Thea van Oosten (see page 49) to have a look at the work. A few days previously an insect identified as *Trogoderma sp.*, a South American carpet beetle, had crawled out of it. Peeters dryly suggested signing the organism as well.

Discoloration

The interview with Henk Peeters presented the working group with another unexpected problem concerning the colour of the foam. The artist was adamant that originally it was light grey. Until that point there had been no indications to show that the material had been any other colour than yellowish brown. If the original was grey, the work must have changed dramatically during the first fifteen years of its existence. The colour picture taken in 1984 shows it was already yellowish brown and the artist apparently had had no problem with this, as he sold it in this condition – complete with the ridged indents and the already crumbling foam. Ultimately, scientific investigation showed that the foam had never been light grey, though it was established that the material had become quite dark through degradation.

The tears, ridges and crumbling of the foam are the result of a combination of decay, construction methods and external damage. The marks left by the corrugated cardboard and the insect holes could have been prevented, but the foam's deterioration process cannot be curbed – let alone stopped. The practical working group concluded that there was no way the work could be restored or conserved.

Damage to the meaning of the work

Today, less than forty years after 59-18 was made, it is difficult to link the artist's intentions to the way the work now looks. It evokes an abstract, empty landscape: the surface is grainy and sand-coloured, so that 59-18 makes a fragile, crumbling impression. Peeters's working of the pristine piece of foam rubber has lost much of its visual meaning and other, unintended side effects in the material have come to the fore. The discoloration, the vertical ridges and the jagged splits have completely blurred the original contrast between the artist's interventions with his gas burner in what was then a modern, smooth and pristine material. The meaning of

the work is no longer determined by a horizontal row of burnt holes and scorched patches on a smooth piece of foam rubber; the reflection of the artistic gesture is virtually unrecognisable. The work 59-18 no longer exists – or can only be read with extreme difficulty. This, at least, was what the working group concluded when they were presented with it.

The artist himself agreed: “I see the decay as greatly distorting my work. It can no longer be exhibited and simply has to go.” In an earlier interview in 1995 Peeters stated categorically that in its present state 59-18 no longer had any connection with what he originally intended. He even said later that he could no longer recognise it as coming from his own hand. The curators in the working group were in complete agreement.

Technical reconstructions

These conclusions raised new questions for the theoretical working group. If the art work could no longer be exhibited, what was now its status? And should its remains be saved as a material reference of a lost work, or should it be simply destroyed?



During an interview in 1996, Peeters explained: “I’ve thrown many old works away and re-made them again. I believe 59-18 is the only original work remaining from this period. That’s because it was in a museum collection of course. I could also easily make a new version of this work if I was given it to restore, though I’m wondering whether I can still get a similar kind of foam rubber that scorches in the same way with a gas burner.”

For years Peeters has been restoring his art works by destroying those that have become damaged or deteriorated and creating new ones, which were never exactly the same as the originals. His suggestion to make an exhibition copy of 59-18 was thus anticipated and his offer gratefully accepted. The working group realised that this was not an ethically acceptable restoration method, but wanted the practical working group to investigate just how identical a reproduced work could be, as well as to gain a better insight into how the original looked in light-grey foam rubber.

The practical working group studied two reconstruction methods: one using the advanced technology of scanning and three-dimensional reproduction, the other by Peeters himself (see 'The resurrection of a corpus' by Thea van Oosten). The high-tech one proved to be quite an expensive proposition.

At the Dutch Institute of Industrial Technology (TNO), computer-assisted machines can make exact copies of three-dimensional designs – including art works. The theoretical working group wanted to know what such a digital copy of Henk Peeters's 59-18 would look like, and to show it alongside both the original and the artist's own reconstruction at the symposium's exhibition in Rotterdam.

TNO duly explained the process. According to their written estimate, the total time needed was eight weeks. The cost, however, would be around 44,500 guilders – many times more than what the art work was worth. Moreover, the theoretical working group considered that while it would no doubt be technically successful this method would not convey what the artist intended by the simple action of burning holes into a cheap material.

Peeters's own reconstruction appeared simple, but actually took some doing. Since 1959 the production of polyurethane foam has inevitably evolved and because it must now conform to various environmental and safety standards, it does for instance contain flame retardants. This makes it difficult to burn holes in the foam and produces a different result. Foam rubber in the precise light-grey colour was also hard to trace, so in the end the remake is nothing like the original.

Material remnants stored

The research results clearly showed that 59-18 could not be restored and in its present state it no longer represented the original Zero work. A reconstruction for use as an exhibition replica was also not feasible. Thus the piece now has to be seen as the material remains of what was once an art work. In future the remains may only be used for research purposes, i.e. further studies into the deterioration of polyurethane foam or as reference material for the kind of creative processes Peeters used for his pyrographics.

There was a broad consensus of concerning the work's present condition. The working groups, the artist, the owner and the museum which had the work on loan were all unanimous that 59-18 could no longer be exhibited and was thereby a 'total loss' in material terms. It was also generally agreed that the original intention of the work was no longer recognisable in its present form. Even if it were possible to arrest the advancing deterioration of the foam, the work must still be seen as 'lost'.

Thus the fate of 59-18 is sealed. It will remain stored flat in a depot as an historic document. It is expected that the work will deteriorate rapidly in the coming years until the foam has entirely crumbled. Then next time the depot is cleaned, it will inevitably be given a red sticker marked **Out**.

On the same shelf in the depot is another work by Henk Peeters: the 1997 replica, which was shown that same year in the Museum Boijmans Van Beuningen in Rotterdam, alongside the remains of 59-18. For the work, this certainly was the very last exhibition. But the replica will also have to remain in the depot – as documentation of a conservation study, as an educational and non-contemporary copy from the hand of the maker of the original. Perhaps in the distant future this replica will gain more public exposure as a 'new' original work by Henk Peeters. Then the age of the unique art work will be well and truly finished.

THE RESURRECTION OF A CORPUS The deplorable state of 59-18 no longer reflected the artist's original intentions. In order to gain a better insight into the meaning of the work, and to know just how identical a copy could be, Henk Peeters was asked to make a reconstruction. He had made reconstructions of foam objects before and was prepared to make this reconstruction himself – although in interviews with

members of the working groups he warned that it would differ from the original in format and appearance, and that the foam material would not be the same as in 1959.

Upon inspection with the naked eye, the original material looked like a darkened uncoloured polyurethane. Inspection with a stereo microscope showed white solid material on the surface and inside the pores. Some areas on the surface contained an abundance of this white solid, giving the impression that the foam was grey coloured. But as long as the work's fate was not yet decided upon, a chemical analysis of the material could not be made. Burned foam particles were stuck to the glass and in order to prevent further damage it was decided not to dismantle the frame.

Polyurethane foam can be made from either poly-esters or poly-ethers; various substances are added, each giving the material separate qualities. Over the years, foam has been developed for special purposes and, among other substances, flame retardants – quite unfit for Peeters's purposes – have been added. A material like that from 1959 would thus be hard to find.

We decided to look for a polyurethane ether foam because it is more stable than a polyurethane ester. It had to be without flame retardants, of course. As the artist stated, the material should 'flare nicely'. He still remembered how, after



working the foam with his gas burner, he had to extinguish the flames with a rag – which gave the scorches their special structure. Because he had stated that the original foam was grey, this was the colour we went in search of.

First, Peeters went shopping on his own, even travelling to Germany. In the end he phoned to say that he could not locate the right material. Through a colleague of mine, I heard about Caligan's, a manufacturer of PUR foams in Breda, the Netherlands, which could surely provide what we were looking for.

The company proved to be extremely cooperative. Caro Ipenburg, the head of Research & Development, took us on a tour of the factory where huge blocks of foam – measuring some 30 cubic metres – are produced for the processing industry. In an enormous storeroom, all kinds and colours of sample blocks were stacked. On seeing those in various shades of grey, Henk Peeters was immediately able to pick one out. Caligan's offered a choice of foam in the desired colour and thickness (with no flame retardants added), free of charge. The artist chose a one-inch thick, dark grey PUR foam.

Back in his studio Peeters tried out the foam, but it would not burn properly. A few weeks later he returned to Caligan's to pick up a PUR foam in a lighter shade of

Henk Peeters and researcher Thea van Oosten in front of the original and the reconstructed 59-18.
Photo: Lydia Beerkens

grey. Several sheets were subjected to a flame in order to create holes which suited him.

Though no flame retardants had been added, Peeters found that the material did not react to the burning process like that from 1959. In the end, however, he did submit his reconstruction. It clearly differed from the original, as the artist had predicted.

*Thea van Oosten**

Thea van Oosten is conservation scientist at the Netherlands Institute for Cultural Heritage.

Pieter Keune is director of the Foundation for Artists' Materials.

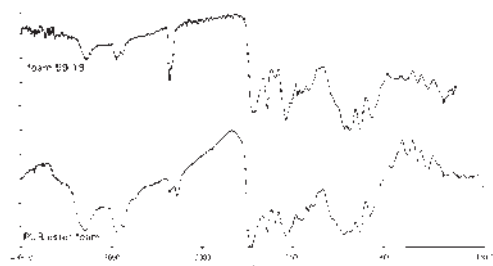


Fig. 1

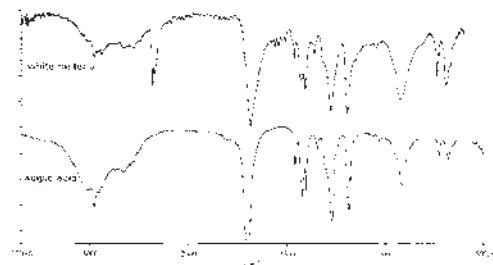


Fig. 2

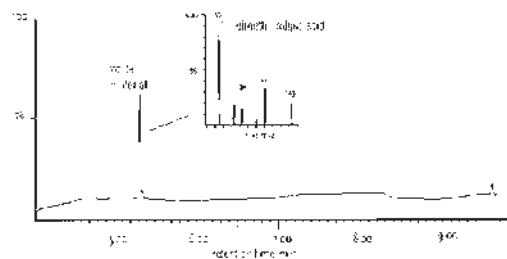


Fig. 3

After it had been officially decided that 59-18 could no longer be exhibited, its owner, the Netherlands Institute for Cultural Heritage, donated it to science. The art work duly arrived in the laboratory to be investigated analytically. As already stated, inspection with a stereo microscope showed white solid material inside the pores of the foam and on its surface. In certain places the abundance of white solid material made the foam look grey.

When the frame was removed and the glass plate lifted, FTIR analyses were performed on the foam, on the white material inside the pores and on the white efflorescence on the inside of the glass. The foam material proved to be a polyurethane (PUR) on an ester basis: carbonyl (C=O) stretch absorption bands between 1740-1680 cm⁻¹ and C-O-C absorption bands at 1187, 1128 and 1064 cm⁻¹, specific for esters, are shown. Also characteristic N-H stretch absorption bands at 3283 and N-H deformation bands at 1640-1600 cm⁻¹ specific for a polyurethane are present in the infrared spectrum. In figure 1 the infrared spectra of the foam material of 59-18 and a commercially available PUR-ester are shown.

The spectra of white solid material inside the pores and the white efflorescence on the inside of the glass are identical and consist of adipic acid (Hexanedioic acid, COOH(CH₂)₄COOH). Specific absorption bands for adipic acid are 1684, 1274, 1191 and 924 cm⁻¹. Figure 2 shows the infrared spectra of the white material and the reference spectrum of adipic acid.

GC-MS analysis was performed on the white solid material (by Henk van Keulen of the Netherlands Institute of Cultural Heritage). The mass spectrum of the only component of the gas chromatogram showed the specific mass of adipic acid shown in figure 3. Adipic acid is one of the basic materials from which polyurethane is made.

As for the degradation of the material, the presence of adipic acid seems to point out that a polyurethane foam on a polyester basis can be hydrolysed to its basic components. The framing of the work in the early 1980s provided a micro climate from which the hydrolysis product could not escape; it sublimed onto the glass and into the pores of the foam.

From the chemical analysis we can also conclude that the foam, in fact, had never been grey. In polyurethane foams the molecules are coloured while the material is being produced, so they should have contained dye matter – but they didn't.

Figure 1 The infrared spectra of the foam material of 59-18 and a commercially available PUR-ester.

Figure 2 The infrared spectra of the white material and the reference spectrum of adipic acid.

Figure 3 The gas chromatogram and mass spectrum of the white material.

Marianne Brouwer was curator at the Kröller-Müller Museum.

In 1991 the Musée d'Art Contemporain in Paris and the Kröller-Müller Museum in Otterlo organised a major exhibition of the oeuvre of the Italian artist Pino Pascali (1935-1968). It was the first international museum retrospective of Pascali's work since his early death, drawing the attention of a large public to this almost forgotten pioneer of Arte Povera. Following the exhibition, the Kröller-Müller Museum acquired Pascali's *Campi arati e canali d'irrigazione* (1967) (Ploughed Fields and Irrigation Channels). It was a key work in the exhibition and part of a body of sculptures known as The Reconstruction of Nature, which Pascali made from 1967 to the summer of 1968.

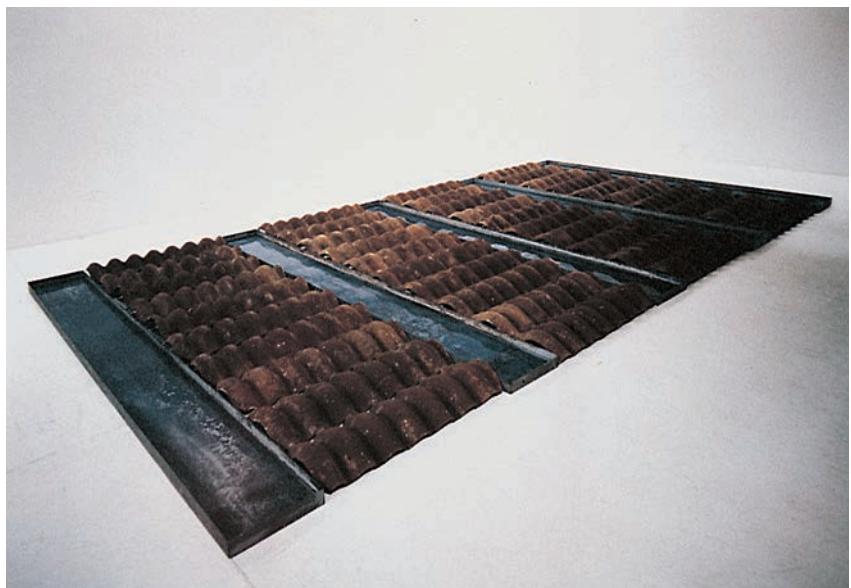
I curated the show for the Kröller-Müller Museum, where I was responsible for its installation among other things. Since I was also the curator of the museum's sculpture collection, I became responsible for the maintenance of *Campi arati* after the museum had bought it. At the time, the museum did not employ a conservator for its sculpture collection. The Kröller-Müller Museum owns a large collection of Arte Povera work, including important early works by Kounellis, Pistoletto, Penone, Fabro, Mario Merz, Zorio, and Paolini. Besides the indoor works, which consist of sculptures and monumental drawings, the museum also purchased major pieces by Mario Merz, Fabro, Penone and Zorio for its sculpture park, a collection unique in the Netherlands.

The acquisition of *Campi arati e canali d'irrigazione* was especially fortunate; not only was it a great sculpture – a rarity in a relatively restricted and expensive market – it was also the only work by Pascali in a Dutch museum collection. With this acquisition, the museum's Arte Povera collection could largely be regarded as complete. The Rembrandt Society, funding the preservation of art and supporting acquisitions by Dutch museums, was also prepared to make a substantial contribution towards this purchase.

Seemingly insurmountable problems

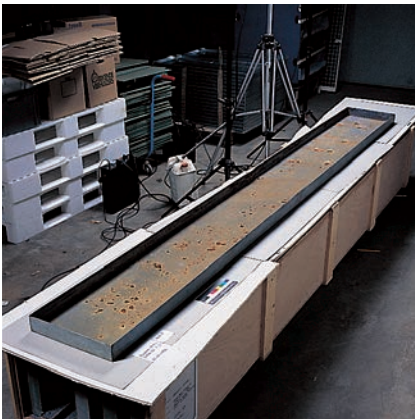
Campi arati e canali d'irrigazione consists of large rows of ridge tiles covered with earth and laid over each other in the manner of roof tiles. Flanking the rows of earth are oblong metal containers filled with water coloured a sky blue, giving the viewers the impression that they are looking at ploughed fields traversed by irrigation channels.

Very soon after its acquisition, this pastoral scene was to be the source of what then seemed insurmountable problems. The ridge tiles turned out to be made of



Left Pino Pascali's *Campi arati e canali d'irrigazione* (1967) during the 1991 exposition 'Pino Pascali' in the Kröller-Müller Museum. Photo: Cary Markerink

Right *Campi arati e canali d'irrigazione* (1967) in the 1980s, then in the possession of Gallery Zwirner. © Gallery Zwirner



Right Sealed package of asbestos ridge tiles from *Campi arati e canali d'irrigazione* in the depot of the Kröller-Müller Museum. Photo: Lydia Beerkens

Above Detail of the asbestos ridge tiles with their layer of earth; and a rusty container from Pino Pascali's *Campi arati e canali d'irrigazione* (1967). Photos: Lydia Beerkens

prefabricated Eternit plates (asbestos cement) cut to size – a handy and cheap material at the time of its making, but strictly forbidden today. The personnel of the museum refused to touch the work and turned the matter over to the Labour Inspection authorities. The inspector declared that his only reason for not having the work destroyed was the fact that it was art. However, he ordered the ridge tiles to be sealed in plastic wrapping and never again to be exposed. The work had literally become untouchable.

This situation lasted until 1994. Because of its importance in the museum's collection and its combination of unusual problems *Campi arati e canali d'irrigazione* was voted one of the pilot objects for research by the Foundation for the Conservation of Modern Art.

Research questions

Unfortunately the asbestos was not the only problem. The metal containers were in an advanced state of rust, and it was not certain whether they would last for future shows. The earth covering the asbestos plates threatened to fall away in a number of places. Finally, the museum had no knowledge of what colouring agent to use for the water, since there were no instructions from the previous owner of the work; the colour had been applied for the exhibition in 1991 by the conservators of the Galleria d'Arte Moderna in Rome, who acted as couriers for a similar work from their own collection in the show. Unfortunately, this colouring agent in the water had also proven to be so aggressive that it had caused lasting damage to the museum's floor.

Between the theoretical and practical working groups of the Foundation, which consisted of both art historians and conservators, we formulated the following initial questions:

- What is the actual danger of asbestos being released?
- Is it possible to somehow 'bind' the asbestos by coating the plates by invisible means?
- How is the earth attached to the asbestos plates?
- Is it possible to extend the invisible coating over both the asbestos and the earth to prevent it from falling off?
- If not, can we just add new earth of the same colour or is there any special meaning attached to the earth Pascali used – perhaps from a special place?
- Is it possible to restore the containers, free them from rust and treat them in such a way that they can be exhibited for years to come?
- If not, what would be the right solution? Can we make duplicates and exhibit those?
- Can one find out which agent has been used to colour the water? Was it indeed aniline-dye, as mentioned in all catalogues, or something else? And how much of it is needed to achieve a sky blue?

These questions gradually became modified as we discovered more and more about both the work and Pascali himself. Practice and meaning in an artist's life are inextricably intertwined and a solution to a material problem might work in one case but not in another, because every alteration to an art work also alters its meaning. While conducting our research, we learned about the scientific method of addressing conservation and the impact of meaning on the works we were analysing.

Unfortunately in Pascali's case we had very little to go on. Apart from the book *Autoritratto* by Carla Lonzi, some exhibition reviews and his own writings and statements, there was very little contemporary literature. Pascali exhibited a lot, but always with different galleries. It was only shortly after his death that the Galleria d'Arte Moderna in Rome held a posthumous retrospective of all the work that was immediately available from his endowment. All other exhibitions took place much later. They all became quests and laborious reconstructions of his life and work.

With Pascali dead for almost thirty years, who actually remembered how he had made his works? And how reliable would such memories be? Most of his works belonged to private collectors, old friends and gallery owners. The only public collection was owned by the Galleria d'Arte Moderna in Rome. This consisted of Pascali's personal endowment, which had been donated by his widow immediately after his death. It was not a consistent collection, but it had the advantage of being large and of containing many major works that had been in the museum's care since 1968. We turned to Maria Grazia Castellano, head of the conservation department of the Galleria d'Arte Moderna, to enquire about the museum's experiences with regard to the conservation and maintenance of Pascali's work. As it turned out, her help proved to be invaluable.



Reappraising Pascali

Who, indeed, was Pino Pascali? Born in Bari, Southern Italy, in 1935, he died in 1968 in a motorcycle accident.¹ He had been one of the first and most original Arte Povera artists, an early friend of Kounellis and Pistoletto, but his work had been forgotten over time – until it was rediscovered at the end of the eighties. A number of international exhibitions then showed his breathtaking inventiveness and daring humour in works that were inseparable from the performances he made with and around them, recording himself in short films that were both tragic and funny.

In 1968, shortly before his death, he had won the Venice Biennale prize for young artists. Photographs show him in passionate discussion there with flocks of students. He was a lover of boats and the sea, of all sorts of weaponry and fast motorbikes, a latter day inventor of myths and a born storyteller. But above all and by all standards, he turned out to be a most important and original artist who, in only the four years between 1964 and 1968, created an incredible body of work, forging a link between the generation of those Italian artists who "semiologically appropriated the contemporary world (Schifano, Angeli, Festa, Manzoni) and the new generation", as Carolyn Christov-Bakargiev put it in an article in *Flash Art*.²

Today, one could place Pascali's work within an even larger perspective as being essential to the Italian contemporary tradition: from Rosso to Fontana and Manzoni. How was it possible that such work and such a person had come to be neglected? The answers lie partly in Pascali's early death, partly in the divided Italian art scene itself (Rome and the North), and partly in the fact that Arte Povera, invented as a 'brand-name' by Germano Celant in 1967, at the time centred around a young international art scene not only including Italian artists but also their American, European and even Asian contemporaries such as Bruce Nauman, Jan Dibbets, Lee U Fan and Richard Long. Only gradually and over the years has Arte Povera come to be identified with the development from the early sixties of, in particular, Italian art. Mainly focused on 'big names', its history and development

Pino Pascali (second from the left) at his last solo exhibition in the gallery L'attico, 1968, with Mario and Marisa Merz to his right.

in Italy itself largely remains to be written. Ironically it was in part this focus on 'names' that led to Pascali's rediscovery.

From war scenes to the elements

Pascali spent his childhood in Albania which then belonged to Italy and where his father was sent as a policeman during the war. He went to study scenography in Rome in 1956 with Toti Scialoja, one of the most inspiring teachers at the art academy at the time. Kounellis was his classmate there. Still a student, Pascali created his own marionette theatre, a tiny booth with puppets made from readily available domestic objects: a wine bottle, a pineapple, pots and pans. He wrote wonderful stories and poems for them, full of castles and princesses and stormy seas; stories and ingredients that can also be found in his later art works.

His first commercial works were cartoons for films and television. But soon he began making paintings in earnest and, exhilarated by the first exhibition of Lichtenstein, Rauschenberg and Johns in Venice in 1964, declared that he wanted to create a Pop Art that would be thoroughly Italian. He started to create 'shaped canvases', consisting of wooden bearers in the form of women's torsos or pelvises, with canvas stretched over them and painted in shining enamel-like colours. Poetry and wordplay also appear in these first works, for instance in *Muro del sonno* (Wall of Sleep) from 1964, a wall made with pillows for bricks.

Pascali's first series of sculptures, made in 1965, were weapons: tanks, machine guns and rockets, indistinguishable from the real thing but entirely assembled from wood and spare parts from old cars and machinery painted in a convincing army green. At the opening in the Galleria Sperone in Turin in 1966, Pascali 'played war' with his artillery, imitating scenes from the film *Doctor Strangelove*. Some have linked these works with the war in Vietnam, some with Nouveau Réalisme, some with the metaphysical paintings of De Chirico. But these works were above

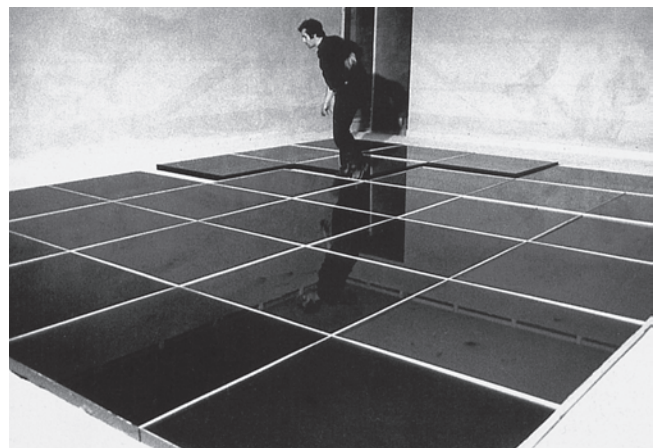
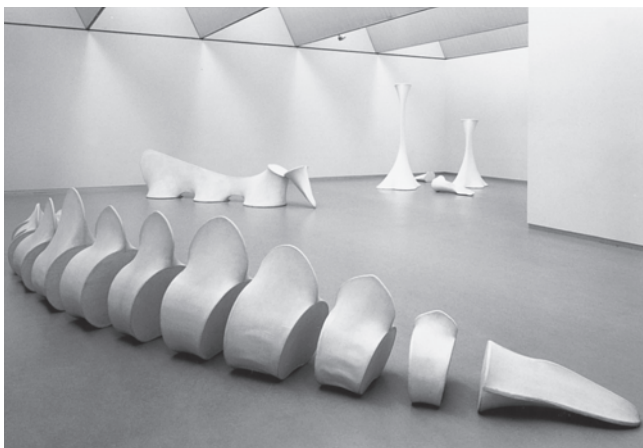
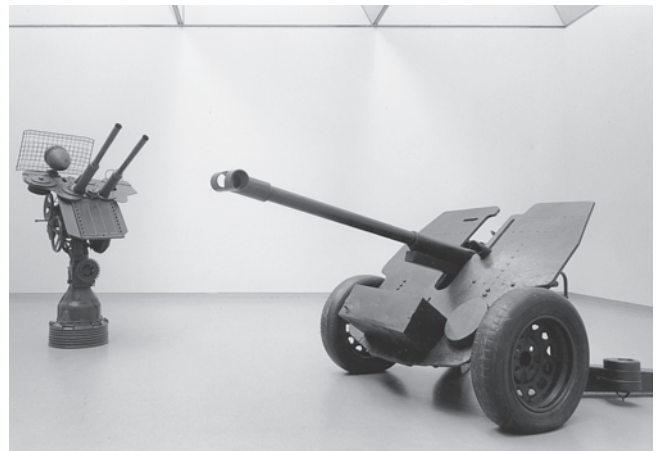
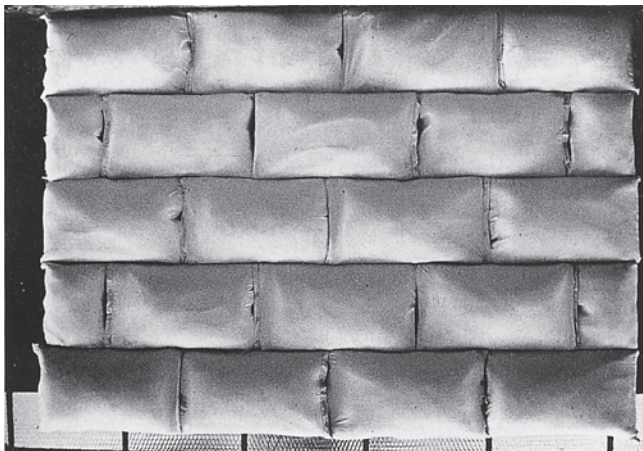
From top left, clockwise

Pino Pascali, *Muro del sonno* (1964) – Wall of Sleep.

Pino Pascali, *Contraerea* and *Cannone Bella Ciao* (1965) – Anti Aircraft Gun and Cannon Bye Darling. Photo: Kröller-Müller Museum

Pino Pascali, *Decapitazione delle giraffe* (1966) – Beheading of the Giraffes. Photo: Kröller-Müller Museum

Pino Pascali with *32 Square Metres of Sea, Approximately* (1967).



all sculptures, objects that Pascali declared to be 'finte sculpture', imitation sculpture. For sculpture could not today be marble or bronze; were it to exist in the real world it had to relinquish any aspiration to eternity.

In the same year, at the Galleria Alexandre Jolas in Milan, Pascali exhibited a completely new series of black-and-white sculptures of animals and the sea: dolphins and whales jumping from the water right through the walls of the gallery – or so it seemed – with their bodies on one side and their heads on the other. Other series of animals followed: dinosaurs, rhinoceros and giraffes, in a show with his Roman gallery owner and friend Fabio Sargentini. All were made of the same kind of shaped wooden bearers as his initial shaped canvasses, with canvas stretched over them painted white or sometimes just left natural. As a strange characteristic parts of the animals were often detached, lying next to the main corpus as separate volumes, invariably suggestive of chopped off heads and limbs. Their titles referred to this state, particularly the signifying title of one work: *La Scultura decapitata*.

Creating these works, Pascali did two things at once: with the white sculptures he was taking up and continuing Manzoni's white monochrome paintings, testing them in space; with the chopped off parts he was paying homage to Brancusi. These animals then were a study in today's possibilities for sculpture, but connected to the figurative and to narration: to myth, the prehistoric, the world of animals. Although their forms and volumes look purely classical, in fact they are even more 'finte sculpture' than the weapons, for they have almost no weight – weight being one of the main characteristics of 'real' sculpture – because they are hollow inside.

For the group exhibition *Aqua, Terra, Fuoco, Immagine*, organised by Calvesi and Boatto in Rome in 1967 and in which Pistoletto, Kounellis and Gilardi also showed new works, Pascali started a series of works devoted to earth, water and mud which he called the Series of the Elements. He used plastic to make his *9 Square Metres of Mudpuddle*: cast dark brown blocks simulating asphalt with shallow holes filled with water. One month later, for the historical show 'The Space of the Image' in Foligno, he made what is perhaps his masterpiece: *32 Square Metres of Sea, Approximately*, a huge work consisting of shallow metal containers filled with blue water, with a zigzagging empty space traversing it like the image of lightning. At the Galleria Jolas he exhibited configurations of water and earth: various Ploughed Fields and Irrigation Channels, Stagnant Waters and Confluences. This was the series from which stemmed the Kröller-Müller Museum's *Campi arati e canali d'irrigazione*.

Pino Pascali, *Bachi da setola* (1968) – Brush Worms.
Source: *Pino Pascali*, Kröller-Müller Museum, 1991

Pino Pascali together with his worms in a summer meadow, 1968. Source: *Pino Pascali*, Kröller-Müller Museum, 1991

Playfulness and craftsmanship

In the same year of 1967, Pascali exhibited at the Biennial in Paris as well as in Germano Celant's 'Arte Povera' show at the Galleria La Bertesca in Genoa. His last



series of works, which he showed at his one-man show at the Italian pavilion of the Venice Biennale, was devoted to nature and the heroic inventions of primitive man, again combining both natural and industrial materials with archetypal forms. He made a life-size, hanging jungle bridge, a hunter's trap and a bow and arc (*Arc of Ulysses*), all of Brillo steelwool, and giant mushrooms and huge animals made of synthetic carpet material. With all of those he played, acting out stories with his creations.

That summer he started another series of animals, to which he gave the punning title *Bachi da setola*. These were huge silkworms (*bachi da seta*), made of pink, blue and green plastic industrial cleaning brushes (*setola*). He had himself photographed with them in a summer meadow. His last short film shows him on the beach, digging himself into a deep hole in the sand and re-emerging scared, panting and breathless from his burial like a flower or a worm.

One of Pascali's qualities was his inexhaustible playfulness, his love of myth and stories. Another was his superb craftsmanship. It was not craftsmanship in the classical sculptural sense, however. Every detail of his work was intentional and yet was created with an illusory effect in mind. His early studies of scenography and theatre must have given him an enormous capacity for using and combining his materials to that end. But, quite in line with the history of the Italian Zero artists like Manzoni, Bonalumi and others, Pascali also used such new, modern materials as plastics and foam. Sometimes he employed ordinary objects to serve as 'objets trouvés' for his visual puns, at other times he reworked his materials – however humble – in such a masterly way that they acquired a magic all their own. His works, especially the later ones, are sometimes fragile or show unusual complications due to the decay of industrial materials – or because Pascali used what was at hand and what served his imagination best.



A solution for the asbestos

Armed with as much information as we could gather, slightly alienated by the language problem since none of us had a real working knowledge of Italian, the working groups began investigating the possibilities of saving and conserving *Campi arati e canali d'irrigazione*. At the very outset it was agreed that keeping the illusory effect of this work undisturbed in every way and preserving the original materials wherever possible was vital.

On 7 February 1996, the Eternit plates were finally inspected by engineers of the Institute of TNO in Delft. To our delight conservation turned out not to be an insurmountable problem. Although there were two kinds of asbestos found (*chrysotile* and *crocidolite*), these surfaced only at the rims of the ridge tiles where Pascali had trimmed them to size and at the edges where the asbestos had been industrially cut. The rest of the plates presented no danger, even less so because they were covered with the layer of earth. Therefore it was not deemed necessary to seal the surfaces. Even in the case of accidental breakage, there was very little chance of any asbestos being set free over a longer period of time. Only if the work were ever to be intentionally destroyed would very elaborate safety measures be necessary – such as sealing off the exhibition spaces.

To seal the edges, the Institute of TNO advised putting the plates one by one in a made-to-size transparent container with holes for the hands, and to treat the rims with one of the industrial coating materials available from specialised firms. For additional safety, the undersides of the plates should also be treated.

Upon further inspection of the ridge tiles, we found that Pascali had not glued the earth to the plates, contrary to what we had previously assumed, but most probably had dipped them in a container filled with mud. Its adhesive power was amazing and with careful handling the earth would not fall off, except for the incidental crumb.

Quite another matter was the question initially put to the art historians by the

The garden of the Kröller-Müller Museum: in the presence of curator Marianne Brouwer and scientist Pieter Keune, engineers of the Dutch national research institute TNO are unwrapping the sealed crates with asbestos ridge tiles. Photos: Lydia Beerens

conservators: was there a possible meaning to the earth used, did it come from a special region which was perhaps significant to Pascali? These are tricky questions, since so difficult to prove or disprove. But in general this kind of reference in the form of a material souvenir, or 'remains', is completely uncharacteristic of Arte Povera, nor was there any indication of it in the history of Pascali's other works. Maria Grazia Castellanno confirmed that no specific meaning needed to be attributed to the earth.

Debate on rusty containers

If the Ploughed Fields now presented far less of a problem than we had feared, it was another matter for the metal containers. The containers themselves were made of thin cold-rolled steel. There were fierce blooms of rust in most of them, both on the inside and on the underside where water had spilled onto the floor. The work had been exhibited four or five times throughout its history, but clearly the containers had not been adequately dried before being stored.

Inside, the containers were covered with sediments of a blue substance, presumably left from the colouring of the water. Their interiors had been roughly hand-painted grey, which we assumed might have been done by Pascali himself. Analysis of the paint by the Central Laboratory in Amsterdam (Netherlands Institute for Cultural Heritage) showed no traces of zinc. Therefore the paint, though presumably used for protection, was not a zinc primer.

The question of the intended longevity of Pascali's work presented itself here, as it did in all his works, in combination with its illusory effect. Should we adopt the solution which the conservators of the Galleria d'Arte Moderna in Rome had used for the similarly made containers of *32 Square Metres of Sea, Approximately*? They had repainted the containers at an early stage with a thick layer of protective paint.

This was felt to be an aesthetically unsatisfactory solution. The rims of the containers were so thin as to be almost invisible once they were filled, and this effect would be ruined by too much added paint. As it turned out it was also an impossible solution, for the containers were too thin and the rust was too deep to withstand the elaborate chemical cleaning process needed to remove it before repainting. Repainting, while leaving traces of rust, would only prolong the same situation. The only possibility to conserve the containers was to carefully remove as much rust as possible and store them at a humidity of less than 30 per cent RH. Their life span could then be guaranteed for a very long time.

Certainly the containers could not be re-used in the future without being ruined entirely. The debate then centred on the next question: could new containers, equal to the original ones, be made for exhibition purposes? Did replacing elements of his work correspond to Pascali's ideas about his materials? Or was the rusting steel simply a matter of the artist's poverty and would he have used better ones if he had had the possibility? Should the new containers then be made of stainless steel, for instance?

One argument was that in any case replacements would be unethical, since they were not the original items. Another, that in many cases in contemporary art the 'hand of the artist' had been declared a past ideology by the artists themselves. Artists had their works made to order. Industrial materials were being used, putting into question the entire idea of an 'original' art work. As an example Sol LeWitt was quoted, who ordered his sculptures to be spray-lacquered at a garage next door. Maria Grazia Castellano, however, informed us that Pascali had ordered his containers from a blacksmith, and that replacing the corroded ones in her view presented no problem.

The alternative acceptable to all proved to be the following: the original containers would be cleaned and stored, to serve as an example for later remakes.



The underside of one of the containers from Pino Pascali's *Campi arati e canali d'irrigazione* (1967) as it was in 1996, with blooms of rust.

Below the inside of another container from *Campi arati e canali d'irrigazione* in 1996, speckled with rust.

Photos: René Gerritsen

Those remakes should be exactly like the originals: made of rolled steel and hand-painted with a primer in the original colour. After exhibition they should be thoroughly dried and stored to last as long as possible. Waxing the undersides with a microcrystalline wax would prevent them from rusting. When showing unacceptable rust, the containers could be replaced with new ones made again after the originals.

Regaining the blue

The next problem presented was the colouring of the water. The blue sediments in the containers were analysed by the Central Laboratory but showed mainly the presence of calcium and some traces of cobalt. In all catalogues and lists of works though, aniline-dye was mentioned as the colouring agent. As the curator of Pascali's exhibition in Otterlo, I remembered that the conservator of the Galleria d'Arte Moderna in Rome who acted as a courier for the loans, not only had personally coloured the water of *32 Square Metres of Sea, Approximately*, but on my request also coloured the Irrigation Channels with drops from a small bottle and pipette which she had brought with her.

It turned out that the conservator had used a methylene blue, prediluted partially and then distributed in the water. The undesirable side-effect of methylene was however that its colour faded after some time. In effect, I recalled that the *32 Square Metres of Sea*, though a Mediterranean colour at the beginning of the show, had ended up looking like the grey North Sea.

But how could we get hold of aniline-dye? Pascali would certainly only have used something that was available at any pharmacy. In Holland, however, aniline-dye has long since been banned because of its toxicity, and we were not able to find any. After unsatisfactory experiments with all sorts of other blue colouring agents we decided that again the answer had to be found in Italy.

After further correspondence with a private conservator in Turin, one day we received three perfectly old-fashioned packages of aniline-dye, looking more than anything like Reckitts Blue. With a tiny quantity of this, we immediately obtained a satisfactory Mediterranean sky blue. Instructions for use and the address of the factory were included in the packages. It transpired that in Italy aniline-dye is still used for colouring wood.

Thea van Oosten & Pieter Keune **SEARCHING FOR SHADES OF BLUE**

Thea van Oosten is conservation scientist at the Netherlands Institute for Cultural Heritage. Pieter Keune is director of the Foundation for Artists' Materials.

For good advice on the preventive conservation of the heavily corroded trays in Pino Pascali's *Campi arati e canale d'irrigazione* (1967) we needed to know the composition of their paint layers. Visual inspection showed grey-painted iron. The paint looked like a zinc primer, used to protect iron alloys.

Analysis with Fourier Transform InfraRed (FTIR) spectroscopy showed that it consisted of barium sulphate (BaSO_4) and zinc oxide (ZnO), a filling material and a white pigment respectively (see figure 1).

Furthermore, X-Ray diffraction (XRD) analysis showed that besides the white pigment (ZnO ; 5%) and the filling material (BaSO_4 ; 80%) a black cobalt oxide (CoO ; 4%) was present.¹ X-Ray fluorescence (XRF) indicated the presence of some minor quantities of elements such as Ca and Si (see figure 2). The absence of metallic zinc indicated that no zinc primer was used.

The exact composition of the metal from which the trays were made, was not analysed. For conservation treatment of iron, this is supposed not to be necessary. In case the museum decides to substitute the corroded trays, however, X-Ray fluorescence analyses have to be performed in order to identify the type of iron alloy used.

Perhaps methylene

In the corroded trays, various blue deposits were visible. These were expected to be the remains of the blue water with which they were filled during exhibitions. Analysing the deposits, we hoped to find out which colouring agent had been used.

Samples of different blue deposits were analysed using FTIR spectroscopy. The result showed the presence of CaCO_3 as the main component and some traces of organic material. X-Ray diffraction identified the deposit as calcium carbonate-hydrate ($\text{CaCO}_3 \cdot \text{H}_2\text{O}$; 80%) and cobalt oxide (CoO ; 20%). X-Ray fluorescence pointed out that the main component of the deposit was the element calcium (see figure 3).

It was obvious that the results of the different analysing methods were unanimous about calcium carbonate being the main component and that no blue-coloured specimen was unambiguously detected. Only inorganic salts from the water were precipitated in the trays.

The next step was acting on information given by Marianne Brouwer, the curator of the Kröller-Müller Museum, who was on the research panel. She remembered that for the exhibition in 1991, about forty drops of a concentrated 'aniline blue' solution were added to each tray of water (containing some 85 litres). This was done by the conservator from Rome who had installed the object. Maria Grazia Castellano, chief conservator at the Galleria Nazionale d'Arte Moderna e Contemporanea in Rome, provided further information on the blue used in works

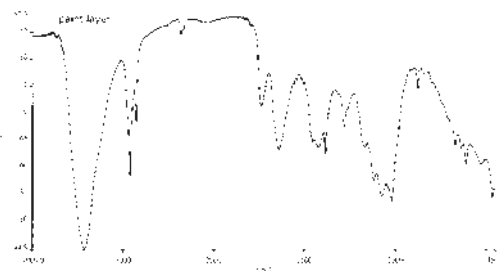


Fig. 1

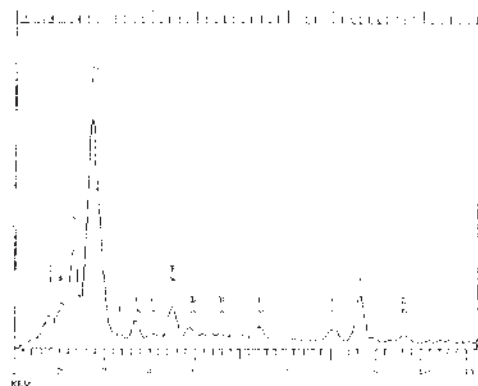


Fig. 2

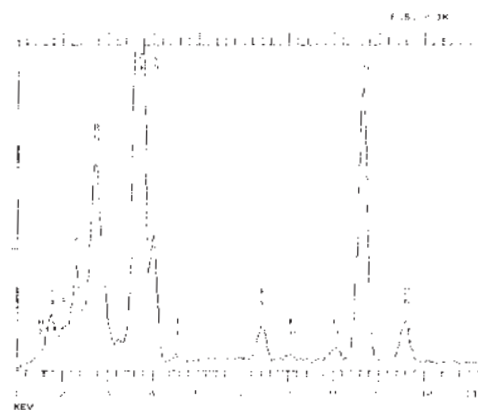


Fig. 3

Figure 1 The infrared spectrum of the paint layer on the trays.

Figure 2 The X-Ray fluorescence spectrum of the paint layer.

Figure 3 The X-Ray fluorescence spectrum of the 'blue' deposit inside the trays.

Right Two trays with various blue deposits, 1996. Photos: René Gerritsen



by Pascali.² She stated that “the blue colour should imitate the reflection of the sky in the water”, and that the museum uses an analytical reagent called methylene blue ($C_{16}H_{18}ClN_3S \cdot nH_2O$). Of this, a stock solution is made from which several drops can be added to the water in the trays.

Methylene blue consists of very dark coloured crystals which produce an intensely dark blue fluid when dissolved in water. It is available from any manufacturer of chemicals, always in the same composition, and used to dye cotton or wool, for instance.

Or aniline?

Still, catalogues repeatedly use the word ‘aniline’, probably quoting each other, to indicate the blue of the water. Although aniline itself ($C_6H_5NH_2$) is a fluid without colour, it can produce a broad range of colours through derivatisation. This implies that many kinds of aniline blue exist; packages obtainable at a chemist’s may not all have the same composition.

A wide search was made for the right kind of aniline blue. Finally, the conservator Vivian Dematteis from Turin, Italy, offered to provide us with some. She sent three different packages of ‘Colori mordenti per legno, solubili in acqua’, manufactured by Gubra and bought in a local drugstore.³ These contained blue organic dyestuff soluble in water.

To see what shades of blue are obtained from the different dyestuffs, 1%-solutions in water were made. Of each solution, approximately forty drops were put in flasks containing 250 ml of water. Four shades of blue were obtained, varying from dark to light blue and green blue. The dyestuffs showed extreme colouring power, so only small amounts are needed to get an intensive colour. Knowing this, it is



Curator Marianne Brouwer testing the colours of various dyestuffs, aniline blue to the left and methylene blue to the right, in the presence of working group members. Photos: Lydia Beerkens

understandable that the various techniques of analysis could not detect any traces of the dyestuff in the deposits.

In fact, three options remained. One was to use the methylene blue applied by the Roman museum. This would be an easy choice, pretending to recognise their authority and accept this dyestuff as 'authentic'. With the second option, the aniline blue sent from Italy, the idea is to try and imagine how Pascali would have come by his blue colorant – which is a bit romantic. Finally, the museum owning this work could make their own arbitrary decision about how the water was meant to look, and replicate it with locally available material. This is the most honest option, as a declaration that the authentic colorant is unknown.

Pieter Keune CAREFUL WITH ASBESTOS

Pieter Keune is director of the Foundation for Artists' Materials.

For centuries artists have used materials that were available to them at the time they were living and working. As we gained knowledge about these materials, an increasing number of them appeared to be unreliable and some fell into disuse. Such materials as copal resin and poisonous substances as Schweinfurter green pigment were replaced by more reliable kinds. Originally this was done out of consideration for the artists' health, later also for the effects of the materials on the environment. Nowadays artists' studios must comply, like any other company, with various regulations. Environmentally polluting waste products need to be kept separate and the use of organic solvents is strictly controlled.

In museum collections there are numerous older works made from materials which are no longer allowed. Nevertheless, no one would dream of banishing an eighteenth-century painting to a storage depot or, worse still, having it destroyed because the paint contains white lead and arsenic-based pigments. On the other hand, with contemporary art works the question is posed as to whether an exhibition presents a risk to visitors. Due to poisonous lead material that may develop because of deterioration, an art work containing lead cannot be erected in the open-air indiscriminately. Pino Pascali's *Campi arati e canali d'irrigazione* from the



Kröller-Müller Museum collection had to be hermetically packed and stored in the museum depot due to alleged risks for visitors and museum employees, as the ridge tiles used in the piece are made of corrugated asbestos cement.

Pathogen

Asbestos cement, now seen as detrimental to health, was still being used until a few years ago. Asbestos is an umbrella term for various natural mineral fibres consisting of crystalline silicon compounds. It is excavated in many parts of the world and has a long tradition of usage. Due to its strong, pliable fibres, in former times asbestos was called 'linum vivum', an indestructible flax. In the thirteenth century people were making fireproof clothing with it, according to Marco Polo.

Asbestos has always been used on a wide scale for products that needed to be fire-resistant. It was also ideally suited as reinforcement in cement-based products. In contrast to other stone type materials asbestos is well able to take extreme tension in the same way as steel bars in reinforced concrete. The most common kinds are white asbestos or chrysotile and the blue crocidolite variety.

In the seventies it became known that asbestos particles when inhaled could cause serious illness and its use plummeted. Asbestosis, or inflammation of the lungs, can be caused by long-term exposure to high concentrations of asbestos

Detail of a broken and repaired ridge tile. Note the small bundle of blue asbestos to the left of the light spot. Photo: TNO-MEP, Apeldoorn

particles in the air, while mesothelioma, a malignant form of cancer on the pulmonary membrane can occur even with much lower concentrations. A so-called Threshold Limit Value for concentrations of asbestos particles in the air whereby the chance of getting this lung cancer is zero, does not even exist (Dutch standard is: 0.1 particle/cm³ air per 8 hrs). The illness usually develops between twenty and forty years after the infection.

Material research

The corrugated sheets in Pascali's work are made from asbestos cement. This is produced from a combination of asbestos fibres, Portland cement, water and possible fillers. In the material Pascali used, the asbestos fibres have been firmly and 'inseparably' joined with the cement. The raw materials were mixed, put into a form and hardened. There are various manufacturing methods for this. The standard procedure is similar to the one for producing cardboard. A rotating drum creates thin layers from paper fibre and water mixed in barrels. These are drained and transferred to a textile belt, where more layers are combined, then drained again and then pressed together by a metal cylinder.

In the second half of the nineteenth century the Austrian Hatschek adopted this process to make asbestos sheets. The formed but not yet hardened sheets can be pressed into any desired form. This method first went into production in Italy.

An examination of Pascali's ridge tiles carried out by J. Tempelman working at the Environment, Energy and Process Innovation department of the Dutch TNO (centre for technical research), showed that the sheets contained around 12 per cent of their weight in white asbestos and around 6 per cent in blue asbestos. Both kinds are evenly divided in the material — the white chrysotile in loose fibres and the blue crocidolite in quite large bundles of fibres. The latter has a greater traction force than chrysotile and the corrugated sheets have been produced in such a way that the bundles lie mainly in the longitudinal direction of the ridge tiles.

The sheets are covered with a clay suspension. Where they remain uncovered on the underside no signs of corrosion were observed, so it is probable that Pascali used new corrugated sheeting at the time. However the sawn edges clearly reveal detached asbestos fibres, especially prominent are bundles of crocidolite.



Safety precautions

When this work is exhibited the health hazard to visitors is dependent on their inhaling asbestos particles. The chance is small that these will be released from Pascali's ridge tiles of their own accord. Skin contact and the ingestion of asbestos also form a negligible risk. When handling the work, however, the exposed fibres along the edges could come loose. These should be treated with a suitable impregnating agent to bind them. This must be done before a restorer repairs any possible broken pieces. In order to limit risk when restoration work is being undertaken, the object should be put in an appropriate extraction box, one with a so-called absolute filter which is able to trap the finest asbestos fibres.

Thus under normal exhibition circumstances it is expected that there will be no exposure at all to asbestos fibres — although, if a ridge tile occasionally splits, some fibres will be released. If this were to happen, it is highly unlikely that the standard Threshold Limit Value would be exceeded. However, the released material on the floor and the fractured areas should be hoovered with a vacuum cleaner fitted with an absolute filter.

If the art work was to be deliberately damaged creating various fractured areas it is probable that the threshold limit would be exceeded. Then it is a matter of immediately switching off the air-conditioning in the room concerned to avoid the fibres spreading throughout the museum. A specialised company would have to be brought in to clean-up. When this operation is completed, measurements would need to be taken to ensure the area is free from asbestos.

The reverse of a ridge tile, where only the edges are covered with earth, and a close-up picture.
Photos: Lydia Beerkens



Lydia Beerkens was conservator at the Foundation for the Conservation of Modern Art.

The first neon-light advertisements appeared towards the end of the 1950s and not long thereafter they also made their entrance in the world of art. One of the first artists to use neon tubes in his work was Mario Merz from Turin, whose *Città irreale* (1968) was purchased by Amsterdam's Stedelijk Museum in 1969.

The work's title, in white neon letters, seems to float in front of a gauze cloth plastered with yellowish wax which is stretched on a triangular frame; from under the title, two luminous blue lines make a faintly flowing descent.

The neon tubes in this work present a conservation problem confronting many museums of modern art. If fitted at a fixed location, neon tubes will burn out their full lamp life – which may amount to more than 20,000 hours. When they are used in art works, however, they have a lot more to endure, as the works are regularly moved around and reinstalled. All this handling and transportation may damage the tubes, or even cause them to break, long before they have become expended.

Most museums simply replace tubes that have been irreparably damaged, but some take the precaution of making an exhibition copy. This raises certain questions as to whether copying mars the authenticity of the work, and, if so, how one



can best preserve works featuring neon tubes. In order to answer these questions, the Stedelijk Museum proposed *Città irreale* for the research project.

Apart from the tubes, this work also has various other material and structural blemishes. The contact points of the neon tubes have been poked through the wax-coated gauze, leaving holes. The tubes have been loosely fastened to the frame with threads, and the gauze is also not firmly fastened. As a result, the cloth has a tendency to flap – so that the gauze fibres rub against one another and break through the wax, which causes small chunks to break off. The gauze itself is also not destined to last forever. If it goes, the wax will go with it, and an important element of this work will be lost.

Strange dimensions

Close scrutiny of photographs and correspondence has revealed remarkable facts regarding the origin of *Città irreale*. In the spring of 1969, the Stedelijk Museum organised the exhibition 'Op losse schroeven' (Square Pegs in Round Holes), which was to include four works by Mario Merz. *Igloo di Giap* had been requested on loan from the Sonnabend Gallery in Paris, but was in no condition to travel. The gallery suggested *Città irreale*, which Merz had made in Paris the previous year, as an

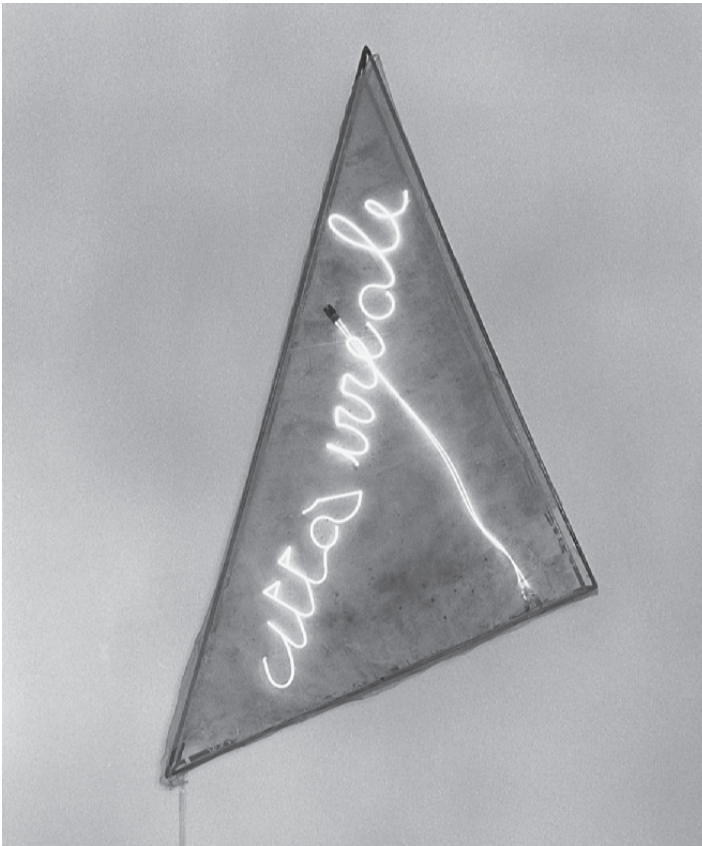
Left *Città irreale* (1968-69) by Mario Merz as it was in 1982 – the flap of gauze folded back over the work, but otherwise displayed as it should be – with its most acute angle pointing upwards. Photo: Stedelijk Museum, Amsterdam

Right March 1969. In preparation for the exhibition Square Pegs in Round Holes ('Op losse schroeven') at Amsterdam's Stedelijk Museum, Mario Merz fastens the white neon tubes against the gauze cloth. The loose flap with selvage is visible on the left. Photo: Ad Petersen

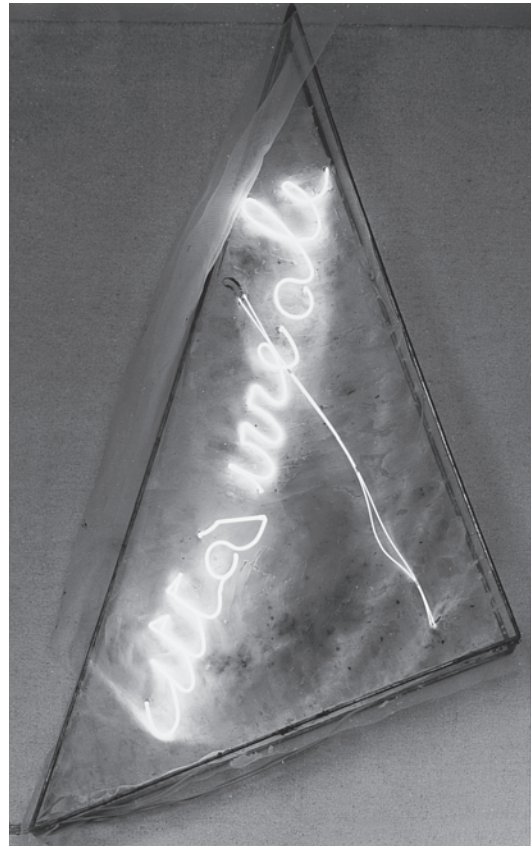
alternative. On the loan contract the gallery listed the work's dimensions: 120 cm and 150 cm long, and 10 cm deep.

When Merz arrived in Amsterdam in 1969 to install his work, he brought with him the frame and the wax-coated gauze, which was free of holes at the time. This proves that the work's current assembly dates from 1969. The frame, consisting of two identical triangles held together with bits of piping, proved surprisingly large. Recent measurement revealed that the sides adjacent to the right angle respectively measured 159.5 cm and 201 cm, while the hypotenuse measured 257 cm. Furthermore, the work was 20 cm deep, and not 10 cm.

The Sonnabend Gallery may only have noted the size the neon tubes, or the work may have consisted solely of these tubes at the time. Whatever the case may be, it is impossible to establish how the work had originally looked in 1968. However, photographs taken by the former curator, Ad Petersen, do show how Mario Merz assembled *Città irreale* in 1969. A wax triangle, in the shape of the frame, has been smeared onto a rectangular piece of gauze cloth which, judging by the sel-



Città irreale as it was upon purchase by the Stedelijk Museum in 1969. Photo: Stedelijk Museum, Amsterdam



Città irreale as it was in 1980, already with the flap folded back. Photo: Stedelijk Museum, Amsterdam

vage on both sides, has been cut from a roll. The gauze is attached to the top of the frame with thin loops of thread. The contact points of the white neon tubes have been bent back and prodded through the gauze cloth. Merz held the tubes in place by suspending them loosely on threads. Fully assembled, the work was displayed at an angle against the wall, with its most acute angle pointing upwards.

At the time, there was a rolled up flap of gauze cloth along the hypotenuse of the triangle. This flap was later unfurled and allowed to hang down over the work and the neon letters. It is unknown why, when and by whom this was done. After its purchase in 1969, the work was not photographed again until 1980. The unfurling must date from before 1980. *Città irreale* has been loaned out in its present state on numerous occasions.

Reasonable condition

Through archival studies and scientific research we have learned a lot about the

materials and techniques used in the making of *Città irreale*. The frame consists of welded steel tubing. The gauze cloth is in fact an open-weave polyethylene, while the wax layer consists of 20% beeswax and 80% paraffin (see CHEMICAL ANALYSIS, below). Pure beeswax is easier to apply when mixed with paraffin. The mixture is not evenly coloured, ranging from light and dark yellow to light brown.

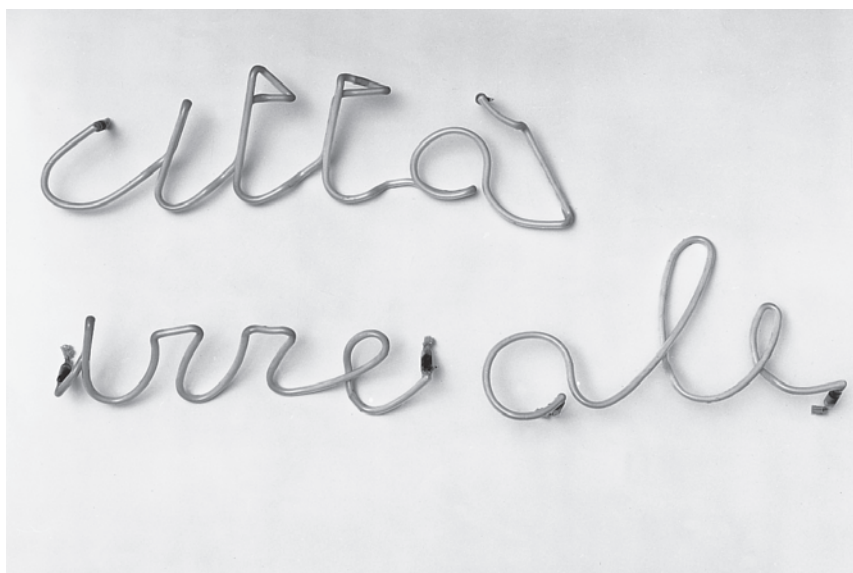
There are black and brown grains of dirt in the wax, as well as numerous cracks, tears and craquelure. At the centre, where the wax layer is thickest, there are also cracks caused by shrinkage during hardening. The warm wax was applied to the gauze cloth with long strokes, judging by the smear tracks on the front of the work. It was then pressed through the cloth in places, forming spaghetti-like strands on the reverse side.

A total of five neon tubes were prodded through the gauze: three for the white sections *città*, *irre* and *ale*, and two for the blue lines below. All of these tubes are copies. The blue tubes had already been broken, repaired and replaced before 1974. As a precaution, an exhibition copy of the white lettering was made at that time and the original has been stored separately since then. The original blue tubes were lost. The polyamide (nylon) threads suspending the tubes may also have been replaced at some stage. It is unknown whether they were originally made of synthetic fibre.



Detail of the waxed gauze in Mario Merz's *Città irreale* (1968-69) in 1997, showing a pattern of cracks. Photo: René Gerritsen

The original white neon letters as designed by Mario Merz, photographed in 1974. Photo: Stedelijk Museum, Amsterdam



CHEMICAL ANALYSIS The museum's documentation stated that the gauze of *Città irreale* by Mario Merz was made from nylon. Analysis carried out by Fourier Transform Infrared Spectroscopy (FTIR) produced a rather surprising result: the molecular structure turned out to be that of polyethylene (PE). CH_2 and C-H absorption bands between 3000 and 2800 cm^{-1} and at 1466 , 1377 and 720 cm^{-1} are specific to polyethylenes.

At first the wax was also analysed by FTIR. Specific absorption bands of fatty acids identified it as beeswax. Differential scanning calorimetry (DSC) analysis was used to show whether other waxes or resins were present. At least three other components were detected, two of which definitely have a higher melting point than beeswax. To identify and quantify the compounds, they were analysed with gas-chromatography-mass-spectrometry (GC-MS) by Henk van Keulen of the Netherlands Institute for Cultural Heritage. This analysis showed that the material mainly consists of paraffins, a synthetic wax – estimate to contain 80% paraffin and only 20% beeswax. Resins were not detected.

This makes it easy to understand why the wax adhered so well to the gauze: polyethylene and paraffin have the same chemical composition $(\text{CH}_2)_n$ and both have a low surface tension. Due to amide bonds which can form hydrogen bonds,

nylon is rather polar. An apolar material like paraffin wax would probably not have adhered so strongly.

Thea van Oosten

Conservation problems were specified through research into the condition of the materials. The steel frame is in a good state: if kept free of corrosion, it will remain intact for many years to come. The gauze cloth gives greater cause for concern. Although polyethylene is a fairly stable plastic, the ageing process will eventually cause it to become brittle, ultimately resulting in complete degeneration. The conservation options are virtually nil. The gauze is still relatively flexible at present, but certain folds and wrinkles have already become permanent features. This indicates that degradation has set in. When members of the theoretical working group carefully tried to fold the loose flap back to its original position, they were not wholly successful. The gauze also looks dirty and there are various holes in it because the blue neon tubes have been poked through the gauze in various places over the years. In 1989, conservator Kees Aben repaired one of the larger holes with single-gauge nylon thread, using a zigzag stitch.

A number of wire loops that fasten the cloth to the frame have been replaced. In certain instances synthetic thread was used instead of wire. Some of the loops have broken, causing the cloth to hang loose and allowing it too much movement. This is detrimental for the wax coating. The flexible thread used to suspend the neon tubes (and prevent breakage) presents a similar problem. Ageing will eventually cause these suspension threads to break as well.

Although the wax layer is dirty and bits have broken off, it seems to be in fairly good condition. There is no excessive discoloration and the surface seems stable. And lastly, the neon tubes are intact and in perfect working order.

The meaning remains unclear

Mario Merz designed the frame and neon tubes, but had them made by craftsmen. However, he did apply the wax to the gauze himself. The artist's hand is clearly discernible here, which makes this part of the work irreplaceable.

Merz utilised the physical properties of wax in a number of his works by moulding, pouring and smearing it in his own manner. He also combined natural materials with synthetic substances. His work *Dal miele alle ceneri* (1984), in the collection of the Stedelijk Museum, is a large igloo (138 cm high, base diameter 205 cm) covered for the greater part with cast wax panels and several metal panels. The igloo is topped with an antelope's head. His work *Verso lo zenith* (1985), which is owned by a gallery in Rome, consists of an upright double spiral made of metal, with tree trunks arranged around its base. There is a square tile of cast wax on top of each trunk. His installation for the Italian Pavilion at the 1997 Venice Biennial consisted of metal gauze coated with wax, in combination with snippets of gold leaf.

Apart from the Stedelijk Museum's *Città irreale*, Merz seldom smeared wax onto gauze cloth. Later he began to use a metal gauze, usually without wax. We stumbled across one example of such work during the course of our study. Enquiries at the Guggenheim Museum in New York revealed that Merz had exhibited a different work under the same title. At a special exhibition held at the Guggenheim in 1989, the artist had set out a number of enormous glass igloos. Above them he had installed a triangular frame with the neon text 'Città irreale'. The Guggenheim had seen this as an element of the igloo installation. However, it dates back to the same year as the Amsterdam version and has similar dimensions. In this 'second' *Città irreale*, owned by a private collector in Milan, Merz has used metal gauze.

These are two of the few works in which Merz used triangles. He more frequently used rectangles and parallelograms. The triangle is a reference to the



Detail of Mario Merz's *Città irreale* (1968-69) in 1996: a neon tube poking through the gauze has caused a hole which has become larger over the years. Photo: René Gerritsen

golden section, which the Fibonacci sequence also relates to (see Jan Hein Sassen, next chapter). However, Mario Merz does not elaborate on the meaning of his works. The viewer must draw his own conclusions. Detailed art-historical analysis is therefore required to establish the meaning of the Amsterdam *Città* and its place within Merz's oeuvre as a whole. Only then can we assess the extent to which its meaning will be eroded by further degradation of the wax layer and gauze cloth. And only then can we decide whether reconstruction or replacement is desirable from an aesthetic point of view.

Slight changes

At present, the work looks much the same as it did in 1969. Slight changes such as the loss of wax particles are not disturbing, because the neon tubes – which are still in perfect working order – attract the viewer's eye. The work has, however, become neater over the years because the loose gauze cloth around the edges has regularly been refastened. The most striking difference is that the flap of gauze, which was originally rolled up on the left along the angled side of the triangle, has now been completely unfurled to the right, across the frame, shrouding the flashing neon tubes.

The Stedelijk Museum would like to return this flap to its original position. The theoretical working group did not express a clear preference in this regard, partly because Merz did not remark on this feature when he saw the work in 1993. When asked what he thought of the work's current state, he replied that it looked fine. It bears mentioning, however, that Merz takes little interest in the condition of his earlier work.

It would be in line with restoration ethics to return the flap of gauze to its original position, as this intervention may be carried out without affecting the material – the gauze is still sufficiently flexible. The original position can be determined on the basis of earlier photographs. The most recent photographs show that the museum has opted for the original position: a loose flap to the left.

Città irreale will only really be at risk when the gauze cloth and wax layer fall apart. Research will therefore focus on the preservation of these elements.

Questions of authenticity

The neon tubes are also relatively vulnerable. Since the blue copies have a slightly different form and colour from the 1969 originals, the theoretical working group also considered the issue of authenticity – deliberating whether it is acceptable to manufacture exhibition copies, and, if so, to which extent this affects the nature of the work.

Museums often leave the making of copies to local neon tube craftsmen.¹ In such instances, the artist is usually approached to give approval, but seldom asked to specify technical and aesthetic guidelines. In a sense, therefore, the craftsman is left to his own devices. It is of course quite convenient to see neon tubes as an easily replaceable element of the work, as a factory product like any other fluorescent lamp or light bulb.

Neon tubes do, however, have an element of originality, despite the fact that most artists have them made by specialised craftsmen. The artist creates a design specifying a certain shape, colour and size, which he may have to adapt to make execution in neon tube possible. The tubes are made by a craftsman, a specialised glassblower, but the artist then assesses the result and will only use the tubes if they have the desired effect within his work.

It remains to be seen whether it is possible to make an exact copy, and this is the question that the Conservation of Modern Art project has attempted to answer. The required information was supplied by the firm Neon Weka in Amsterdam, which has worked for the Stedelijk Museum for many years and is specialised in the repair and copying of neon art.

The position of the gauze has been reconstructed in 1997 after the photograph from 1969 shown on page 68. Photo: René Gerritsen

The making of neon tubes

Glassblowing is an ancient and fairly rare craft, which has been passed down through the ages from master to apprentice. Most glassblowers work within a certain tradition and are specialised in a particular type of glass. European craftsmen usually work with soda glass (window glass) and sometimes borosilicate glass (Pyrex), while their American and Asian counterparts have a preference for glass with a lead content (crystal). Soda glass can be heated, blown and shaped little by little at high temperatures. Because glass that contains lead can only be modelled at lower temperatures, a different technique is required and certain features, such as acute angles, are impossible to incorporate. Glass type also determines the thickness of the tube wall. Experts can ascertain glass type on the basis of its shape.

Glassblowers shape tubes on the basis of a full-sized design drawn on transparent sheets. By turning over the sheets, they are able to copy the design in mirror image, thus ensuring that electrodes and connecting sections (the so-called 'backbends', which are supposed to be invisible from the front) are kept to the back. If a clear distinction is required, for example between numbers, these 'backbends' are painted black. A ribbon burner is used to make long, flowing lines, while a spot burner is used for short turns and acute angles. The tube can be bent into all sorts of shapes, but kinks must be avoided. The maker continually blows air through the tube to ensure that it remains open and will function properly as a light source. Many neon texts are executed in cursive writing, which is ideally suited to this technique.

Once the blower has completed his tube, he pumps out the air and replaces it with neon. He fits electrodes at the ends and then welds them shut. When an electrical current is passed through pure neon gas, it glows orange-red. Argon gas, mixed with a small amount of neon and mercury, produces a light-blue glow. The range of colours can be extended further by coating the inside of the tube with fluorescent powder. Colours may also be intensified by using coloured glass.

The fluorescent powder, which usually consists of metal oxides, can be applied in two ways. In the suspension method, the tube is filled with a mixture of powder and binding agent. When this mixture is poured out of the tube, a residue remains on the inner surface. The residue is dried by warming, producing a perfectly smooth coating. This coating is, however, slightly thicker on the lower side of the tube. It is therefore advisable to use the dry powder technique if a work is going to be viewed from all sides. In this method, the binding agent is either applied first to the inside of the tube and distributed by rolling glass beads through it, or, small sponges are soaked in the binding agent and shot through the tube using compressed air. The powder is subsequently poured into the tube and evenly distributed by means of tapping and turning. One can also purchase straight tubes which have been pre-coated at the factory. The powder coating in such tubes is even and well dried, but may crack when bent at acute angles, causing craquelure.

Preservation of neon systems

Considering the range of materials and techniques, it is not surprising that copies of neon tubes may differ somewhat from the original. This is why repair is the best option if a tube is broken. A single crack is fairly easy to repair. The neon specialist welds the broken sections together, cleans the tube, pumps in new gas, fits new electrodes and seals off the tube. However, if the broken tube was coated, then the entire coating must be reapplied and in effect, a new neon lamp is made using the old shape.

Neon tubes are gas-discharge lamps. High quality tubes can last for around 25,000 burning hours. The tubes themselves usually reach temperatures of around 40-50°C while the electrodes reach temperatures of around 80°C – which is still less than a burning light bulb. Tubes may, however, become dirty as a result of

ageing or inferior materials. This gives rise to additional resistance, causing the tube to become very hot. Ageing manifests itself in the form of discoloration, a black haze that causes light intensity to diminish.

In order to preserve neon tubes as an integral part of an art work, it is advisable to have a full-scale system drawing made upon purchase and to have all relevant specifications documented in detail by a neon specialist. A drawing alone is not enough, because the backbends and other features, which are often crucial for the overall structure, can only be accurately reconstructed on the basis of the original or detailed specifications.

In order to obtain the same colour, all relevant data are required: glass type, tube thickness, coating composition, electrode type, and operating voltage. In theory, the composition of a coating can only be established by taking a sample and having it analysed, though this implies that the original tube would have to be broken. Moreover, the composition may have changed due to oxidation. Another option is to measure the colour signal of a burning tube.² Due to regulations restricting the use of mercury, however, it will not be possible to make exact copies of certain colours in the future.

The only way to truly preserve an original is to immediately make an exhibition copy and entrust the original to the safety of storage. Variations can be limited by having the copy produced by the same glassblower who made the original. Authenticity may be guaranteed by requesting the artist's approval for both versions.

Preventive measures

The material and technical preservation options for *Città irreale* have been considered. There are no ethical drawbacks. The work's most vulnerable element, apart from the neon tubes, is the wax-coated synthetic gauze. If this were to be damaged, the work would lose much of its expressive potency. Optimum preservation is therefore vital.³

Although the degradation of polyethylene is irreversible, premature loss of wax particles can be prevented by ensuring that the gauze does not move. It should therefore be refastened or reattached to the frame, and all holes should be sealed. Those around the neon tube connectors may be sewn or glued. To further limit the risks of movement, the tubes themselves should also be suspended in a more stable manner. The gauze may be given additional support by weaving invisible threads through the mesh.

The theoretical working group left it to the Stedelijk Museum to decide whether the loose flap of gauze should be returned to its original position. Now that the museum has made its decision, it must alter or replace the transportation crate, ensuring that soft support buffers are fitted to hold the gauze in place. These buffers should not cause additional pressure on the neon tubes.

The basic preservation aim for the neon tubes is that they should be in working order. To prevent breakage, the synthetic suspension threads should be regularly checked – and replaced if necessary. Any additional threads that may be fitted to provide extra support should be flexible rather than rigid, because this better prevents damage. Any tube that does break and cannot be repaired may be replaced with an accurate copy. This derives from the fact that Merz himself had his tubes made by others. Efforts should, however, be made to specify the colour codes for the present blue and original white neon tubes. The 1969 photographs will serve as a point of reference for ascertaining the shape of the blue tubes. Still, barring any mishaps, Merz's illusive neon city looks set to keep glowing for years to come, as there are still many hours of burn left in the tubes.

Jan Hein Sassen MARIO MERZ AND THE ARCHETYPES OF OUR CULTURE

Jan Hein Sassen is curator at the
Stedelijk Museum.

Mario Merz was the focal point of the First Verse ('Eerste Couplet') exhibition held at the Amsterdam Stedelijk Museum in 1994. This 'verse' was the first in a series of exhibitions conceived by Rudi Fuchs, who wanted to move away from solo exhibitions. Instead, each room was dedicated to the work of one artist so that together these rooms would form a poem. Each verse was centred around a major artist, who was allocated more rooms than his or her counterparts.

Mario Merz had seven rooms at his disposal during the First Verse exhibition. The other rooms contained works by Maria Lassnig, Marcus Lüpertz, Gilbert & George, Malevich, Picasso, Pino Gallizio, Segantini and others.¹ Merz exhibited both old and new work, which he made on site. A specialised firm manufactured the basic structures to his specifications: various igloo frames, a huge table frame, and a frame for a windbreak. The exhibitions department also built several forty-centimetre-high wooden tables, which together formed a triangle. These were later placed against a large, iron-frame igloo, which Merz had covered with non-transparent glass cut from several huge glass panels – leftovers from a glass wall that



artist Marien Schouten had installed in the museum. The glass was cut into various sizes as specified by Merz, and attached to the frame with various clamps purchased in Amsterdam.

At the time, these works were untitled. Merz came up with the titles at the last minute and kept asking us if we liked them. The igloo with the wooden tables was named the *Igloo del nord* (Igloo of the North). Merz also placed a large frame over his original work *Igloo nero* (1967-79; coll. Van Abbemuseum, Eindhoven). He thus in effect created a new work, but retained the original title which means Black Igloo. Against the new outer frame, Merz placed various slate panels which he had purchased at the Tetterode stone company in Amsterdam. The old igloo, which was covered with black bitumen-coated paper and bore the neon text *luoghi senza strada* (regions without streets), was still visible through the new igloo.

In one of the large upper halls of the museum a huge table frame (76 cm high, 13 m long and 6 m wide), made of bent iron bars, was exhibited. Merz decided on site which sections of the structure would be left open or fitted with glass or slate. Templates were made of these sections and glass and stone companies were commissioned to cut the required panels. At the centre of the table Merz placed a small

Mario Merz, *Casa del torrente*, made for the First Verse ('Eerste Couplet') exhibition at Stedelijk Museum in 1994. Photo: Stedelijk Museum, Amsterdam

iron igloo frame, which he completely covered with pieces of transparent glass. He saw this as a house in the middle of a river, which gave rise to the title *Casa del torrente* (House of the Torrent).

In another hall, Merz displayed a bent iron frame of around 70 cm high and 60 cm deep. It extended the full breadth (7.5 m) of the hall and was filled with upright bundles of sticks. A small bridge allowed visitors to pass through the middle of the 'hedge' to the opposite side of the room. The bundles of sticks were acquired from Merz's regular supplier in the Alsace, after efforts to obtain them in the Netherlands failed. We have since found a Dutch firm who can supply bundles of willow sticks, which will make it easier to exhibit the work in future. Merz entitled this work *Spalliere contro vento* (Windbreak).

With the exception the new *Igloo nero*, which was returned to the Van Abbemuseum, the artist donated all of the works to the Stedelijk Museum, Amsterdam.

Although there are few links between the above works and *Città irreale* in terms of the materials used, the manner in which they were created tells us a lot about Merz's working method.² He starts by making sketches and, as this process pro-



gresses, a broad structural concept develops in his mind. All the elements he is unable to make himself, such as iron or steel structures and frames, are made to his specifications by craftsmen. He then adds further 'upholstery', such as the gauze and beeswax, making adjustments as he goes along, using both natural and synthetic materials. Neon tubes are also made to his specifications or under his supervision.

Now he is beginning to approach a venerable age, Merz works with a permanent assistant – the Turin architect Mario Boggia, who also supervises the installation of the artist's existing works at exhibitions.

Mario Merz, born in Milan in 1925, was one of a group of artists whom the critic Germano Celant referred to as 'Arte Povera'. During the Second World War, Merz joined the partisan brigades. He was captured and imprisoned for a year. He began drawing towards the end of the war, and started painting in 1950. His work featured organic shapes reminiscent of Informal Art, but which were more detached.

To him, these painted shapes symbolised an entire ecosystem. This was typical of Merz. In the mid-sixties, while he was living in Turin, he was one of a group of artists who initiated a discussion on art and politics. This group included such art-

ists as Paolini, Kounellis, Penone and Fabro, but also critics, writers and political activists. Together they formulated an egalitarian, aesthetic ideology which was directed against the inhuman aspects of industry and consumer capitalism. They opted to create art made of simple materials stemming from everyday life and nature.

There are recurrent forms and materials in Merz's work: igloos, tables, bundles of sticks, beeswax, vegetables and fruit, natural stone, glass and neon light. He also frequently incorporates large paintings that he paints himself. When creating his works, he prefers to use materials that have been obtained locally and are typical of the surrounding area. He would therefore have preferred to use Dutch, rather than French sticks for his bundles. For the same exhibition, he also had a thatched igloo made by a local thatcher, but the final product did not meet his expectations.

The igloo has always been a central element of Merz' thinking. He once said: "Building out of the need for a limited order to counteract unrestricted chaos." He also said: "To build a house is to fulfil the desire to survive by excluding the natural environment." The igloo is in actual fact the most elementary form of space, taking the shape of both the world and a home. Merz therefore remarked: "Growing up, getting bigger; that's what a house implies. Building a house implies that one must take into account the characteristic growth ratios of biological life."³

Around 1970, Merz chanced upon Fibonacci's sequence, which has the same background. Fibonacci, a thirteenth-century mathematician in whom he saw a kindred spirit, studied natural processes such as the reproductive patterns of rabbits and discovered a mathematical sequence for natural growth. Each number in his infinite sequence, which begins with 0 and 1, is derived from the sum of the two previous numbers, i.e. $0 + 1 = 1$; $1 + 1 = 2$; $1 + 2 = 3$; $2 + 3 = 5$; $3 + 5 = 8$; $5 + 8 = 13$ and so on. The mathematical ratio of the numbers also gradually approaches the golden section, which for centuries served as a basis for ideal proportion. Merz saw this sequence as a mystical entity, because many of the natural shapes that he had incorporated in his work could be reduced to it: the igloo, the spiral, a snail's shell. The Stedelijk Museum also owns an early work in which the sequence has been applied: *Fibonacci di Napoli* from 1971, which features the cafeteria of A.S. Giovanni's Teducci factory. The work consists of eight photographs of this cafeteria, each picturing a different number of factory workers. The corresponding numbers are given above each photograph in blue neon: 0, 1, 2, 3, 5, 8, 13, 21.

Merz began using neon light in 1966, either as a means of delimitation or connection. Neon light serves to blend the natural and synthetic materials of his work into a unified whole. His neon texts can often be traced back to the left-wing communist perspectives of the 1960s, an era which was marked by the war in Vietnam and the student uprisings in Paris and elsewhere. On the other hand, his texts are usually too enigmatic and unexplicit to constitute a direct comment. For instance, he had the following to say about his *Igloo di Giap* (1968): "This work marks the years of the war in Vietnam. A war which demands a response – not directly, but indirectly, free of anecdote. I've always found anecdotes in art repellant."⁴

The igloo in question is covered with slabs of mud, caked together, and bears a neon text featuring an Italian translation of a quote by General Giap, the famous strategist and supreme leader of the Vietcong: "*Si il nemico si concentra perde terreno se si disperde perde forza. Giap*". ("If the enemy concentrates his forces, he loses ground, if he disperses them, he loses power. Giap").

Neon tubes are notoriously fragile. The slightest error is enough to break the glass. Merz's *Città irreale* was not the first neon work that the Stedelijk Museum had ever purchased. In 1964 and 1965, former director Edy de Wilde acquired respectively *Spring Morning* and *Peinture à haute tension* by the New Realist artist Martial

Raysse (1936). In 1969, the museum purchased Merz's work as well as *My Name as Though it Were Written on the Surface of the Moon* by Bruce Nauman (1941), which comprised each letter of the name 'bruce' repeated six times in blue, cursive, neon letters. Five years later, the museum also purchased Nauman's work *Eat/Death* (1972) and, in 1995, director Rudi Fuchs purchased his *Seven Figures* (1985), which features seven silhouettes having sex at a frantic pace. Soon after the acquisition of Nauman's first neon works, the museum decided that copies should be made in order to preserve the original colours and tubes in the best possible condition. To this end, detailed drawings were made of his works, as well as Raysse's *Peinture à haute tension*. When it came to Merz's *Città irreale*, only the two long, blue neon tubes of were copied; it is unknown why the white neon text was not.

Nauman's *Seven Figures* was also copied soon after it was purchased. The Amsterdam company Neon Weka made highly detailed drawings of the work and the German company Leuchtstoffwerke determined the exact composition of the work's colours. Research revealed that the typically American pastel colours that Nauman had applied in the 1980s were available neither here in Europe, nor in the United States. Nowadays, every country seems to have its own set of standard colours. Furthermore, earlier restorations had resulted in slight colour variations here and there. A copy was made once the colour and chemical composition of the original sections had been ascertained.

Nauman doesn't like his neon work being duplicated, because he is afraid that copies may go astray. There is, however little chance of this happening at the Stedelijk Museum. If a neon work is duplicated, the copy alone is exhibited. If the copy is out on loan, the original is never exhibited in the Stedelijk at the same time.

If the neon tubes are merely an element of the work, as is the case with Mario Merz and Martial Raysse, copying is less of a problem. The neon tubes do not bear the characteristic signature of the artist, because – although they are made according to the artist's specifications – they are always manufactured by specialised craftsmen. Artists never have a problem with replacement, as long as it is carried out with the utmost precision.

This has not always been the case, as is revealed in the history of *Città irreale*. In the past, the chemical composition of the coloured powder in the tubes was not always accurately specified – possibly due to inexperience.

When the Stedelijk Museum purchased *Città irreale* in 1969, the work formed part of the renowned exhibition *Square Pegs in Round Holes* ('Op losse schroeven'), which had been held at the museum that same year. Across the room from *Città irreale*, Merz assembled an installation consisting of sticks, iron and glass. Against one of the other walls he placed large glass panels, on which he had written "*Che fare?*" ("What to do?"), the famous question posed by Lenin during the Russian revolution. The meaning underlying this installation was multi-layered: a reference to the Russian revolution and the question "what to do?" facing an unreal city made of beeswax and neon lights.

Merz explored many facets of art and the world around us by applying contradictions such as natural and artificial, primitive and modern, organic and inorganic, and geometric and random. He gives no unequivocal answers when it comes to assigning meaning to his work. He leaves it up to the viewer to decide. As he once put it: "...Art is not direct. People think that one can express things directly. Art does not aim to explain, but to express that which is impossible to explain."⁵

Jaap Guldemond ARTIFICIAL RESPIRATION

Jaap Guldemond is curator at the Van Abbemuseum.

Four chairs and one table, seemingly constructed from a wide range of objects such as pieces of brick, cardboard, shampoo bottles, a deflated plastic football, a small camping gas cylinder, rubber objects, a cola can, sponges and pieces of driftwood, in a variety of colours: this is *One Space, Four Places*, made by the English sculptor Tony Cragg in 1982. The objects, which have been threaded onto a frame of welded iron, are in various stages of deterioration. Tony Cragg found them as rubbish that had already come through a Darwinian 'struggle for life', or 'survival of the fittest'. At that time, Cragg was already working in Wuppertal, Germany, where he regularly used to forage for material on the banks of the Rhine.

A balloon of meaning

One Space, Four Places came early in Cragg's career, when the deep impression that shortly preceding movements in sculpture such as Arte Povera, Land Art, Minimal Art and Conceptual Art had made on him was still fresh. One characteristic of all these new movements was, generally speaking, that they were ground-breaking. They stretched the borders of what sculpture could be in a material sense. In other words, the privilege of being transformed into a sculpture was no longer restricted to marble, bronze, stone and wood, but was extended to include sand, earth, feathers, tar, cotton batting, loose blocks of stone, asbestos, air, water and land.

Although Cragg was strongly influenced by the artists who were at the forefront of these changes, he was also critical of them on a number of levels. He felt that they too often did no more than make 'gestures'; that they simply stepped into new areas of making art without transforming them. He also felt that they used the sensitivity, the natural quality of these materials too readily. He missed an interest in new, non-natural materials.

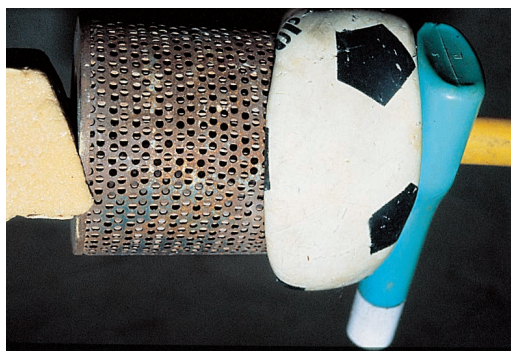
With these points of criticism in mind, Cragg began working with plastic and other synthetic materials. *One Space, Four Places* is one result of this process. He used new materials not only for their physical characteristics, but also with the intention of endowing them with a metaphysical quality – something that traditional sculptural materials had possessed for centuries. He speaks of a 'balloon of meaning' (see also his lecture in the Proceedings of the presentation of the project The Conservation of Modern Art, 12 May 1996). According to Cragg, stone, wood and bronze have enormous 'balloons of meaning' in the sense that they evoke a wealth of images or connotations, many of them poetic. His aim is to impose such a 'balloon of meaning' on new materials so that the same kinds of objects, products and materials, manufactured by the million, may take on a non-utilitarian significance – a significance that deviates from, or perhaps rises above, the banal fact of being no more than a mass-produced product.

Cragg has maintained his interest in utilising new materials. At the same time he is not afraid to create enormous bronze, wooden, stone and plaster sculptures, in addition to those comprising sandblasted vases or tens of thousands of dice.

Questions of essence

Some time after *One Space, Four Places* was acquired by the Van Abbemuseum in Eindhoven, we noticed that the polyurethane foam sponge on the corner of one of the chairs was deteriorating rapidly and exposing the metal frame which should have remained invisible. The dozens of other objects involved, or fragments of objects, are at various stages of deterioration – depending on the materials and the state they were in when Cragg found them. In the not too distant future, the foam and materials like the soft plastics will disintegrate further. As time passes, almost all the other objects will suffer the same fate: one by one they will shrivel up, break, dissolve, rot or rust away.

For this reason, *One Space, Four Places* was volunteered as one of the pilot



Left Tony Cragg's *One Space, Four Places* (1982) during the 'Zomeropstelling' in the Van Abbemuseum, 1989. The museum had acquired the work in July of the same year. The chair to the left of the table is here intact – the sponge is still present on the front left corner of the seat, as you look at it. Photo: Peter Cox

Above Details of Tony Cragg's *One Space, Four Places* in 1996. Photos: Lydia Beerkens

objects in the research project on the Conservation of Modern Art. The first question was: what can be done from the conservation point of view? The second: what may be done from the curatorial point of view? The answers to these two questions, taken together, determine what should be done.

Before taking any decisions or embarking on any operation, it is crucially important for curators and conservators to try to determine the essence of the art work in question. After all, knowledge about the essence of an art work is what guides the choice of options in any restoration or conservation work.

Imagine *One Space, Four Places* as essentially a work about transience. Perhaps it was precisely Cragg's intention that the various objects should fall from the frame one by one, as a metaphor for the decay of Western consumer society. From a curatorial point of view, this means that nothing needs to be done, or should be done, to prevent the process of decay; that is, if a museum always has the ethical obligation to comply with the artist's wishes – which is debatable.

Now imagine that the essence of the work lies in its formal qualities. In that case one would have to try to mask the decay as much as possible, which would mean replacing various component parts. Then the question arises about how to replace the objects. What is possible and what is permissible? In addition to its formal qualities, the work may have a strong symbolic significance. It may have been created as a vehement protest against, say, the dumping of toxic waste in the Rhine. This might mean that if a part of the work ever has to be replaced, one should take into account that Cragg found all his material for this work along the banks of the Rhine at the beginning of the 1980s. In order to guarantee the authenticity of the piece, one should search specifically for replacement parts that have also been fished out of the Rhine – and preferably during the same time period!

On the other hand, if *One Space, Four Places* is primarily a conceptual piece in the sense that Cragg's main point was to fashion a table and four chairs out of rubbish, it wouldn't really matter what rubbish was used as replacements.

Ambiguous intentions

In short, it is crucial for both the curator and the conservator to answer the question about what the essence of an art work is. And then the next question arises: how can the essence of a work of art be determined? Even though there are no objective criteria on this angle, a number of points can be taken into consideration. Firstly: what is the role of the artist in all this? Secondly: what is the role of the curators and conservators?

The role of the artist, though very important, is not by definition sacred. If there is anyone who is close to a work, it is of course the artist who made it. He can say which ideas, thoughts and techniques formed the work. He can also say what its essence is for him and which kind of conservation he would prefer – if he is willing to discuss it. As long as he lives and is available for comment, the artist will always play an important role. But one should never forget (and this has to be thoroughly understood) that the artist's ideas can and probably will change over the years. It is also quite possible that there will be certain discrepancies between his ideas and thoughts at the time he made the work and what he now says about them.

A curator or a conservator can of course take the position that an artist remains artistically responsible for his work as long as he or she is alive. In principle, it makes no difference then whether the artist's current ideas about the work (and consequently about its conservation) deviate from the original ideas. From this position it follows that the responsibility for conservation should be placed entirely in the hands of the artist, even if this should result in a completely different work – as occurred in the Netherlands, where the important Zero Group artist Henk Peeters was asked to restore a work of his from the early 1960s: when he returned it, it was not only completely remade but also considerably larger than it had been originally.

On the other hand, the position can be held that when a museum purchases a

Blow-up of the 1989 photograph: the brown sponge, which completely perished later, can be clearly seen here on the corner of the seat – pieces of the sponge material were found in the holes of the brick that was positioned directly under it. Photo: Peter Cox

The same chair in 1996: the sponge has vanished and the frame is clearly visible. Photo: René Gerritsen

particular work at a particular moment, the point is to preserve the piece as it is and not to smuggle the artist's new ideas into the collection via earlier work. If a museum wants new ideas, it should buy a more recent piece from the same artist. Thus, if the preservation and restoration of a work is to do justice to the original idea with which it was made, curators and conservators should not simply follow the artist's views. They should also attempt to get through to the essence of a work of art by other means. Apart from interviews with the artist dating from the period when the work was made, these may include the curator's and the conservator's own careful analyses of the visual aspects and the content of the work. Armed with all this information, they should then weigh up the arguments with great precision and formulate a restoration or preservation proposal.

Conservation proposal

On the basis of both a visual and content analysis of the work, it was concluded that preserving its appearance as a whole should prevail over preserving its authenticity by not adding any replacement parts. If an object belonging to *One Space, Four Places* is lost and its absence visually disturbs the whole, it may be replaced. However, it will always be difficult to find an exact copy of a lost object or refuse. The replacement item does not necessarily have to be discarded rubbish as long as it resembles the lost object as closely as possible in shape, colour and material. The visual analysis led to the conclusion that:

- discarded objects were used,
- each object has a hole in the centre,
- a soft object has been inserted into each corner, probably for technical or construction reasons,
- no two objects that are similar in shape, colour or material are placed next to each other – e.g. a bottle is never beside another bottle; red is never next to red.

These results may serve as a guideline for the selection of replacement items: never place two objects of a similar shape, colour or material next to each other; the coloured objects are applied in a painterly fashion and the variation in shapes, materials and colours is essential.

Nevertheless, a point will come where the replacement of parts begins to affect the authenticity of the art work. At what point this will happen is hard to predict. It also depends on the opinions of curators, conservators and artists at the time. The chances are that, in twenty years' time, they will all have to swallow another case study of *One Space, Four Places*.

In the interview held as part of the research project (see following article) Tony Cragg reveals his explicit desire not to become involved in conservation problems. He believes that curators, conservators and artists are each responsible within their own professional fields. If required to, he has confirmed that he will replace parts, but only in accordance with the ideas and methods of his current artistic practice. Since he cannot transport himself back to 1982, he views his own opinion on this point irrelevant. According to him, it is also irrelevant, or even impossible, to trace the intention with which he originally made the work. In his view, it makes more sense to make a visual analysis of the work.

In this, Tony Cragg confirmed our earlier analysis of *One Space, Four Places* and the proposed conservation treatment. Yet he also accepts the fact that some of his works are highly susceptible to deterioration. By way of comparison, he points out that we accept a grandmother as an old person although she was once a beautiful young woman. Some grandmothers will age more beautifully than others, of course, and qualities of life will differ. The same goes for art works, says Cragg. But the artist's responsibility ends the moment the work leaves the studio. At that point it takes on a life of its own. This life, depending on the effort, love and professionalism of its owners or guardians, is what Cragg calls 'artificial respiration'.

Lydia Beerkens & Christiane Berndes INTERVIEW: TONY CRAGG ON CONSERVATION

*Lydia Beerkens was conservator at the
Foundation for the Conservation of Modern Art.
Christiane Berndes is curator at the
Van Abbemuseum.*

On 9 December 1996, in an enormous studio in Wuppertal – the hall of a former textile factory – a team of nine people are working on various sculptures. They are Tony Cragg's assistants, preparing a retrospective show of his work for the White-chapel Art Gallery in London. We have come with Jaap Guldemond to interview the artist about this piece *One Space, Four Places* from 1982, in particular about the choice of materials and their meaning, the deterioration of the work and the significance of this in relation to its overall appearance, and about his view on the concrete options for preserving such works.

Tony Cragg has not yet arrived, which gives us time to look around the studio. The space is strewn with objects, parts and models of earlier work. There is a tall pile of cardboard boxes containing plastic objects selected according to colour and a high frame onto which white, plastic objects have been strung. On a pallet are plaster casts of colossal pieces of fruit – a bunch of grapes measuring more than 1.5 m³ for instance. Covered by plastic sheeting stands a table with two chairs made in the same way as *One Space, Four Places*. In a separate room are glass pieces that have been drilled and sandblasted. Everything is covered with a thin layer of white plaster dust.

Tony Cragg makes monumental sculptures. Sometimes he uses traditional techniques – working with clay models, moulds and cutting things out – but the materials are modern. The basic material in which he works out the form of a piece is polystyrene; sheets of polystyrene are piled up, glued together and trimmed and then worked into. This basic shape sometimes forms the core of the final sculpture and sometimes the model from which moulds are made for casting. In the first instance, the core shape is covered in plaster and then sanded to make a perfectly smooth surface.

On top of a 3-m high, complex ring-shape of polystyrene sheets, strengthened with woven, artificial-fibre matting and resin, an assistant is applying dice. The thousands of dice, which are glued onto the shape with tile glue (Bison Kit) one beside the other, will eventually cover the entire surface. The number that faces upwards on each dice is arbitrary. From a distance the ivory yellow and black dots look like mosaic. A number of these sculptures are already finished and packed in bubble plastic ready to be transported. Elsewhere assistants are working on clay forms. Another is working on the surface of two large, round, solid plaster sculptures, one in the shape of a vase and one in a sort of cone shape. Holes of about 5 cm deep and 1 cm in diameter are being drilled into the plaster at more or less regular intervals. From a distance the sculpture appears perforated.

Stefan Marienfeld, an assistant, carries out restoration work on objects by Cragg that have been damaged. The glass sculptures, for instance, are fragile. Cragg uses industrially produced vases which he selects according to shape and colour; if he wants an unusual shape he has it made by glassblowers, sometimes in Leerdam, the glass town of the Netherlands. The entire surface is then sandblasted and drilled locally. However, this weakens the object and it can break. This happened to *Eroded Landscape*, a glass sculpture in the Van Abbemuseum collection. Marienfeld suggested replacing the broken vessel with a new one made in slightly thicker glass. However, the weight must not be increased too much and the composition of the whole must always be borne in mind since Cragg's glass installations are formed in piles. From photographs and the remains of the original object, a professional glassblower should be able to make a good copy.

About works like *One Space, Four Places*, Marienfeld says that the deteriorated pieces can be replaced with others of a similar appearance. He has done this with a

similar piece comprising a table and two chairs, also dating from 1982, in which the welds at the corners of the frame had become loose.

Meanwhile, Tony Cragg has arrived. We talk a bit about the factory space which already has been his studio for ten years. It was originally a textile mill, he says. At the end of the eighteenth century, Wuppertal was one of the first industrial towns on the European mainland with a large textile production and many textile mills. This was one of the reasons Cragg moved here from England: industrial products are for him the sculptors' materials of the twentieth century, and such an old industrial town appealed to him. The wonderful light that shines through the shed roof was the decisive factor in choosing this as a studio.

Cragg made the piece *One Space, Four Places* in 1982 for the exhibition 'Material wird Kunst' in Berlin's National Gallery. At the time, he also designed two similar works with tables and chairs. One of these, belonging to Eric Fabre, was at that moment in the studio for restoration. *One Space, Four Places* ended up at the Van Abbemuseum.

In 1989 the curators installed the acquisition diagonally in a room, as can be seen in the Van Abbemuseum catalogue on Acquisitions 1989-1993 (see also the photograph at the start of this chapter). This arrangement "makes no sense", is Cragg's reaction now: the table should be parallel to the wall just as it would be in a house. This is how he had installed the work in its first exhibition in Berlin, which can be seen from another photograph (Shellmann & Klüse Collection, Munich). Here the table is standing with the longest side parallel to the wall. On the left, at the head of the table is one chair, like the seat for the mother or father of a family. On the right are three other chairs in a slightly untidy line, as if pushed away from the table by children who need to be told to behave.

If Cragg would be asked to install this work again, he would use this photograph as a starting point. He finds the diagonal arrangement too museum-like, considered too much from an exhibiting point of view and too little in terms of a table and chairs as utilitarian objects. Every museum has its own 'house style' for presentation and installation, he observes. During exhibitions this is poured like a sauce over the different art works. One museum installs work better than another, sometimes the aesthetic idea at the heart of the installation differs from that of the artist. Cragg does not reject a diagonal arrangement, though he prefers it to be parallel to the wall.

Tony Cragg does not want to explicitly concern himself with conservation questions: he leaves that to conservators. Everyone should be responsible for their own field, is his opinion. As an artist one creates a work once; one cannot go back and make the same work again twenty years later. "Museums are the professionals where conservation, supervision and presentation of a collection is concerned," Cragg explains. "It is the task of the curator and conservator to find appropriate solutions for conservation problems. How successful this is depends on their professionalism. Sometimes I see my work in a good state and sometimes in a bad state. It's just the way it is, I can't take care of everything. Compare it to a grandmother who was beautiful when she was young. We have to accept that an art work ages, matures."

Tony Cragg began to work with found, plastic objects in 1978. *Spectrum*, *Riots* and *A Day in the Park* were the first results. *Red Skin* (1980), now in the Van Abbemuseum collection, also belongs to this early period. This piece consists of a 'map' of a Red Indian figure laid out on the floor in pieces of red plastic, like an enlargement of the plastic toy Red Indian that was hung on the wall above. Because of the degeneration of the material, some of the pieces are deteriorating and breaking into smaller and smaller pieces. Furthermore, the small Red Indian figure on the wall



Tony Cragg's *Red Skin* (1980) mapped out on the floor of the Van Abbemuseum, Eindhoven. Photo: Hans Biezen

Components of *Red Skin*'s 'map'. Photo: Lydia Beerkens

was stolen during an exhibition. A replacement was found, but its shape is different from the original. Because the 'map' should be an enlargement of the object on the wall, this is highly problematic.

The suggestion to have a copy of the original Red Indian made does not appeal to Cragg. It was precisely the found toy Red Indian that formed the starting point for the work. Furthermore, he considers it impossible to make an exact copy. He would use the 'horses for courses' principle, look for an intelligent and obvious solution. The replacement Indian is also red and was also a small plastic toy, he argues, it's just a different shape: use this one for the moment, while looking for one that corresponds more closely to the original figure.

An alternative approach – adjusting the map to correspond with the new figure – is too extreme in his view. Although the Indian is no longer the original, the wall figure was the starting point for the form on the floor and the authentic entity of the image should preferably remain as intact as possible. Leaving the wall figure out all together is even less of an option for Cragg: the idea of enlarging the small figure would then be completely lost. A small figure that doesn't fit is better.

Cragg has a tip for the ordering of the map: "Even if I positioned the objects arbitrarily, if I were you I would make an exact drawing of how they were originally placed. It will always be right then. The fact that they have to be repositioned each time the work is installed, so that it is slightly different each time, does not have any significance. I would therefore indicate the overall shape on a large plan and then record in segments which pieces come where. That would 'fix' the work."

As for the replacement of deteriorated components, Cragg has a suggestion: "I collected thousands of pieces of red plastic and then made a specific selection. The parts have been chosen and selected arbitrarily according to 'red', 'plastic' and something like 'not smaller than about 10 cm and not larger than about 40 cm'. I collected roughly enough pieces to fill the enlarged shape of the Indian in such a way that no object is on top of another or touching another. I probably placed everything arbitrarily, but without putting two pieces of the same shape next to each other. These indications, which can be deduced from the material and the way I installed the work, can serve as guidelines for conservation. As long as the pieces do not deteriorate into thousands of crumbs and splinters, I can accept the loss of the original image. As far as I'm concerned, lost pieces could also be replaced with new ones."

If you were to take a walk along the Rhine now, he says, you would find sufficient material to make the work three-fold. His advice is to look for as many of the same objects as is possible.

A sponge has perished in *One Space, Four Places*. In the short term, many more objects will deteriorate through the degeneration of the materials, and 'showing the decay' is clearly not an aim in itself in the work of Tony Cragg. To what extent is the restoration or replacement of component parts permitted in this work?

Cragg agrees that the fact that the metal construction has become visible in *One Space, Four Places* is ugly: the frame must certainly remain invisible. But he avoids answering the question as to whether the space left by the sponge should be filled with another sponge. He says that his opinion is irrelevant: he cannot transport himself back to 1982 when he made the work and if he had to replace objects now, he would do it according to his current artistic concerns.

"I would therefore say that the conservator or museum should do it as well as possible," he explains. "This doesn't have to be difficult. The work consists of materials that have been used in a particular way; make a visual analysis of the work and you'll find indications for a method of restoration. These can be deduced from the work, directly and indirectly. Direct indications are, for instance, that I used waste objects you can find on the ground and that each object has a hole more or less in the middle and there are soft objects on the corners – for technical reasons.

Indirect indications are that nowhere have two objects of the same shape (bottle-bottle) been placed next to each other; nowhere have two objects of the same colour been placed next to each other; nowhere have objects of the same material been placed next to each other. This defines the alternation of sorts of objects. The starting point for the work was the variety of shape, colour and material. The coloured objects are in fact used in a painterly manner.”

Cragg does not want to personally replace deteriorated components, though he doesn't object to this being done by a conservator or restorer – for instance, to fill areas where sponges have fallen away. As far as he is concerned, the replacements could be new objects as long as they conform conceptually and aesthetically. The question of the artist's intention seems to him to be less relevant here. The artist may have had doubts about the work, he says, or intended it to be different from how it turned out. In his view, the question about the meaning of the work can never be answered. The museum simply has to choose a 'professionally correct solution'.

Cragg is not enthusiastic about the idea of impregnating certain components to extend their life span. Impregnation makes him think of mummification. He would prefer things to be done in the ways indicated above, deduced from the



material and the way in which the work has been made. That is: replace a sponge with a sponge and a washing-up liquid bottle with a similar bottle.

The more components are replaced, the more the total image and the authenticity of the art work decreases. Gradually, the limit to the options will be reached, Cragg agrees. The limit could be that all the original objects in a certain material, plastic for instance, are lost. First you look for objects that are as exact as possible, then something similar and next whatever you can lay your hands on. After a few years it will not be possible to find objects of the same colour or material. A museum can continue to find the best available solution, but eventually the work will come irrevocably to an end.

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The methods developed in the project The Conservation of Modern Art have also been applied to Tony Cragg's *One Space, Four Places*. To clarify the approach, the decision-making model (see page 164) has been followed step-by-step below – though it be in large steps: the answers to the questions have been summarised.

1. Data registration

Initially, we collected:

- the museum's data on *One Space, Four Places*;
- literature about Cragg's work in general;
- literature about Cragg's working methods and the meaning of his use of materials in particular;
- relevant images, as far as possible.

Moreover, Cragg was interviewed in his studio by Jaap Guldemond (curator), Christiane Berndes (curator) and Lydia Beerkens (conservator). The possibilities and limitations of restoration and conservation of the art work were discussed.

The results of this research were recorded in the Data Registration Model, which also describes the materials and technique used in the work.

2. Condition registration

One Space, Four Places was composed in 1982 from materials that were already ageing: Cragg collected these as discarded rubbish. The 'internal' construction, the metal frame, was originally invisible. At present the total appearance of the work corresponds with the state it was in when it was photographed in 1989. However, part of the metal construction has become visible because a sponge has been lost. Probably, more objects are missing: there are other occasional empty spaces. From the photograph taken of the whole work this can not be checked. A description of the condition from 1982 does not exist. It is therefore impossible to establish what material changes have occurred in the meantime.

The working groups consulted experts on the composition and ageing of the various materials. The chemists Thea van Oosten (Netherlands Institute for Cultural Heritage), Pieter Keune (Foundation for Artists' Materials, Amsterdam) and Brenda Keneghan (Victoria and Albert Museum, London) advised. This research information was included in the Condition Registration Model.

The armatures of the table and chairs comprise frames of 12 mm thick metal rods which are strong enough to bear the weight of all the objects that were threaded onto them. On both of the long sides of the table the rods have begun to bend, though this will not rapidly increase. If the welds at the corners do not give way under the weight of the rods – particularly in the table – the five frames could last for a very long time: they are in good condition.

The objects that are strung onto the frames are made from extremely diverse materials which were all produced between 1970 and 1980. One of these, a dark brown sponge on the corner of the seat of a chair, has completely crumbled away (see photo on page 85). In the holes of the cement brick directly under it on the chair leg, just a few remnants of the material remain. Furthermore, according to the depot supervisor, every time the object is transported or handled, a few more crumbs or pieces of objects fall off: bits of charcoal, various pieces of stone, crumbs of polyurethane (PUR) and polystyrene, parts of plastic bottles.

It is difficult to indicate general expectations for the future. When piling the objects, the artist did not consider the fact that on the vertical surfaces – legs and chair backs – their weight would put pressure on those beneath them. This pres-

sure leads to breakages, mutilation and loss of material. Various objects will slide down and thus disturb the general appearance of the work: the frame will become visible and the objects will hang from the legs.

Furthermore, all the objects have been degrading under the same climate and storage conditions since 1982. These conditions may be beneficial to some objects but harmful to others. The diversity of the materials and objects and their different histories make it almost impossible to predict how the work as a whole will deteriorate. A prediction about the separate materials has been given in the report.

The material group of plastics has been examined separately. Plastics degrade according to a diversity of factors. Most of the materials in this work probably belong to the 'second generation': the objects do not look particularly old, and the plastics must be mostly of reasonably good quality because their existence as discarded rubbish has led to a kind of survival of the fittest.

At the moment, the plastics in *One Space, Four Places* are more or less stable. However, due to its characteristics, the material may suddenly change and start an unpredictable, rapid degeneration – as has already occurred with the sponge. Analyses of the composition only provide partial insight into the process of decay. It is precisely this group of materials, whose ageing process is unpredictable, that plays a prominent role in this work: colourful objects like plastic bottles and toys attract immediate attention and appeal to the imagination.



3. Meaning

One Space, Four Places is a spatial sculpture in an everyday form and scale: a long table and four chairs. To make it Cragg chose, in his own words, 'sculptor's materials of the time' – industrially mass-produced products, objects that surround our daily lives in their thousands.

The different materials that Cragg has used are essential to the meaning of the work. Their common denominator is that they were all taken from rubbish: aged, weathered objects with the specific characteristics of a consumer society. By placing these objects on a metal frame, Cragg shows a collection of contemporary objects as archaeological finds, as it were. The transformation of these objects into the elementary forms of a table and four chairs creates a tension with many associations, interpretations and thoughts. The materials used therefore have multiple meanings. On balance, the characteristic of primary importance is that they consist of found rubbish, as a collection of archaeological objects, with a formal image and function.

Working group members of the project The Conservation of Modern Art contemplating the condition of *One Space, Four Places* in the depot of the Van Abbemuseum. Photo: Lydia Beerkens

Literature on Cragg's use of found materials and multicoloured plastic products states that the artist generally collected this rubbish on the banks of the Rhine. It

would be easy to attach a deeper significance to this, particularly if the material gathered on a single day or at a single location resulted in a single art work. However, this is not the way Cragg works. He regularly collects objects in any place where rubbish can be found. Back in the studio, he cleans it a bit and sorts it according to colour, material or kind. In this way, he builds up a large stock pile from which he selects parts when making a work. He doesn't consider it important whether he collected the material personally or not.

In *One Space, Four Places*, Cragg ordered the objects according to colour, material, form and/or function, which was clearly an artistic decision. For the rest, he worked primarily from practical considerations. He welded metal disks to the bottom of the chair and table legs to prevent the objects from sliding off the metal rods; he then pushed the objects as far as possible from the corners and covered them to protect them while he welded the metal rods together. Finally, he filled up the corners by glueing soft, flexible objects like a sponge or a ball onto them – the corner objects have therefore not been threaded onto the rods.

Cragg's working method is primarily a practical one. As long as the artistic aspects of the work are kept intact, the option of replacing certain components is to a certain extent left open. A replacement object does not have to be found by Cragg personally: this would not increase its authenticity.

4. Discrepancies

The artist considers the authenticity of separate objects far less important than the overall appearance of the work. The specific ordering of objects according to formal characteristics such as colour, structure, hardness and softness, type of material (synthetic foam, stone, wood) and function (ball, bottle, brick) means much more to him. The authentic ordering is therefore important: this makes the personal signature of the artist visible and determines the uniqueness of the work.

Cragg insists that the overall appearance of the work should remain intact. The armature should not be visible, as it is now because at least one object is missing – the sponge. This disrupts the suggestion that the work is a floating linkage of diverse, highly recognisable, everyday objects. The sponge was on the corner of a chair, so that all three of the frame's dimensions have become visible. The total appearance of the work is therefore more disrupted than it would be if an object had fallen from a single rod.

5. Technical options for conservation

In theory, there are many possible ways to conserve *One Space, Four Places*. Before testing these against ethical acceptability and practical feasibility, several technical options have been listed – as summarised below.

Prevention

1. While in storage, the work could be supported in its current form by using a crate and belts to support the objects individually, and to reduce the harmful pressure their weight places on the other objects. Potential damage from incompatible materials coming into contact with each other could be avoided by placing acid-free separation sheets between them. The work can be kept in storage conditions for objects comprising mixed materials.
2. Another option is to protect the work by using air-permeable covers that will retard decomposition by restricting the amount of light and dust.
3. The steel frame can also be taken apart. After carefully documenting the components, each could be stored in ideal conditions. The piece would then have to be reassembled for each exhibition.
4. Possibly, all components can be scanned and stored digitally so that an exact copy can always be made.

5. Another possibility would be to photograph the work in a way that would provide sufficient documentation about the separate components; this could serve as a reference should a component need replacing.
6. For replacements, Cragg's collection of reserve parts could be drawn upon.

Conservation

7. After analysing the risks, all materials with a high risk of deterioration could be given a treatment that would strengthen them. The highest risk factor, polyurethane (PUR) foam, can for instance be impregnated with a strengthening substance.

Restoration

8. Deteriorated components can be replaced by:
 - a. objects from Cragg's collection,
 - b. exact copies in a more stable material (if there is sufficient documentation of the original),
 - c. in the same material, same colour and same form as the original object,
 - d. objects with the same function – an 'old sponge' or an 'old, red plastic ball'.

6. Weighing up conservation options

The options for conservation and restoration were then weighed up in relation to their consequences for the meaning of the work. The starting points are:

Ethical and artistic factors

As far as formal characteristics are concerned, the original appearance is extremely important for the meaning of the work. The aged state of the objects is an aspect of this, because they were used as such – for their formal characteristics. The originality of the appearance is also determined by the unique history of each individual object as waste product; however, the artist considers this to be less important than the overall appearance of the sculpture.

Authenticity

The components cannot be arbitrarily replaced with other objects. Cragg ordered them according to their formal characteristics; this, combined with the history of each chosen object, is what makes the work unique. It cannot therefore be remade.

In this light, the following options were chosen:

Prevention

- The necessity for better storage conditions, options 1 and 2, was recognised.
- Option 3 did not apply: both the artist and the theoretical working group experience the work as a whole, therefore it can only be dismantled in extreme circumstances – as is the case with other constructed objects such as instruments, books, or machines. Dismantling would violate the historicity of the work as well as the material frame, and the repeated removal and replacement of the objects would risk too much damage.
- Digital storage, option 4, is (at the moment) unfeasible for technical and financial reasons. However, it is necessary to thoroughly document the work in photographs (option 5).
- Option 6, drawing on a collection of 'reserve components' by Cragg, is not considered relevant. Whether the artist personally supplies the objects or not makes no difference to the work's meaning. There are also technical reasons for discarding this option: even replacement objects age, which will only bring more problems for the museum – by the time the originals have to be replaced, certain models will no longer be available.

Conservation

The chemical composition of the individual, extremely different objects has not been analysed, for financial reasons but also because it would technically not be worthwhile. An analysis would lead to few new conclusions, whereas the materials and production techniques are so recognisable that the main constituents may be easily deduced.

For many of the materials, the ageing process cannot yet be predicted and conservation methods are not sufficiently developed. The impregnation of polyurethane may be considered as soon as the method has been improved; at the moment it would be neither technically nor ethically a responsible move.

Restoration

Considering the replacement of deteriorated objects, there is a tension between the authenticity of the objects the artist once personally chose, collected, selected and placed in a particular order, and the anachronistic position of the conservator who – in a completely different time – looks for and/or makes replacement objects which have the same appearance. However, the actual meaning of the work is determined by the illusion of a table and four chairs made from threading a collection of objects onto a frame and the tension that this transformation evokes, with all its associations, interpretations and thoughts. The absence of components would disrupt this ambiguity to an extent that would seriously affect the work.

Weighing up the options using the decision-making model has led to the decision to replace lost objects with others that are as similar as possible, according to specific guidelines laid down by Cragg himself. The interview with the artist produced a lot of useful information about the meaning of the work and the way he made it. Cragg's indications as to how it should be conserved are unambiguous and can be carried out in accordance with current restoration ethics.

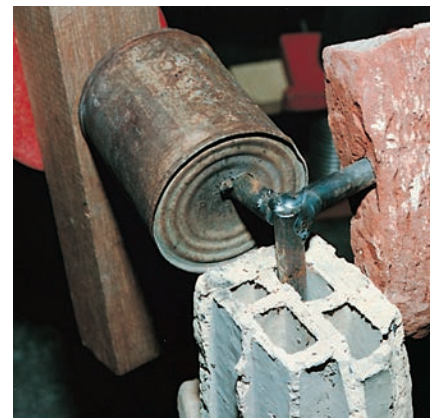
Replacement components should not appear new. The idea of patina reflects the harmonic relation between 'meaning' and 'condition'. There is a reason why waste material has been used in Tony Cragg's work *One Space, Four Places*; that these materials display a certain amount of ageing contributes to the meaning of the work.



1



2



3

Lydia Beerkens THE ACTUAL RESTORATION

Lydia Beerkens was conservator at the Foundation for the Conservation of Modern Art.

To begin with, loose dust and dirt – the residue of exhibitions, transportation and storage – is removed using a normal (museum) vacuum cleaner. The crusts of mud and dirt belonging to the waste objects must of course be left untouched. The restoration is then carried out on three fronts.

1. To prevent pressure damage from heavier objects on those attached below them, a support system of ring clips was devised: three U-shaped, stainless-steel rings with Allen-key screw holes were made for three places in the chairs (see photographs). The rings serve as permanent supports and are invisible to the viewer. In principle, they do not need to be removed for storage, though they can be removed at any time with a long Allen key. There are several more points where the weight of objects puts considerable pressure on those underneath them; rings can also be placed at these points whenever necessary. This has now only been done where there was sufficient space, to prevent damage to the remaining objects.

2. The broken bits of a white plastic washing-up liquid bottle (brand Dubro or Lux) – the bottle shape is only semi-intact – have been stuck together as well as possible using Filmoplast p 90 (tape brand Neschen). A small support roll made from polyester non-woven material (fiberfill) has been placed inside the bottle as a support. The bottle shape can now be 'read' more clearly. This construction is also easy to remove. In the short term, the bottle will inevitably deteriorate further. Because the manufacturer now uses a different bottle design, an eventual replacement in the old shape will have to be sought elsewhere.

3. In the bare patch on the corner of chair 2, left front leg (see photograph), a sponge has been applied which resembles the absent sponge in shape, material and colour as much as possible – using an old colour photograph as a reference. The replacement had to resemble the original as closely as was feasible, though it didn't have to be a piece of rubbish. The replacement is a piece of polyurethane (PUR) foam coloured with acrylic paint (Finity, by Winsor & Newton), cut to size and fastened around the welded corner of the metal frame. A piece of thread has been passed through the sponge and knotted to secure it. The sponge can be easily removed by cutting this thread.

Now the white bottle has been (temporarily) restored and the open space has been filled with a new sponge, the work as a whole looks good again.

For preventive conservation, the condition of the various objects in *One Space, Four Places* should be checked regularly. Whether or not the restoration of a particular object is required, or possible, should be decided during each check using the above criteria. The objects are products peculiar to their time and will become scarce. Because some are already in a bad state, it is recommended that similar materials should now be collected.

1 and 2 A stainless-steel washer, made to measure, is fitted beneath a metal object – a chair leg – with the entire weight pressing on the light-green, hard foam directly below it. The washer holds the object in position and relieves the pressure on the hard foam. Because the washer is beneath the larger metal object, it remains completely invisible. Photos: Lydia Beerkens

3 and 4 A new sponge is coloured to match the remains of the original sponge and, referring to a photograph from 1989, is cut to size. This reconstruction of the lost sponge is held in place by a few wires. Photos: Lydia Beerkens

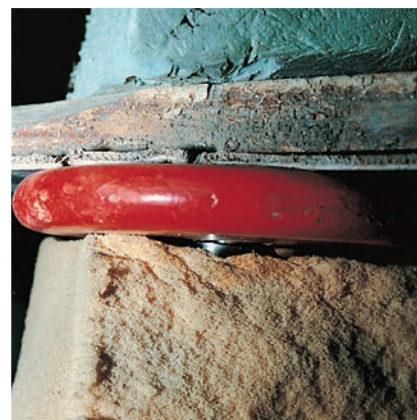
5 and 6 A stainless-steel washer is made to measure and placed under the red, wooden disk. The weight of this disk compresses the underlying piece of soft polyurethane foam. The flexible foam has sprung back into shape and now also conceals the washer, so that it is no longer visible. Photos: Lydia Beerkens



4



5



6

Ingeborg Smit is free-lance conservator.

During the 1960s and '70s there was a wave of artists who wanted to return to a way of living that was more in harmony with nature. They were critical of the ideology of progress in which the earth and all living things only appeared to be exploited. They regarded handmade work, craftsmanship and similar traditions as cultural manifestations that showed respect for nature and were inextricably bound up with it. Exponents of the trend include the British artist David Nash, the Icelandic Sigurdur Gudmundsson, and the Dutch artists Sjoerd Buisman, Hans de Vries and Krijn Giezen.

Giezen (b. 1939) still works on the borderline between nature and culture. He is interested in the way fish are caught and prepared, used for medicine or in products or even as material to make clothes. The Netherlands Institute for Cultural Heritage, for instance, has two versions of his *Fish-skin Fashion* – coats he made from fish skins during a stay on Iceland in 1981.

The artist also nurtures an interest in various types of ovens, in sails and sailors' knots as well as knives and scythes. As he himself says: "What appeals to me most are the everyday materials people use."¹ He is just as much interested in their more inventive uses, as was shown in his series of photographs *Reparaties*



en Uitvindingen (1976, Gemeentemuseum, The Hague) which included such titles as *Butcher Moves Fridge on Crackling*, *Baker Props up a Pole with Old Bread* and *Farmer Makes a Hammer from a Cartwheel*.

Neatly arranged remains

On a trip to Morocco in the early 1970s Krijn Giezen collected material for his work *Marocco*. This comprised twenty objects from the everyday life of the Berber people, uniformly 'exhibited' in a display case – a shallow wooden box (84 x 127 x 1.14 cm) covered by a sheet of glass. The materials are arranged according to kind in straight rows against the back of the box.

To the left are two sheets of drawing paper with pencil sketches, signed and dated '1972' in the lower right-hand corner of the bottom sheet.

In the centre of the vitrine, at the top, is a rolled-up piece of cloth. Underneath, neatly arranged, hang the remains of dried plants and animals: a bunch of herbs, a chameleon, a hedgehog, a goat's leg and a fox's head. Beneath this – again in a neat row – are attached ten different sickles and knives.

To the right of the box hangs a goatskin water carrier, while above this, in the right-hand corner, is something that can only be described as a bunch of feathers.

The objects are secured with wire and nails to the back of the box, which is made from chipboard covered with fabric. Only the drawings have been glued. The

Left Krijn Giezen, *Marocco* (1972). Photo: René Geritsen, 1997

Above Krijn Giezen, two versions of *Fish-skin Fashion* (1981). Photos: Netherlands Institute for Cultural Heritage

sides of the box are made of planks of pine wood in which a groove has been cut for the glass cover.

Damage by insects

By way of various private owners, *Marocco* became part of the collection of the Frans Hals Museum, Haarlem, in 1987. When the Foundation for the Conservation of Modern Art began its research project nine years later, the museum's conservator Ella Hendriks proposed this work as a trial object: the decomposition of the organic material and infestation by insects had created a problem. Moreover, she was worried that the insects would affect the rest of the museum collection.

Along with Mabel Hogendonk, curator of the Frans Hals Museum, the art historians in the theoretical working group investigated what place the object and the artist occupied in art history, as well as the place *Marocco* had in the artist's entire body of work. Two experts, Willem Beekhuizen of the Natural History Museum, Leiden, and Agnes Broekhof of the Netherlands Institute for Cultural Heritage, Amsterdam, were also consulted to identify the materials and to determine the



condition of the work. The theoretical working group were assigned to determine what the desired state of *Marocco* should be, while the practical working group had to decide how to achieve this.

Putrefaction and corrosion

In order to assess the condition of the work, it was necessary to determine to what extent it had changed. The original appearance of *Marocco* is shown in a colour transparency that Giezen took around 1974 – probably at a solo exhibition of his work in the Van Abbemuseum, Eindhoven (Giezen himself was not sure how the work originally looked and there is no other proof).² Thus the transparency is the only reference material against which to compare the work's present condition.

In the upper right-hand corner – where now only a small bunch of feathers remains – the slide shows a swallow with outstretched wings. The wood construction of the box and the knife handles have become darker, they are now a warm amber colour. The animal remains have dried out over the years and therefore lack colour. Many of the needles from the hedgehog, fox hairs and bird feathers have

fallen out and lie on the bottom of the box, which gives a messy and dusty impression. On closer inspection, many beetle remains and hundreds of shed larval skins can be seen on the bottom as well as between the hairs and the needles. The whole conveys a sense of neglect, mortality and putrefaction.

Apart from the sheets of drawing paper, which are of good quality and have hardly yellowed with age, the drying out of the other materials has probably made them more hard and brittle. However, while the box remains unopened it is impossible to determine their exact condition.

The wire securing most of the objects is the crucially weak link in this work. It has rusted, shows other signs of corrosion (resin-like balls on some of the wire and on the chameleon and fox head) and has broken in one place. Should the wire snap, the objects will fall down and give the work a totally different appearance.

Recycling of materials

It is impossible to determine the impact of the degradation processes without knowing the essential meaning of the work. First-hand information – statements from artists concerning their intentions, ideas and ways of working – derived from published interviews and articles is often hard to come by. One possibility, which is being increasingly utilised, is to interview an artist at length about his or her intentions.

The theoretical working group wanted Giezen himself to describe the essence of his work, what elements were important to him and which were only of minor significance. Moreover, he was the only one who could judge just how far his work *Marocco* had changed since 1972 and whether this was in conflict with what he had originally in mind. Was it conceived as a souvenir, as a visual record for posterity or was decay, in fact, the idea behind the work? If it was intended as a visual record, the working group wanted to know the artist's views on the possibilities of conservation and restoration – to what extent were interventions allowed? Should the work be shown hanging on a wall or could it also lie flat on a table? Krijn Giezen came over from France on 22 May 1996 for the interview.³ The artist gave an introduction to his work and described its recurring themes.

Krijn Giezen mainly works with material that others throw away – material that already has a history attached to it. His aim is to recycle these everyday materials he finds around him in a new and inventive way.⁴ In his introduction he described how during a trip around Morocco in 1972 he collected the objects which are now shown in the vitrine. He bought the dead animals and herbs from a local stall-holder, who was selling them as medication. The rolled-up piece of fabric in the box is his small version of a tent he had seen belonging to the Berber people. The two sketches, small drawings of constructions and tools of this nomadic tribe, were intentional reminders of his trip.⁵

During the interview Giezen mentioned his dislike of empty white sheets of paper. Even while studying at the Royal Academy of Fine Art in The Hague, Giezen sometimes used the discarded drawings and sketches of his fellow students. The materials used for *Marocco* also had a history and meaning behind them. The knives and sickles showed signs of wear – a few of them had had their handles replaced just before they were sold. The water carrier, made from the complete skin of a young goat, was stained and stretched through use. The animals in the box had, in the most literal sense, a life history before they were killed and offered for sale at the Moroccan market. Once dead they were used as a medical ingredient by the Berbers – that is given a new function. Even the piece of cloth covering the back of the box showed traces of use, traces of its past history.

The vitrine as a souvenir

According to journal and newspaper articles, working group reports and the interview with Giezen, *Marocco* is a souvenir, a memory of his trip through that North

African country, of its people and their customs, their everyday objects and skills. The work is a visual report done in the same manner he always uses to make visual records wherever he goes – with objects, pictures and sketches on drawing paper, beer mats or paper serviettes. After completing a large project, often involving other people, Giezen regularly makes similar vitrines containing a collage of objects and materials as a keepsake for the client or executor of his work.

In fact all his works are visual reports, he says. The process of finding or conceiving, the designing, making and using of an object is inextricably intertwined with the object itself, which often ends up in a museum collection. The clay rings which were once piled up to form the walls of a large open-air oven (at the Sculptors' Symposium in the Haarlemmerhout, August 1984) may now be found at the depot of the Frans Hals Museum.⁶ Without the story behind the entire project – the conceiving, building and stoking up of the oven, etcetera, Giezen does not think the clay rings are particularly meaningful. His 'visual story' appeared in the catalogue for the show in the form of a photo feature entitled *Haarlemmerhout-kachel* (Haarlemmerhout Stove).

Ambiguous intentions

After his introduction Giezen examined *Marocco* with the theoretical working group. He was quite pleased with the way the work showed symptoms of ageing; in retrospective, he found these have become a part of his work. He also thought it was aesthetically pleasing: the warm brown and yellow of the ageing wood and leather had made the work, in his own words, a 'delightful thing'.⁷

In Giezen's work decay, wear and tear and change are a recurring theme – the way in which material changes shape, colour and texture due to use or from becoming old.⁸ With *Marocco* he is fascinated by the fact that in the fullness of time only the skull will remain of the fox's head. It is difficult to assess at what point the materials started deteriorating, especially as many objects were already in a state of decay when they were put into the box. Thus it is impossible to determine when the work was completed. This also applies to many of his works – they are constantly changing and as far as he is concerned they are never finished.

For this reason the working group was faced with a dilemma. On the one hand *Marocco* is a souvenir, a record, so from this viewpoint the work was completed as soon as the objects were secured in the box and sealed with a sheet of glass; if the work is simply conceived as a visual record, the material has to be preserved as far as possible in its original state. On the other hand, if *Marocco* is mainly a story of natural degradation, ageing and mortality, the concept rather than the materials needs to be conserved.

Communication problems

The artist was invited to participate in the hope of gaining a clearer picture from him. Hence he was bombarded with a barrage of questions and theories. In retrospect these were often too broad or, in fact, too directed – frequently the questioner's own opinion was advanced. This, combined with the artist's habit of jumping from one subject to the next, created a chaotic and incoherent meeting. Also both sides were not listening to the other. Giezen would be asked a question and someone from the working group would react before the artist himself had time to consider a reply. Then it was immediately on to the next question.

One of the reasons for this situation could be that almost everyone, including the artist, was seeing the work in this state for the first time. It would have been better if the group had seen the work beforehand and had talked together about its significance. This might have resulted in a broader consensus, with participants less at cross-purposes once there was a clearer line to follow.

Creative conservation

The interview and ensuing discussions were clouded however by Giezen's emotional reaction to the idea of fumigating the insect infestation. He adamantly opposed to killing them, especially if this was done by gassing. He had already refused permission for the Textile Museum in Tilburg to rid his wall hangings of carpet beetles in this way. The museum dismissed his suggestion to roll up the carpet and exhibit it in a vitrine with a note explaining the beetles and their threat to the rest of the collection. Instead the wall hanging was returned to the artist.

Although there were strong arguments in favour of killing the insects, the working group also had respect for the artist's opinion. The difficulty of how to resolve the dilemma was probably intensified after meeting the artist.

Another problem was that Giezen sometimes construed conservation interventions as creative possibilities. He argued that only he himself could modify the work – any course of action would change it, thus every intervention had to have his 'signature'. Partly for this reason the box remained unopened and as a consequence the contents could not be studied more closely. It is remarkable that the artist was later reconciled to the final decision of the working group – he was prepared to carry out almost every explicit direction regarding a form of treatment.



It gradually became evident, however, that he immediately interpreted every intervention the working group proposed to him as a creative solution to the making of a new image. This was most obvious in his reaction to the proposal to place the box in a hermetically sealed glass case to protect it from insects and changes in temperature. He instantly saw his work as being put in an incubator. Giezen would also have liked to have been given permission to remix his work by taking certain elements out of the box and re-using them for other pieces, as he was totally unhappy with the orderly arrangement of *Marocco*. He no longer finds it in keeping with the rest of his work – although some elements, especially the knives and sickles, would accord with what he is doing now.

Killing the insects after all

In the beginning the working group focused their discussions around the essential meaning of the work – is it a document or does it represent a process? The answer to this has important consequences for the relevant steps to be taken. This becomes evident if we follow the decision-making model from these two distinct angles, for then we also attach a different value to the authenticity and historicity of the materials, to the artist's opinion and to the ethical and aesthetic aspects.⁹ If the work is seen as a document, the authenticity and historicity of the materials play a

larger role; if the work's essential meaning is derived from the degradation process, then the idea, the concept, should have greater emphasis.

The working group considered the historical and authentic aspects of the concept or idea to be important, but those of the material more so. The consequence of this – that the material should be protected by killing the infestation of insects – is ethically controversial in that it goes against the emphatic wishes of the artist. Other arguments, however, including the need to protect the remaining museum collection can overrule the artist's opinion.

In the end the group unanimously concluded that Giezen originally intended *Marocco* to be a souvenir or document rather than a process of decay and deterioration. The practical consequences of this result were more complicated. If decay was not intended in the work then this has to be curbed in some way. Also, museums have a duty to preserve all their art works as far as possible. Thus the working group advised killing the insects and went against the artist's wishes (for the various approaches to doing this, see Agnes Brokerhof's *Killing Them Softly*).

Conclusions

The theoretical working group based its advice on the following premises:

- To remove the insects from the work because they pose a threat for the entire collection;
- To accept the natural degradation process to the extent it has now reached;
- To keep further degradation of the objects in the box to a minimum;
- Not to open the box and thus keep intervention to a minimum.

The practical working group advised placing the box in a low oxygen environment and thereby killing the insects. The work then needs to be stored in an extremely stable climate and regularly monitored for traces of further decay or signs of a re-infestation of insects.

In order to deal with the weakest element in *Marocco* – the wire securing most of the objects to the back of the box – it was originally suggested that the work could be stored and exhibited lying down. However, apart from the practical objection of the box then being too wide for the museum door, there was the problem of the shedding hair and needles ending up in an illogical position – they would fall to the back of the box around the animals. The practical working group proposed storing and exhibiting the box by inclining it at a 45-degree angle. This relieves the tension on the wire and in this position the shedding materials still appear to have fallen of their own accord to the bottom of the box. Also the box was not to be cleaned on the inside, as this would negate the already naturally occurring processes of decay and create a misconception – the onlooker might then, for instance, think the bunch of feathers had been deliberately hung as such and not as a bird.

All in all, the theoretical working group had considerable difficulty in trying to fathom the essential character of the work. The interview with the artist, intended as some form of foothold, initially misled the group. If the questions had been put to him in a more systematic, more open and calmer way, the interview would have probably been more fruitful. The problem was that Giezen's current views on his work did not tally with his original intention for *Marocco*, even though he applied them to this object. Giezen's early work, including this piece, has a unique position within his total oeuvre; the processes of change, ageing and decay were not such an essential part of his way of working at the time. This particular piece was conceived as a document: a travel report, or a memento.

Tineke Reijnders KRIJN GIEZEN: TRANSFORMATIONS IN ART AND LIFE

Tineke Reijnders is free-lance art historian
and art critic.

Not long ago the artist Krijn Giezen made a hat for his dog and one for his wife, Martina. The one for his dog was made of paper and was not a hat as such, but more like a mask – a disguise in which the dog looks like a hare. Giezen's dog is a true ally in his owner's art: he enjoys being a hare.

Martina's hat is made of feathers. These are a classic material for hats, being usually applied one by one to the fabric. A shame really, when feathers in nature knit together with such matchless beauty to form a bird's plumage. What Giezen did was to make a hat from a bird, complete with head and tail. With Ovid's *Metamorphoses* in mind, one can see Giezen's headgear as the beginning of a supple transition from one form to another.

Krijn Giezen makes as much distinction between art and life as waves make between sand and seabed. His human world is closely interwoven with the world of animals and plants, with icy cold and summer heat, with dying out and coming alive again – with everything we can neatly sum up as being part of the processes of nature.

Metamorphoses are but a modest aspect of his work. More important is the symbiotic naturalness of Giezen's relationship with nature. He grew up in Noordwijk on the North Sea coast. It is apparent that he has never renounced his origins and that two spirits reside within him: the one of the contemporary artist and the other the eternal soul of the fisherman – the solitary toiler, vulnerable in his small boat, defying the elements and trusting his intuition and experience to find the best fishing grounds. As well as embracing the nomadic aspect, typical of the artist is his preference for fish and sailcloth and the unpretentious way he uses these kinds of materials in his work.

Naturally enough he does not shy away from using conventional artists' materials, but chooses to work with the most straightforward ones like paper and watercolour. Giezen spent a year (1995-96) capturing the changing seasons in watercolour, working each time in a different landscape – for the most part close to the sea. For 365 days he tested his sensory responsiveness towards the daily shifting colour of the plant world. Whenever the paint water froze in winter he had to dilute it with antifreeze (part of this account, in watercolours, is in the Lakenhal Museum collection in Leiden).

The association with Joseph Beuys is an obvious one. Beuys had a conversation with a dead hare (an action, *How to Explain Paintings to a Dead Hare*, in Düsseldorf, 26 November 1965), temporarily kept a coyote company (*I Like America and America Likes me* – a three day action in New York, 1974) and had an interest in natural processes and materials. But unlike Beuys, Giezen does not enter into a dialogue with the 'solace' of nature from an urbane and intellectual perspective. He is already on the side of nature, so it is more of a shared monologue than a dialogue.

While Giezen's approach radiates the same humanity as Beuys's, it does not have anything didactic or magical about it. He depicts the typical, down-to-earth attitude of not only the fisherman but also the farmer or hunter. Inextricably entwined with animal, water, air and land, they do not allow their love for fellow creatures to be guided by sentiment or urban nostalgia, but relate to them in a way which is both respectful and extremely practical. An animal is both their companion and their workhorse, a provider of milk or – when dead – a source of food, clothing and medicine. It is a timeless attitude found in all societies, which has in fact come under pressure in our era of large-scale intensive farming and various forms of nature depletion. Giezen's work makes us aware of this ancient relationship and acts as an intermediary enabling us to look nature straight in the eye.

Giezen recently responded to an invitation to take part in an exhibition entitled *Small Sculpture Show* in Peninsula, Eindhoven (March 1998) by coming up with a proposal for a leather sofa. His photograph and drawing shows a recently acquired young bull, which when lying on its side in a meadow provides comfortable seating for two. In displaying the 'sofa' in its original pre-transformation stage the artist alludes to the later processing of the animal's hide and conveys in a spiritual manner the animal as a (third) individual.

Giezen's use of primary materials is in keeping with his preference for primary constructions. He creates dwellings made from cane or wood shavings, which originate from the earth and which can be entirely incorporated into it again. The observation post he made for birds, for instance, at Harderbroek in the Flevo polder landscape, was fully camouflaged thanks to the use of cane. The heating for a dwelling he built in Leiden was derived from walls made from heat-generating waste products. The ovens he sometimes builds provide the basic necessities of life – food and warmth.

The preparation of meals is therefore one of his artistic activities. Sometimes he does this for all the inhabitants of Magny, the Normandy village in France where he and Martina live in a somewhat dilapidated castle – 'live', however, is too narrow a term for someone who sleeps a good part of the year outside in a tent or travels the coastline in a camper. It is hard to imagine anything more directly associated with the vital necessities of life, yet at the same time possessing such deeply aesthetic and functional powers as the preparation of a meal. It is the metamorphosis of a swimming creature into a prepared fish dish as part of a composition on a plate, which is then transformed irrevocably in an eager mouth into food, and which is further broken down into building blocks and waste.

The reverse process – waste utilised as building blocks – obviously has a place in Giezen's work, too. In Iceland, for instance, he collected the skins of fishes discarded by the fishing industry. He tanned them and used them, among other things, to make a cape.

Even when making monumental interventions in the landscape he enjoys turning accepted values on their head and allocating a purpose for something discarded as 'useless'. In order to protect a park in Rhoon, Rotterdam, from noise pollution from a nearby motorway – and also to create a visual barrier between the old landscape and a new distribution port – Giezen designed an unusual bulwark: a six-metre-high wall, 400 m long, made from two parallel metal barriers which were to serve as a container for local history. What happened was that part of the polder had to make way for the port. Houses were demolished, trees cut down and roads removed. Some of this debris now lies piled up along the artist's metal boundary line, susceptible to growing vegetation and birds' nests. By the unloading of ships from seas around the world at the nearby port, Giezen hopes that exotic seeds might be blown across.

What was earlier a melancholy mess, is now in fact a functional sound barrier with the symbolic power of new life united with the old. Eventually, perhaps twenty-five years from now, the steel latticework will have rusted. Then it depends on the web of vegetation whether the wall remains standing. Its appearance will have changed under the metamorphic impulse of time and nature.

Krijn Giezen's work is also permeated with a large dose of alternative humour. Not in the absurd sense – like the Dutch artist Wim T. Schippers who spread peanut butter on a museum floor instead of on a sandwich – but in the obvious enjoyment he derives from upsetting our bourgeois perceptions by playing around with accepted values which he turns on their head. Giezen can vividly recount the tale of the oil he once extracted from a stingray. He procured the fish on the strength of promising a reward to a group of fishermen. Only one fisherman succeeded in

catching such a fish, which made the oil an even more cherished aspect of the artist's work. However, at the end of an exhibition in the Kunsthalle in Cologne the substance was thrown away. Having first been displayed as an art work it was suddenly relegated to the 'bourgeois' category of a stinking mess. However, it was insured as an art work and as such was replaced by a satisfactory sum of money – unexpectedly enough becoming something of a different value.

The utilitarian aspect of Giezen's work recalls younger artists who weave practical application and artistic creation together – the Ateliers van Lieshout, John Kormeling and Luc Deleu. But what Giezen himself terms his 'signature', his choice of natural and primitive materials, makes him an outsider in both senses of the word. Neither is it possible to compare his work to that of other artists involved with landscape and growing things, like Richard Long, Ian Hamilton Finlay, Herman de Vries or Wolfgang Laib. These artists have a more objective and analytical approach.

Giezen attended art school at the improbably early age of sixteen. As well as developing into the quintessential artist he also revealed himself to be every inch a *homo faber* or maker. He made things with his hands. His early canvas wall hangings were often described in terms of their craftsmanship. Even the tools and instruments used by the hands, originally invented to facilitate the making pro-



cess, are used as elements in his work – being secondary and subservient in part yet also adding an autonomous expressive aura to what he does.

It is hardly surprising that an artist who owns an image archive of worn patches and is fascinated by the common imprint of the human body – the continual rubbing of flesh against something else which was the inspiration for his bronze objects in Amsterdam's Townhall – shows so much respect for the knife, the scythe, the canvas needle or scissors, tools that are practically and symbolically linked to the hand.

The objects that constitute the work *Marocco* together represent a poignant overview of the artist's work. While these are found objects rather than created ones, in the way they have been chosen they lend expression to Giezen's artistic drive. If each object shows signs of a metamorphosis or a change in its inherent value or function, this has not been brought about by the artist but by others – in this case the Berbers. By creating unity with these objects and displaying a certain aestheticism, the artist achieves a new context. The whole piece, the box entitled *Marocco*, is given another value and changes into an art work with a place in the collection of a museum.

The box entirely radiates this metamorphosis. It emanates a breathtakingly vis-

ual expressive power. Without precisely understanding the would-be therapeutic effect of a dried hedgehog or a bunch of herbs, we instantly pick up an atmosphere of non-explicit yet intentional meanings in the work. The objects can no longer be touched or taken into the hand. They are now sealed under glass, the components of an object on view. The actual origins of the different objects are secondary to the total image that harks back to the eternal relationship with nature as a source of life and death. It is as if the rigid, frontal composition emphasises the iconic nature of the work.

The artistic moment, the turning point when a container in which souvenirs are arranged becomes an art work, represents a decisive point with consequences for the problem of conservation. In the same way a photographer freezes time in a picture, this travelling artist arranges his objects to form his 'worn patches', his points of contact with the Berber culture into a still.

It does not happen often that an artist sees his work again after twenty-five years and is able to respond to the question of how best to restore it in the presence of a group of experts gathered together. This event, on 22 May 1996 in the Frans Hals Museum, Haarlem, was unique in that it provided such a splendid demonstration of the artist's ambiguous attitude and his ultimate and implicit deferment to the museum authorities.

Giezen's spontaneous preference to break up the piece, open the box and start all over again with the materials – in view of the fact that he still works in the same and, in his opinion, improved way – confronted the artist once more with his collection of souvenirs. This also obliged the museum people present to remember the glass sheet, the element that irrevocably completes the work and confines the appreciation of it to the purely visual.

Giezen's ever constant desire to deconstruct fixed ideas about the fine arts and its institutions explains his wish to rearrange the things in the box as well as his preference not to disturb inherent processes of degradation. Living insects that thrive on dead matter for him is an example of a natural cycle. Moreover the idea of a museum piece being eaten away on the inside must have been favourable to the artist's sense of humour. At the same time he was touched by the attention and concern shown by the working group; the suggestion of having an imaginary incubator in which the 'patient' is kept to avoid spreading 'germs' appealed to his imagination.

Giezen gave the impression that art works in a museum have a right to their own cycle. If that implies taking action to prevent something perishing, including the killing of vermin, then that is the way it has to be. Without saying it in so many words – or rather, while expressing his respect for the process of degradation – he agrees with the decision to stabilise the situation. He feels it would be a shame if the work had to be destroyed.

That same afternoon Giezen also talked about his documentation – how he had finally arranged the details of his works to his own satisfaction and how his dog, who he sometimes disguises as a hare, had eaten up part of them. It had been a fatal act that had evidently moved him. Conversely, it is not inconceivable that if the museum were to kill the insect infestation in *Marocco* in order to save the work, he might also see this as a fatal act with moving aspects to it. Though the museum can hardly disguise itself as a hare.

Agnes W. Brokerhof * KILLING THEM SOFTLY

Agnes W. Brokerhof is conservation scientist at the Netherlands Institute for Cultural Heritage.

Is there a nature friendly way to kill an insect? The question seems to be a contradiction in terms. After all, killing is not friendly, let alone nature friendly. Yet, when the working groups were faced with an insect infestation in the work *Marocco* by Krijn Giezen, this question came up repeatedly.

For Giezen, the incorporation of nature in his art works stretches beyond the use of natural items: it also involves the natural degradation process of the object. In the years following the construction of *Marocco* the natural degradation processes have continued unabated. Corrosion, rotting, leaking of fats, the shrivelling of dried skins and leaves and the shedding of hair and feathers have been accompanied by a plague of insects. As a result the swallow lost most of its feathers while the goat's leg and fox's head shed many hairs. The bottom of the box is covered with animal remains, frass, larval skins and beetle fragments. A large number of larval skins can be seen among the hair and feathers of the various animal parts. During inspection, a beetle was spotted crawling between the items.

Thus far, the artist and the curator of the collection have not allowed the box to be opened for closer inspection, so that the insects cannot be identified. Nevertheless, the bristly larval skins and the small, speckled beetle indicate the presence of one of the carpet beetle species. The animal parts used in the art work have only



been dried – possibly sun dried – and have not undergone any other preservation treatment. It is unlikely that the hedgehog and the fox's head have had their contents removed. In this state, they provide a perfect food source for carpet beetle larvae.

Natural threat

Considering that the box is not well-sealed and insects have had free access, their presence does not come as a surprise. The exact identification of the carpet beetle species can be important in estimating the risk of further attack, as different species show different behaviour.¹ The adult females of some carpet beetle species, such as *Anthrenus pimpinellae*, need to feed on pollen to be able to produce fertile eggs. This means that beetles have to leave the object, usually even the building, to find flowers. For only then can they produce eggs, which they lay in birds nests. The larvae that hatch from the eggs feed on the debris in the nest; however, they are known to be quite mobile and able to creep into a building, where they end up in organic, keratinous materials. There is a good chance that insects from these species will eventually leave the object and move elsewhere. Thus, the infestation dies out – or rather flies out.

Other species, such as *Anthrenus verbasci*, are able to reproduce without external feeding and stay within the object. Obviously, these cause the big problems in

The fox's head in Krijn Giezen's *Marocco*, 1997.
Photo: René Gerritsen

The goat's leg in Krijn Giezen's *Marocco*, 1996 –
covered with larval skins. Photo: Ingeborg Smit

museum collections. In *Marocco* the large number of larval skins and beetle fragments plus the sighting of a living beetle suggest that the infestation has been there for some time and is still active. This indicates the presence of the latter type: the carpet beetle reproducing inside the object. Probably there are living larvae hidden inside the animal remains. Therefore, the infestation is considered to be a serious problem.

Precautions

Considering the fact that the artist does not mind the natural degradation of his work, the legitimate argument for some form of intervention in the biodeterioration process is the safety of other objects in the museum collection. Since carpet beetle larvae are rather mobile, they may easily wander from one object to the next; female beetles can fly out to oviposit on other objects, which can happen during both storage and exhibitions. With the large cracks in the box there is little to stop the larvae and beetles from leaving *Marocco*.

Irrespective of the decision concerning treatment some preliminary precautions need to be taken. When acting in accordance with an 'integrated pest management' strategy, one should isolate an object once an infestation has been detected.² In this case the object has been set apart in the storage area, wrapped in blankets to protect the glass, and then in plastic to contain the infestation. As long as the discussion on treatment is on-going *Marocco* remains in 'quarantine'.

Further containment

There are various options for dealing with carpet beetle infestation, all depending on how much intervention one allows. Should the museum decide that the natural degradation may not be interfered with, the insects need to be confined to the box in one way or another. Possible options are:

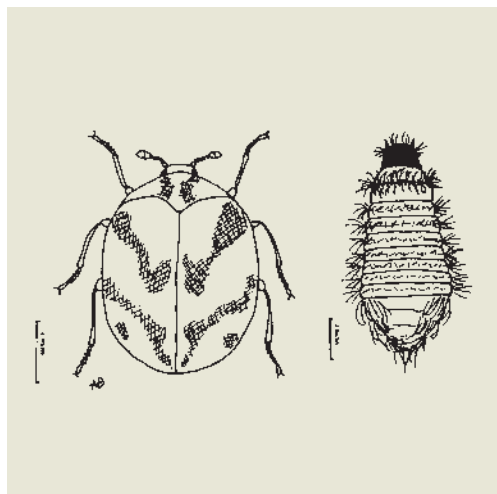
1. Store the work separately and never exhibit it alongside susceptible objects;
2. Store and exhibit the work in a special enclosure, for instance a case made of Plexiglas;
3. Seal all the cracks in the original box.

Each option has its obvious disadvantages. The first approach degrades the object's 'life' to something similar to confinement in an isolation cell; one could argue that the art work would not function as such anymore and lose its value altogether. The second option implies a considerable addition to the art work as well as restricting its visibility – although in his meeting with the working group the artist did not object. The third option requires changes to the original construction – something the artist might not like, although this has not yet been discussed with him.

Natural interventions

When the museum decides to intervene, the total elimination of the insects is an option. This was when, in the working groups' discussions, the question of a nature friendly insect control method was raised – a method respecting both the nature of the art work and the nature within it. Four methods that comply with this are available: heat treatment, freezing, fumigation with carbon dioxide and exposure to a low oxygen atmosphere.

Heat treatment, for one hour at 55°C at controlled RH, could be compared to exposing the items in the art work to the heat of the Moroccan desert sun. It would involve an additional exposure to the earlier sun-drying heat. Treatment could be carried out in the conservation laboratory under supervision of the museum's conservator, or performed by a professional company.^{3,4} The latter requires transportation to a treatment chamber, which poses a risk to the fragile construction and adds to the costs. Possible effects of the treatment on the art work include expansion and shrinking of material due to the temperature changes, sof-



The varied carpet beetle *Anthrenus verbasci*, adult and larva (line = 1 mm). Figure: Agnes W. Brokerhof

tening of adhesives, stress to the glass plate, and configurational changes to the proteins in the animal matter – which is, after all, what causes the death of the insects.

Freezing, for at least 48 hours at -20°C , has proven its use as a clean, safe and effective pest control method for proteinaceous materials such as found in textile and natural history collections.^{5,6,7} It could be compared to spending a few nights in the Atlas Mountains in winter. The method can be carried out inside the museum, requiring a minimum amount of handling and transportation. Again, the effects of temperature changes on the materials must be considered. A bigger risk, however, is the condensation of moisture on the already heavily corroded iron.

Fumigation with 60 per cent CO_2 , for 4 weeks at 20°C , is generally accepted as a clean, safe and effective method as well.^{8,9} Since the materials in the art work are dry, the risk of carbonic acid formation is non-existent. A disadvantage of the method, at least in the Netherlands, is that it can only be applied by a licenced company.¹⁰ If it is the museum's only art work in need of pest control treatment, on-site fumigation is too expensive and the object will need to be transported elsewhere for treatment – causing a risk again. The treatment takes some time, which is a disadvantage in a case of urgency. But considering that the work is kept in storage, there seems to be no time pressure. The major disadvantage of this method, however, is that the insects actually die of CO_2 poisoning: in the eyes of the artist, this is not the friendliest way to eradicate insects.

Exposure to an atmosphere with less than 0.5% O_2 , for 4 weeks at 20°C , is the safest, cleanest and yet effective pest control method available today.¹¹ When presented as a storage method at which insects accidentally die of dehydration and suffocation, it sounds friendlier than the often used term 'nitrogen fumigation'. Other advantages are that no licence is needed, the conservator can do the work in the museum's laboratory, the art work does not need to be transported and the costs are low. The object is placed in a bag made of special barrier plastic with a low oxygen permeability. The bag is flushed with humidified nitrogen from a cylinder to remove most of the oxygen from the air inside. To trap the remaining oxygen and that which leaks into the bag during treatment, oxygen absorbers (Ageless®) are added. The bag is sealed and oxygen concentrations inside are measured regularly to monitor treatment conditions.^{12, 13}

Conservation spin-off

The final decision on how to deal with the insect infestation while respecting the character of the art work and reducing the risk to the rest of the museum's collection, lies with the conservator and the curator. Exposure to a low oxygen atmosphere seems to be the most natural solution. It should be combined, however, with the implementation of an 'integrated pest management' programme because there is a risk of reinfestation – the materials inside the box still offer enough digestible food for insects. The risk can be minimised by taking the necessary steps included in the programme: avoid attracting insects into the building and collections, block them out, and monitor by visual inspection and trapping. Proper implementation can keep interventional control methods to a minimum.

If this is the direction the museum decides to take, the entire collection shares in the conservation spin-off of an artist's philosophy that was contrary to the concept of preservation to start with.

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The object contributed by Centraal Museum Utrecht to the conservation research project is known simply as the 'Ice Machine'. In fact this work, entitled *De Overwintering van Willem Barentsz. op Nova Zembla* (Willem Barentsz's Winter on Nova Zemlya) suggests warmth as well as cold.¹ The Rotterdam artist Woody van Amen, who made this work in 1968 and 1969, constructed a large case (2 m high x 80 cm wide x 30 cm deep) from a steel frame onto which he screwed multiplex panels, and covered the front and sides with sheets of stainless steel. Various objects are attached to the front.

The top consists of a red, U-shaped neon tube and a perspex container full of hay; the box is convex, that is, shallower in the middle than at the sides. Beneath it two vertical, blue neon tubes frame the refrigeration element which, complete with drip tray, is attached between them. The element was taken from a normal refrigerator and is characteristically corrugated. From the bottom of the drip tray – also made from perspex – a PVC drainage hose runs through the middle of the object to the back of the case, where the water from the melting ice can be collected in a bucket.

Below the refrigeration element is another red neon tube and an imitation open-hearth fire: a polyester form comprising blocks of wood piled on top of each other, painted black in places on the inside, with a light bulb underneath.² A PVC cap with a pink flame pattern surrounds the bulb and rotates when driven by the rising heat from the bulb. There is a PVC screen at the front and back bearing the same pattern. A mirror is attached to the back of the whole object.³

The lower perspex container is also filled with hay. This container is taller than the one above and a different shape: it slopes diagonally downwards so that the top protrudes more than the bottom. This container is covered by a metal sheet on which the imitation fire stands.

When on show, the back of the case, made from triplex, is positioned against the wall and is therefore always invisible to the viewer. Two small, hinged doors in the back provide access to the refrigeration element, the electric wiring and the transformer for the neon lights. The motor and the transformer are kept cool by small ventilators attached above them and which, together with the electric wiring, are concealed within in the case.

When the electricity is turned on, the two red neon tubes and the wooden blocks begin to glow; the mirror reflects the light and projects it onto the polyester form so that the imitation fire spreads a warm glow. The refrigeration element between the illuminated blue neon tubes also turns on: a thick layer of ice begins to form. Water drips into the drip tray, though the amount depends on the surrounding temperature.

Research plan

The Centraal Museum Utrecht acquired this object in 1971 and exhibited it soon after in the exhibition *A Selection from Ten Years of Acquisitions*, which ran from 2 October 1971 to January 1972. In the spring of 1993 the work was loaned to *Arti et Amicitiae* in Amsterdam for the exhibition 'Wunderkammer'.

This was to be the last time it was shown, because the refrigeration element was broken. In storage for many years, the object had been housed since 1975 in a depot without climate control and its condition had not been properly monitored. It was assumed that the work was in bad condition: the refrigeration element was impaired and storage for such a long time without climate control was suspected to be generally harmful. There was also the fear that the hay might have been damaged by insects.

It seemed as though these problems would not be easy to solve. Hence, in 1994,

Left Woody van Amen, *De Overwintering van Willem Barentsz. op Nova Zembla* (1968-69) in 1996.
Top The light of the imitation hearth.
Bottom The rear of Woody van Amen's *De Overwintering*. Note the two small, hinged doors.
Photos: René Gerritsen

the Centraal Museum offered *De Overwintering van Willem Barentsz. op Nova Zembla* as a pilot object for the conservation research project.

Because the problems appeared initially to be complex, the artist was contacted during early the early stages. The difficulties were explained to him and he was asked to provide information about his work, particularly this piece. Woody van Amen was supremely helpful and clear about his analysis. The valuable information he supplied served as a guideline for the conservation research; from the beginning his view provided an ethical and aesthetic framework within which the discussion about the work developed and which finally led to a conservation proposal. The initial confrontation with the Ice Machine for the working group, the artist and his assistant took place in the depot of the Centraal Museum Utrecht. This meeting produced a pleasant surprise: Van Amen found that his machine was in a better state than he or anyone else had expected.

Current condition

Nonetheless, various problems became apparent during the damage inventory. Not only did the refrigeration element no longer produce a layer of ice when the power was switched on, the electric wiring had aged and no longer complied with current safety standards. Furthermore, the drip tray and drainage pipe were damaged. One of the glued corners of the perspex drip tray had broken open and therefore would leak. The tray had also become rather scratched and dull through use. The drainage pipe was discolored; because softening agents had leached from the PVC, the pipe had become sticky and covered in dust which was difficult to remove.⁴

Also the blue neon tubes had become slightly different in colour. They had been marked on the back with black felt-tip pen and this was not done by the artist: the left-hand tube was marked 'Centraal Museum Agnietenstraat Utrecht', the right-hand tube 'Centr. Museum Utr.'. This indicated that the original tubes had been replaced, even though there is no record of this.

The imitation fire, which had become extremely dusty, showed hairline cracks and had come loose. It must have been held in place at one time by screws, judging by the screw holes in the polyester cap, and a clip belonging to the red neon tube was hanging loose. A number of screws were also missing from the steel cladding on the wooden case.

The lower perspex container was scratched, but contrary to expectations the hay was in good condition and there was no evidence of insect damage.

The repair process

Van Amen explained how he made objects like *De Overwintering van Willem Barentsz. op Nova Zembla* to the working group. He began to make the so-called Ice Machines, or Ice Boxes, in 1966-67. He took a refrigeration element from an old refrigerator, placed it on a stool and allowed the element to freeze up: this became his first Ice Object (now in the F. Becht Collection). Van Amen still regards it as being his most beautiful Ice Machine. He made various others up until 1970.

The starting point for *De Overwintering van Willem Barentsz. op Nova Zembla* was a refrigeration element that Van Amen took from a new refrigerator. The measurements of this component determined the other elements within the case. Using it as a gauge, he then went in search of an artificial open-hearth fire of exactly the right size to use with the refrigeration element and create an object.

The industrial character that Van Amen strives for in his work demands, according to him, a perfect finish to all components. He looks for the best materials and production processes: "I have always tried to think ahead," he confirms. Whatever he is unable to make perfectly himself, he passes on to skilled craftsmen. The perspex containers, for instance, were made by a specialist perspex firm, Vromens Design in Krimpen aan de IJssel and the neon tubes were made by Neontime in Rotterdam. The artificial fire and the refrigeration element he bought new.

The artist's intention

Although the condition of the work was better than the artist expected, in his view a number of defects destroyed its essence and were therefore unacceptable. First, the refrigeration element which had formed the object's starting point. Van Amen declared that this was essential to the work: if the refrigeration element doesn't operate, the contrast between hot and cold (fire and refrigeration element, red and blue) is scarcely present. Moreover, the ice is also intended to bring an important colour accent to the object as a whole. The layer of ice should be thick, Van Amen said during the first conversation in April 1996: "The thicker the ice, the more beautiful. It brings colour to the work in a different way." As far as he was concerned, the refrigeration element had to be repaired if possible, or otherwise replaced.

The colour of the neon tubes is also important. The artist considers a slight variation in the colour acceptable, but if this becomes too great – if a red tube turns pink, for example – he would choose to replace the defective tube or top up the gas to correct the colour.

Van Amen stressed that the whole object should appear cared for. The disturbing black letters on the neon tubes should be removed; there should be no fingerprints on the stainless steel cladding; the drip tray must be clean and not dull. In short, the whole work should look in his words 'spick-and-span'.

In Van Amen's view, replacing components is a realistic option if no other method can be found to allow the elements to function properly. He has few objections to replacing the refrigeration element and the wiring, or the eventual replacement of the hay and even the artificial fire – should this ever become necessary.

Practical conservation options

Thus, the problems with this object appear to be less serious than was supposed. The artist also had clear ideas about what condition the object should be in. The working group agreed with his position and the desired external appearance of the work was established.

To achieve this, a number of interventions must be undertaken:

- repair the refrigeration element,
- restore the broken corner of the drip tray (invisibly),
- clean the drip tray,
- replace the electric wiring,
- remove the black letters on the neon tubes,
- repair small construction defects – replace the clip for the lower red neon tube and the missing screws in the steel cladding,
- clean the entire object.

The practical possibilities of these interventions were discussed. Only the refrigeration element barely needed to be discussed because, during a preliminary inspection in July 1996, a technician had already identified the problem: the starting relay and the thermostat were broken. These were replaced immediately. Since then the refrigeration element has been working properly.

Invisibly re-gluing the broken corner of the perspex container turned out to be more difficult. A number of specialist perspex firms were consulted, but all said it was impossible: the repair would always be visible. Furthermore, it was doubtful whether the dulled perspex could be cleaned in such a way that it would look as clear as the two perspex boxes containing the hay. Another option would be to replace the drip tray with a new one.

According to the technician who repaired the refrigeration element, the electric wiring also needs to be completely renewed because it no longer complies with safety standards for electrical appliances.

The black letters on the neon tubes are relatively easy to remove. Cleaning the



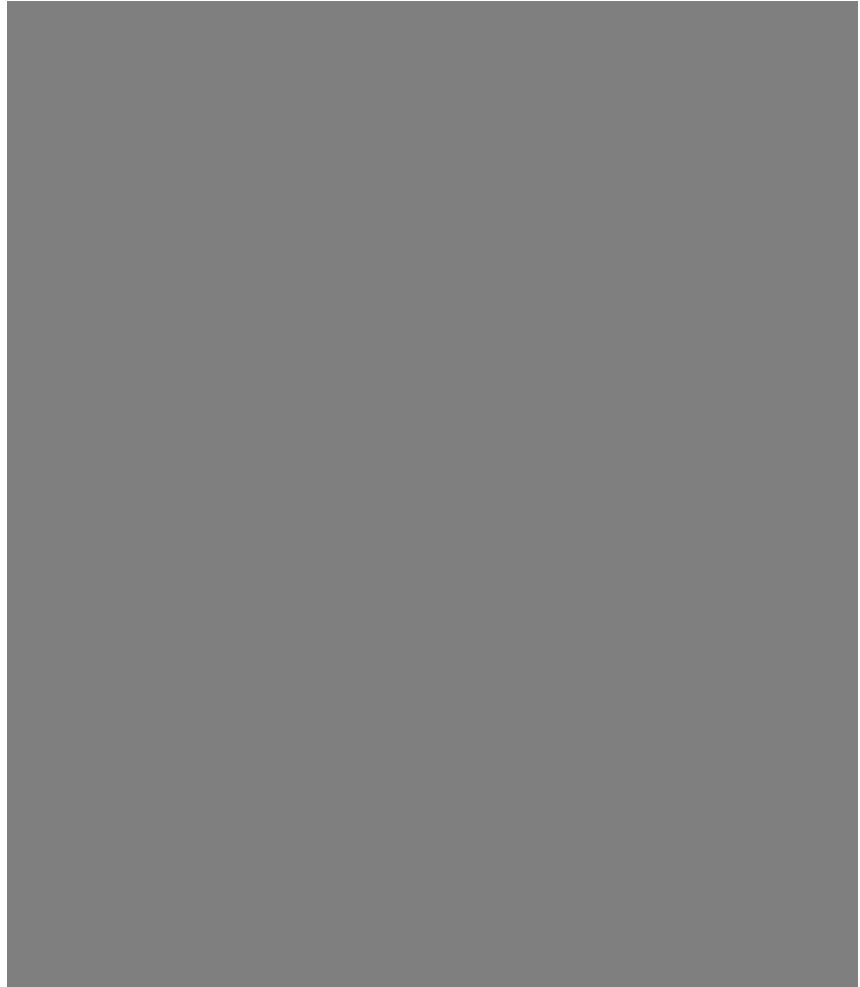
Woody van Amen explaining his techniques and intentions to the working group. Photo: Lydia Beerkens

object as a whole and the minor interventions in the construction are also not a problem.

Ethical considerations

Replacing parts is always a tricky problem: how far can one go without bringing the authenticity of the art work into question? The question also remains as to whether replacing components is comparable to retouching a sixteenth-century painting. Such questions have to be carefully researched for each individual art work, if one is to arrive at a well-considered standpoint.

In the case of Van Amen's work, the discussion was defined from the start by the artist's views. Components such as the artificial fire and the refrigeration element were bought 'off the shelf' by the artist; the perspex containers, the drip tray and the neon tubes were specially made by others. Yet Van Amen does not object



to certain parts being replaced if they no longer function as they should and the art work no longer looks 'spick-and-span'.

But how can components be replaced without risking the authenticity of the work? The drip tray, drainage pipe and electric wiring are certainly not in perfect condition. The polyester fire, which has become extremely dusty, could present problems in the future.

The working group concentrated the discussion on the choice of 'repair or replace'. They agreed that the drip tray in its present condition was a disturbing element in the Ice Machine. The broken corner could be repaired, though the perspex experts said that the glued edge would always remain unhappily visible. A new tray would therefore be the best solution, also in view of the fact that the perspex has become scratched and dull. Cleaning it would probably not achieve

the desired clear and transparent appearance. However, one has to question whether the replacement of the tray is ethically permissible. It is impossible to prevent the material from becoming scratched and dull through normal use. The tray has acquired a certain patina with the passage of time which will be lost if it is replaced.

Although Van Amen attaches more importance to a clean appearance than to the inevitable features of ageing, the working group considered retaining the original tray as a priority. Finally, it was decided that a method should be found to repair and clean it as well as possible. Only if this did not achieve a satisfactory optical result, would a new drip tray be considered. In order to maintain the original tray in the best possible condition, a way had to be found to drain off the water without using this tray.

Opinions were divided on the PVC pipe. A few members of the working group held the view that it should be replaced because its deteriorated state could not be reconciled with the fresh appearance desired by Van Amen; others preferred to clean the pipe and only replace it once it is truly rotten. Both options still remain open.

Wire and fire

The obvious solution for the old wiring is to replace it: it is concealed within the case and is not a visual element in the work. The wiring therefore has no artistic value and, after being photographed, may be replaced. Nonetheless, the majority of the working group judged the original wiring to have a documentation value relating to how the object was made and should therefore be kept intact. The wires are stuck together with pieces of tape – a method typical of Van Amen's objects from that period. His assistant, Jeroen Groeneweg, remarked that he is repeatedly amazed by the fact that the electric circuits Van Amen made by sticking wires together with bits of tape still actually work.

However, it is not necessary to remove the old wiring from the object: one could choose to leave it where it is and place new wiring alongside it. This approach would retain the 'documentation' aspect while improving safety. This is the option the working group finally chose. The Centraal Museum Utrecht, however, had a practical objection: in the future, someone may attempt to connect the old wiring and thereby damage the object.

Finally, to the options regarding the polyester artificial fire. Little is known about the ageing and speed of the degeneration of polyester, though the deterioration of this component would unacceptably alter the appearance and meaning of the work. As a preventive measure, a second, identical polyester form could be bought – even though it is questionable whether an identical fire can be found. Or a cast of the current pieces of 'wood' could be made, though this would inevitably damage the original. The purchase of a second imitation fire has practical considerations. The extra cost involved would far outweigh the costs of later restoration or reconstruction work, but the storage of extra parts would require space which is already at a premium for many museums. However, the working group decided to advise looking for an identical fire. These imitation fires were probably made in series during a particular period. In theory, a new example from the same period would be in better condition because it would never have been used, even if the ageing of the material is comparable to that of the original. If necessary, an extra example could be used to make a replica in a more stable material and thus extend its life span. This would avoid damaging the original fire in the Ice Machine.

To comply with the artist's wishes, the problems mentioned have to be solved. However, the failing refrigeration element has been repaired and the Ice Machine works. This brings extra weight to the object's title: *De Overwintering van Willem Barentsz. op Nova Zembla* once again evokes a 'safe haven', a home, with its comforting, glowing warmth contrasting with the icy cold.



The working group contemplating the future of Woody van Amen's imitation hearth. Photo: Lydia Beerkens

Marja Bosma WOODY VAN AMEN: BETWEEN POP ART AND NEW ROMANTICISM

*Marja Bosma is curator at the
Centraal Museum Utrecht.*

In 1969 the Centraal Museum Utrecht organised a large exhibition of contemporary Dutch sculpture. One of the exhibiting artists was Woody van Amen (b. 1936) who at that moment was part of a much talked-about, young avant-garde who had a subtle feel for contemporary, international developments in art. In 1971 the museum acquired two of his works, one of which was *De Overwintering van Willem Barentsz. op Nova Zembla* (Willem Barentsz' Winter on Nova Zemlya). The museum proudly presented the new acquisition as 'art work of the month' in the November issue of its information bulletin. Within the museum's relatively conservative collection of contemporary art, this was a sensation.

The Rotterdam artist, Woody van Amen had already attracted attention in 1960 with his so-called 'organ books'. These were paintings on punched cards from barrel organs painted in an abstract-expressionist style. These 'longest paintings in the world' were inspired by Piero Manzoni's drawings which were many kilometres long. Van Amen also intended the 'organ books' to be played in organs, thereby adding a playful twist to Abstract Expressionism which had been the dominant movement in art for many years. The organ books revealed something of a new mentality which was to dominate the 1960s.

Van Amen showed himself from the beginning to be a young, ambitious artist who avidly followed new developments in art. Early in 1962 he saw an opportunity to go to New York. He stayed there for almost two years. As a result he was able to witness the first appearances of Pop Art from close up. This was a revelation, he said in an interview: "It was new, not academic, a reflection of the society around us and stimulating for a young artist."¹

Back in the Netherlands, he began to work in a new direction and with a new repertoire: initially by including advertising images and typography in his paintings, though he promptly moved to making assemblages from all kinds of images and found objects.

Van Amen was soon to be discovered. After he was invited by Wim Beeren to take part in the international New Realists exhibition at the Hague Gemeentemuseum in 1964, he became one of the most important representatives of Dutch Pop Art. His work was bought by the likes of the Stedelijk Museum in Amsterdam and the private collector F. Becht – the Netherlands' Charles Saatchi of the day.

Throughout the 1960s, Van Amen continued to keep track of the latest developments. Like his contemporaries Jan Dibbets, Ger Van Elk and Wim T. Schippers, he began to use mainly 'cool' materials: perspex, neon and plastics, materials that symbolised modern, technological society. Inspired by Arte Povera, which was introduced by Dibbets into the Netherlands, between 1968 and 1970 he made various sculptures that reproduced natural processes as kinds of machines. The most extreme example was a sculpture on the terrace at Museum Boijmans Van Beuningen in Rotterdam made from a pile of blocks of ice. The melting of the ice, and thus the sculpture's constantly changing shape, was an integral part of the work.

De Overwintering van Willem Barentsz. op Nova Zembla is part of the series called Ices Boxes. Closely related work, insofar as I have been able to establish, is contained in the collections of Amsterdam's Stedelijk Museum (*The Iceman Comet*, 1968), the Becht Collection (*Frozen Food*, 1968) and the Commanderie Museum, Nijmegen (on loan from a private collection). In these sculptures 'warmth' and 'cold' are played off against each other. Various objects are attached to shiny, metal boxes that look like drink machines: a refrigeration element, a perspex container

filled with hay (two in *De Overwintering*), neon frames and – in *De Overwintering* and *The Iceman Comet* – an imitation open-hearth fire.

The configuration is of course different in each object. Though in all of the pieces, the electric apparatus has to function for the work to be complete: only then are the real and apparent contrasts between the ice-covered element and the glowing light of the fake fire, the modern bright neon light and the old-fashioned hay truly played off against each other.

It is also important that the case itself looks immaculate and cool: after all, what is important is the instant offer of cold and warmth, a 'fresh' product that can be supplied at any time. Rot and deterioration are evils. The hay is pressed into perspex; as a preventive measure, Van Amen has mounted a perspex tray and drainage pipe under the refrigeration element to remove the water from the melting ice.



Apart from Ice Boxes, during this period Van Amen also made a series of Vibro Objects based on gym apparatus. Both series are considered to be comments on consumer society. For the artist, these were the culmination of his views and experiments up to that point – but also the end of an artistic development in which his original poetic and associative freedom had been lost from view. While new movements such as Minimal and Conceptual Art announced themselves in the art world, Van Amen withdrew to reconsider his position.

His work since 1973 shows how he took the several new starting points and assemblage methods he had employed early on in his career and used them to create his own 'poetics'. He called this 'New Romanticism'. The drive to take part in the (Dutch) avant-garde was replaced by the pleasure of finding new combinations of images, as noted in the careful finish he gave the work. This has also highlighted the value of his work. Though it is true that Van Amen has a circle of faithful (private) followers, the 'official' art world of the museums and critics has categorised him as one of the first Dutch Pop Art artists: in other words, an historical figure.

***D.H. van Wegen* ON THE WAY TO UNE SECONDE D'ÉTERNITÉ**

*D.H. van Wegen is curator at the
Bonrefantenmuseum.*

The work by Marcel Broodthaers brought by the Bonrefantenmuseum in Maas-tricht to the project Conservation of Modern Art comprises two plastic plaques of more or less the same size and which both bear the enlarged initials of the artist: 'M.B.'. In both plaques the text and a wide, rectangular border are in relief. One of the pair is monochrome black while the other has a white background on which only the relief elements are black.

The museum chose the two plaques for this project largely to find out what effects ageing has had on the material and therefore other plastic objects in the collection. There was already a problem with the way the pieces were intended to be hung. When exhibited, the plaques have to be screwed to the wall. To this end a row of small holes were drilled into the plastic, around the edges of the plaques, at the time of making. The black-and-white plate has six holes and the black plate eight. A thin crack runs from the upper middle hole to the edge in the black-and-white plate. It was feared that this crack was a result of the material ageing and of the way it has been handled during hanging.



The research question originally focused on a technical solution. However, to determine possible consequences of any conservation measures, the meaning of the work had first to be mapped. An art-historical investigation was therefore vital. When we were initially presented with this task it immediately became apparent how little we knew about the background and meaning of these plaques. We found out more about their art-historical context during the course of the research. A material-technical analysis produced clear conservation advice. However, it became apparent that in the case of this work the most striking result was the spin-off from the art-historical clarification of the *M.B.* plaques.

Below is a short sketch of the general art-historical framework within which Broodthaers's work came to be created. The research that followed revealed a patchwork of lacunae in our background knowledge and understanding of the meaning of the two plaques, which were gradually to be filled in.

Art-historical background

The international, artistic context within which the Belgian artist, Marcel Broodt-haers worked was strongly defined by Conceptual Art and Pop Art. In 1962, Broodt-

Left Marcel Broodthaers, *M.B.* (1971), 86.2 x 121 cm and 86.1 x 121.1 cm, from the collection of the Bonrefantenmuseum in Maastricht. Photo: Van Sloun/Ramaekers

Right Floodlit photograph of the white plaque of *M.B.*. Photo: Madeleine Bisschoff

haers was even awarded a certificate by the artist Piero Manzoni which elevated him to the status of a work of art. European Surrealism had an important influence on Broodthaers and during the 1940s he was involved with the left-wing of the movement. Broodthaers also considered his compatriot René Magritte to be a 'link' in the evolution of Pop Art.¹

As in the work of Magritte and the Surrealists, ambiguity played an important role in Broodthaers's work. Not only in the sense of ambiguity in language – or as is often the case with Magritte, the ambiguous relation between word and image – but also the ambiguous relation between image, word and object. Before he began to make art, Broodthaers was a politically engaged poet, a Marxist, and also a book dealer, a journalist and a pamphleteer. He entered the art world in 1964 by plastering fifty copies of his collection of poems *Pense Bête* thereby transforming them into an 'object'. Broodthaers also indicated that the series of plastic relief plaques, to which the two *M.B.* plates belong, were 'Poèmes industriels', referring to the ambiguous relation between literature and art which he provoked in his work.²

Two plaques, one work?

The Bonnefantenmuseum considers the two *M.B.* plaques to be a single work. The two parts are therefore listed under one number in the inventory system. The plaques are always exhibited together, the monochrome black version above the black-and-white one.

Between 1968 and 1972, Broodthaers made a total of thirty-five different plaques which seem to have been dispersed in editions of various sizes.³ There are a number of pairs of plates in this series that bear the same 'image'. However, individual plaques of these pairs have also been featured alone in exhibitions and publications.

The Bonnefantenmuseum's usual practice of showing the pendant plates in a fixed combination, one above the other, would seem to be no more than common practice – which also corresponds to the way the plaques were presented at Prospect 68 in Düsseldorf (1968). A picture in the exhibition catalogue *Achter het Museum 1966-1976* (Behind the Museum 1966-1976), published by the former Antwerp gallery Wide White Space, shows Broodthaers standing beside two examples of the plaque *Museum, enfants non admis* (Museum, Children not Admitted) at this exhibition. Here the black version is also hanging directly above the white one.⁴ Nevertheless, the artist's widow, Maria Gilissen told us that there were no specific instructions as to how one plaque should be hung in relation to another.⁵

Mass product or multiple

For each of the individual plaques in the series an edition of seven seems originally to have been foreseen. The exhibition list from Broodthaers's show at Le Bailli, Brussels (1971) in almost all cases describes the plaques as "paint on vacuum-formed plastic: Edition of 7 signed and numbered".⁶ The Bonnefantenmuseum plaques, unlike some of the others, are not numbered or signed. During the exhibition at the Librairie St. Germain-des-Prés in Paris (1968) where the 'Poèmes industriels' were first exhibited, Broodthaers spoke of "Tirages Limités et Illimités sur plastic" (limited and unlimited editions in plastic).⁷ Four years later, when questioned about the editions in an interview with Irmeline Lebeer, he said: "I determined the size of the edition myself because, at the time, no gallery would assume responsibility for editions. The private sector assisted with the production."⁸ According to Broodthaers's widow, Maria Gilissen the plates were only numbered and signed when a buyer particularly requested it, just as the individual examples were only produced when a buyer ordered them.⁹

In *Das Jahrhundert des Multiple* (The Century of the Multiple), the German art critic Stefan Germer argued: "Broodthaers therefore decided on a double strategy. He used duplication processes (books, film, plaques, printed images, moulded plas-



Marcel Broodthaers standing beside the work *Museum* (1968-69) during Prospect 68 in Düsseldorf. In this exhibition, the black plaque hangs above the white one.

method of producing the plaques with the forming of a waffle on a waffle iron. When questioned about the production methods, Maria Gilissen first emphasised this by taking a waffle iron from the kitchen cupboard in order to demonstrate the process. However, she then showed us the mould for the plaque *Porte A*. This mould comprised a hardboard sheet on which were stuck extremely precisely cut hardboard letters that had clearly been made by a craftsman. The 'A' is an object with a history all of its own: a dark, hardwood letter of the sort formerly used in typesetting.

Maria Gilissen described the production process as follows: Broodthaers sketched the design and provided further specifications himself, but had the mould and the plastic relief made by a specialised company. The craftsman made a hardboard mould from the design. This was extensively discussed and altered where necessary until Broodthaers was satisfied. Then, using a vacuum-forming method, the relief was moulded from a sheet-plastic material that was imported from Germany.¹³

The mould for the *M.B.* plaques in the Bonnefantenmuseum could not be found, but a close examination of the initials 'M.B.' on these plates indicates that a mould made up of eleven strips and two full stops must have existed.

Representation or object

In some collections an external layer has been added to the plates to protect them. Anny De Dekker of the former Antwerp gallery Wide White Space has framed plaques that she often lends to exhibitions behind glass; the Paleis voor Schone Kunsten, Brussels has mounted the plaques on a stronger support; and Maria Gilissen, although she endorses the principle that they should be exhibited unframed and screwed to the wall, has still developed a removable frame in which the plaques can be screwed into place from the front.

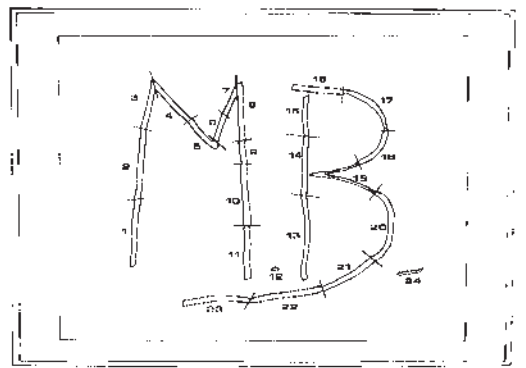
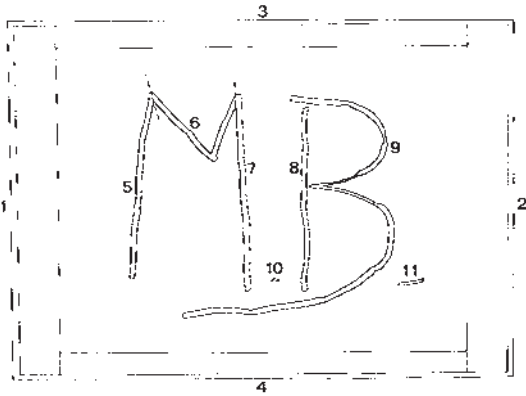
In taking such measures a position is implicitly adopted on the question of whether Broodthaers's plaques are primarily about representation or the 'objectness' of the plastic plate. In his work, Marcel Broodthaers continuously explored the boundary between the art work and the reproduction. He hung reproductions of old masters in frames in his personal Musée d'Art Moderne while having his own works made in the same way as advertisements or street and traffic signs.

Framing the plastic plaques irrefutably evokes associations with traditional painting. This undermines the medium's power of expression as a bearer of meaning and turns the plaques into pictures. Broodthaers, moreover, characterised them not only as rebuses, but also as traps for fools. When asked who the fools were, he answered: "Those who read these plaques as paintings and hang them on the wall."¹⁴

A new context: *Une seconde d'éternité*

The eleven strips of hardboard making up the mould, which can still be discerned, can be divided into twenty-four parts. These parts refer to the film *Une seconde d'éternité* that Broodthaers made in 1970 after attending a seminar on Baudelaire.¹⁵ This film comprises a loop of twenty-four images to which part of the signature 'M.B.' is added bit by bit, until it is completed within a second – an image that is constantly repeated. The image of the initials on the plaques is an enlargement of the last image in the film.

Fifty copies of the film were made: a 35-mm version folded around a signed cardboard box measuring 50 cm x 65 cm and a 16-mm version for projection. According to Maria Gilissen, the *M.B.* plaques are to be seen as a comment on the film which was made in 1970. The plates are thought to date from 1971.¹⁶



Top Schematic representation of the strips used to form the initials 'M.B.' for the *M.B.*-plaque mould, and below a schematic representation by Marcel Broodthaers of the twenty-four phases in which the image 'M.B.' was built up in the film. Reconstructions: Lydia Beerkens

Bottom Film projection *Une seconde d'éternité* during Prospect 71, Kunsthalle, Düsseldorf, October 1971. Photo: Manfred Tischer

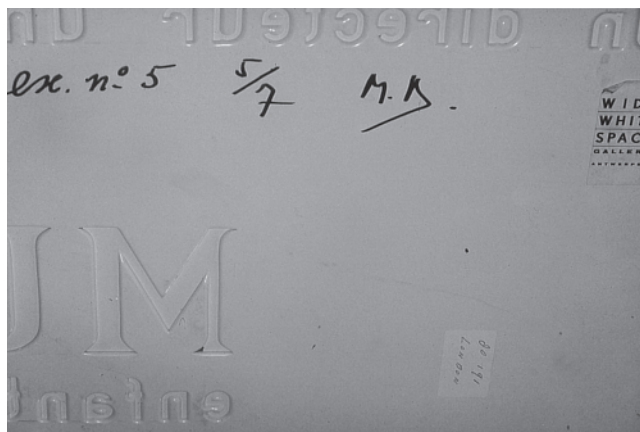
Lydia Beerkens WOUNDS FROM THE TIME OF PRODUCTION

Lydia Beerkens was conservator at the Foundation for the Conservation of Modern Art.

The research into the pair of *M.B.* plaques from the Bonnefantenmuseum began with a purely technical question: whether the cracked drill hole at the top of the black-and-white plaque was a sign of the material ageing and, if so, what could be done about it?¹ In order to be able to answer this question, the meaning of the work had to be thoroughly studied first (see D.H. van Wegen). Marcel Broodthaers reacted against the status given to the unique work of art; his word and image games, for which he used public signboards, were often a critique of the art world. As such, the plastic reliefs immediately evoke associations with public signs.

In order to establish the meaning of the material and techniques used by Broodthaers, two research methods were employed to discover how the plaques had been made. Firstly his widow, Maria Gilissen, was interviewed (as has been mentioned before) and secondly they were compared with plaques in other collections and the material and techniques analysed – seventeen examples were found in four Dutch and Belgian museums.

Maria Gilissen played a prominent role in the research. Broodthaers always worked closely with his wife and as his spiritual heiress she was a vital source of information. She supplied previously unknown information about both the production methods and the meaning of the work *M.B.* She demonstrated the production method by producing the mould belonging to the relief *Porte A*.



The mould was a hardboard sheet onto which letters had been stuck. These were also made from hardboard, except the letter A which was made from tropical hardwood. Parts had broken off some of the letters and repairs were clearly visible. This corresponded with the discovery of a scrap of hardboard found in the hollow back of a letter E on a plaque in the Van Abbemuseum in Eindhoven. To help position the letters, pencil lines had been drawn on the mould for *Porte A*. On the back of some plaques, similar pencil lines are found – though it is unclear if and how these corresponded with the lines on the moulds.

The history of the material in *M.B.* was studied to discover which phase in the ageing process the plaques had reached. The research was begun in 1995 with a material analysis.

Traces of the production process

A closer inspection of the Bonnefantenmuseum plaques revealed a number of traces of the production process. The unevenly cut edges indicated that the material had been supplied in a large format, which had then been cut to size. The black-and-white plaque also had a dent in the outer edge at the lower left, of a kind that occurs when the plastic plate is slightly larger than the relief mould.

The mould for these plaques could not be found but, from the interview with Maria Gilissen, it became apparent that it was based on the film loop of twenty-

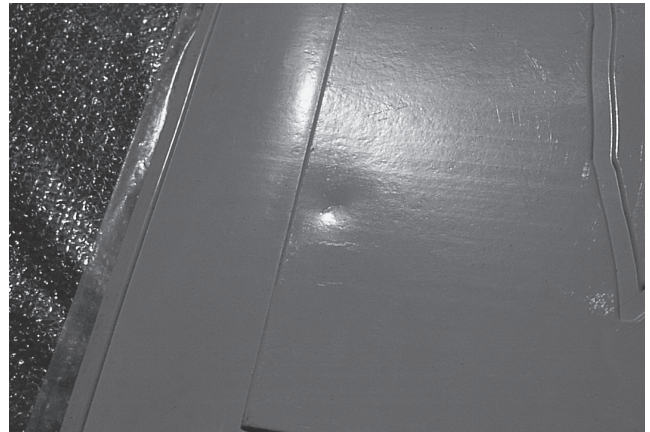
Details of the back of the white plaque from the work *Museum* (1968-1969). One photograph shows the inscription 'ex.no. 5 5/7 M.B.', the other a small piece of hardboard stuck in the corner of the letter 'E' in MUSEUM. It probably broke off the mould during vacuum-forming and remained lodged in the hollow of the 'E'. Photos: Lydia Beerkens

four images *Une seconde d'éternité* (see D.H. van Wegen). The partitions between the strips in the mould are visible as edges in the raised elements of the reliefs. During the process of vacuum-forming, the plastic did not pull out completely smoothly, which caused a few folds to form in the mate which runs from the line on the lower right to the letter B and which is also visible on the front. The black-and-white plaque has two smaller folds (9 mm long) in the same place, to the left and right of the line. However, these are barely visible from the front.

Small dents in the backs of the plaques make them less smooth and shiny here than the fronts. Furthermore, during vacuum-forming, a large grain of dirt must have been caught between the plastic plate and the mould: on the front of both plates there is a kink in the plastic to the left of the inner edge of the wide border. In the black plaque this is slightly further to the left than in the black-and-white one. The fact that both plates are deformed in more or less the same place would suggest that they were pressed in succession.

Good condition

The crack from the drill-hole the Bonnefantenmuseum was worried about turned out to have been caused when the piece was being made. Holes of about 3 mm in diameter were drilled in both plates for the purposes of hanging. The black plate has eight holes, one in each corner and one in the middle of each side. The black-and-white plate has six holes, one in each corner and one in the middle of the



upper and lower edges. The hole in the upper middle was simply drilled too close to the edge. Cracks can occur if a screw is tightened too much; however, this crack was caused by the tension placed on the plastic during drilling.

The crack was therefore not a sign of deterioration. The plaques are in fact in good condition: the plastic is strong and flexible. Only the white has yellowed a little – less so on the back of the black plaque than the black-and-white one, possibly because light does not penetrate the black material as easily as it does the white. It is striking that the black-and-white plaque is more discolored in places on the back than it is on the front. This may have been caused by exposure to more light while in storage.

On the whole, the black-and-white plaque shows more signs of deterioration. Cracks have appeared in the corner of the lower right, inside the wide, black border: three sharp, hairline fractures parallel to each other. The cracks have not yet reached the back, but are already becoming apparent there. The sides of this plaque are also more deformed and warped than those of the black plaque – possibly caused by the absence of screw-holes along the edges of the black-and-white plaque, though it may also be a result of the higher levels of oxidation (discoloration) in this plaque. It is difficult to determine how far this may be the case.

No differences caused by ageing were found in the paint layers, even though they have been somewhat damaged by scratches and dirt. However, many of the

Fold in one of the Bonnefantenmuseum's *M.B.* plaques, originating from the production process. Photo: Lydia Beerkens

Deformation at the back of the white *M.B.* plaque from the Bonnefantenmuseum's collection. Photo: Lydia Beerkens

marks were caused by water used to clean the plates: dried droplets are still visible. The scratches may have been caused by a cleaning cloth or the packing material.

Craquelure has formed in the paint on the edges of the relief and in the kink (deformation) on the black plaque, although this is also not a result of ageing. This sheet of plastic must have been painted before the relief was made. During the process of vacuum-forming, which enlarges the surface area, the edges of the plate in particular were put under pressure. During that process, the paint on the black plaque has been heated to a temperature of about 100°C, which may have caused it to age faster than the paint on the black-and-white plaque.

Comparative examination

The materials and techniques used by Broodthaers in seventeen other plaques were examined to provide information that could be compared with the Bonnefantenmuseum pair.² The Museum Boijmans Van Beuningen in Rotterdam also owns a pair of *M.B.* plaques. Production details such as the grain of dirt in the plastic and areas of cracks in the surface corresponded with those in the Bonnefantenmuseum plaques. According to Maria Gilissen, the black plaques in particular are now very brittle and as fragile as glass, although the research did not reveal this to be the case in this instance.

Of the seventeen plates that were examined, only six were numbered and signed, usually in felt-tip pen on the back. For example, 'ex. 5 5/7 M.B.' on the backs of the pair entitled *Museum* belonging to the Van Abbemuseum in Eindhoven (inv. nos 642 and 643).

Two plates in the Kröller-Müller Museum in Otterlo are dated 1969, but many of the plaques have no date. It is also impossible to trace the precise date the plaques were made: the later plaques in a series were sometimes produced many years after the first one, both during Broodthaers's lifetime and after his death. Quite often, financial constraints led the artist to make one relief for an exhibition and produce the others in the series (much) later; hence an edition could consist of one signed, numbered and, for the time being, unique plaque that was added to later on with unsigned versions. Dating therefore usually corresponds with the year in which the design was made.

The plaques that were examined are all of similar sizes, 85 cm x 120 cm, although accurate measuring reveals that some vary by several centimetres. Such variations were particularly noticeable at the exhibition in Ostend where six different reliefs were hung horizontally alongside one another. The subtle ranges in size combined with the traces of cutting around some of the edges confirmed that the white plastic sheets were supplied in a larger format than the black ones.

All the plaques have holes drilled in them for hanging, usually six (three at the top and three at the bottom) or eight (spread evenly around all four edges). In the case of plaques with a narrow relief border, the holes are usually positioned inside the border. In plaques like the *M.B.s*, which have a wide border, the holes are positioned outside the border, which can result in cracks forming.

The holes were probably drilled immediately after the plaques were made, either by the fabricator or by Broodthaers himself. The number of holes may have been determined by the expected extent of deformation and warping caused by age and/or strain on the paint, but this is not certain. Furthermore, many of the holes have washers. Whether these are authentic and made from the same material or are the same size is also not known.

Painting technique

One of the research questions was concerned with establishing the point in the production process when the plaques were painted and how. On the whole they were made from sheets of white plastic. It became apparent that when they had to be painted entirely in one colour – in the case of a monochrome colour or to

achieve a background colour other than white – the paint was applied to the whole, flat sheet, prior to it being vacuum-formed. If it had been done later, paint would have been deposited around the edges of the relief. In the case of plaques whose backgrounds were to remain partially or entirely white, no paint was applied in advance.

Separate relief elements were of course only painted after the vacuuming had taken place. If a plaque was to receive different colours, these were applied layer by layer with a broad roller. As soon as the right colour had been reached on part of a plaque, it was taped off. Sometimes, particularly if only a couple of commas had to be painted white, the paint was applied with a brush. The brushstrokes are clearly visible.

Yellowed plastic

All the plaques that were examined were made from white plastic, though the types of plastic probably varied. Older plaques, such as *Académie I*, *Académie II* (B268) and *Le Drapeau Noir* in the Museum Boijmans Van Beuningen, are made from a thicker, heavier material than the newer ones. They are also stiffer and have yellowed more. *Académie II* (B 268) is noticeably light; its edges are slightly blunter and the hollows between the letters are shallower.

Most of the plaques are still flexible and in good condition. The extent to which they have yellowed varies. This is in part dependent on the duration of exhibition and the way they were exhibited: light causes discoloration. The degradation is consistently worse on the front and along the edges of the back where the light is able to penetrate. In the case of plaques that have been painted all over, this is harder to determine. That the discoloration only occurs on the surface is evident from *Le Drapeau Noir* in the Museum Boijmans Van Beuningen. The plastic plaque was cut at some point for framing and a piece of relief was removed. This revealed that the plastic was still pure white just under the surface.

Differences in weight and degeneration can also correspond with the age of the plaques, the thickness of the original white plastic material and the different weights of different types of plastics. Terms such as plastic, PVC and polyester are used alongside one another in descriptions of Broodthaers's plaques. It is highly probable that the plaques from 1968 have a different chemical composition from the plaques made in 1976 or later, even if they belong to the same edition, since the production of plastic was constantly developing. The early relief plaques are probably made from PVC or polyester, whereas later examples may have been made from such plastics as ASA (acrylonitril-styrene-acrylic ester). The *M.B.* plaques (see Thea van Oosten & Pieter Keune, page 124) are made from vacuum-formed and painted ASA.

The production process used for Broodthaers's relief plaques is therefore the same, but the plastics used and the extent of the effects of ageing may vary. Every kind of plastic has its own ageing process, which is also affected by exhibition and storage conditions. The research that was carried out did not go far enough to be able to establish links between the condition, age and status of the plaques that were compared. The findings in the case of the Bonnefantenmuseum plaques cannot be applied to other plaques without further analysis being first carried out.

Weighing the conservation options

To prevent warping, Broodthaers's plaques are sometimes glued to wooden plates and even framed. These options were discussed at the working-group meetings. The conclusion was reached that framing would destroy the light character and the ambiguity of Broodthaers's work. The Bonnefantenmuseum objected equally to the option of framing the *M.B.* plaques, at least during exhibitions. If strengthening proves to be truly necessary, it would be better to find an 'invisible' solution. However, the suggestion that a strengthening coat could be applied to the back of

the plates to stiffen them also met with objections: the flexible character of the material should remain recognisable as such – the plaques may be allowed to curl a little. A removable support structure could be made to counteract warping while the plaques are in storage. However, this was deemed unnecessary because the plaques lie flat in the depot. Furthermore, the deformation probably occurred during the production process, the effects of which have now reached their limit.

Due to the cracks from the screw hole, the question was raised as to whether the method of hanging the work should be adapted. The material itself is strong enough: the plastic used – ASA – does not warp under its own weight when hung on the wall and the glass-rubber transition temperature is so high (100°C) that, even after many years, it will not become noticeably deformed. Similar relief plates are also used for street signs and they remain fixed to walls for decades under considerably harsher conditions.

The only problem that remains is that during hanging, a single point in the hole could come under mechanical pressure. Damaging consequences can be avoided by placing a Teflon ring in the screw hole or by using polyamide screws. Such measures would barely influence the work's appearance. In the end, it is up to the museum to reach a decision on this.

A valued work of art

The *M.B.* plaques in the Bonnefantenmuseum are in good condition. Present traces of degradation and damage are tolerated and accepted as natural signs of ageing. If the plaques are stored and exhibited under the museum conditions that apply to mixed collections, conservation will not be difficult.³ They are highly suited to being exhibited.

Now, thirty years after their first appearance, Broodthaers's plaques have spread throughout the world in museum and private collections. They are valued as works of art, a fact to which the artist's early death doubtlessly contributed. The material-technical analysis of *M.B.* showed that the plastic is extremely stable. The plaques can be expected to remain in good condition for many decades to come.

Thea van Oosten & Pieter Keune THE TECHNIQUE OF VACUUM-FORMING

Thea van Oosten is conservation scientist at the Netherlands Institute for Cultural Heritage. Pieter Keune is director of the Foundation for Artists' Materials.

Vacuum-forming is the process of introducing a thermoplastic sheet into a suitable machine, heating it to its shaping temperature, and then moulding it into the desired shape by reducing the air pressure between the sheet and the mould.^{1,2} The thermoplastic material Marcel Broodthaers used for his mouldings is mostly described as plastic or polyester. His widow Maria Gilissen states that the mouldings are made of PVC. However, FTIR analysis of the thermoplastic material of both plaques of the object *M.B.* in the Bonnefantenmuseum showed that their chemical composition is an acrylonitril-styrene-acrylic ester, ASA: C≡N (nitril) absorption at 2238 cm⁻¹, C=O (carbonyl) absorption at 1734 cm⁻¹ and C-O absorption at 1160 and 1280 cm⁻¹, which are specific for an acrylic ester. Specific absorption bands for a styrene are the substitution pattern of an aromatic compound at 2000-1800 cm⁻¹, the double bonds of the aromatic ring at 1500, 1580 and 1600 cm⁻¹ and the two strong absorption peaks at 700 and 780 cm⁻¹, as can be seen in figure 1. A white plaque of the object *M.B.* in the Boijmans Van Beuningen Museum was also identified after FTIR analysis as ASA.

This thermoplastic material was available at the time Broodthaers made his mouldings, so there is no 'post quem' date to prove that some plaques were made after his death.

A choice of moulds

Vacuum-forming moulds need not be very expensive. The choice of the construction material depends on the number of mouldings required and the general design and surface finish specified for the article. Suitable materials from which moulds can be made include wood, plaster, fibre board, phenolic resin/paper laminate and metal.

Dry, close grained hard woods are ideally suitable for prototype moulds because of the ease of fabrication, and because machine and hand carving may be necessary in the manufacture and/or modification of the mould. On the other hand, wooden moulds are not suitable for production runs: continual use raises the grain of the timber, causes warping and the opening up of joints. For very long production runs, metal moulds are preferred. The most commonly used metal is aluminium, which combines the properties of ease of casting, machining and polishing with good thermal conductivity and corrosion resistance.

An important aspect of good mould design is the provision of adequate, suitably positioned vents, to ensure rapid evacuation of all air trapped between the mould and the material during forming. The most common venting is a series of very small holes drilled in the lowest parts of the mould, in any local depression or cavity.

The way it works

The essential feature of vacuum-forming is that a heat-softened material is forced onto a mould by evacuating the air trapped in between. Figure 2 shows a scheme of the vacuum-forming apparatus. A thermoplastic sheet is placed above a mould and clamped in a frame. A source of heat, mostly infrared heating elements, is brought to the sheet to soften the material. It is essential that the sheet is heated uniformly over its surface area and throughout its thickness. After heating, the heat source is removed and the material is moulded into shape. The moulding is allowed to cool in contact with the mould. After that, it is removed and excess material is trimmed off.

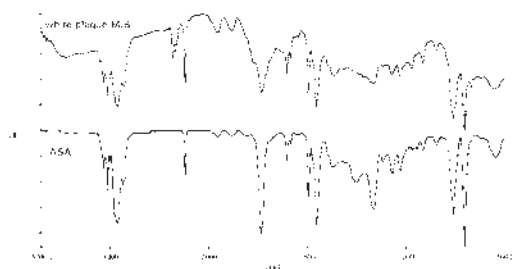


Figure 1 The infrared spectrum of the white plaque *M.B.* and the reference spectrum of a commercially available acrylonitril-styrene-acrylic ester (Luran S).

Old deformation

The process of vacuum-forming is suitable for a wide variety of thermoplastic

sheet materials. These materials are produced by casting, extruding, calendering or pressing. The choice of material will be governed by the service conditions of the finished article. A good vacuum-forming material is one which permits large extensions under small loads at its shaping temperature. In this way, it is able to reproduce fine details and to draw to great depths with the application of atmospheric pressure only. Such properties as modulus, elasticity and impact strength are important in the selection, since to a large extent these determine the thickness of material to be used for obtaining a satisfactory finished article.

ASA is a very stable material with excellent resistance against the influences of light, moisture and temperature.^{3,4,5} It has been used in objects for outdoor applications such as traffic and advertising signs and agricultural machinery. Degradation phenomena which can be expected are yellowing and a decrease of flexibility leading to brittleness.

ASA is a firm, however not stiff material. During handling the plaques *M.B.* show some flexibility. Their present deformation can be attributed to extruding, the fabrication process of the sheets. Any stress caused by this process has been neutralized in the time span of 25 years the plaques have existed, so further deformation is not expected. In order to avoid stress in the thermoplastic sheets, it is advisable not only to carry the plaques with both hands, but also to support them during transport or handling. To avoid yellowing of the plastic, it is advised not to expose the objects to high light levels – 150-300 lux at the most.

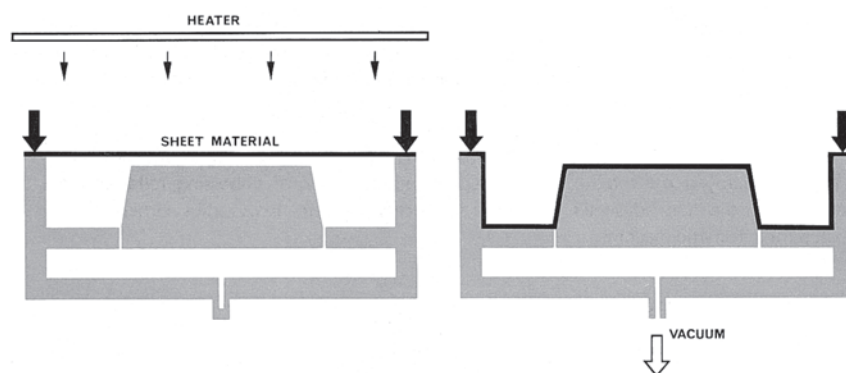


Figure 2 Vacuum-forming by means of a mould.

Lydia Beerkens A CONTEMPORARY CLEANING CONTROVERSY

Lydia Beerkens was conservator at the Foundation for the Conservation of Modern Art.

This *Achrome* by Piero Manzoni has 120 bundles of fibreglass wool protruding from 120 holes in a polystyrene panel. The white fibreglass stands out starkly against the background, a hardboard panel covered with red flannel. The work also has a white frame and transparent perspex cover, but these were added later.

Piero Manzoni (1933-1963) used the title *Achrome* (without colour) for several series of his work. He was inspired by Fontana and Informal Art, who placed greater emphasis on the process of creation, rather than the ultimate result. Manzoni's first series of Achromes, which were still informal, already bore traces of anonymity. His second series consisted of pieces of cloth dipped in porcelain slip, with wrinkles and incisions that gave them an almost tangible depth. It was also during this period that Manzoni created his *Alphabet*, which consisted of red letters and bore a visual resemblance to Broodthaers's work. However, this work by Manzoni is purely serial. *Alphabet* was followed by a series entitled *Linea*, in which he drew a continuous line on rolls of paper that varied from a few metres to 7.5 km in length, an endless line as a continuation of the equator, being the most important example of this work.

Manzoni produced a new series of Achromes in 1961. "I kept going, making others of straw and plastic, and a series of paintings, which were all white with tufts of cotton wool. And then I made some with hairy surfaces, like clouds of natural and synthetic fibres," explained the artist.¹

He made dozens of achromes using bundles of white fibreglass wool, which he modelled much like a hairdresser would – creating loose tufts, long spirals or rounded curls. These works have an ethereal and immaterial look to them and should be displayed without a frame or anything else.

The *Achrome* in question, dating from 1962, has been in the collection of the Kröller-Müller Museum for some time, along with a smaller fibreglass *Achrome* dating from 1961. Both works stem from the Visser collection. The dimensions of the 1962 *Achrome* – 130 x 110 x 30 cm – are a distinguishing feature.² It was initially purchased from Manzoni by Anny de Decker of the Wide White Space gallery in Antwerp, who sold it to Martin and Mia Visser in 1967. By then the work had already become rather dirty, and Visser, who was a renowned designer, therefore decided that it should be protected against further damage. He designed a white leatherette frame with a transparent perspex cover. The Vissers donated this

Left Piero Manzoni's *Achrome* (1962) in 1989.
Photo: Tom Haartsen

Front and rear view of the small *Achrome* (1961) in the Kröller-Müller Museum. Photos: Tom Haartsen



Achrome to the Kröller-Müller Museum in 1980. Since then the work has been regularly exhibited and loaned.

Grimy fibreglass

The Kröller-Müller Museum requested closer inspection of this work, not only because it was covered in dust and grime, but also because cleaning raised certain ethical issues. Over the years, the white glass fibres had become grey, especially at the tips. This was in contradiction to the achromatic nature of the work – the dirt had given the work colour, as it were, thus marring the immaterial look, the fluffy, ethereal quality that Manzoni had tried to capture. The curator of the Kröller-Müller Museum remarked that the work now looked “as grey as a Dutch cloud”. Considering that the fibreglass was supposed to be a cloudy white, the question arose as to whether this *Achrome* still expressed what Manzoni had intended.

On the other hand, it seemed logical that a 35-year-old work should be grimy. Other Achromes have been washed or otherwise cleaned in the past, usually with



bad results. They became too clean, thus marring the patina that comes with age. Because Manzoni died young, he was never confronted with the ageing of his works; one can only guess how he might have responded.

Apart from this ethical-aesthetic issue, there was also a practical problem: fibreglass wool is fragile and difficult to clean without damaging its structure.

Reconstructing the making

Research began in 1995. The perspex cover, which had to be left in place to prevent further deterioration, hampered assessment of the work’s material and aesthetic condition. In addition, it was impossible to establish what it had looked like initially, because there were no photographs of the work before it was framed. This meant that there was no basis for comparison with its current state. The earliest photograph, dating from 1968, was made by Dick Hetjes and published in the catalogue for the exhibition *Three Blind Mice* held at the Van Abbemuseum in

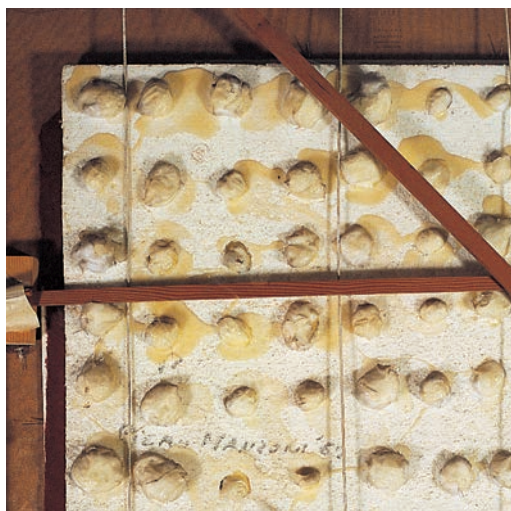
Front view of *Achrome* (1962) as photographed in 1989 in the Kröller-Müller Museum – supplied with a frame and a perspex cover that were not part of the original work. Photo: Tom Haartsen

Eindhoven. In this photo, which comes from the Martin Visser Collection, the *Achrome* already has its frame and perspex cover. In 1989, the Kröller-Müller Museum also had photographs taken of the work.

Some claim that the *Achrome* has been displayed upside-down, probably because there are two hooks on the lower side of the frame. However, Manzoni's signature on the polystyrene panel makes it clear which side is up. The work was also given two stamps at the Wide White Space gallery, one on the polystyrene and one on the hardboard; both have the same orientation as the signature, confirming that the object has been displayed correctly.

In order to gather more information about the original features, the probable process of creation was reconstructed.

- A rectangular piece (100 cm x 80 cm) was sawn out of a hardboard panel measuring 130 cm x 110 cm. This 'frame' was covered with red flannel.
- In a polystyrene panel measuring ± 100 cm x 82 cm, one hundred and twenty holes (diameter 2,3 cm - 3,3 cm) were made, in 12 horizontal and 10 vertical lines.



Detail of the rear of *Achrome* (1962), showing Manzoni's signature. Photo: Lydia Beerkens

This rear view of the *Achrome* (1962), photographed in the Kröller-Müller Museum in 1989, clearly shows the work's structure: the hardboard panel covered with red flannel and the polystyrene panel in which bundles of fibreglass have been fastened with blobs of glue. The artist's signature and the stamp of the Wide White Space gallery can also be seen. Photo: Tom Haartsen



Bundles of fibreglass wool were then drawn through these holes, so that they stuck out in tufts.³

- The fibreglass bundles were stuck to the polystyrene with PVAc (polyvinyl acetate) glue. This was done rather haphazardly, in one go, judging by the drops and strands of glue which criss-cross the panel from one bundle to the next, and by the fact that Manzoni has placed his signature, in black marker, over a blob of glue.
- Narrow white slats have been fitted to the back of the red-velvet hardboard. The polystyrene has been placed in between these slats and held in place with wires.
- The protruding fibreglass bundles, which are several decimetres long, hang downwards when the work is hung against a wall.

The crucial question is: what structure did Manzoni give these bundles? Unfortunately this question will remain forever unanswered, as there are no early pictures of this *Achrome*.

Risky condition

While we were assessing the work's condition, we unexpectedly discovered a very serious problem: there was a risk of total loss due to degeneration of the polystyrene panel which formed the work's basic structure. Polystyrene is not a stable material and may therefore become brittle and discolored. The first component to disintegrate is the adhesive that bonds the tiny polystyrene pellets; then, the material itself will follow soon.

This alone would mean the end of the work, but there are further complications. Owing to the weight of the 120 fibreglass bundles and the work's angle of display, the polystyrene panel has started to buckle outwards. The sturdiness of the panel has also been reduced considerably by the 120 holes through which the bundles protrude. In addition, the upper right-hand corner on the reverse side of the panel has broken off. This must have happened quite recently, as the exposed surface of the break is still fairly clean.

Moreover, very fine, grey-black grime is concentrated on the tips of the glass fibres on the lower surface of each bundle. There are also larger dust particles scattered throughout the material. The deeper fibres are still bright white, however. It has yet to be established why the lower surface of the bundles is dirtier than the top, where one would expect to find more dust. Perhaps the material became grimy in the early years, before it was framed. The reverse side of the work is very dirty, because the piece hangs permanently at an angle, in storage and on display, allowing a lot of dust to gather.

The thermoplastic polyvinyl acetate (PVAc) used to glue the bundles onto the polystyrene has also become yellow and less pliable. The thick blobs have started to warp and come loose along the edges of each blob of glue. The glue initially took the shape of the relatively immobile polystyrene, which is also a thermoplastic. Cross-bonding has, however, made the glue less pliable. The warping glue eventually tears loose from the polystyrene and, owing to its good adhesive qualities, takes with it a thin layer of the polystyrene. This problem developed recently and will become more serious in years to come. At worst, the glue will release itself completely or crumble due to degeneration, causing whole bundles of fibreglass to come loose and fall through the holes in the polystyrene. In short, disintegration of the glue would also mean the end of this art work.

It is unknown to which extent the shape of the fibreglass bundles has changed over the years. With the exception of the added frame and perspex cover, this *Achrome* was not tampered with in any other way. The cover provides insufficient space and flattens all of the bundles slightly; in addition, the static charge of the perspex may have affected the shape of the fibreglass.

The only damage that was easy to assess was the wear and tear at the corners of the red flannel covering the hardboard, which probably resulted from frequent handling of the work before it was framed.

Conservation options

On the basis of the above research and recommendations made by the theoretical working group, various conservation options were formulated. To begin with, the work's weakest component, the polystyrene panel, must be reinforced in one way or another to prevent breakage due to material fatigue.

The first option is to improve support of the fibreglass bundles – for example, by weaving criss-cross support strips between the bundles and by ensuring that the polystyrene is more firmly set in the red-flannel hardboard frame to prevent it from moving up and down during transportation.

The most drastic option would be to coat the entire reverse side of polystyrene panel, including the fibreglass bundles and the glue, using some sort of compound that will harden, thus providing the necessary support and keeping the bundles in place. An intervention of this kind would be irreversible. However, if the museum

hopes to prevent total loss, it will have to decide on some form of reinforcement in the near future. This structural measure will not affect any visible part of the work. The theoretical working group has yet to present its final decision on this option, but considers the arguments to weigh heavily in support of this proposal.

Conservation of the red flannel presents few problems. There are sufficient textile cleaning and repair techniques available.

How to clean the fibreglass

As for the bundles of fibreglass, the working group has carefully stated its findings. If it is practically feasible, the fibreglass should be cleaned – provided that the structure remains undamaged. However, not all traces of age should be removed, as a work of this age should be slightly grimy. The look to aim for is that of a work from the past, bearing the patina of time, but free of larger dust particles. This is, however, a rather subjective formulation which is open to interpretation. How does one, for instance, distinguish between dirt acquired during exhibition, transport and storage, and dirt resulting from the passage of time? There is no unequivocal answer to this question.

Various cleaning options have been critically assessed on the grounds of their practical feasibility and potential effects. This includes straightforward washing with water and soap, 'dry' cleaning with carpet cleaner or some other detergent, cleaning by means of laser rays, and even ultrasonic cleaning.

Tests have shown that glass fibres taken from the back of the *Achrome* could be thoroughly cleaned with soap and water. Apparently, the dirt has not bonded firmly with the fibres at the micro level. There are, however, strong objections to washing all of the fibreglass bundles this way. It would lead to immediate loss of form and volume and, furthermore, the wet fibres would break due to their massive weight increase. The most important issue is therefore one of degree: if one wants to retain the patina of age, the fibreglass may not become too clean – and washing with water and soap offers little room for manoeuvre in this respect.

The use of 'dry' cleaners, such as carpet cleaning powder, has proved to be an unfeasible option. They are difficult to apply and even more difficult to remove. The option of cleaning the fibreglass with laser rays, as was apparently done with *Achromes* in Italy, will have to be tested. The same applies to cleaning with ultrasonic techniques.

Part of reality

A final decision has yet to be reached on the material-technical and aesthetic aspects of conservation of Manzoni's *Achrome* (1962).⁴ Whatever the case, the fibreglass must be cleaned. However, we will only be able to assess to which extent this is possible once the perspex cover has been removed.

The polystyrene panel will have to be set in a stable position in the hardboard frame, and it must be reinforced – for example by using thin wires to attach criss-cross support strips to a specially designed immobile structure on the reverse side. The glue must also be fixed in place somehow. The red flannel can be cleaned by a textile restorer.

The perspex cover must be removed so that the experts can take a closer look and a dummy be made for testing conservation options. However, there are other reasons for removing the cover. Although no precise image of the original object exists, the addition of the massive frame and perspex cover has decidedly altered the work contrary to Manzoni's intentions. One of the basic principles of the Zero Movement was that its work should be part of reality. The frame and cover are in contradiction with this principle, because they isolate the work from reality.

An alternative solution must therefore be found to keep the dirt off Manzoni's *Achrome*.



Detail of *Achrome* (1962) showing the state of the fibreglass in 1996. Photo: Lydia Beerken

Jon Thompson PIERO MANZONI

Jon Thompson is project tutor at the
Jan van Eyck Academy.

Piero Manzoni's mature work spanned only eight years from 1955 to 1963. Even so, taken alongside Lucio Fontana and Alberto Burri, the emphasis his thinking gave to the material character of the work of art was crucial in paving the way for the artists of Arte Povera and ultimately in determining a distinctively European flavour for the 'post-minimal' tendency as it took shape on this side of the Atlantic. As well as to material innovation, Manzoni pointed the way to whole new areas of practice; to 'event structure' and performance art; to live sculpture, pose art and the wider use of photography as a medium in its own right.

At the conceptual level there are three historically important strands to Manzoni's work: a concern to maintain a metaphysical dimension to the work of art; a wish to reinvent the human body as a proper subject beyond existing approaches to representation; and developing a reflexive, critical approach to the institutions of art, their value systems and economic transactions. And the first of these concerns is perhaps exemplified best by Manzoni's life-long engagement with his invention, the *Achrome*.



The first of these works was made in 1957 and the last shortly before his death in 1963. In between he made more than seventy works, in various materials, all bearing the name *Achrome*, and they represent the essential core of Manzoni's practice. 'Achromatisation' became the conceptual tool by means of which he was able to generate different approaches to form and different ways of thinking about order.

In many respects, the Achrome was for Manzoni the antithesis of the Monochrome as it had been put forward by Yves Klein. Where the Monochrome was identified by its colour – indeed it was hardly anything more than that – the Achrome was, to all intents and purposes, without colour. And because it was without chromatic identity it was the seat of what, for Manzoni, was a fascinating, important and preeminently 'metaphysical' paradox: it was at once more physical and more perceptually fugitive than the Monochrome.

The Achrome acquires its identity almost exclusively through the play of light. This is its classical aspect, recalling as it does Plato's founding metaphysical principle linking 'being' to 'becoming' – the relationship between 'fixed' and 'transient' phenomena – and showing how material things persist despite the passage of time. Art-historically speaking, it also connects the Achrome to the quintessentially

Italian, architectural preoccupation with the facade; the Albertian notion of an essential, material integrity which is sustained despite the shifting, transient effects occurring out of the play of sunlight.

There is, then, a decidedly Baroque dimension to the Achrome as well as a classical one. This is revealed most clearly in the works that Manzoni made in 1961 and 1962: the glass-fibre works and the bread-rolls. Here Manzoni forsakes the carved, folded and/or stitched, vertical and horizontal surfaces of the earlier Achromes and instead begins to explore repeating patterns of bunched, drooping and curling fibres, scrolled cotton-wool pads, and the reflexing, rose-petal-like form of the Italian breakfast roll.

Manzoni had explored grid-formations before, in the stitched and the finger-scraped works of 1958-60. But all of these retained – even relied upon – the original surface as a vehicle for carrying a shallow relief of some kind. The new works tended to dissolve the original supporting surface altogether, in favour of one which, in the case of the fibre works especially, was almost entirely optical. Manzoni had thought of the Achromes from the start as things which demonstrated what he liked to call a ‘quality of self-determination’. In other words, out of their very nature, they took on a distinctive form and identity according to the conditions in which they were being viewed. An Achrome viewed in one place, at a particular time and in a particular light and architectural setting, would not simply appear to be entirely different when viewed at another time and in another place but, conceptually speaking, would in fact be very different.

In as far as they were effectively works without a stable surface, the fibre pieces carried this notion of the art work as a self-transforming object a significant stage further. With these works, which were never intended to be covered or boxed – in the manner in which they are commonly shown today – Manzoni achieved what might quite properly be described as the quintessential Achrome: an art work which was without chromatic identity; was recognised entirely through the transient phenomenon of light; and manifested the changing and unstable nature of things in the world by responding to the physical conditions in which it found itself.

In many respects the Achromes could be said to embody a theme which runs throughout the whole of Manzoni’s work – one which brings together the physical with the metaphysical as embodiment and evanescence, flesh and spirit. At first sight, Manzoni seems to have a rather Rabelaisian view of the human subject as an eating, drinking, breathing and defecating, essentially physical creature, existing somewhere between his *Fiato d’artista* (The Artist’s Breath) of 1960 and *Merda d’artista* (The Artist’s Shit) of 1961. But the Achromes point to a different notion of human being, a highly performative, even an animistic one.

This interpretation is given greater force when we also bear in mind Manzoni’s interest in ‘pneumaticism’ and ‘pneumatology’ – a concern for the nature of spiritual beings. It is a matter of great significance that in one of his last published manifestos, *Free Dimension* of 1960, Manzoni proposed the building of a ‘Pneumatic Theatre’, and that the model he made to illustrate this project, like *Fiato d’artista*, took the form of a fully inflated balloon mounted on a wooden base. It was, he said, to be ‘a theatre of airy bodies’, and the metaphoric connection he was making was clearly that between artist and angel.

Beyond the arcane reference to pneumaticism, of course, the exhaling breath is seen as evidence of the quickness, the liveliness of the human subject. Theologically as well as art-historically speaking, it finds pictorial form as the disembodied exhalation of the creator god in the paintings of the Italian Renaissance: in the works of Giotto and Cima for example. In this context, it might be said to represent

a point of mediation between the realm of the spirit and the weighty domain of the flesh, as well as a point of transaction where the immaterial is reconstituted as matter. But it also represents the idea of the divine gift. Manzoni picks up on this, giving it the humorous but slightly cynical edge that always seems to attend acts of ironic 'self-inflation': in event-structure pieces like those mounted in Copenhagen and Milan in 1960, in which he persuaded members of the audience to consume freshly boiled eggs marked with his thumb-print; the socle pieces culminating with *Socle du Monde* of 1961; and the signatory works of 1961 and 62.

At first sight the artist's performance-based pieces, the event structures as they were called, seem quite separate from his studio-based works – which, from as early as 1957, consisted almost entirely of the Achromes. Until, that is, we give proper consideration to Manzoni's growing interest in photography.

As we have already remarked, the Achromes depend almost entirely on the play of light in order to register the specificity of their existence in space and time. In this respect they approach closely the type of ghostly presence we associate with the photograph. Both are images in light and both seem to hold on to a memorial trace of some kind: the photograph in a fixed way and the Achrome by manifesting an endlessly accumulating certainty about the true nature of their material presence. This connection is vital if we are to reach a proper understanding of the



connection Manzoni makes between the frozen nature of the 'pose' and the residual, performative character of the photographic image. Indeed, this was perhaps Manzoni's most original and enduring discovery. No other European artist of the period used photography in quite the same way. Even the most cursory glance through the wide range of photographic images Manzoni left in his wake, shows clearly the degree to which Manzoni had come to use photography not just as a means of documentation, but as part of the working process itself; as a way of extending its performative aspects in time, carrying it through into the domain of the image.

Regardless of who was behind the camera – and one way or another Manzoni seems to have managed to enlist the aid of a number of extremely talented photographers during the short period of his working life, for example Enrico Vigarrio, Giuseppe Bellione, Uliano Lucas and Giovanni Ricci – there is a powerful feeling of complicity with the camera's eye. Not just in the many important images of him performing his public works, but also in those in which he is alone in his studio or talking to people at an opening. In short, there is an awareness of the peculiar

power of the photographic image in the work of Manzoni which is ultimately only recovered and given new conceptual weight after post-minimalism by artists as diverse as James Lee Byars, Cindy Sherman and Christian Boltanski.

It is clear from all of this that Manzoni's work occupies a pivotal point in the history of modernism after the Second World War; a point of intersection where the well-worn pathways travelled by the historical, European avant-garde cross the barely trodden footpaths of the artists of the emergent American vanguard, carrying in their baggage a whole new array of attitudes and conceptual concerns. Powerfully aware of his European roots and his Italian cultural inheritance, Manzoni's response, overall, might be seen as determinedly ambivalent. He focuses on the thematic concerns and material interests which tie him closely to his own historical, philosophically grounded, visual culture, but at the same time he begins to adopt something from the shifting categories occurring within the melting-pot which is the New York art scene in the late fifties and early sixties. In particular, he seems to have understood the reemergence, in a slightly different guise, of the Duchampian notion of 'objectness', and the way in which this would necessarily impinge upon the historical distinction between painting and sculpture.

The Achromes are more objects than they are images, more reliefs than they are paintings – which cannot be said of the work of his two main Italian contemporaries, Burri and Fontana who despite their material experimentations keep their canvas-based works entirely within the traditional, linguistic rhetoric of the painting. Furthermore, in the *Linea* works, made in 1959, and multiple works like *Corpo d'aria*, *Fiato d'artista*, *Merda d'artista* and the parcel *Achromes*, made in 1960 and 1961, it is possible to detect something of the tone of studied indifference, of ironic dumbness, characteristic of the work of some of the second generation New York artists: Jasper Johns, Robert Rauschenberg, Frank Stella and the rest.

In part, this coolness, this distancing inflection, arises out of Manzoni's very direct and matter-of-fact approach to the use of materials. But there is another side to it, and one which ties it quite directly to artists like Jasper Johns and particularly to works like *White Flag*, *Tennyson* and *Red, Yellow and Blue* – which toured Europe in the Vanguard America exhibition of 1958 – and that is the element of 'seen' and 'unseen': the idea of the hidden, the unknowable and the unverifiable figuring as subject.

Once again, this is preeminently a Duchampian invention exemplified by works like *With Hidden Noise* and *The Sound of One Hand Clapping*. In the work of Marcel Duchamp it is used to shift the parameters of perception between the visual and the audible regimes, while in the work of Jasper Johns it is used to shift the locus of attention from one visual regime – the coloured – to another visual regime – the monochrome. However, there is an obvious and easy parallel to be drawn between the use of the 'unseen' in the work of Johns and the way in which it is used by Manzoni.

Their conceptual purpose is somewhat different: where Johns's work is concerned with language, Manzoni's remains fixed upon the ineffable. Nevertheless, it seems certain that Manzoni was well aware of what was going on in America and that those in the know in America were well aware of him, even though his work was given no substantial showing there until 1972 – some ten years after his death.

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In 1973 the watermelons in Piero Gilardi's still life began to dry out and were gradually crumbling. The Museum Boijmans Van Beuningen in Rotterdam had bought the object, made from foam and measuring 300 x 150 cm, one year earlier. In a letter to the Central Laboratory (Institute for Cultural Heritage) the museum director at the time, Ebbinge Wubben, wrote:

"In 1972 the museum acquired an object by the Italian artist Pierre [!] Gilardi (b. 1942 in Turin), of which I'm enclosing two photographs, one of the entire work and one of a detail. This 'still life' of a field of watermelons dates from 1967 and was executed in foam rubber — if this is actually the correct term for the material — by the artist. The size is 150 x 300 cm. As with so many other works made from new materials and/or plastics, the conservation of this object presents us with various problems. It is drying out, and brittle as a result, so that when it is touched or knocked in any way, pieces fall off."

The ideal guinea pig

In the fifties and sixties, many artists assumed that the new materials they were using would always remain smooth, shiny and supple. It is now evident that they were wrong. In fact these materials became mat and stiff, their elasticity disappeared and splits and tears were apparent. In no time at all they became synthetic debris.

When the Foundation for the Conservation of Modern Art asked us to submit an object as a 'pilot' study, the Gilardi work was an obvious choice. I submitted the work with the same degree of resignation about its condition as my predecessors when they had handled it. The Gilardi work led a sad and isolated existence in the museum depot. Following the director's letter, the object was exhibited once more in 1979 but was then wrapped in plastic and set down on its side so that it would take up as little space as possible. After that it gradually deteriorated. My predecessors saw it as a classic example of a doomed sixties work and wrote it off.

One of these colleagues had already considered it a lost cause in 1983. When I joined Boijmans six years later, I came across the work in a part of the depot where few people came — leaning against the furthest rack. I was told it was really a hopeless case and that it was not such an interesting piece, a kind of Italian Pop Art. Thus it was an authorised total loss. In short, an ideal object on which to experiment.

I only knew the work as a wrapped package from a dark corridor passage of the depot. As far as I was concerned, it could literally be used as a 'field' project.

Piero Gilardi

Piero Gilardi belongs to that generation of Turin artists who in the sixties, as a reaction against traditional painting and sculpture, worked with 'worthless' materials. Other exponents of Arte Povera include Giovanni Anselmo, Yannis Kounellis, Mario Merz, Pino Pascali and Giuseppe Penone. Gilardi maintained an exceptional position within this movement. His use of synthetics and bright colours was diametrically opposed to the natural materials and minimum use of colour in the work of the others. From an international perspective, his creations were more attuned to the colourful Pop Art movement which was then sweeping Europe from the USA and Britain.

Gilardi began making 'nature carpets' — realistic excisions of natural vegetation produced in painted synthetics, such as *Still Life of Watermelons*. The now retired librarian of the Rotterdam museum recalls that in 1973 the New York Sonnabend Gallery sent three of Gilardi's works that on arrival were indeed rolled up like a carpet.

Since then, the visual aspect of the artist's work has hardly evolved. In the

seventies he threw himself into social issues, chose deliberately not to make any more art, and thus faded into oblivion.

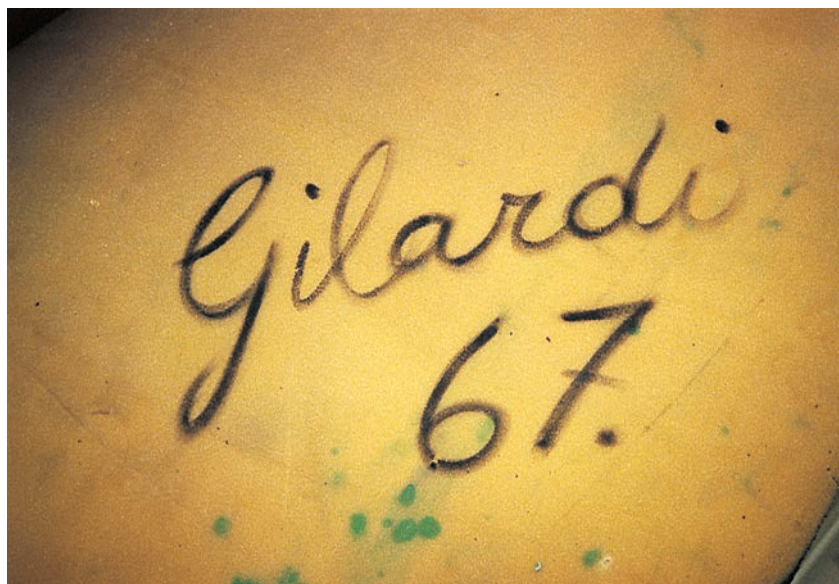
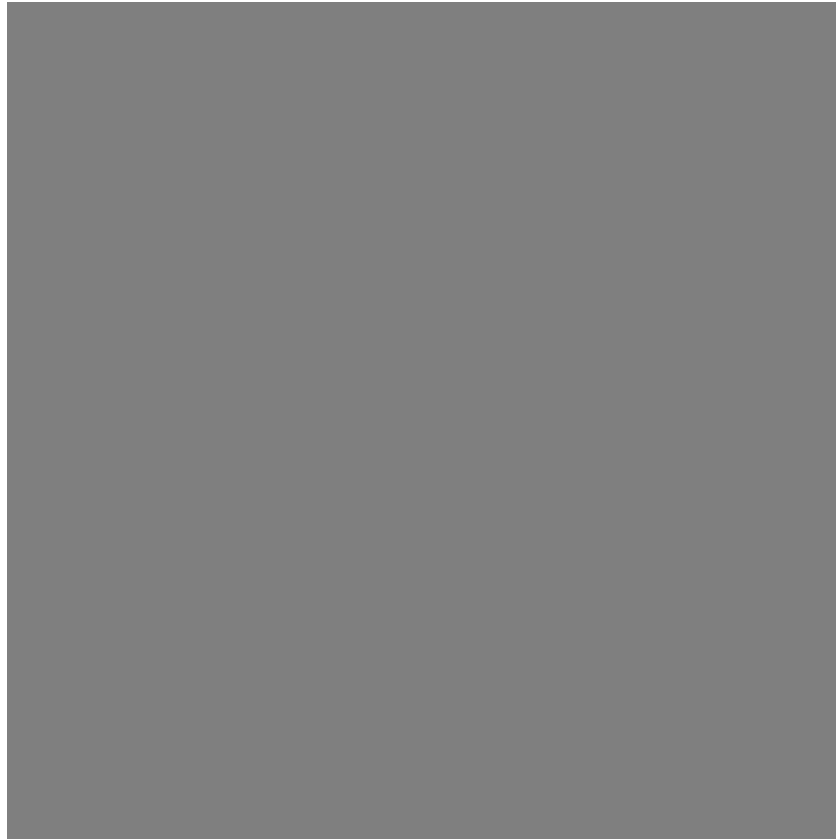
The foam rubber Gilardi used for his still life must have been considered extremely modern in the sixties. Thirty years later it appeared to be completely outdated. Due to the current interest in objects from the sixties and seventies, however, there has also been a revival of interest in Gilardi's work. In 1991, some twenty years after his last show, he exhibited again – at the Sperone-Westwater Gallery in New York. A year later he was invited to participate in the exhibition 'Allocations' at the annual Floriade flower show in Zoetermeer, the Netherlands, where a selection of 'art works for a natural and artificial environment' was shown.¹ His works from 1991 that were exhibited here hardly vary from his *Still Life of Watermelons*.



Piero Gilardi, *Zucche* (1991). Photo: Lydia Beerkens

Paint losses on the surface of a melon. Photo: René Gerritsen

The unpainted bottom of Gilardi's watermelon field, with his signature. Photo: Lydia Beerkens



A surprise package

In April 1996, in preparation for one of the meetings with members of the Conservation of Modern Art project, the Gilardi work in Rotterdam was unwrapped for the first time in almost twenty years. The working group were surprised by the intensity of the colours of the foam rubber, which rather seemed to be a polyurethane foam (PUR). The piece was by no means in optimum condition. Quite some paint had been lost due to the object being in direct contact with the packaging material and the stems and leaves were somewhat broken. The work certainly made a dirty and messy impression.

However, the biggest impression were the still bright colours – fluorescent green and watermelon red – as well as the remarkable condition of the foam, which was from 1967 after all. In a catalogue dated the same year as the work, Gilardi states that he attached much value to the use of high-grade materials as he dreamed of a world full of delightful nature carpets.²

The work has a 'lawn' as underlay – a large piece of polyurethane foam measuring 300 x 150 cm and about 10 cm thick, whereby the artist has created the illusion of grass by making regular incisions. The melons and stems are also cut out of the same kind of foam, while thinner sheets of the material are used for the leaves.

The grass as well as the other parts of the work are painted. Underneath the leaves one can see that the basic material lacked colour. Gilardi painted every visible part of the object and then glued all the melons, stems and leaves together. The curves of the leaves have been stuck with a high-grade quality glue: the existing splits are in the forms themselves and not in the joints. There has been little discoloration. In fact in protected areas the paint is still a bright colour and even those parts that have been directly exposed to light have hardly faded. There has been a certain ageing and diminishing of colour intensity, especially in the red parts, but the green paint appears to have retained its original brilliance extremely well. No doubt the work's solitary confinement has helped with its conservation, however much unintended.

Thus, not only the remarkably bright colours were a surprise but so was the entire condition of the work. Working group members instantly asked why the work had been condemned to such a long confinement when it was so cheerful, so special and was not at all in such poor condition. It is likely that my predecessors' decision was tinged by the effect of Minimal Art of the seventies, with its stark white and grey forms. While the working group members talked together, the Gilardi work was gradually being revalued and found its way to its Arte Povera status again. Here, it was given its place as an inspiration for such contemporary artists as Robert Gober and Paul McCarthy.

The material experts

The work cannot be exhibited at present, due to the leaves' thin sheets of polyurethane foam having become brittle and threatening to disintegrate. However, after detailed consultations within the working groups and with external advisors, it was decided that extensive conservation could indeed make the work presentable again.

In 1995 Lydia Beerkens, conservator and researcher at the Foundation for the Conservation of Modern Art, began her preparatory study. First an attempt was made to gain an insight into the problems and possibilities of conserving PUR foam by studying existing literature on the subject. This foam comes in two types: PUR-ester and PUR-ether, each in a variety of different qualities. The ester type deteriorates the more quickly, but chemical analysis revealed (see Thea van Oosten & Pieter Keune, page 142) that Gilardi used the more expensive and durable ether type. However, exposure to oxygen makes all types of polyurethane hard and brittle so that the foam crumbles at the slightest touch.

For further conservation research, contact was made with various experienced



Working group members discussing Gilardi's *Still Life of Watermelons*. Photo: Lydia Beerkens

conservators and experts. As well as Thea van Oosten and Pieter Keune, chemists/ conservation scientists, these included the Dutch private conservator Aleth Lorne and Brenda Keneghan, the foam rubber specialist at the Victoria and Albert Museum, London.³ Both Thea van Oosten and Brenda Keneghan were surprised at the relatively good condition of the foam. Keneghan emphasised that the general condition of the work, after thirty years, was exceptionally good, especially since the elasticity and suppleness of the thicker parts of the work – the melons and the grass – was still reasonably intact. As far as conserving the polyurethane foam was concerned, it was Keneghan's experience that impregnating its surface leaves the material more stiff and dense as well as changing the colour slightly. Because visual changes to Gilardi's work are unacceptable, impregnating the foam as a preventive treatment did not seem to be a viable option.

The theoretical working group came to the provisional conclusion that the work's relatively fresh and colourful appearance was essential to its appreciation, and that the broken parts and the amount of synthetic debris spoiled the effect. The discussions within both working groups were the deciding factor in starting the restoration process straight away, according to the following objectives drawn up by the theoretical working group:

- a. make the appearance as 'clean' as possible;
- b. restore the lines in the work by re-sticking the broken stems;
- c. restore the floppy leaves to their original shape.

The conservator Aleth Lorne was asked to investigate as to how far these objectives were feasible. In the laboratory of the Netherlands Institute for Cultural Heritage, and together with Thea van Oosten and Pieter Keune, she looked into various ways of securing the broken parts of the work and strengthening the weaker spots. Iris Winkelmeijer, a conservation student at the Staatliche Akademie der Bildenden Künste in Stuttgart (who had gained experience working on the consolidation research for the Fluxus collection of the Sohm Archiv), carried out studies on the foam, including the possibility of impregnation. She spent a few days inspecting the Gilardi in Rotterdam and made various consolidation proposals (see Aleth Lorne below).

At the same time the practical working group studied the storage conditions for the work. It was obvious that the object could no longer be stored on its side, even though this presented enormous problems in our already overfull depots. The possibility of preserving and presenting the work in a perspex display case was also raised, but in view of the object's size this was somewhat impractical. A sealed case with Age-less would be extremely big and expensive. The option of having a depressurised case constructed was also rejected. Such measures were neither in keeping with the informal nature of the work, nor with the artist's wishes.

Confusion about a total loss

Due to developments in contemporary art, Gilardi's work has become fashionable again in recent years. In fact an enormous interest now exists among artists to depict everyday articles and other objects from the environment realistically again. This not only relates to a revival in Pop Art, but also to the fact that nature and the environment are important themes for these artists. Consequently, the significance of *Still Life of Watermelons* in the Museum Boijmans Van Beuningen collection has grown dramatically – and therefore the desire is for the work to be shown. Thus, additional research and shifts in art-historical interest have led to an object once declared a 'total loss' being given a life after death.

The fact that there is now a greater awareness among Dutch museums about the repercussions of owning these kinds of objects is partly due to the working groups, who have been intensively involved in the theoretical and practical aspects of degradation of non-traditional materials. Exchanging ideas with colleagues,

both curators and conservators on one specific problem after another, in regular and often prolonged sessions over a two-year period, has produced a large body of valuable knowledge on the issue of art works made from non-traditional materials. Dutch museums are slowly beginning to understand that money has to be made available to conserve such works.

We have also learnt that every object has its own set of problems. Each time different materials are used which also convey a different meaning each time and thus require a customised solution. There is no universal miracle remedy, let alone a universal miracle method or a miracle conservator with solutions for every problem.

Ultimately, *Still Life of Watermelons* is still destined to have a short life span. It will continue to split, tear and finally crumble no matter how one attempts to conserve it. In the long run, the foam will become so brittle it will definitely have to be considered a total loss. It is impossible to predict when the Gilardi will come to its end. A number of questions remain: Will this total loss be final? How do we know for sure that the degradation is absolute and irreversible? Will science come up with an, as yet, unforeseeable solution?



Piero Gilardi's polyurethane foam object has confused me, confused my notion of 'total loss'. For twenty years the work was stored in the museum's depot because it was 'written off'. It is now fortunate that the most extreme consequence of this -- throwing the object away -- was not taken. Recent trends in art have made it a topical piece again, while with relatively simple means and at not too much expense the work can be restored to the extent that it can function again in the museum.

I am also confused because we apparently have to accept that relatively new art works will disappear. Museums need to recognise that contemporary art essentially differs from traditional art in a material sense. Non-traditional materials deteriorate much earlier than standard artists' materials and also have a more unpredictable degradation pattern. In most cases contemporary art is not created with the idea of it lasting forever, which was the intention behind medieval altarpieces and seventeenth-century paintings for instance. Owners of a work need to accept that many twentieth-century art works have a relatively short life span. What then is important is that the object has been exhibited for many years. As a museum we must accept that we cannot preserve everything. We can be proud to have had the object in the first place.

The oldest photograph of Piero Gilardi's *Still Life of Watermelons* (1967), taken in 1972 when the Museum Boijmans Van Beuningen acquired the work. Photo: Dick Wolters

Still Life of Watermelons in its current condition: broken stems and general disorder disrupt the original lines of the work. Photo: René Gerritsen

Thea van Oosten is conservation scientist at the Netherlands Institute for Cultural Heritage.

Pieter Keune is director of the Foundation for Artists' Materials.

All parts of Piero Gilardi's object *Still Life of Watermelons* are made of foam – the green grass, the red melons and stems as well as the green and brown coloured leaves. The foam varies in thickness: for instance, in the grass and the melons it is 25 cm, while the leaves are made from 0.5 cm thick sheets.

To identify the foam material, samples were taken. Fourier Transform Infrared Spectroscopy (FTIR) analyses showed that the samples consisted of a polyurethane on an ether basis (PUR-ether). C-O absorption bands at 1088 cm^{-1} according to ether groups and characteristic N-H absorption bands at 3274 , 1640 , 1598 cm^{-1} are specific for a PUR-ether. In figure 1 the infrared absorption spectra of the Gilardi material and a commercially available PUR-ether are shown.

The paint on the foam was also analysed. The infrared spectra of the coloured material all show characteristic absorption bands at 1728 cm^{-1} according to carbonyl (C=O) and at 1230 and 1022 cm^{-1} specific for ester (C-O) groups, resembling a polyvinyl acetate, whereas the non-painted foam areas did not. Figure 2 shows the infrared absorption spectra of a painted area of *Still Life of Watermelons* and a commercially available PVAC. It can be concluded that a paint on a polyvinyl acetate basis has been used. Finally, the glue was found to be a rubber based one.

Ways to counter degradation

The foam is in a rather good condition. The paint which has penetrated into the foam may have helped to prevent deterioration. Some leaves were not completely covered with paint and these were already in an advanced state of degradation.

Soft PUR foam, having a large internal surface because of its many open pores, is extremely prone to degradation. The first sign of this is yellowing, which occurs within a few years. Thereafter crumbling becomes visible. Within twenty to twenty-five years, depending on the thickness of an uncoated foam, the material will have completely crumbled.¹ Two degradation mechanisms are on hand: oxidation and hydrolysis. Thermal or photo-oxidation can induce change in chemical composition, while hydrolysis leads to breakage of polymer chains.² However, PUR-ether (polyurethane on an ether basis) is less prone to hydrolysis than PUR-ester.

Coating the internal surface by impregnation of the foam could slow down degradation. Impregnation with flexible rubber lacquers is possible but has several disadvantages: apart from a stiffening of the foam, it causes a colour change at the surface by changing the refractive index. Since the bright colours are an important feature of the work, impregnation with a lacquer has to be avoided.

Nevertheless, the condition of parts of the foam required consolidation. Some of these were impregnated with a 10 per cent solution of sturgeon glue, which produces less colour change than synthetic products do (see Aleth Lorne).

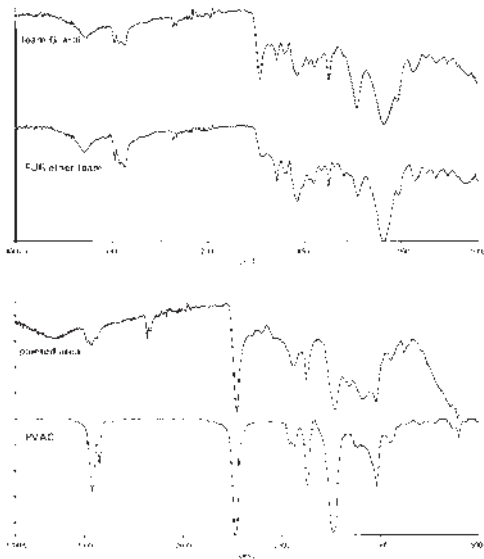


Figure 1 The infrared absorption spectra of the foam material of *Still Life of Watermelons* and a commercially available PUR-ether.

Figure 2 The infrared absorption spectra of a painted area on the foam material of *Still Life of Watermelons* and a commercially available PVAC.

Aleth Lorne* EXPERIMENTS IN THE CONSERVATION OF A FOAM OBJECT

Aleth Lorne is free-lance conservator.

For the conservation of Piero Gilardi's *Still Life of Watermelons*, several approaches had to be tried out before proposing a treatment. The work is a large sort of carpet (154 x 306 x 25 cm) made of a polyurethane ether foam, representing a watermelon field at the end of the season. Onto the foam, a polyvinyl acetate medium paint has been applied with a spray gun – except for some details, such as the veins on the leaves, which were painted with a brush.

Evidence of the art work's original appearance is lacking. Only black-and-white photographs dating from around 1972, when the Museum Boijmans Van Beuningen, Rotterdam, bought the sculpture, were available. However, obvious changes could be stated. The foam has lost its elasticity and become brittle, with tears in the leaves and fractures in the stems, while the volume of the melons and leaves has been completely flattened by packing the sculpture for storage. Moreover, the surface of the object is soiled by airborne materials like dust, hairs and different kinds of fibre.

Interdisciplinary approach

Conservators know polyurethane foam mainly as a packing material. As for the preservation of this material, they desperately lack information and experience. The first reason is that polyurethane foam is a 'throw-away' material used for making consumer goods with a short life span. Until damage recently occurred to polyurethane foam objects kept in museums, no research had been done on the preservation of this type of synthetic. The second reason is that modern art uses a large variety of materials, each requiring specific treatment, and even if art works contain similar materials they cannot be treated in the same way because of the variety of ways the material has been used and the meanings ascribed to it. When gathering documentation for the Gilardi work, we found several treatment cases of polyurethane foam objects. But none of them could be directly applied to *Still Life of Watermelons* as it had different characteristics.¹ Thus we had to carry out special investigations to find solutions we could adapt to this art work.

Within the research project, priority was given to the structural problems of conservation such as consolidation, repairing broken pieces, and rendering the original volumes, as well as cleaning. The investigation of non-structural treatments like the replacement of losses and retouching was left for a later stage.

Solutions for conservation were developed in interdisciplinary cooperation with conservators of different fields. Most of the proposed methods were first tested on dummies. The experimental materials were not necessarily designed for conservation purposes, but their suitability was systematically checked. In a second stage, the selected methods were applied on the sculpture. Then, the materials used were adapted to the situation and new working possibilities discovered. In the exhibition 'Contemporary Art: Modern Material, Old Problems', held in the Museum Boijmans Van Beuningen, Rotterdam, between June and September 1997, about a quarter of the sculpture that had been treated was presented to the general public, along with the other pilot objects of the project.

To consolidate or not to consolidate?

Although the polyvinyl paint sprayed on the entire sculpture had retarded the deterioration process and the foam looked well for its age, it was still in an advanced stage of degradation in some particular areas. The thin sheets of the leaves had become extremely brittle where little paint had been applied. Gluing them would probably introduce tension in the foam and could therefore lead to new tears appearing next to a consolidated joint. The logical answer to this problem seemed to be to impregnate the foam with a consolidant. This would reinforce its



Top Tears in a leaf. The edges of the leaf are crumbled, while the central part, being better protected by the thick paint layers, has a better cohesion.

Middle A broken stem.

Bottom The stem holding the melon broke and all the leaves fell on the side of the watermelon. As a result, the leaves are totally flattened.

Photos: Aleth Lorne

mechanical properties and so make it possible to glue the tears safely. Such a treatment could also have other advantages: a consolidant might slow down the degradation rate of the polyurethane foam, and a strong object would be easier to handle and store.

Nevertheless, the consolidation of the *Still Life of Watermelons* would be a technical challenge. Which solvent would have the required qualities for the consolidation of polyurethane foam and at the same time respect the solubility parameters of the polyvinyl paint? Which method of application would be the most appropriate for the work's shape, size and materials? Should the impregnation be a local or an extensive treatment? How to preserve the visual qualities of the object, the colour, the mat effect, the shapes?

Considering the difficulty of impregnation, as well as the potential risk of creating new structural problems and the uncertainty of whether such a treatment could prolong the foam's life span, we finally decided to tackle the problem from another angle. Was it really necessary to impregnate the polyurethane foam in order to repair the tears and fractures? After all, the thickest parts had kept some elasticity and the leaves, being most impregnated by the polyvinyl paint, still had some mechanical resistance.

In fact, the distorted broken leaves were the main obstacle for an assemblage. The torn fragments would first need to be positioned next to each other, which was risky because it could create serious tensions in the fragile foam. Once the leaf fragments were arranged in a proper position, joining the edges would require very little adhesive strength.

From this viewpoint the proper solution for repairing the broken elements would be to release the tension by making local supports. Instead of reinforcing the foam with an impregnation treatment, we chose for a strategy involving padding, lining and other support devices. This was a short-term solution, of course, if no measures of preventive conservation were developed in tandem to stabilise the foam's degradation process.

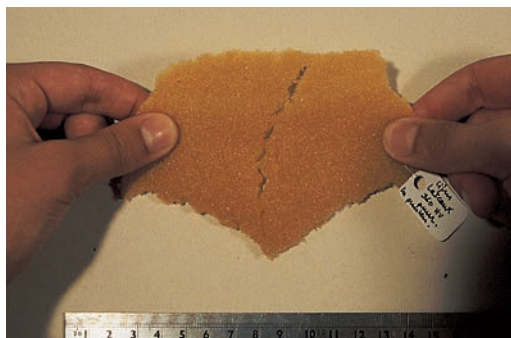
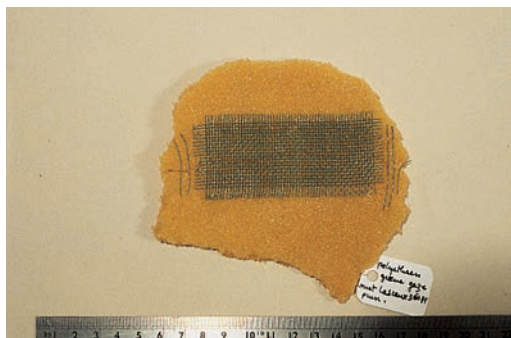
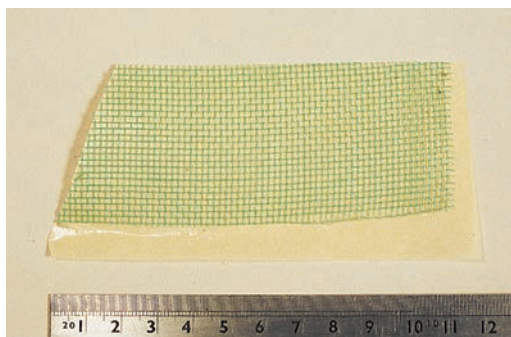
The success of a home-made tape

To assemble the torn leaves, all kinds of techniques were tried on dummies – sewing, lining and the application of Velcro tape, all borrowed from textile conservation. In the end, sewing was abandoned because of practical difficulties and because the thread might create new tears, while Velcro had simply no grip on the foam. The best solution appeared to be to line the leaves locally on the reverse, across the tears.

The ideal lining material should be able to keep the edges of the tears aligned and act as a support. Several lining materials were compared. In order to respect both the elasticity of the foam and its open structure, we chose openwork materials like cotton, silk, polyester, polyethylene and other synthetic gauzes. Japanese paper coated with a discontinuous film of glue was also tried.

The different samples of gauzes were placed onto silicone paper. They were coated with an acrylic adhesive in dispersion, Lascaux 360 HV, by means of a brush, and left to dry.² Because of its very low glass-transition temperature, this adhesive is extremely flexible and remains slightly 'tacky' at room temperature. It was thus possible to peel off the gauze from the silicone paper and to place it, still tacky, under the tears of the leaves without regenerating the adhesive or using heat. Before peeling the gauze off, the silicone paper was cut into the desired shape and size to fit the areas needing support. This method provided a sort of 'home-made' tape.

A strong polyethylene gauze normally used for making insect screens achieved the best performance. Though rigid it can be bent into any specific shape, similar to a metallic wire when twisted. Thus, it could follow the shapes of the foam and act as support at the same time. Moreover, this material was a suitable green



Top The 'home-made' tape. The polyethylene gauze is placed on a silicon paper and coated with the Lascaux 360 HV adhesive.

Middle Dummy: assemblage of tears on an aged piece of polyurethane foam with the green polyethylene gauze.

Bottom Dummy: a torn piece of aged polyurethane foam glued with Lascaux 360 HV.

Below The tears in the leaf are repaired by local lining with the polyethylene gauze. The edges of the tears are glued with the Lascaux 360 HV adhesive. Photos: Aleth Lorne



colour. A white cotton gauze, which also gave good results on dummies, appeared to be suitable for the extremely deteriorating areas where a lining weaker than the green polyethylene would be needed. Although white, it could easily be dyed green.

The other lining materials could not be used. Some of them, like the silk or polyester gauzes, were too supple to support the foam. Others, like polyester tulle or Japanese paper, had an adequate stiffness but were unable to follow the curved shape of the leaves: they tended to return to a flat and tensed position, which resulted in low adhesion and bad support.

Using the polyethylene gauze coated with the Lascaux adhesive, the tears were closed without gluing the joints. Threads were removed from the edges of this tape in order to progressively release the tension of the glue on its sides. The adhesive strength of the tape could also be controlled by adjusting the concentration of the glue. A dilution of Lascaux 360 HV with 25 per cent of demineralised water was found perfectly suitable for the purpose.

Limits to reversibility

When applied on the sculpture for the first time, the polyethylene tape appeared to be very effective. The repairs were nearly invisible. The easiness of the method could well adapt to the delicate manipulation of the foam and to the difficult access under the leaves. After some days, however, minor additional treatment was needed. A few repaired tears had begun to open and, annoyingly, the edges of the gauze placed under the extremely degraded borders of leaves had lifted and pulled off some fragments of foam.

The strategy for repairing the leaves was thus slightly modified. In places where the foam still had a relatively good mechanical resistance, the tears were simultaneously glued and lined with the tape. For gluing, the Lascaux 360 HV was applied in tiny points every 15 mm along the tears' edges. The adhesive was used in its pure form in order to avoid impregnating the foam – it should not extend beyond the interface. The elasticity of the adhesive combined with the discontinuous application resulted in a flexible system that suited the open structure of the foam. Moreover, the tears in the leaves had become invisible.

To a certain extent, lining the leaves with the green gauze is mechanically reversible. The tape can be easily removed just after being applied, but this reversibility becomes less with time. After some days, although the glue remains flexible and tacky, the tape may lift a few fragments of foam. After a month, it is impossible to remove the tape without removing a thin layer. The condition of the foam is an important factor: the more it has deteriorated, the more difficult it will be to remove the tape without any damage.

Tests for detaching the gauze with organic solvents were carried out. The adhesive was swollen by means of compresses wetted with ethanol or toluene. The ethanol proved to be more effective – although for a polyurethane foam impregnated with polyvinyl paint the toluene would be more advisable because it has less affinity to this type of paint and thus cannot dissolve it.

Local impregnation: sturgeon glue

Although the method of gluing and taping worked well in the less decaying areas, it could not be applied to the border of the leaves where the foam's bad condition had obviously been underestimated. We were forced to admit that these tears could not be repaired if the foam was not consolidated first. Thus, we decided to try local impregnation.

Water-based consolidants were chosen in order to avoid the dissolution of the polyvinyl paint. Methylcellulose, Plextol B 500 and sturgeon glue were tested. Samples of highly deteriorated foam impregnated with Methylcellulose and Plextol B 500 remained flattened and slightly darkened after drying. Sturgeon glue did not

give the best results in terms of elasticity, yet this adhesive has been selected for its good visual effect and the quality of the consolidation.

A 10 per cent solution of sturgeon glue was applied with a spray in the most degraded parts of the leaves. After drying, the tears could be glued and lined with success.³

Support for the leaves

Many leaves were misshapen, flattened by former mishandling. Because of this deformation, some edges of the tears were not able to joint. Several materials were selected as potential supports:

- A bandage named Hexcelite®, made from a cotton gauze coated with a synthetic plaster.⁴ This light, open-work material is extremely stable and perfectly suitable for conservation purposes. It is rigid but can be shaped by soaking it in hot water (70°C). After two or three minutes, the material will be dry and rigid again. It can also easily be painted with a water-based medium in a suitable colour.
- A quilting material of polyester usually employed for padding clothes in the fashion trade. This material is white, fibrous, soft and elastic. Padding of any form or any size can be cut into it, the only drawback being it is difficult to dye. However, small paddings could be coloured green by soaking them in acrylic or polyvinyl paint.
- Etamine, a cotton gauze coated with glue which is used for making hats (the exact nature of the material and the glue is unknown to us). It can be shaped when wet and keeps this shape after drying. The material is white and can be easily be dyed or painted.

When applied on *Still Life of Watermelons*, the Hexcelite® bandage was too rough compared to the thin structure of the foam. The etamine was too difficult to shape. In contrast, the polyester quilting material was easy to use, discreet, and extremely effective. Small paddings were introduced under the leaves wherever a torn fragment needed 'lifting'. Some of the flattened leaves recovered part of their original shape by the presence of these supports.

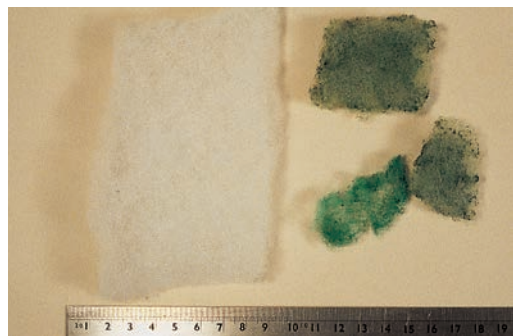
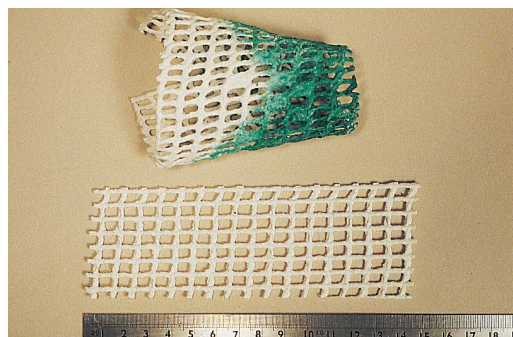
The sponge connection

However, several torn leaves were also folded down – instead of leaning vertically against a melon or a stem, as they were originally intended. Their original position could be deduced from the remnants of glue on the reverse of the leaves or from the missing paint layers. In order to repair the tears of the folded leaves, some fragments needed to be straightened to 90 degrees or more. Because they had been folded for years, they were unable to retain their new position and would automatically return to the folded position each time they were lifted.

For this particular problem, no specific solution had been prepared. It would of course have been possible to straighten the leaves by gluing them onto the melons on which they were supposed to rest, or to line the leaves with large pieces of green gauze and fix them to rigid supports. But all these solutions would have introduced far too much tension into the foam.

After encountering similar difficulties in the unrolling of papyrus, when visiting an Egyptian grave, we at once realised that the folded leaves of polyurethane foam could probably be relaxed by spraying them slightly with water. Nothing astonishing in this discovery in fact, when one realises that polyurethane foam is also used for sponges. But the link between sponges and *Still Life of Watermelons* had not yet been made!

Humidity is one of the degradation factors of polyurethane foam because it catalyses reactions of hydrolysis. But it was assumed that using water for a punctual treatment was not dangerous as long as the sculpture was kept in a controlled climate. A first experiment was done on a loose leaf folded down the centre in two.



The Hexcelite® bandage under the original form, but also shaped and coloured.

Polyester quilting material in its original colour, or stained.

By spraying water gently, one leaf after the other has been repositioned. The stem was supported and reattached with a nylon thread. The actual position of the leaves and stems is quite similar to the one observed on the photos from 1972.

The carved nylon thread.

Photos: Aleth Lorne

On the reverse, it was sprayed with a mixture of water and ethanol (4/1) – the ethanol was intended to reduce the surface tension of water as well as accelerate the evaporation of the mixture. The excess of water and ethanol was gently absorbed with blotting paper. After a short while, the foam was completely relaxed and the leaf could be easily opened and straightened. It was left to dry on a sheet of blotting paper.

After three hours, the foam was completely dry and slightly stiff as it was before treatment. The leaf remained totally flat.

The surprising effect of a simple mixture

After this positive result, the method was applied on the sculpture. Our first experiment was to straighten a folded leaf which was originally resting vertically onto a melon. In order to preserve the polyvinyl paint, the mixture of water and ethanol was sprayed only on the reverse of the leaf. It was lifted up 90 degrees, placed against the melon, and sustained on the front by a thick piece of new foam. The whole construction was held by a thin, U-shaped thread of nickel positioned from the new foam towards the melon behind. When the leaf was completely dry, the temporary support was removed.

Surprisingly, the intervention had a double effect: the leaf not only remained in its new position, but it also stuck to the melon behind. A probable explanation is that the ethanol in the mixture had swollen the polyvinyl paint, allowing the creation of new bonds between the elements being in contact.

Ethanol is able to swell polyvinyl paint, and to a certain extent polyurethane foam too, when applied for a long period and in large amounts. In order to evaluate the risk of damage, one drop of the water/alcohol mixture was applied on a loose fragment of the sculpture and its swelling effect checked under the microscope. No alteration could be observed. Yet, for further conservation of the sculpture it would certainly be advisable to check if water alone offers the same possibilities of treatment. Unfortunately, this test could not be carried out within the very short time limits of the project.

The 're-shaping' method by spraying the mixture exceeded our expectations. With the help of photographs taken in 1972, the volume of various elements could be reconstructed in areas where the situation was thought to be desperate. The leaves lying on the grass were treated in the same way as those leaning on the melons. While drying, they were temporarily supported in the desired shape by blotting paper inserted underneath them. Afterwards, the tears could be easily glued and supported by the polyethylene gauze. The use of padding was no longer necessary. Many of the polyester paddings introduced earlier could be removed after the leaves had been re-shaped in this way.

Angling for broken stems

To repair the broken stems, we followed a strategy similar to the one developed for the tears in the leaves. The tension of the assemblage had to be spread along the broken stem. The ideal solution seemed to be to insert a wire in each fragment. The wire should be able to be easily inserted into the foam, but unable to come out of it again. Thus, each end of a piece of wire should have a small device that could grip into the foam. The wire also had to respond to the following criteria: flexibility, relative rigidity, chemical stability and the absence of metal.

We experimented with all kinds of materials, from tiny brushes designed for cleaning teeth to pigeon and duck feathers as well as polyethylene tubing. None of them could be described as the ideal device. Finally, the material found to be most appropriate was a nylon thread purchased in an anglers' shop. The largest diameter available – about 1.1 mm – was chosen. A ten-centimetre long piece was cut off and, under the microscope, a kind of little brush was carved at each end with the help of a scalpel. First, the end of the wire was cut into a sharp point, followed by

lifting small flakes all around the nylon thread on a length of 15 mm. The flakes of each extremity were oriented in opposite directions.

Inserting the nylon thread in each end of the broken stem, perfect assemblage has been achieved. Whenever a joint remained slightly open, it could be closed with the help of two or three tiny drops of Lascaux 360 HV.

The reversibility of the method is relative. The easiest way to dismount the assemblage is to cut the thread at the level of the joint. The pieces of nylon can be left inside or, if desired, removed by pulling them tight. The consequence is slight damage to the foam inside the stem.

Vacuum cleaning

Cleaning the fragile surface of the sculpture was justified for two reasons. The first one was the need to improve the presentation of the object as it was soiled by a considerable deposit of dust, hairs, and fibres of all kinds. The second reason was that these airborne particles, due to their hygroscopic nature, may contribute to chemical degradation of the polyurethane foam.

Cleaning was carried out in several stages. First, the largest particles such as hairs, fibres and paper trapped in the open cells of the foam were removed with pincers. Loose fragments of foam were also removed and kept separately. The remaining particles, mostly fine dust, were removed with a small museum vacuum cleaner. Keeping the nozzle half a centimetre above the object's surface, the suction force was sufficient to draw the dust. On the borders of the badly decayed leaves, the vacuum cleaning was done superficially in order to avoid any detachment of foam particles. In this way, homogenous cleaning was achieved.

A conditional proposal

After many dark years in a store room, there is now a chance to make Piero Gilardi's *Still Life of Watermelons* presentable to the public. On the area treated, the tears and the broken stems are repaired, the leaves have retrieved their volume and the green colours are intense. Because no evidence exists of the sculpture's original appearance, we will probably never be able to assess to what extent the original expressiveness has been lost. However, even if some fragments are missing here and there and losses to the colour scheme can be seen, an impression of freshness and strength has returned to the work again.

Throughout the project, we tried to be faithful to our original intention – to avoid, as far as possible, the introduction of alien materials like adhesives or consolidants into the foam. The 'palette' designed for the conservation of *Still Life of Watermelons* was ultimately very simple: one adhesive (Lascaux 360 HV), a green polyethylene gauze coated with the same adhesive, nylon threads, a polyester padding material and a 10 per cent solution of sturgeon glue as a consolidant. These materials appeared to have been efficient for solving most of the problems. The leaves could be re-modelled by simply spraying a mixture of water and ethanol.

The extent of our task was a conservation treatment of the structural damage. More can be done to improve the presentation of the work. For instance, filling the small missing pieces of the leaves with the tiny loose fragments of foam which are lying everywhere on the surface.⁵ Their colour can be easily adjusted with water-colour paint. But as long as the condition of the foam is not improved, the process of degradation will continue. If the fragility increases, the supporting materials recently introduced will lose their efficiency. Therefore, the treatment proposed only makes sense within the context of preventive conservation. The ideal conditions for the preservation of such objects would be darkness and a relatively dry environment, free of oxygen. How can one reconcile these conditions with the need to present the work to the general public? Perhaps a forthcoming project on this topic will lead to a positive solution for the future of the object.

Tineke Reijnders A SHINING DOCUMENT OF OUR TIME

Tineke Reijnders is free-lance art historian
and art critic.

The academies of the Renaissance must have been familiar with it: that scintillating blend of expertise within a pioneering community; theory and practice closely harnessed, pulling together towards more profound understanding. The blend of expertise within the working groups of Conservation of Modern Art, though undoubtedly more modest, was equally scintillating. The erudition of practice here kept pace with that of theory; both equally compelled by the pioneering spirit. The problem of a modern work of art with a crumbling edge, a cracked corner or sticky underside may seem trivial. Was a predilection for materials that were unpredictable, unorthodox and free from the burden of tradition not intrinsic to the rules of play in modern art? Materials with which artists deliberately and defiantly demonstrated how they were breaking with tradition, discarding artists' stock in trade that too easily facilitated the transformation of the art object into a valuable commodity? They didn't buy their supplies from specialists, but shopped with industry and in everyday shops, or gleaned materials from flea markets. The unpredictable and perishable was calculatedly incorporated into the work.

In the post-war age of mass consumption, production was linked to the fleeting fads of the day and to frequent replacement. For many years 'pre-war' stood for reliability and quality and 'new' or 'modern' for rapid deterioration. The adjective 'disposable' made its entrance. Thus, in 1960, Jean Tinguely sacrificed his *Homage to New York* in the garden of the Museum Modern Art: the art work destroyed itself in a complex series of explosions. In the case of *Gismo*, with its wobbly, squeaking and trudging dynamics, its disappearance also seemed to be its destiny – but this was not the case.

Giving up was never an issue for the working groups. The art historians and conservators never disagreed on this point. Only in one case was preservation abandoned, but this was a hopeless example of decay. It was as if the researchers wanted to take up the gauntlet, noticeably infected by the positivist excitement of pioneering work. If the artists had nolens volens intended to defy the conditions of museums and preservability, the researchers unanimously stepped in on behalf of conservation – like doctors doing everything they can to save a patient's life.

This took me by surprise during my first encounter with the working groups. Being familiar with the nomadic oeuvres of young artists in the 1990s – the ease with which they tune into changing contexts, requiring only space in the museum depot for a can of film, a CD-ROM, a videotape or a box of slides plus list – I was sceptical about the respect shown the spatial demands of the art of yesterday.

The contemporary inclination to reduce materials is without doubt a playful consequence of what is perhaps the most striking feature of the art of the last decade: the primacy of concept over means. Purely conceptual art reveals itself through a description, a photograph, a text. The form is a document. The art work exists in the mind, in memory or in the capacity of the imagination. Conceptual art arrived in art history at the end of the 1960s as a dematerialised form of art and has remained there ever since. Signboards recently placed in the garden of the Kröller-Müller Museum stating the number of steps, the date, time and the name of Stanley Brouwn recall to the imagination a walk made by this artist, a walk as a metaphor for the existential search for positioning.

In contrast to this, the younger generation often evoke a true-to-life paraphrase of daily reality precisely through images in projections and installations, complete with accompanying spatial conditions. However, the presence of the work is temporary and, at the end of the exhibition, the image's support is boxed up ready to be used elsewhere in a different arrangement.

What was strange was that my scepticism about an excessive desire to save physical objects vanished the moment I was confronted with the art works themselves. Once they had been brought out of the depot, most of the works selected for this project turned out to have a direct, convincing, material eloquence. A documentary report could never do justice to the bizarre poetry of mesh and beeswax which, combined with the disturbing apparition of neon letters, makes up Mario Merz's work *Città irreale* (City of Light). Nor could justice be done to Piero Gilardi's bright watermelons, made from what was at the time a new material – foam rubber – from which he cut surprisingly real and at the same time delightfully fake fruit. The composition of 'objets trouvés' in Krijn Giezen's *Marocco* too radiates an immediate visual force.

The language of the objects, which were brought together in an association that suggested meaning, is open, fluid, imprecisely described and indefinably evocative. Unmediated, they release memories and associations and allow the imagination to take flight. The French artist Yves Klein liked to refer to the 'indéfinissable' so cherished by Eugène Delacroix. It is miraculous how even modern, industrially produced materials like the components in Tony Cragg's *One Space, Four Places* are able to meet the conditions of the 'indéfinissable'. Partly through their varied and utilitarian past they are able to release a flood wave of associations.

The visual statement is inextricably linked to the time in which the work was made. More than once the working groups heard how the material qualities of a particular art work made it a wonderful document of its time – and also for this reason deserved to be preserved. There is little one can say to contradict this. However, the choice of brand new plastics or old bits of machinery from the scrap heap, and plastic flotsam and jetsam betrays a certain critical, utopian engagement. In retrospect we know how transient such positions are and how they almost provoke compassion. We become attached to this lack of inhibition and want to continue to exhibit it in its full glory.

Add to this the fact that few comparable works from the same period are available, which further contributes to the unique character of the specimen under examination. The enthusiasm of the younger curators for work that they had literally just 'discovered', and which their predecessors in the distant past had regarded as problem cases and hidden away, was particularly striking. The only work that had to be written off, 59-18 by Henk Peeters, will not be discarded entirely because of the 'molecular information' it contains.

What made the working group meetings so lively, exciting even, was their experimental character. This was the moment to gather all knowledge together and build from scratch a restoration science for modern art. Questions and arguments fairly flew around the table. New problems, both practical and theoretical, branched off from every question. An example of a minor intervention: Manzoni's *Achrome* from 1962 is soiled and the artist's intention was to avoid colour – didn't 'achrome' mean white in his opinion? The fibreglass threads are very fine, just like the fibreglass one can buy today; are they transparent and just optically white when you see them in a bundle? Yes, and is this pure fibreglass, without a coating or other constituents? Can it be washed? Is it possible to do this without breaking the fibres? Is it possible to retain the coiffured character of the work? How can one ensure that dirt does not attach itself to the fibreglass in the future?

Yet the problem surrounding the Achromes is relatively simple. Manzoni's concept was clear and the materials could be identified. The working groups often found themselves apparently fumbling in the dark. To help them collate the art-historical and theoretical information on the works, a meeting was held about each pilot object and the members were given a reader containing selected literature on the artist in question. Furthermore, the relevant museum curator gave a

talk on the work in relation to the artist and in a few cases the artist also attended in order to answer questions in person.

Most of the gaps in the information existed in relation to material details – sometimes highly obvious ones – and their meanings. For example, thousands of people have heard *Gismo*'s trundling, ringing and tapping sounds, but who has ever recorded and analysed them? Who has ever noted the pattern of movements and who knows what Tinguely intended to communicate with this piece?

And what of all the varieties of plastics and their as yet largely unknown processes of decay? *De overwintering van Willem Barentsz. op Nova Zembla* (Winter on Nova Zemlya) by Woody van Amen contains an imitation open-hearth fire, made from plastic, which engenders an illusion of burning blocks of wood being licked by gas flames. The fire still looks all right, but may have to be replaced in the near future. Research showed that although there are countless similar components in the shops today, this model from the sixties is no longer available. Does this mean that the conservator will have to go around the flea markets to find a replacement? Should museums in the future stock up on spare parts when purchasing a work? The chemist raised the point that, even if a part is replaced, what is there to stop the replacement part reaching the same stage of deterioration, even if it has never been used before?

In the background of all the discussions about progressive deterioration was the consideration that a work's suitability for being shown might expire and suddenly the material pretext took a theoretical turn. The discussion of Tony Cragg's *One Space, Four Places* – made from a steel frame onto which a variety of found objects have been threaded – was particularly poignant. The fragile parts, the soft pieces of foam at the corners, already need to be replaced or strengthened. This is possible without disrupting the identity of the work. But will this be the case with the next step? Will it still be a Cragg once more than fifty percent of the work has been replaced? And what if this is carried out with a necessary degree of poetic licence, due to a lack of identical materials?

Thence, circuitous discussions condensed the issues and finally pushed them towards theoretical conditions and practical solutions. The Netherlands has a rich supply of museums which actively collect contemporary art and the science of restoration has not been left by the wayside here. However, this project was the first occasion that museum employees had been able to unrestrainedly pool their resources on behalf of the conservation of modern art. Chemists researched the chemical composition and behaviour of materials, biologists looked at the effects of undesired insects, conservators assessed the feasibility of restoration strategies and art historians examined the positions of the works in question within the artists' oeuvres as a whole, as well as the artists' positions in their own time. They discussed the meanings of the materials used, the assessments of the damage and possible solutions. Whenever a problem could not be solved around the table, individual investigations were carried out to clarify specific points.

The meetings were characterised by a non-hierarchical fervour; in the Dutch business world, an even structure such as this is known as the 'polder model'. That a heterogeneous and spontaneous group was nevertheless able to reach speedy decisions to solve current problems, as well as provide guidelines for the future, was facilitated by the chairperson (the project coordinator) who managed to harness the group dynamics by surprisingly quickly identifying consensus and diagnosing the results. Guest experts were also effectively brought in when needed.

The guiding principle was to establish the untainted origins of the art work in question. Now and then the investigation became as fascinating as solving a crime: starting from the material object and searching backwards to the moment

the creative intervention was given its final form – the precise opposite of the creation process in which the formal appearance is not the predictable outcome.

The personification of the origin is the author. The artist was consulted wherever possible. If the artist was already dead, his immediate environment was consulted, after a thorough investigation had been carried out rather than before. In the case of the diptych *M.B.* by Broodthaers, this revealed that there are two editions of possibly seven examples, both made using the same vacuum-forming process but by different companies – the first series was made under Broodthaers's instructions and the second with the help of his widow Maria Gilissen.

To establish authentic exhibition conditions for the works, the artists' original intentions also had to be traced. Hence there was a discussion about dead carpet beetle larvae and the remains of a decaying bird that had partly turned to dust in Krijn Giezen's *Marocco*. One conservator felt that the work should be cleaned of all soiled parts before being exhibited, whereas a curator felt that the process of deterioration should be shown and explained in an accompanying text.

In the case of Henk Peeters's work 59-18, which had become unshowable, such an exchange of views turned out to be of crucial importance. "Compare it with a ruin," said one, "would it then still be a Peeters?" With the discoloration of the materials it was beginning to look like the skin of a Tapiès. "The romanticism of decay was never an option for the artist," said another: "He intended to use stable materials. It is about the freshness of the act, which has vanished in this case." Other works by Peeters – for example those with margins made from cottonwool – are considered by curators to be suitable for exhibition, while the artist thinks not. In this case he is willing to repeat his earlier statement. Shouldn't we be happy with this? The working group's noteworthy conclusion was that the reproduction made by the artist for the research project should not be seen as a replacement for the original. The word 'original' is attached to the decayed object and separated from the act of the artist, who apparently in this case is not relevant to the concept of authenticity. As a 'document of its time' the product eclipses the producer.

Both the working group and the owner, the Netherlands Institute for Cultural Heritage, wants 59-18 to be preserved as a study object, for the sake of the information it contains at a molecular level. It is one of the earliest art objects made with foam rubber and, materially, it is the last surviving original in this series.

The future continually cropped up during the course of the discussions. Further decay is an unavoidable given, but this is not a continuous process: periods of stability can be expected in between. Partly due to the lack of information on the behaviour of post-war materials, prognoses were cloaked in caution. While the hard, material facts are embedded in softness, the soft, the scientific and the theoretical information will become increasingly firm. There are now direct witnesses among the experts; the more time that passes the more the advice of these working groups will take on the authority of dictate. Add to this that an investigation of this sort acquires its own historical weight. As a consequence, no conservator will be able to approach a problem with the same lack of inhibition as the members of these research teams: anyone who is informed will know the codes.

Beneficial conditions come attached to this historical weight. First and foremost there is the discovery in the nineties that sixties' metaphors for liberation take their toll, comparable with the discovery that cigarettes or LSD also have adverse effects. Now is the time in the Netherlands for museums to confer with each other. Where, until recently, the municipal museums were regarded as autonomous islands, sometimes competing with each other like football clubs, the idea of a 'Netherlands Collection' is now in play. Thence, conservation problems encountered by individual museums have become a general concern, which enabled plans for an homogeneous administration of a digital collection to be developed en passant during the working-group meetings. A third, beneficial condition is the existence

of a society that values the possession and care of art collections. The Delta Plan instigated by the Dutch Government at the beginning of the nineties comprised generous financing for overdue restoration in various areas. The cry from a number of alert museum workers fell on receptive ears and, thanks to the favourable economic climate, the work of the Foundation for the Conservation of Modern Art could be realised in the best possible way.

It is questionable whether such a constellation of factors will so readily arise in the future. In the meantime, the results of the research will remain a determining point of reference. Confronting this is the fact that opinions sometimes crumble faster than foam plastics: it is not inconceivable that the material perfectionism revealed by this project in the course of time may be eroded by a need for material detachment. Young artists in the nineties store their work in boxes while an artist like Christian Boltanski calls his installations 'scores' and allows museums the freedom to replace all the parts and adjust the size of the work according to the space.

Under these influences, curators may well develop a less inhibited attitude towards 'authenticity', an idea that after all has no fixed definition. But the indisputable fact remains that excellent results have been achieved, founded on contemporary criteria, by a team of convenience that turned out to be a dream team. The result of this unanimous attempt to grasp the workings of the time has in the end become a shining 'document of our time'.

Pieter Keune STANDARDS FOR ART MATERIALS ARE NEEDED: JOIN FORCES NOW

*Pieter Keune is director of the
Foundation for Artists' Materials.*

The quality of the conservation of art works depends heavily on the availability of information about the materials and techniques with which they were made. In the case of contemporary art, conservators may benefit from information provided by the artists themselves. But these benefits are limited, as the data on materials come from different sources and are not always correctly ordered.

Although artists can offer some insight into their methods of creation, their information on materials is restricted to what retailers provide. The retailers, in turn, obtain their products from manufacturers who supply the technical data. These manufacturers buy their raw materials from yet other manufacturers who also provide data about their products.

As a prerequisite to preservation, all the relevant information has to be ordered correctly. This was recognised when, in 1979, the Jan van Eyck Academy (a post-graduate institute for fine arts) in Maastricht held a symposium on modern painting techniques. Following this symposium a working group consisting of staff members of art schools and governmental organisations started to gather information on modern painting materials.

In 1991, this working group established the 'Stichting Kunstenaarsmateriaal', the Foundation for Artists' Materials, in which artists, conservators and scientists participate. Our aim is to inform both artists and conservators about these materials and to initiate research. The foundation acts as an intermediary between artists and manufacturers, organises workshops and lectures at art schools, and publishes a quarterly magazine entitled *kM*. A recent inquiry has shown that our readers are mainly professional artists (some 30 per cent of the registered artists are subscribers) in the fields of painting and the three-dimensional arts, and they highly appreciate the information on modern materials and techniques. Most of them state that they keep all issues of the magazine which they use as reference in the workshop. Of the conservators registered in the Netherlands, around 15 per cent are subscribers. They read the magazine mainly because they expect to find information on artists' working methods.

Wrong information

Our intermediary function is an important part of our work. Often technical faults discovered in the materials are involved, such as watercolour paper with invisible particles of iron which start to rust later on, or incorrect production of artists' paints. The foundation also cooperates with the retailers of professional art materials in providing correct information, for instance by writing texts for sales catalogues.

Before a product ends up in the hands of an artist, the matching information has been screened and processed by providers of raw materials, manufacturers and especially retailers. After all, artists are mainly interested in how a product should be treated and applied. Their first contact will always be a professional retailer.

Often, retailers offer an artist their 'own brand' which is cheaper than the proprietary article. In such cases the loss or incorrect quoting of necessary information is to be expected. The foundation was called in once for advice in a court case: an artist had charged a supplier of art materials for selling him a type of rubber glue which, according to the label, was for permanent use while in fact it was not. We found another retailer selling exactly the same glue, provided by the same manufacturer, who stressed that it was for temporary use only.

We cooperate with retailers, but we cannot prevent them from giving the wrong advice. Recently we received a call from a museum that had commissioned an artist to carry out a project in which parts of the fronts of inner-city buildings were finished with a polyurethane compound. When the weather worsened, the

museum was interested in shortening the time needed for the compound to cure and consulted an art supplier. He advised them to simply add more hardener. Anyone knowing the chemical reactions that occur when PUR hardens, would also know that this makes the final product technically inferior.

Sometimes the information provided by the manufacturer is not correct either. This may cause serious damage. A few years ago an artist and several assistants created a mural on one of the outer walls of a school building. The painting was done in acrylic material. To protect the paint against the elements, the manufacturer advised adding a cross-linker – and so they did. The next day all of the workers had eczema and the artist herself was struck by several afflictions which confined her to a hospital for a year and a half.

The information provided about the composition of the cross-linker could not explain her illness. Suspicion arose that this information might be incorrect and we were called in to investigate. We joined forces with the chemical department of the University of Amsterdam. After a great deal of work we were able to confirm the chemical structure of the substance. Once this had been achieved, we quickly traced the cross-linker to a firm in the Netherlands that had produced and exported the product. The mandatory data sheet provided by this firm immediately revealed the toxic effects that this substance could trigger, and thus the source of the artist's illness. The paint manufacturer had imported the cross-linker back into the Netherlands in smaller packaging without adding the information. If he had simply passed on the data provided by the raw-materials manufacturer, the artist could have been spared her long illness and a lot of precious research time would not have been wasted.

In two minds about a database

For the conservation of modern art, it is also important that artists properly document which materials they use. But they tend to get a little confused at times. In a meeting of the Foundation for the Conservation of Modern Art we were asked to advise on the conservation of a work by Robert Ryman. It is a wonderful piece made up of two acrylate plates painted white. No real problems were involved and the artist did his utmost to provide documentation – he even offered a pair of cotton gloves to handle the work. He described the acrylate plates as being made of 'Luminicite'. We searched the brand name list for this product and could not find it anywhere. Now, we know that a product called 'Lucite' was used which is advertised as having excellent 'luminosity'. Artists and their assistants often record brand names or chemical names incompletely or incorrectly, which makes it difficult to trace the correct data about the materials used – and will make it all the more difficult in the future.

To help artists, and to create a body of reference for the future, the magazine *kM* is considering setting up a database on art materials. But the way in which such a database could be established is not immediately clear. On the one hand data provided by manufacturers are essential, on the other hand it is impossible to document all materials used by all artists at all times.

Suppose we could gather worldwide information on all brands of polyvinylacetate (PVA) adhesives. That is about two thousand different brands. How would this information serve us? Artists may indicate that they used 'white wood glue' in their objects or may even have forgotten that much. And in five, ten, or fifty years' time, will it really be important then to know more about the joint than simply that it was done with a PVA?

Adhesives are one of the most problematic types of material. I recently paid a visit to the laboratory of one of the largest producers of consumer glues in the Netherlands. Using their newest information sheets, I began to ask my questions. But it soon turned out that the composition of many of their adhesives had already

undergone change. Keeping the documentation up-to-date was simply too expensive. They were quite willing to provide me with information about, among other things, the ageing of their products. But in order to obtain the correct information, one has to know exactly what to ask. Simple questions such as “What’s in this product?” will often not be answered in full. Narrowing down the question to “Is substance X a part of this product?”, one can obtain the desired data. The problem is that formulating such a question requires substantial background knowledge which many artists do not have.

Would a database of adhesives be useful for artists, then? Or should we choose another approach? Let’s start by having a look at another group of materials: artists’ paints.

The use of standards

The first commercial standard for artists’ paints – CS98-42 – was established in the United States in 1942. Its aim was to end the existing confusion surrounding the naming of paints. The standard included testing methods for determining drying time, colour-fastness and consistency. Committees of manufacturers and users have since developed several standards within the American Society for Testing and Materials. European artists’ paint producers have adopted the same standards and are now also represented on the committees. Not all the producers immediately grasped the way in which the standards worked, though. One manufacturer indicated that the colour-fastness of their paint had been tested using the standard that controls the appearance of the labels.

Ultimately, for a standard to work it is essential that it is understood and accepted by users. It took a long time for artists to understand the meaning of expressions like “according to ASTM D 4303”. The manufacturers reasoned that artists should not be bothered with long and difficult explanations. By now, most artists have become accustomed to the new terminology and most large producers provide brochures with good technical information.

The ASTM standard does not give instructions on how to produce paint, but how to test for a minimum level of quality. This allows each producer to determine their own paint quality. As a consequence not all the paints are equally suitable for all painting techniques. An artist has to learn this. A few years ago the magazine *kM* began receiving complaints from painters about paint layers becoming delaminated when painted over. When we looked into this, all these artists turned out to have used paint mixed from different brands, making it impossible to trace the origin of the problem. Then one artist came along who used only one brand. This paint, we found, contained too much cobalt siccative which made the surface dry very quickly. In thick layers of paint, this dried skin became a sort of sponge sucking the binding agent away from the lower layers. As a result, the dried paint became extremely weak under the surface due to a lack of binder. A new application of paint could then create enough tension to make the lower layer split. This brand, clearly, was not suitable for use in thick layers, especially if they were to be painted over. But it is excellent for painting in thin layers.

This example shows that the simple fact that a product meets ASTM standards is not sufficient. It must be accompanied by a test report indicating its processing features and especially its limitations.

Other groups of materials, such as adhesives, synthetic materials and paper, have many ASTM, DIN and ISO standards. The problem is that these standards are not always relevant for application in visual art. Manufacturers, specialised retailers and artists must get together to determine which standards the products used in art works must meet. They should particularly take into account the long-term performance of these materials. After all, only a small number of paints can be considered artists’ quality paint and the same will apply to other materials as well.

We realise of course that artists often experiment and choose materials that are unusual or untested. But also materials that are tried and true do not guarantee any degree of technical quality in a work.

If we want to collect information which will be valuable to the conservation of modern visual art in the future, we have to make some choices – and we have to make them now. If we develop standards for art materials more extensively, artists may begin to document the materials they use as a matter of course, even materials that are not included in any standard. For all of this to work, the manufacturers, retailers, artists, conservators, organisations like the Foundation for Artists' Materials and especially the art schools must join forces now.

Thea van Oosten HERE TODAY, GONE TOMORROW? PROBLEMS WITH PLASTICS IN CONTEMPORARY ART

Thea van Oosten is conservation scientist at the Netherlands Institute for Cultural Heritage.

It is difficult to identify modern plastics by their appearance. Information on the plastic used in a work of art, found in the museum's documentation or given by the artist, proves to be not always correct. For taking the right measures in preventive conservation it is important to gather as much information as possible on the materials and on the making of an art work at the moment it is purchased.

Still, it is impossible to predict the life span of the object even if the identity of the plastic and its degradation processes are known. Moreover, while in traditional materials deterioration phenomena such as yellowing, matness and patina are recognised and accepted, the various appearances of degrading plastics are not yet fully understood – or appreciated.

Although plastics can be regarded as fragile organic materials and conserved accordingly, problems like off-gassing harmful components and diffusing plasticisers are specific and demand a different approach.

Material of the Thousand Uses

Since their discovery at the end of the nineteenth century, plastics have been used to make miscellaneous objects varying from arts craft and household items to industrial design. They became substitutes for scarce and expensive natural materials like ivory, amber and tortoiseshell. Later, during the 1920s and 1940s, the 'Classic Plastics' were regarded as a symbol of modern times and a great variety of objects were made from them.^{1,2,3} Therefore, they were also called the Material of the Thousand Uses.

These new materials were recognised and appreciated by artists. One of the first to use plastics was Naum Gabo who, in the 1920s, created his *Head of a Woman*: a three-dimensional construction of cellulose nitrate sheets. The object has gone now, as did more of his work made from this cellulose plastic.^{4,5}

Modern plastics like polyethylene, unsaturated polyester resins, polystyrene, polymethyl methacrylate, polyvinyl chloride and polyurethane had already been developed before the Second World War, but were at the time used only for military purposes. In the fifties and sixties, however, they were also applied to civilian uses and the Plastic Age began. Designers like Charles Eames and Raymond Loewy and artists like Piero Gilardi started working with them.⁶ In 1967, Gilardi created his *Rocks* from lumps of painted polyurethane foam which looked like pieces of stone but were meant to be sat on.⁷

With the advent of the oil-crisis in the seventies, and the ecological movement regarding plastics as unnatural, cheap and fake, the production of plastics slowed down. But in the eighties and nineties the development of new additives and compositions improved the texture of the materials and presented new possibilities which caused a boom in their application. Nowadays, there are hundreds of different types of plastic, each with specific properties to suit their purposes.⁸

Problems in the ten pilot objects

The ten pilot objects of the Conservation of Modern Art project give an indication of the use of plastics in contemporary art objects and of their degradation. Three were made entirely of these materials and five in part, while only two of the objects contained no plastics at all.

Upon a first, visual inspection of the objects, signs of deterioration were noticed in the plastics: yellowing, cracking, tearing, warping, softening, crazing, and crumbling. The 'foam rubber' of Gilardi's melon field showed cracks in the melons, while the many broken leaves and stems and the extent of crumbled material made the work look dirty and messy. In Tony Cragg's dining area, one sponge of a chair was nearly gone and plastic bottles were cracked. In the work *59-18* by Henk Peeters,



Naum Gabo, *Head of a Woman* (1917-1920), after a work from 1916. Construction in celluloid and metal. The Museum of Modern Art, New York

the foam was torn and crumbly material was stuck to the inside of the frame's glass. The drip-tray in Woody van Amen's 'Ice Machine' showed cracks and the tubing had turned yellow. The gauze in *Città irreale* by Mario Merz looked misshapen. The white plastic of the plaques *M.B.* by Marcel Broodthaers had turned yellow.

Confronted with such deterioration, a researcher starts asking some questions. Which plastics were used and how were they made? How long will they last? And, ultimately, how can they be conserved?

Which plastic?

Traditional materials such as stone, metals, wood, paper and textiles are easily recognised and described. It is quite different for plastics. In most cases they can be distinguished from traditional materials, but how to identify them further? Some characteristic features can help: the style of the object and the way it was constructed; the material's physical state – foam, solid or film; its flexibility and toughness; its sound, weight, volume, colour and smell. The trade name and the chronology (when was the plastic developed?) may also help.

Elimination/determination tables to distinguish groups of plastics do exist, but most of them are very complicated and require a lot of material for burning and dissolution tests.^{9,10,11} During production, stabilisers, anti-oxidants, UV-absorbers, dye stuffs, pigments, fillers and plasticisers are added to give the compound speci-



fic properties. Nowadays there are hundreds of different types of plastics, making identification difficult.

In the laboratory, molecular structures can be identified using Fourier Transform Infrared Spectroscopy (FTIR). The result of the analysis is a spectrum which is a 'fingerprint' of the material.¹² Unknown plastics are identified by comparing their spectra to those of known plastics. Additives in concentrations of less than a few per cent cannot be detected this way. Gas chromatography-mass-spectrometry (GC-MS) or Pyrolysis GC-MS (Py-GC-MS) can provide further information about the composition of plastics and their additives.

FTIR ANALYSIS Before taking samples of a work of art, which is a meticulous job, the whole object is carefully examined. The samples need to be representative of the part to be investigated.

Inside the spectrophotometer there is an infrared-light source which emits more than one wavelength, each with a specific amount of energy. The energy of the infrared beam passes through the sample and causes bonds between atoms to vibrate. The energy needed to move a specific bond is very precise. Wavelengths which have this precise energy will be absorbed. The energy from infrared light is not high enough to break the chemical bonds, so the sample is not destroyed.

Left Bureau set made from Carvacraft (PF) in 1948, designed by Charles E. Boyton and produced by John Dickinson Co. Ltd., Collection Museum Boijmans van Beuningen, Rotterdam.

Right Bakelite (PF) radio *Sonora*, 1945. Collection Museum Boijmans van Beuningen, Rotterdam. Photos: Iny Schleedoorn

A detector measures which wavelengths have been absorbed by the sample and this signal is displayed as a spectrum. The vertical and horizontal axes show how much energy was absorbed at each wavelength respectively. The unknown plastic is identified by comparing its spectrum with spectra of known plastics.

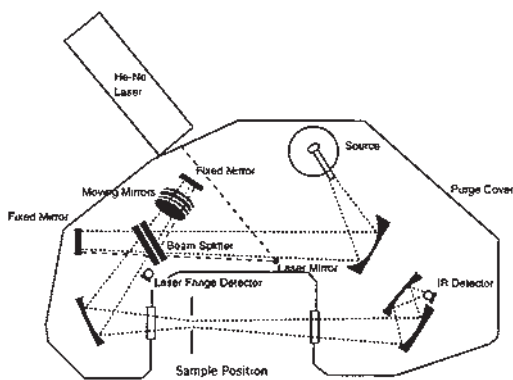
It came as no surprise that many plastics used in the pilot objects were not easily recognised. Information in the relevant museums' files was not always available, so chemical analysis was needed. This produced some remarkable results. Table 1 gives the data registered on six exemplary objects versus the outcome of the analyses.

Table 1. Plastics in exemplary objects: data on file versus analysis results

Art work, year, artist	Data on file	Analysis result
<i>M.B.</i> , 1970, Marcel Broodthaers	Polyester	ASA (Acrylonitril-Styrene-Acrylic ester)
<i>One Space, Four Places</i> , 1982, Tony Cragg	Not registered	Poly(ester)urethane
<i>Packed Armchair</i> , 1964-1965, Christo ¹²	Polyethylene	Polyvinyl chloride
<i>Città irreale</i> , 1968, Mario Merz	Nylon	Polyethylene
<i>59-18</i> , 1959, Henk Peeters	Foam rubber	Poly(ester)urethane
<i>Still Life of Watermelons</i> , 1967, Piero Gilardi	Foam rubber	Poly(ether)urethane
	Paint layer*	Polyvinyl acetate
	Adhesive**	Rubber glue

*binding medium not registered

**not registered



The material used in Broodthaers' *M.B.* was registered as a vacuum-formed plastic, a polyester. Analysis showed it to be an Acrylonitril-Styrene-Acrylic ester (ASA), known under the trade name of Luran S. In principle, the information was correct, but for conservation more specific data on the type of polyester are needed.

For the replacement of the sponge in Tony Cragg's *One Space, Four Places* it was important to know its material composition. The plastic could no longer be identified by its appearance and the documentation contained no specific information. FTIR analysis of the crumbs showed that the sponge was made of a poly(ester)urethane (PUR-ester).

According to the documentation, the gauze in *Città irreale* was made of nylon. No member of the working groups ever doubted this statement, as in the late 1960s the use of nylon gauze was a common feature. Yet, analysis revealed that it was actually polyethylene – probably one of the earlier uses of the polymer for gauzes. In preventive conservation, the circumstances required for polyethylene differ from those for nylon.

The material composition of the broken stems, leaves and fruits in Gilardi's *Still Life of Watermelons* had to be known in order to adhere them with a proper glue. The documentation described it as foam rubber. This proved to be a poly(ether)-urethane (PUR-ether). The paint layer on the foam, which was not registered at all, had a polyvinyl acetate (PVAC) binding medium.

Comparing the results of the FTIR analysis with the information on file we can draw some conclusions:

- Due to the unfamiliarity and complexity of modern plastics these are hard to recognise by their visual appearance, so chemical analysis is required.
- Filed information on material compositions, provided by the artists or their assistants, can be incorrect.

How is it made?

The technique of vacuum-forming is described in technical literature, so we are familiar with the principles. But how did Broodthaers make his moulds for the M and the B and how did he paint the sheets? Examination of the object by curators, conservators and scientists could not provide the answers. The artist was dead. His wife, Maria Gilissen was still alive and remembered that the mould was made of several pieces of fibre board, that her husband applied the paint after the sheets were formed and that these were made of polyvinyl chloride. Yet, the sheets were analysed as ASA. Broodthaers made various plaques, of course, and perhaps some are actually made of PVC. The widow was wrong about this *M.B.*, but her information might be valuable after all when looking at other works by her husband.

The gauze that Merz used in making his *Città irreale* was identified as a polyethylene. How is it that no member of the working groups disagreed with the statement that it was made of nylon? For what purpose was it made in the first place?

The foam in *59-18* by Henk Peeters appears yellowish brown, yet Peeters stated that he used grey foam. There was white/grey material inside the pores of the foam and sticking to the inside of the glass, but this was identified by FTIR analysis as adipic acid – one of the starting materials in the manufacturing of a polyester urethane. The suggestion is that the foam was never grey at all (see the chapter on Henk Peeters's *59-18*, Chemical Analysis).

How polyurethane foams are industrially fabricated is well known. How the object *Still Life of Watermelons* was made, however, is not. Careful examination of the object provides clues as to how Gilardi shaped the grass, watermelons and leaves from polyurethane sheets. It looks as if he used special patterns for cutting the leaves because a number of leaves seem identical. The results of the analysis show that Gilardi adhered the shapes onto the grass with a rubber glue. Did he spray the colour onto the grass but paint the leaves? The artist is still living, so he might be able to give the answers.

From these examples, the conclusion can be drawn that it is vital to gather all information about the materials and techniques used to create an art work at the moment it is purchased. The plastics industry is growing rapidly and industrial knowledge on material properties and behaviour increases just as fast, while conservation knowledge is desperately lagging behind. Conservators need to do all they can to keep up with the developments. One of the first necessities is the development of a vocabulary to describe the qualities and uses of plastics.

How long will it last?

The manner in which plastics degrade, and the life span of objects made from them, differ with each specific compound and construction mode. Plastics are mass products. The aim of a manufacturer is to produce a material that will last long enough to serve a specific purpose. To this end the manufacturer adds anti-oxidants, UV stabilisers, flame retardants, et cetera. Household items like plastic bottles and plastic toys are meant to survive a few years, whereas durables like plastic garden chairs should last for ten to twenty years. When their time has elapsed, the utensils can be thrown away and replaced by new ones. The properties of these materials in no way fulfil the life expectancy museums are used to with traditional objects.

The main degradation processes of most plastics are known. They are caused by either internal or external effects. One of the internal factors is the composition, for instance pigments containing metal ions which may accelerate the degradation process. There is not much conservators can do about internal factors.

As for the external factors – light, relative humidity, temperature and air (oxygen and ozone) – conservators have some scope for action. Light, especially UV-radiation, initiates the photo-oxidation and the cross-linking of plastic molecules. This is observed as fading and discoloration, embrittlement and cracking. Ozone

Objects made from polyurethane foam (PUR) and produced by Gufram: Hat stand *Cactus* by Guido Drocco and Franco Mello (1971, Italy), Armchair *Capitell* from Studio 65 (Italy, 1971), Piero Gilardi's *Sassi* (1971) – stones, the largest of which can be used as a chair – and *Massolo* (1971), low table by Piero Gilardi. Photo: Collin Williamson

and oxygen initiate and accelerate the oxidative degradation. High relative humidities cause a hydrolysis of ester bonds. The fact that some plastics do not show any signs of deterioration can be attributed to their 'induction time' – (the time needed to start degradation) – the induction time for a stable plastic may not yet have been reached, or it is extended by adding stabilisers, UV-absorbers, anti-oxidants and such which inhibit the degradation process.¹³

— Polyurethane foam ages through exposure to light, heat, oxygen and moisture causing oxidation and hydrolysis.¹⁴ The pores in polyurethane foam, specially made to give the material its flexibility, make the foam extremely accessible for oxygen, moisture, and light. Degradation of uncoated polyurethane foam takes about twenty years, as can be seen in such objects which gradually turn into powder.¹⁵ In contrast, the over thirty years-old foam of Gilardi's melons is still in a rather good condition. This may be thanks to the paint layer, and to the way of storing the object: wrapped in polyethylene and kept in a dark area. But how long will it last now?

The PUR foam of the object 59-18, being older and not coated with a paint layer, is much more degraded. Moreover, this is a polyester urethane, a type of PUR that is more prone to degradation. Since the work has been declared a 'total loss' the question of the life span has been answered.¹⁶

— Polyethylene is a relatively stable plastic, but yet photo-oxidised by light and oxygen. Its ageing process has been thoroughly described.^{17,18,19} Degradation takes place at the outer surface. The time at which deterioration of objects is noticed depends on the thickness of the material.²⁰ The polyethylene gauze in the work of Merz will eventually become hard and brittle, but when is difficult to predict. Photographs of the work from different years show that curators have been placing the gauze in different positions; the conservator and the curator should now decide how to place the gauze, or else it cannot be handled again without breaking.

— Acrylonitril-Styrene-Acrylic ester (ASA), used by Broodthaers, is a composition polymer consisting of three different monomers. It is a very stable material, used for outdoor applications such as billboards and signposts which are exposed to extreme conditions.²¹ Speaking in terms of a traditional material it can be compared to an alloy of metals. In an alloy different materials are combined to improve the physical, the mechanical and the chemical properties. So ASA is going to last long, although the method of manufacture – with *M.B.*, stress in the mouldings occurred – makes it difficult to say just how long.

To sum up, even if the identity of a plastic and its degradation processes are known it is still not possible to answer the question of the 'life expectancy' of an object. But rather another question should be asked: how much deterioration is acceptable for the object before it shows loss of quality? Whereas deterioration phenomena of traditional materials such as yellowing and matness are widely accepted, the various appearances of degraded plastics are not yet appreciated.

How to conserve plastic objects

Many museums do not have adequate storage and transport facilities for contemporary art works containing plastics. In general, existing guidelines for the preventive conservation of fragile organic materials such as feathers and plant fibres can be used. However, there are some exceptions. For storage, these are

— **Light** Any plastic containing light-sensitive pigments and/or chromophores, such as polystyrene and unsaturated polyesters, should not be exposed to more than 50 lux. For plastics prone to oxidation by light, a maximum of 300 lux

applies. UV-radiation should always be kept as low as possible: a maximum of 75 microwatt/lumen is practically achievable.

- **Relative humidity** Like wood and paper, nylon and other plastics containing hydrogen bonds can absorb and desorb moisture from their surroundings. If the relative humidity is too low, these plastics can shrink and crack and eventually become brittle. It is better to keep them under very stable relative humidities, preferably $55 \pm 3\%$.
- **Temperature** High temperatures cause softening of plastics. Normal museum requirements towards temperature apply: $18 \pm 2^\circ\text{C}$.
- **Ventilation** If an object emits gaseous products or plasticisers, the area needs to be properly ventilated. It is important not to wrap such objects, otherwise the gases will build up to dangerous levels. They may however be covered with acid free tissue paper or unbleached cotton.
- **Dust** Plastics are electrostatic and hence attract dust easily. Dust should be prevented by covering with acid free tissue paper or unbleached cotton.
- **Survey** During regular collection surveys, special attention should be given to plastics. Look for signs of deterioration such as discoloration, tack, deformation and cracking. Objects emitting odours should be isolated to protect the rest of the collection from harmful gases. Proper hygiene and dust covers reduce the danger.

As for transportation, one problem with the preventive conservation of contemporary art besides the use of non-traditional materials is the size of the objects. Because of their often unusual format, special boxes are made for their transportation. Some objects never come out of these boxes again. This is not necessarily a problem, but if an object contains off-gassing plastics – which may accelerate further degradation – the box becomes a time-bomb.

Most boxes contain a polyurethane foam padding, which is perfect for shock proofing on a short term. Yet another problem arises when the object is left in its box after transportation. Polyurethane foam degrades and becomes crumbly. The polyurethane crumbs will contaminate the object or, even worse, will stick to it when it is made of for instance plasticised polyvinyl chloride (PVC). As a protective material on the inside of boxes, polyethylene foam is a good alternative because of its better stability.

When handling plastic objects, precautions must also be taken. Often being light-weight, an appreciated property of the material, they are easy victims of abuse and clumsy handling. Degraded plastics which have become brittle and fragile need extra support. Lifting an object in a wrong way will cause, although not immediately visible, stress cracks in the material, which in their turn propagate further degradation. Proper support devices, especially for big objects, need to be constructed.

***The decision-making model* FOR THE CONSERVATION AND RESTORATION OF MODERN AND CONTEMPORARY ART¹**

Why a decision-making model?

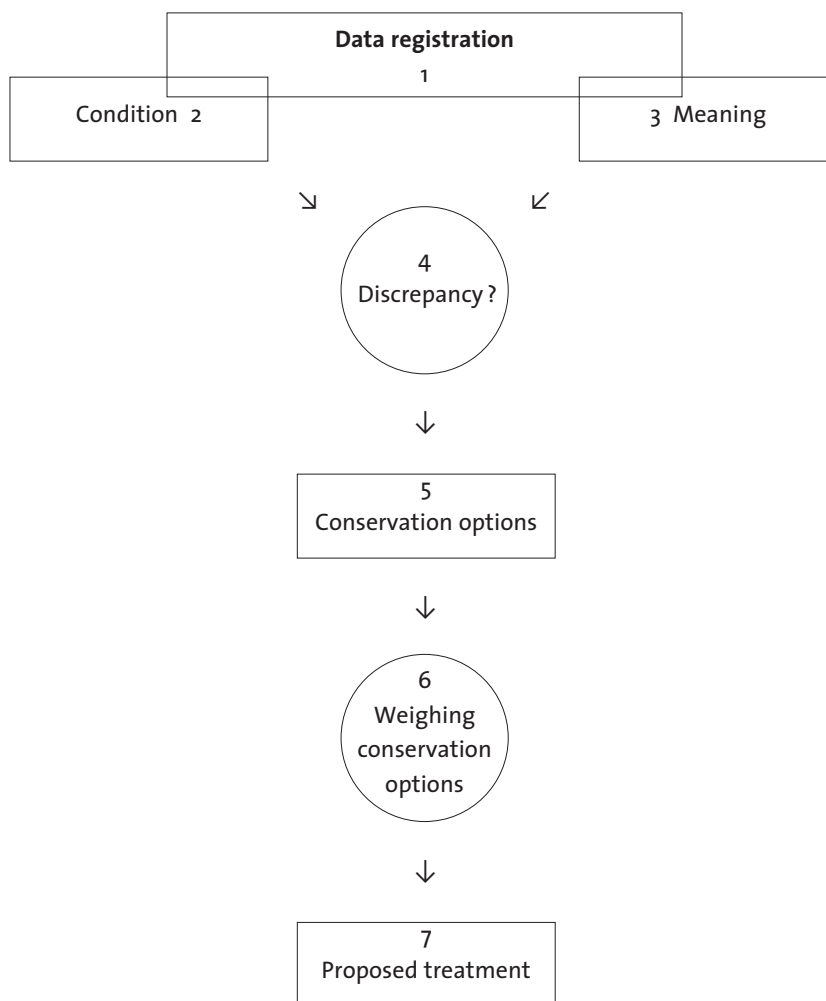
During the discussions concerning the desired treatment of the pilot objects in the initial phase of the Conservation of Modern Art project, it soon became apparent that it was necessary to develop a structure. In the first discussions it was clear how many differing and disparate arguments could play a role in establishing a decision-making model. It was evident that the problems arising in the conservation and restoration of modern and contemporary art are complex. The present model originated from new and improved attempts to steer the discussions of the theoretical working group into proper channels.

Once a consensus has been reached concerning the terminology, the model appears to function well: it affords a structure for leading a discussion; it organises the decision making; it affords possibilities for checking an existing decision in the light of consequences that may have been less clear when determining the problems; it helps to formulate issues of the justification of the decision making; and it guarantees insight into the justification so that it may later also be consulted by others.

The model presented here builds upon a model for decision making in conservation issues developed earlier by Ernst van de Wetering.² This model took into account an important aspect of such decisions, namely that they always represent a compromise between various kinds of considerations. These considerations can sometimes conflict. Moreover, comparable considerations may weigh differently depending on the individual cases. Each case requires a new evaluation of whether preservation of the appearance is more or less important than preservation of the authentic material or possible functioning of the object.

The pros and cons of each individual case have to be weighed and guide the final decision in various paths. The final result will always prevail over one or even more of the various considerations. This process is illustrated as a circle with the factors to be considered as arrows facing inward which, in accordance with the value attached to the various considerations, guide the process in a certain given direction with more or less force. The final decision, thus, is both a compromise and a reflection of the relevant factors.

Ernst van de Wetering's model was initially developed with the conservation problems associated with 'traditional' art in mind. In order to apply it to 'contemporary' art, it had to be expanded. With regard to 'traditional' art, the meaning of the object in a material sense is generally unambiguous. Material and technique serve the meaning, which is largely determined by the representation. This means that as long as the representation is preserved, intervention with regard to the material characteristics of the work do not have to take place at the expense of the work's meaning, to the extent that this is determined by the representation. Naturally, they can take place at the expense of other elements of the meaning that are determined by technique and material, such as the transparency and depth of the colour, or of other values, such as authenticity. In addition, with traditional art there is usually greater agreement as to the meaning of a given work of art: the meanings it can embody are generally shared. With regard to 'non-traditional' objects of modern and contemporary art, the relationship between material and meaning is usually ambiguous. Meanings are mostly specific to the artist in question or even the object in question. Materials and techniques, moreover, also carry their own meaning. The array of materials and techniques is thereby so expanded that in principle anything and everything can be used.



A concomitant factor is that the less traditional the material used is, the more it contributes to the meaning of the work. A consequence of this is that a change in the material characteristics of a contemporary art work often directly alters its meaning. Along these lines, active conservation procedures which directly intervene with the material identity of the art work can also have repercussions for the meaning.

With respect to non-traditional objects of contemporary art, two moments can be distinguished in the decision-making process as to their conservation in which the role a particular material characteristic plays with regard to meaning must be investigated. The first moment in the model is when the consequences of a change in the material condition of a work for its meaning have to be established. Is there a discrepancy between the physical condition of the art work and its meaning?

Not every change in the condition of the material is equally problematic: a scratch in a floor plate by Carl André can confirm its meaning, while a similar scratch in a metal object by Donald Judd would negate its meaning. Sometimes the meaning can denote decay: namely, if the transience of an object is consciously produced by the maker and is part of the content of the work. In that case, conservation implies an intervention affecting the intended meaning.

Should a conscious discrepancy be established between the physical condition of the work and its meaning and treatment proposals have been formulated, a second moment arises when the significance of material characteristics for meaning must be investigated. At this point, the consequences of various possible active conservation interventions – which entail just as many changes in the material characteristics of the work – must be investigated.

Thus, there are two moments when the relationship of the material characteristics to the meaning of the art work must be investigated: when the question is posed as to whether condition and meaning can be united and whether intervention and meaning can be united. These considerations led to an expansion of Ernst van de Wetering's original model and now we speak of two circles: one in which the central issue is whether in the present case there is a discrepancy between physical condition and meaning; and a circle in which certain conservation options and their consequences are considered. For both of these moments various considerations can guide the decision to be made in various directions. For both moments, moreover, the considerations that lead to an answer are not predetermined, but originate from the problem at hand.

The questions formulated in the instructions indicate only a direction. The questions are grouped around various aspects of the object: aesthetic considerations, authenticity, historicity and functionality. Moreover, the questions can be answered from various perspectives: that of the artist (or of his/her surviving relatives and studio assistants), that of a forum of authoritative art critics and art historians, and that of those responsible for making a decision (the curator and/or conservator).

The answers will rarely agree, and it cannot be stated a priori which perspective should prevail.

The model presented here suggests a decision-making trajectory. It addresses the condition phenomenon; whether this phenomenon is a problem; and if so of what nature; it proposes various solutions; weighs the consequences of these solutions; and proposes a definitive conservation plan. The model is not intended to give a description of the manner in which decisions are made in reality. The model is not descriptive, but normative: it describes how a decision should be taken in an ideal case. It serves as a guideline for the manner in which the decision should be made, as an aid to explicating and thereby controlling the considerations which in practice are often implicit, and finally as an instrument to check and provide an insight into the decisions ultimately taken.

Explanation of the 'steps' in the model

1. Data registration

Knowledge of the object, including information on the materials used, the way it was made and the intentions of the artist is crucial for the conservation of contemporary objects. The gathering and registration of this knowledge forms the basis for a responsible decision as to conservation.

Experience has taught the Conservation of Modern Art project that some basic information is necessary for the conservation of contemporary objects. This was only sporadically available from the museums involved in the project. In some instances the implicit knowledge of a curator, conservator or another outside expert could be tapped. In a number of instances, the necessary information could no longer be recovered. A model for data registration was developed during the Conservation of Modern Art project that can be used as a guideline in gathering and registering the necessary information.

Instructions

Register the following information, preferably using the model for data registration.

- Information about (and from) the artist about the actual production of the object, its meaning and particularly the meaning of the material (possibly through an interview with the artist).*
- Visual material of the original condition and/or intermediate condition,*

registration of motion, sound, installation.

- *Literature on the artist.*
 - *Information on the composition of materials, brand names, production processes, information from assistants and producers.*
-

2. Condition

In determining the condition of a work, first the composition and ageing of the materials must be scientifically (chemically, biological, physically) investigated. This is followed by an analysis of the mechanical ageing (for example through use) and of reactions to the environment (pollution). In the event of damage to the object, the damage and consequent changes must be precisely documented.

In establishing the condition of the object, questions can also be formulated about the future ageing behaviour of a specific material. In a number of cases it will be difficult to predict the future ageing behaviour and the conditions under which this will arise.

A problem in describing the condition of contemporary objects is that the composition of many of the materials used is not known and moreover the ageing behaviour of many materials has not been investigated. This holds true primarily for the 'new materials', such as plastics, but also for parts of equipment, such as transistors and cathode-ray tubes (screens).

The more information we have concerning the materials used and their composition, the better their condition can be determined.

The condition report is made on a regular basis, when checking the condition of the object or when there is a concrete reason for doing so, for example when the object is being lent or has been damaged. Each new condition report is then appended to the data registration. The model for condition registration was developed in the course of the Conservation of Modern Art project.

Instructions

Make a condition report of the work using the model for a condition report. The most appropriate expert for making such a report is a conservator. If necessary, he/she will consult other experts.

3. Meaning

Determining the meaning of the work prior to conservation is the foundation for responsible decision making in the conservation of modern art. The meaning of a work, however, is layered and certainly not unambiguous. One can speak of meaning imparted by the artist, but also by a context (criticism, group, style, time), by a place (collection, country, 'site-specific'), or event (performance). In addition, the choice of material and working method has consequences for the meaning of the work. Finally there are also ideological (political, philosophical and religious) layers of meaning.

In the case of modern art, materials and working methods acquire a highly specific significance so that conservation research must be conducted per artist and per work. Because conservation in most cases constitutes an intervention in the materiality of the work, research into this layer of meaning before a conservation method is established is particularly important.

The meaning of the work is determined on the basis of available data gathered in the course of the investigation. The gathering of data that could influence the meaning of the work – with an emphasis on the use of material and working method – is thus one of the first activities to be undertaken in the conservation of modern art. The curator/conservator determines the meaning.

Following specific research for the sake of conservation, information related to the meaning is amplified and refined.

Instructions

Determine the general meaning of the object on the basis of the following questions:

- What is the subject or theme of the work (whether or not this can be gauged from the title)?
 - What is the importance of the perceptible appearance for the meaning of the work? The perceptible appearance can be visual, but also auditive, kinetic, etcetera.
 - What is the importance of the various materials used for the meaning of the work?
 - What is the importance of production processes for the meaning of the work?
 - In what lies the expressiveness of the work?
 - What are other important associations?
-

4. Discrepancy?

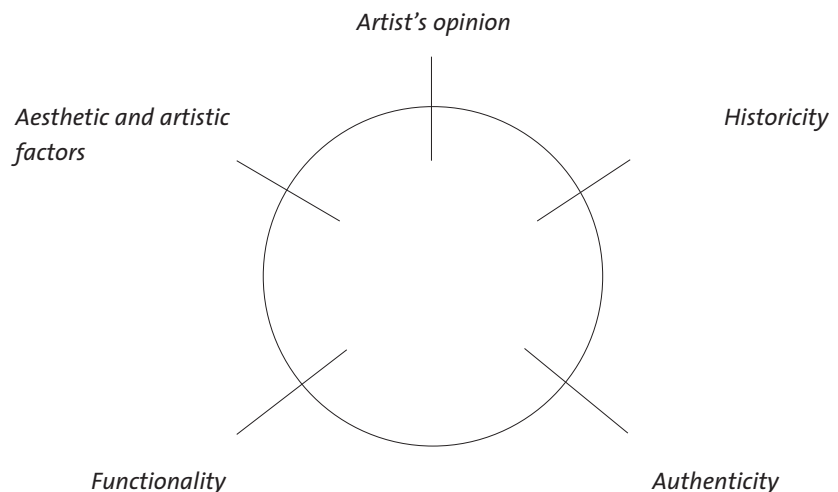
Correct diagnosis of the conservation problem is extremely important for the decision making concerning the method of conservation. In the Conservation of Modern Art project it appeared that a conservation problem was engendered by a discrepancy between the condition and the meaning of a work.

A discrepancy, therefore, can only be determined with extensive knowledge of the meaning of the work on the one hand, and investigation of the physical condition of the work on the other hand. Whether there is a discrepancy between condition and meaning of the work can be determined by answering the following question: *Does the meaning of the work change as a result of the ageing, damage or decay it has sustained such that intervention must be considered?*

It cannot be stated beforehand whether a certain ageing or damage, indeed, constitute a problem.

As mentioned in the introduction, a scratch can reinforce the meaning of one work of art (for example in a floor plate by Carl André) while negating it in another (a metal object by Donald Judd). Therefore, designating a potential discrepancy is not a linear process: one can speak of various kinds of considerations and factors. Determining whether a discrepancy can be identified in each individual case will differ in each case. Moreover it is possible that in a later phase of the research (namely in weighing the conservation options), new information will come to light that will also influence the assessment of the discrepancy.

The factors to be weighed in determining a discrepancy (aesthetic factors, authenticity, historicity and functionality) can be presented as arrows pointing inward in a circle that will guide the decision in a certain direction with more or less force according to the value attached to these considerations.



The final determination of the discrepancy is thus the outcome of a process of deliberation involving a number of factors, and therefore a compromise.

Instructions

Determine whether there is a discrepancy and define the conservation problem. This can be done with the help of the following checklist. The factors to be weighed can be applied in the circle.

Checklist for determining a discrepancy between the physical condition and the meaning of a work

Central question

Does the meaning of the work change as a result of the ageing, damage or decay it has sustained to such an extent that intervention must be considered?

4a. Aesthetic and artistic factors

- Does the ageing, damage or decay influence the subject or theme of the work?
What subjects or themes does the work explicitly refer to?
Does the work evoke associations or reactions that are important for its meaning?
- What importance do the changes in the perceptible appearance of the work have as a result of ageing, damage or decay to the meaning of the work?
What importance does the perceptible appearance have for the meaning of the work?
- Does the meaning of the materials used change as a result of the ageing, damage or decay?
What importance do the various materials used have for the meaning of the work?
What importance do the various materials used have in relation to the (cultural-historical) context? What materials were used by the artist's contemporaries?
What materials does/did the artist use in the rest of his oeuvre?
- Is the expressiveness of the work affected as a result of the ageing, damage or decay?
In what lies the expressiveness of the work?

4b. Authenticity

- What importance does the deviation from the original appearance (generated by damage, ageing and decay) have for the meaning of the work?
What importance does the perceptible appearance have for the meaning of the work?
- Is the production process important in assessing whether the change in appearance influenced the meaning?
Can one speak of a single implementation or of an edition?
To what extent is the 'hand of the artist' in the production process important for the meaning?
Does the work have parts that were made, whether or not on commission, by third parties? What is the meaning of these parts in the work?
- What relation does the ageing, damage or decay have to the importance of the original creation for the meaning of the work?
Does the work have parts of which the originality is not important for its meaning and that can be regularly changed without problems? For example a palm rather than the palm provided by Broodthaers.
Can arguments be found in favour of or against a possible re-making of the work or parts thereof?

4c. Historicity

- Are there traces of ageing that contribute to the meaning of the work? To what extent is the established ageing and decay part of the work?

4d. Functionality

- Does ageing, damage or decay affect the functionality in a way that is important to the meaning of the work?

5. Conservation options

Should a discrepancy be established between the condition and the meaning of the work, the *technical* possibilities for conservation and restoration are then explored. This is done by a conservator, who gathers the relevant information from specialists (material experts and scientists).

Instructions

Formulate various options for passive and active conservation that could contribute to the termination or lessening of the discrepancy or of the conservation problem.

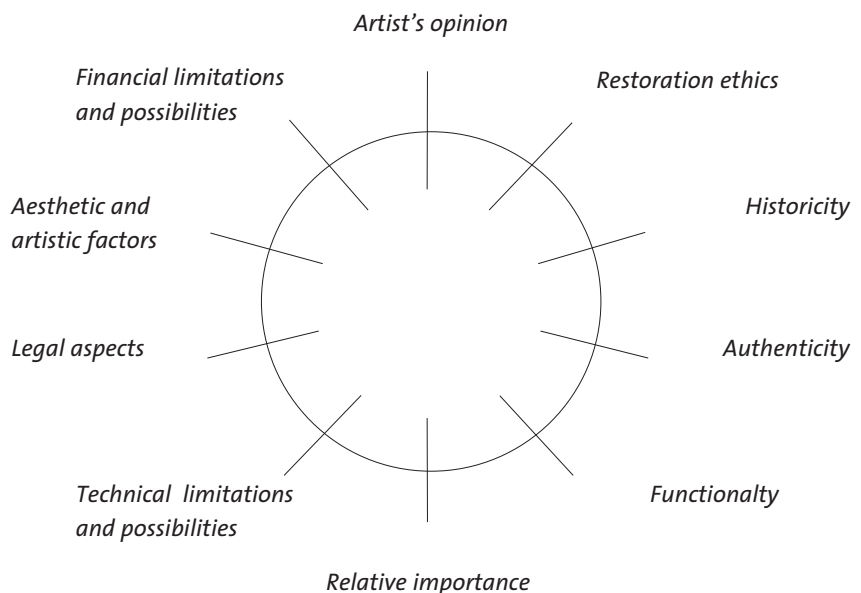
6. Weighing conservation options

The possibilities for conservation and restoration are weighed in light of the consequences and risks that the treatment would entail for the meaning of the work. The following question is central: *In what sense will the meaning of the work alter as a result of the proposed conservation option?*

The factors related to the object when considering the options (authenticity, aesthetic factors, functionality and historicity) are important in answering this question. In addition, external limitations (legal aspects, economic limitations and possibilities: see also checklist III) that play a role when weighing the various options for conservation must also be considered.

The various conservation and/or restoration options are considered within a framework of risks, meaning and limitations. In this way, technical possibilities might yield to ethical or economic considerations, or a treatment might be abandoned in the light of ideological priorities.

As when determining a discrepancy, an important feature when weighing conservation options is that various considerations steer the decision on conservation



in various directions. Consequently, a decision always has the character of a compromise. Here, too, the weighing factors are illustrated as arrows pointing inward in a circle which, in accordance with the value attached to the various considerations, guide the decision in a certain direction with more or less force. Thus, the final decision is a compromise and the outcome of a weighing of factors.

Instructions

Balance the conservation options against the consequences and risks that the treatment would have for the meaning of the work with the aid of the following checklist. The weighing factors can be applied in the circle on page 170.

Checklist for weighing the options for conservation

Central question

In what sense will the meaning of the work be altered as a result of the proposed conservation options?

6a. Aesthetic and artistic factors

- Will the theme or subject of the work be influenced by the proposed conservation? What subjects or themes does the work explicitly refer to?
Does the work evoke associations or reactions that are important for its meaning?
- What importance do the changes in the perceptible appearance as a result of the proposed conservation have for the meaning of this work?
- Will the meaning of the materials used be altered as a result of the proposed treatment?
What importance do the various materials used have for the meaning of the work?
What importance do the various materials used have in relation to the context?
What materials does/did the artist use in the rest of his oeuvre?
What importance does the perceptible appearance have for the meaning of this work?
- In what sense is the expressiveness of the work affected by the proposed conservation? In what lies the expressiveness of the work?

6b. Authenticity

- Following the proposed conservation, what is the impact of an intervention in the original appearance of a work on its meaning?
What importance does the perceptible appearance have for the meaning of the work?
- Will traces of the production process be influenced by the proposed conservation such that the meaning of the work changes?
What is the importance of the production process for the meaning of the work?
To what extent is the 'hand of the artist' in the production process important for the meaning?
Can one speak of a single implementation or of an edition?
Does the work have parts that were made, whether or not on commission, by third parties? What is the meaning of these parts in the work?
- Will the proposed conservation affect the original creation to such an extent that the meaning of the work changes?
Does the work have parts of which the originality is not important for its meaning and that can be regularly changed without problems? For example a palm rather than the palm provided by Broodthaers.
Can arguments be forwarded in favour of or against a possible re-making of the work or parts thereof?

6c. Historicity

- Will the proposed conservation affect the traces of ageing and does this influence the meaning of the work?
- Will the proposed conservation eliminate other traces of ageing, which should be preserved not for artistic but for historical reasons?

6d. Functionality

- Does the proposed conservation affect the functionality of the work in any way that is important to the meaning of the work?

6e. Relative importance of the art work

- What role does the work in question play within the oeuvre of the artist, artistic movement, museum collection, or national collection in the decision about conservation?
- Can one speak of an edition or a single work and is this work part of a series or is it an individual work of art? What are the consequences of this for the decision regarding the proposed conservation?

6f. Financial limitations and possibilities

- What are the financial limitations and possibilities for the proposed conservation options?
What is the maximum available budget for the conservation of the object?
Does the financial value of the object justify the costs of the conservation or are there other reasons for justifying the expense of conservation?

6g. Legal aspects

- What legal consequences can be anticipated as a result of the proposed conservation?

6h. Artist's opinion of the intervention

- What is the opinion of the artist concerning the proposed restorations and how does this fit in with earlier statements by the artist concerning the work?

6i. Technical limitations and possibilities

- What are the technical limitations and possibilities of the proposed conservation?

6j. Restoration ethics

- Is the integrity of the work sufficiently guaranteed after treatment?
- Are the answers to the previous questions sufficient for treatment to be initiated?
- Can the proposed methods be reversed? If not, are there decisive reasons for using them nonetheless?
- Is the professionalism of the implementation guaranteed?
- Will the treatment be documented?

7. Proposed treatment

The result of the previous steps in the model is a definitive treatment proposal with a well-founded motivation. This treatment plan contains proposals for preventive conservation, for active conservation and for restoration.

Instructions

Draught the treatment plan and make sure that the motivation for the decision making is stored with the data registration.

Christiane Berndes & Working Group Registration and Documentation NEW REGISTRATION MODELS SUITED TO MODERN AND CONTEMPORARY ART¹

Christiane Berndes is curator at the Van Abbemuseum.

In contemporary art, both the use of materials and the production techniques are extremely diverse. Artists may employ any material, varying from stone and metal to plastics and highly transitory biological matter – such as the fruits on a glass table by Mario Merz. Works may be composed with objects the artist has made, but also with manufactured ‘ready-mades’ or parts commissioned and produced by others. Thus, the importance or function of the maker’s hand differs from work to work.

To an increasing extent, artists are giving individual and different meanings to the materials and techniques they use. Depending on these meanings and the artists’ intentions, the material may or may not have to be kept in its original state: sometimes the process of ageing, for example, is an integral part of the art work. The variety of materials, techniques and meanings implies that approaches to conservation and restoration also differ from work to work. The same goes for installation, handling and storage. Therefore, we have to decide for every single art work what is the best way to deal with it.

When discussing the ten pilot objects in the Conservation of Modern Art project, we found that in actual practice reliable and detailed information on these subjects is rather patchy or hard to find. The inventory cards and the documentation files did not supply sufficient data, so we were far from able to answer all the questions about materials and techniques, the artists’ intentions, their views on the restoration of their work, and so on. With Tony Cragg’s *One Space, Four Places* for instance:

- information about the origin of the material was missing – in fact there was no detailed record of the material at all,
- no detailed photographs of the work were available,
- the photographs we did have were not dated, which made it difficult to determine to what extent the work’s condition had declined or whether components had already disappeared completely,
- there were no instructions from Cragg regarding the installation of the work,
- information about past restorations was scant and Cragg’s own views on the preservation of his work were unknown.

Yet, all this information is of vital importance for reaching a proper diagnosis and making the right decisions for preservation measures. Tracking it down was a time-consuming and tedious job; we could have saved much time if as much information as possible had been gathered and recorded at the moment the work was acquired.

Two registration models

It became clear that all the information obtained during the project should be carefully stored for future use. To this purpose, a registration model was needed in which the work of art could be described and documented in detail. Existing registration models were studied for workability, but these offered little room for recording ‘unconventional’ data. We did know the interesting and highly advanced model that was especially developed for sculpture in the Museum für Moderne Kunst in Frankfurt by Erich Gantzert-Castrillo. This, however, was very unwieldy – partly because the material is described in a system of multiple choice and the list of materials used in contemporary sculpture is practically endless. We decided that a system of open questions, being more compact and clear, would be better suited for recording the information.

Within the project, a working group for Registration and Documentation was

set up to design a new model – a model consistent with the one for decision-making which was being developed in parallel. On the basis of the investigation of the ten pilot objects, the working group took stock of the various kinds of information to be registered. The outcome was a combination of two registration models: one for data registration and one, entirely new, for condition registration.

The model for data registration can be used for various purposes by various departments in the museum. It can easily be converted to an electronic database and adapted to different systems. The model contains the customary fields for the registration of art works, supplemented here and there by an observation field in which reporters can list their sources, for instance. New features are:

- Description of materials and techniques: recorded are the origin of the material and its treatment and function, whether parts are prefabricated or recycled, whether there are intangible aspects such as movement or sound, who is the maker of the various parts (artist, assistant or production company), where the work was constructed, whether spare parts are available.
- Description of the work's presentation and installation: this is linked to information on the artist's intention, which should guarantee the desired 'effect'. In addition, references can be made to information about past presentations – thus creating a sort of installation history.
- Description of the work's meaning: this may include information on the artist's intentions from literature or from interviews with the artist himself/herself, possibly made when the work was purchased.
- Description of the work's significance: its meaning within the context of art history and its importance within both the artist's oeuvre and the museum's collection.
- The formulation of ethical guidelines for conservation: the do's and don'ts in the light of the work's significance. This, in fact, contains the conclusions from the condition registration and the decision-making model.

The model for condition registration serves to determine the work's condition and to state conservation options. The work's current condition and its original state are compared. Along with the results of literary and material research and information from the artist, they form the basis of any proposals for conservation or restoration. The eventual conservation or restoration measures and recommendations for passive conservation can also be recorded here.

Thus, apart from its registrative function, the model can also be viewed as a guide indicating the entire route from defining the work's condition through to accounting for its conservation. This model does not seem to be as easily convertible to an electronic database as the data registration model: it contains extensive texts and other means of documentation such as photographs, video and sound tapes, plan drawings, product information and reference items. A good solution for computerisation might be to make the information accessible on two levels: first, in keywords, the instructions and then, for the user who wants or needs more, the full details available via a kind of 'clicking' or 'hypertext' system.

Interpreting the information and translating it into conservation proposals is a matter on which the conservator and the curator together decide. Finally, the data on treatment, conservation, transport, storage and exhibition history contained in the condition registration are used to help fill in keywords in corresponding fields of the data registration – thus, the two models are connected (see the survey on page 165).

Practical experience

As a curator in the Van Abbemuseum, Eindhoven, I took part in the Conservation of Modern Art project because we had to deal with similar registration problems. We

have no permanent conservator on staff but work with several freelancers, so the conservation and restoration of the collection falls under the curator's responsibility. The museum has a relatively small collection – about 2,500 inventory items – of paintings, works on paper, sculptures and installations from the twentieth century. It turned out that the documentation for the sculptures and installations was inadequate for properly setting up complex installations, or for making well-considered, sound decisions regarding active and passive conservation. Therefore, the museum decided a few years ago to develop a new data registration model that could accommodate more information.

Our new model was developed in actual museum practice, although gradually our findings were integrated with those of the working group for Registration and Documentation. Now, the project's data registration model is very similar to ours. All new acquisitions are documented with the help of the new model. We are working backwards now to document the rest of the collection. The condition registration model developed by the working group is being used in the consultations between curator and conservator on the conservation of our sculptures, and I must say that we are very enthusiastic about it.

A growing awareness

For making the right decisions regarding conservation, restoration, exhibiting work, transport and storage, a careful documentation of art is very important. The quality of the documentation determines the quality of the decision, which in turn determines the quality of the preservation of the work for years to come. In actual practice it is not always possible to obtain all the necessary information, there is not enough time to record all the data and there are always new questions arising later on anyway, but it is the growing awareness that counts. By using these models, one becomes aware of how vital certain information is – both now and in the future. Even if this information is not available at the moment, at least there will be a central place to store it as soon as it does become available. And so, it can be accessed by everyone else in the museum.

Regarding this growing awareness, it is not only contemporary sculpture that changes, the way in which museums and artists deal with it changes too. This can be seen from the following example. A few months ago, the Van Abbemuseum displayed Suchan Kinoshita's work *Show*. After the exhibition, we spoke with her about the possibility of purchasing this work. Naturally we wondered how to display the work without her direct participation, how to preserve it and whether parts could be replaced. Kinoshita was immediately prepared to discuss this with us and proposed writing a sort of 'musical score' in which she would write down exactly how the work is to be installed and 'performed', who can take what liberties, and who has what obligations. She also proposed the appointment of three 'godmothers' who would stand by and assist the museum in the event of installation or maintenance problems. The godmothers are also responsible for their own future successors.

This is an interesting proposal, completely in line with the spirit of the work itself and, as it were, a part of it. Only few art works however are blessed with a special godmother. If we want to enable future generations to take maximum pleasure from the art works of our age, then we now have to record as much information as possible. For proper management and maintenance, proper documentation is a necessity.

A survey of the registration models

In the Conservation of Modern Art project, the models for data registration and condition registration were developed and tested in parallel to the investigation of the ten pilot objects. Apart from traditional records of a work's condition, treatment and conservation, a new aspect of the model for condition registration is

that it includes evaluation and decision-making points.

The two models are interrelated: for determining an art work's condition, the data registration has to supply the necessary information on its original situation and history, and on the materials and techniques used, while directions for the work's preservation in the data registration rely on the information found in the model for condition registration.

Both models are also dynamic in that after each new research result and treatment the information is updated. All data on loans, exhibitions, insurance value, photography and suchlike, which are augmented and modified over time, should be recorded and kept as historical reference.

For the data registration, each museum will have to make its own arrangements, depending on their individual situation, as to who is to complete which of the various fields – the curator, conservator, storage handler, registrar or anyone else. With the condition registration, it is in principle the conservator who, in consultation with the curator, completes the forms.

Model for data registration

This model comprises the following fields:

1. Identification

This includes the art work's meaning which is a record of the artist's intended statement with the work – even though this may be hard to formulate at times. Further study on the subject is needed, especially on that of interviewing the artist about his/her work. Many relevant data are retrieved this way: the project showed clearly that, if possible, the artist should always be interviewed.

For reasons of consistency, areas for recording the work's original meaning have also been included under the headings of Description, Production, and Presentation/Installation (resp. 3, 4 and 5).

2. Location

3. Description

4. Production

Under the headings of 3 and 4, specific fields for data on materials and techniques of three-dimensional art are included. Thus, the traditional arrangement in large groups of materials and types of work has been replaced by open fields. Moreover, data on prefab or re-used parts, the producer (the artist himself/herself, his/her assistant or some company) and non-material aspects such as motion and sound also have to be recorded. For accountable decision making on conservation, these proved to be indispensable.

5. Handling the object

6. Presentation/Installation

This includes information on the artists' intentions with the installation of their work and its effect on the viewer.

7. Literature & Correspondence

8. The Artist

9. Acquisition

Model for condition registration

For the registration of a work's condition, the model comprises five types of documentation which correspond with the subsequent stages in the decision-making model (see page 165):

1. Diagnosis

Here, the discrepancy between the art work's current condition and the original state (thus directly depending on the data registration of original materials and techniques) is defined. The investigation of the ten pilot objects showed that with

contemporary art works the use of materials and the production techniques differ essentially from those of traditional art. Therefore, modern art offers scope for unorthodox ways of restoration, such as the replacement of parts.

The discrepancy between a work's current condition and its recorded original state and intention is evaluated; on the basis of this evaluation, conservation options are listed and selected.

2. Conservation options

A range of options are investigated for their practicality, ethical/aesthetical admissibility and so on. In the project, this was the stage in which various external experts were consulted.

3. Propositions

In the end, choices have to be made; propositions are formulated accordingly.

4. Treatment Reports

As usual with conservation and restoration.

5. Preventive conservation advice/minimum conservation needs

An important record, resulting in instructions for various museum assistants.

The models can be further developed by:

- working out the item 'interview with the artist',
- testing the model for condition registration on larger groups of objects,
- designing a thesaurus of modern materials.

General instructions for DATA REGISTRATION

- Complete the model for data registration as far as possible.
- Always fill in the inventory number, date, and the name of the person who compiled the description.
Other compulsory fields (printed in bold) must be filled in. Use the existing fields as much as possible. Use the field 'comments' at the end of each section for any comments that are not covered by the other fields.
- If the work in question comprises several, separate parts, it may be necessary to describe these individually. Use one model for data registration to describe the entire object. Then use a new form for data registration for each part. Only fill in the fields that are relevant to that specific part of the object. Do not forget to fill in the inventory number and the serial number of the part that is being described.
- Where necessary, use additional sheets to specify general information.
If a field cannot be filled in, do not leave it empty. Fill in 'unknown' or 'not applicable' where necessary.
- If the accuracy of the information being provided is in doubt, indicate with a question mark (?).
- When information in a field is altered, add the name of the person who is making the alteration and the date the changes were made.
- The standardisation of the terminology used is crucial to information retrieval and automation. As far as possible, use the same key words and terms for the same concepts. Preferably use existing lists.
During the working process, add the terms that are used in the museum to these lists. Periodical checks and additions will create a practical list of approved and preferred terms.
- Use standard English and recommended spelling (no slang or colloquialisms).
Use the singular wherever possible.
Avoid articles (definite and indefinite).
Only use capitals for proper nouns.
- Names should only be written as follows:
Surname, initial(s), preposition (e.g. de, van, von).
Examples: Jansen, P.H. Groot, P. de
- Place names should be in order from the specific to the general.
*Examples: Amersfoort & Utrecht & Netherlands
Oxford & Oxfordshire & England & United Kingdom*
- Key words within in a single section should be written in order of importance, from the general to the specific.
Example: Object & plaque
- Apply the following rules for punctuation:
 - : Colon for separating different elements
 - & Ampersand when more than one key word is used in a single field
 - () Round brackets after a key word to enclose detailed information
 - ; Semi-colon in lists
 - = Equal sign for separating elements in a series
 - [] Square brackets to indicate indirect information
- Record data as follows:
YY-MM-DD
Note the year using four digits:
1935=1949
1920 (c.)
1889 (before)
1975-04-24

The model for DATA REGISTRATION

Compiled by:

Date:

1. IDENTIFICATION

1.1 Name of institution

Examples: *Stedelijk Van Abbemuseum (Eindhoven)*
Rijksmuseum Twenthe (Enschede)

1.2 Inventory number

Fill in inventory number. In the case of objects that consist of more than one part, give each part a serial number based on the inventory numbering. Use zeros before the numbers if the system requires this.

Examples: *1807 A-E (whole)* *1807-A (table)*
1807-B (chair) *1807-D (chair)*
1807-C (chair) *1807-E (chair)*

1.3 Artist's name

Artist's full name. Use the name most used within the art world. Where necessary, note other names by which the artist is known in round brackets. Notation: see General Instructions.

Examples: *Broodthaers, M.*
Constant & (Nieuwenhuis)

1.4 Complete title

Fill in full title of the work. Note possible variations separated by a semi-colon (;).

Example: *Città Irreale*

1.4.1 Identification

Name and position of the person who gave the work its title if it was not the artist.

Example: *Title 1; title 2 (title changed by artist 1990-03-05).*

1.5 Dating

Fill in the date the work was made.

Notation: YY-MM-DD

Examples: *1983* *1980=1985*
1989 (c.) *1970 (before)*
1965 (after) *1975-04-24*

1.6 Key word for object

Using a key word or a combination of key words from the list of approved terms, indicate here which group or what kind of art works the object belongs to. For example: assemblage, installation, environment, relief, sculpture, object, painting. If the object belongs to different groups or types, separate the key words using '&' (ampersand). When in doubt about the use of a particular key word, use a question mark in round brackets: (?).

Examples: *relief*
object & plaque
installation (?)

1.7 Style/movement

Using a key word or a combination of key words from the list of approved terms,

indicate to which style and/or movement the object belongs. Examples: Minimalism, Conceptual Art, Photorealism, Zero Movement, Pop Art, Realism. If an object can be placed in several styles or movements, separate the key words with '&' (ampersand). When in doubt about the use of a particular key word, use a question mark in round brackets: (?).

1.8 Meaning of the art work

Indicate whether the decision-making model for the object has been completed. Use a specific code to indicate where this information may be found.

N.B.: If there is no completed decision-making model, collect and record as much of the following data as possible:

- Artist's comments about the intentions underlying the work. Sources such as letters, interviews, notes, texts with notations about the use of materials, the means of presentation, means of preservation, ideas about restoration and conservation.
- Art-historical interpretations of the meaning of the work.

See decision-making model, page 168.

1.9 Additional comments

Record here, in full, any additional information concerning the identification.

Example: Artist's proof.

2. LOCATION

2.1. Location of the object

Using a specific code or sign to show where the object is situated, record the date the object was first moved to that location. Avoid unclear notations such as 'in the cupboard, third shelf on left'. If a work consists of more than one part, state the location of each part.

Examples:
depot cupboard 5 : drawer 2 : 1990-05-12
depot case 057 : 1807-A (table) : 1993-07-29
depot case 153 : 1807-B (chair) : 1993-07-29
gallery 2 : 1996-01-14

2.2 Location of packing materials

2.3 Additional comments

Record here any additional comments about the location of the object in full.

Example: The work should be stored horizontally.

3. DESCRIPTION

3.1 General description

Give a short description of the art work. Record aspects such as colour, representation or other factors that are visible but which cannot be described in another field.

Example:
Table and four chairs made from waste objects of different colours and materials threaded together.
(for: 'One Space, Four Places', Cragg, Tony 1982)

3.2 Illustration/Reproduction of the work

State here whether images of the work exist. Use a specific code or sign to indicate where the images can be found. Use a separate sheet 'Illustrations' to record as much data as possible about the images. Use the list of approved terms for 'Illustrations'.

3.3 Number of parts

State here how many parts the work consists of. Specify the separate parts in round brackets.

Examples: 5 parts (1 table, 4 chairs)
(For: 'One Space, Four Places', Cragg, Tony 1982)
parts (Eve; Adam & plinth)
(For: 'Adam and Eve', Brancusi, Constantin 1916-1924)

3.4 Complete: yes/no

State here whether the work is complete or not. Record – as far as possible – which parts are missing.

3.5 Certificate: yes/no

State whether there is a certificate for the work and, using a specific code or sign, indicate where the certificate can be found.

3.6 Signature: yes/no

Indicate whether the work is signed. If it is, record the following facts about the signature:

- the literal representation of the signature, where possible
- where the signature is on the object
- the method used to make the signature.

Example: M.B. (verso) & (in red felt-tip pen(?))
(For: 'M.B.', Broodthaers, Marcel 1970-1971)

3.7 Inscription: yes/no

3.8 Legend: yes/no

3.9 Label: yes/no

Indicate whether the work contains a legend. Delete what is not applicable and record, as accurately as possible, the literal reproduction of the inscription, legend or label. Make a sketch if necessary. Then indicate the position of the lettering on the object and how it has been applied.

Example: legend yes
TOMBA DELLA CACCIA (upper edge of crucible) & (text has been cast with the object & partially illuminated with gold leaf).
(For: 'Tomba della caccia', Siebelt, Ben 1991)

3.10 Dimensions

Note the height x width x depth, where relevant diameter and/or circumference of the object. State the measuring unit and, in round brackets, the part of the object that has been measured.

Finally state the circumstances in which the object was measured.

Examples: 78 x 308.5 x 15 cm (whole)
50 x 180 x 15 cm (freighter)
73.5 x 115 x 13.5 cm (sail boat)
whole object measured : hanging in exhibition
(For: 'Freighter and Sailboat', Oldenburg, Claes 1962)

3.11 Weight

State the object's weight and, in round brackets, indicate which part of the object has been weighed.

State the circumstances in which the object was weighed.

Example: 35 kg (whole: weighed in gallery Wide White Space, Antwerp)

3.12 Material key word

Using one or more key words, indicate here from what material or materials the object has been made. Use the list of approved terms for 'materials'. Avoid using brand names as much as possible.

When the precise nature of the material is not known, write a material group (e.g. wood, plastic, leather, metal etc.).

Examples: *plastic*
 ebony & acrylic-styrene-acrylonitrile-terpolymer
 wood (& mahogany)

3.12.1 Specifications

Using one or more key words, indicate what kinds of materials have been used, applying the following categories. (For this field a separate sheet entitled Material Data can also be used to provide as many details about the materials as possible.)

Example: *Materials:* *wood* *plastic*
 Prefabricated parts: *brick* *light bulb*
 Reused objects: *plastic bottles* *book*
 Immaterial aspects: *rotating movement*
 sound *smell*
 Additional original material/spare parts supplied by artist:
 blue dye
 Appliances/Accessories:
 transformer *slide projector*

3.12.2 Condition key word

Using a key word, indicate what condition the material is in: good, moderate, bad. N.B. The attribution of these key words is largely subjective. The exact definition of the key words should be agreed upon within the museum. This field is primarily concerned with the condition of the material.

Determining the condition of the object is highly complex. Data relevant to this can be collected using the model for condition registration.

3.12.3 Additional comments

Write in full any additional remarks about the description of the object.

4. PRODUCTION

4.1 Location of production

State where the work was made.

Examples: *New York (& United States)*
 Haarlem (& The Netherlands)

4.2 Production method/technique

Briefly describe how the work was made. Provide as much information as possible about the following aspects.

4.2.1 The production process used in the work

For example *by the artist's own hands;*
 by a company commissioned by the artist;
 in a workshop, with practical help from assistants;
 a purely conceptual work;
 a combination of the four points mentioned above

4.2.2 Production method

Example: *welded tube frame*

4.2.3 Tools and equipment used

Example: *arc welder*

4.2.4 Documents relevant to the production

Example: *drawings, photographs, pictures, videos*

4.2.5 Persons involved

Example: *family, friends, assistants who can be consulted*

4.2.6 Literature

If no information is available for this field, fill in 'unknown'.

4.2.7 Comments

Note here, in full, any additional remarks about the production of the object.

5. HANDLING AND STORAGE OF THE OBJECT

5.1 Past treatment

Indicate whether the object has undergone any treatment in the past. Describe the treatment briefly and, using a specific code or sign, indicate where data concerning earlier treatment can be found.

5.2 Completed model for condition registration

Indicate whether a model for condition registration has been completed for the object and, using a specific code or sign, indicate where these data can be found.

5.3 Storage conditions

State the preferred storage conditions for the object.

Record any details concerning:

- storage
- packing material
- climate (temperature level, rH, light level and degree of air pollution)

Example: *the object must be stored on a rack and protected by a cotton cover*
temperature 10°C(±3) per 24 hrs, rH 40%

5.4 Maintenance

Describe here the maintenance that should be carried out on the object and how often this should take place. Use a specific code or sign to indicate where the maintenance reports can be found.

5.5 Handling

Accurately describe the guidelines that apply to moving the object. Indicate the following:

- the number of people required to move the object
- what 'instruments' are needed (for instance: only handle with gloves, use a fork-lift truck to lift it)
- indicate where the object should be held for lifting and how it should be handled (for instance: do not lift from the cage construction; only handle the wheeled undercarriage)

5.6 Transportation

Indicate how and by what means the object can or should be transported. Use the separate sheet 'Transportation conditions' to list as many specifications as possible concerning transportation conditions.

5.7 Exhibition procedures

Indicate whether or the not object may be exhibited. Using a specific code or sign, state where the documentation for the decision-making process can be found. Use the separate sheet 'Exhibition conditions' to record as many details as possible about the exhibition conditions.

5.8 Lending

State whether or not the object may be lent out. Using a specific code or sign, state where the documentation concerning the decision-making process can be found. Use the separate sheet 'Lending conditions' to record as many specifications as possible concerning the required conditions for loaning the object.

5.9 Additional comments

Any extra comments about how the object should be handled, written in full.

6. PRESENTATION/INSTALLATION

6.1/6.2 Particular conditions

State any particularities relating to whether or not special conditions are required for the installation of the object. Using a specific code or sign, indicate where these data can be found. Use the separate sheet 'Presentation/Installation specifications' to record as much information as possible.

6.3 Additional comments

Any additional comments about presentation/installation written in full.

7. LITERATURE/CORRESPONDENCE

7.1 Exhibitions, internal/external

State the title, location, place and date of internal and external exhibitions in which the object has been displayed.

Example: Robert Ryman, London Tate Gallery beginning 1993-02-17 end 1993-04-25

7.2 Literature on the art work

Provide a list of literature. Only literature on the object in question.

7.3 Correspondence

Indicate whether there is any correspondence about the work. Provide a brief description of the subject and use a specific code or sign to state where the correspondence can be found.

Example: correspondence: yes: dossier 1807 (acquisition and damage)

7.4 Comments

Any additional comments about literature/correspondence written in full.

8. THE ARTIST

8.1 Interview with artist: available/unavailable

State here whether an interview with the artist exists and where the transcript of the interview can be found.

8.2 General information about the artist: present/absent

Indicate whether there is a file containing general information on the artist. Using a specific code, indicate the location of this file.

N.B. If no such file exists, collect and note as many of the following facts as possible:

- personal details about the artist
- artist's address
- names and addresses of people associated with the artist
- extra information about the artist.

9. ACQUISITION

9.1 Key words for acquisition

Fill in how the museum acquired the object.

Examples: *purchase* *on loan* *conveyance*
 exchange *gift* *legacy*

9.2 Acquired from

Fill in the name of the person or institution from which the object was acquired.

Example: *gallery Wide White Space (Antwerp)*

9.3 Date of acquisition

Fill in date of acquisition.

Notation: YY-MM-DD

9.4 Provenance

State here whether there is information on the object from the time *before* it was acquired by the museum. State in brief the kind of information and, using a specific code or sign, indicate where the relevant documents may be found.

9.5 Purchase price

Fill in the price paid for the work. Indicate the exchange rate for the day the object was purchased.

9.6 Insurance value

Fill in the insurance value of the work. State the date this amount was established.

9.7 Additional comments

Record here any additional information about the acquisition, written in full.

***The model for* DATA REGISTRATION LINKED WITH OTHER DATABASES**

The model below is a version of the model for data registration linked with other existing databases. The model can be used as a point of departure for a data model which can be incorporated with individual existing databases in museums. It applies to the situation in the Netherlands and should be adapted to the local situation in each country.

Primary database <i>Field</i>	Links to other databases <i>Type</i> → <i>dependent DB</i> ← <i>look-up DB</i>	Database <i>description of global contents</i>
1. Identification		
1.1 Name of institution	←	National Museum Guide
1.2 Inventory no.	←	Inventory list/Location list
1.2.1 Sequence no.		
1.3 Artist's name	←	Netherlands Office for Fine Art/artist/ download from Van Eyck project where available
1.3.1 Also known as	←	ditto
1.4 Complete title		
1.4.1 Identification/ascribed by		
1.4.2 Based on source		
1.5 Dating		
1.5.1 Precise yes/no		
1.5.2 If not precise: margins		
1.5.3 Source		
1.6 Key word for object	←	Key word; Existing? A&AT Establish/ alter when entering
1.7 Style/movement		Key word styles: Existing A&AT Estab lish/ alter when entering
1.8 Meaning of work		
1.9 Comments/Other		
2. Location		
2.1 Location of object	←	Inventory list/Location list
2.2 Location of packing materials	←	Inventory list/Location list
2.3 Comments/Other		
3. Description		
3.1 General description		
3.2 Illustration yes/no		
3.2.1 Specification	→	Images
3.3 Number of parts		
3.3.1 Specification	→	Separate parts

3.4	Complete yes/no		
3.4.1	Specification	→	Missing parts or separate parts & missing parts
3.5	Certificate yes/no [16]		
3.5.1	Certificate no.	←	Dossier certificates
3.6	Signature yes/no		
3.6.1	Transcription		
3.6.2	Position		
3.6.3	Means of application		
3.7	Inscription yes/no		
3.7.1	Transcription		
3.7.2	Position		
3.7.3	Means of application		
3.8	Legend yes/no		
3.8.1	Transcription		
3.8.2	Position		
3.9	Label yes/no		
3.9.1	Transcription		
3.9.2	Position		
3.10	Dimensions		
3.10.1	Whole yes/no		
3.10.1.1	Specification	→	Separate parts
3.10.2	Measuring unit		
3.10.3	Length		
3.10.4	Width		
3.10.5	Height		
3.10.6	Circumference		
3.10.7	Diameter		
3.10.8	Source		
3.10.9	Date		
3.11	Weight		
3.11.1	Whole yes/no		
3.11.1.1	Specification of parts	→	Separate parts
3.11.2	Unit		
3.11.3	Source		
3.11.4	Date		
3.12	Material	→	Material
		←	Key words material
3.12.1	Specifications	→	Materials
3.12.2	Condition	←	Key words
		→	Materials
3.12.3	Additional comments		

4 Production

4.1	Place and date of production
4.1.1	Place
4.1.2	Country
4.1.3	Date

4.2	Method of production		
4.2.1	Production process	←	Possibilities
4.2.2	Method of production		
4.2.3	Tools used		
4.2.4	Documents about production	→	Documents
4.2.5	Persons involved	→	Persons involved
4.2.6	Literature on the production	→	Literature on the production
4.2.7	Additional comments		

5. Handling and storage of the object

5.1	Treatments	→	Treatments
5.2	Condition data	→	Condition data
5.3	Storage conditions		
5.3.1	Storage		
5.3.2	Packing material		
5.3.3	Climate		
5.3.3.1	Temperature		
	5.3.3.1.1 Minimum		
	5.3.3.1.2 Maximum		
5.3.3.2	Relative humidity		
	5.3.3.2.1 Minimum		
	5.3.3.2.2 Maximum		
5.3.3.3	Maximum light levels		
5.3.3.4	Level of air purification		
5.4	Maintenance		
5.4.1	Sort		
5.4.2	Frequency		
5.4.3	Location of maintenance reports		
5.5	Handling methods		
5.5.1	Number of people required		
5.5.2	Tools used		
5.5.3	Where to hold the object		
5.6	Transportation		
5.6.1	Permitted yes/no		
5.6.2	Transportation conditions		
5.6.2.1	Method of Transportation		
5.6.2.2	Packing material		
5.6.2.3	Climate		
	5.6.2.3.1 Temperature		
	5.6.2.3.1.1 Minimum		
	5.6.2.3.1.2 Maximum		
	5.6.2.3.2 Relative humidity		
	5.6.2.3.2.1 Minimum		
	5.6.2.3.2.2 Maximum		
	5.6.2.3.3 Light levels (lux)		
	5.6.2.3.3.1 Maximum		
	5.6.2.3.4 Light levels (UV)		
	5.6.2.3.4.1 Maximum		

- 5.7 Exhibition
 - 5.7.1 Permitted yes/no
 - 5.7.2 Exhibition conditions
 - 5.7.2.1 Temperature
 - 5.7.2.1.1 Minimum
 - 5.7.2.1.2 Maximum
 - 5.7.2.2 Relative humidity
 - 5.7.2.2.1 Minimum
 - 5.7.2.2.2 Maximum
 - 5.7.2.3 Light levels (lux)
 - 5.7.2.3.1 Maximum
 - 5.7.2.4 Light levels (UV)
 - 5.7.2.4.1 Maximum
 - 5.7.3 Exhibition frequency (per period)
 - 5.7.3.1 Maximum
 - 5.7.4 Duration of exposure (per exhibition)
 - 5.7.4.1 Maximum

- 5.8 Lending permitted yes/no
 - 5.8.1 Reason
 - 5.8.2 Lending conditions

- 5.9 Additional comments

6. Presentation/installation

- 6.1 Particular conditions
- 6.2 Installation
 - 6.2.1 Assemblage instructions
 - 6.2.2 Location of assemblage instructions
- 6.3 Relevant information
- 6.4 Additionital comments

7. Literature/correspondence

- | | | |
|----------------------------|---|----------------|
| 7.1 Exhibitions | → | Exhibitions |
| 7.2 Literature on the work | → | Literature |
| 7.3 Correspondence | → | Correspondence |
| 7.4 Comments | | |

8. Artist

- | | | |
|---|---|-------------------|
| 8.1 Interview available yes/no | | |
| 8.1.1 Location | → | File on artist |
| 8.2 General information about the artist available yes/no | | |
| 8.2.2 Specification | → | Dossier on artist |
| 8.2.2.1 Personal details | | |
| 8.2.2.2 Address | | |
| 8.2.2.3 Associated persons names | | |
| 8.2.2.4 Associated persons addresses | | |
| 8.2.2.5 Information | | |

9. Acquisition

- | | | | |
|-------|--|---|------------------------------|
| 9.1 | Manner of acquisition | ← | Keywords acquisition options |
| 9.2 | Acquired from | | |
| 9.3 | Date of acquisition | | |
| 9.4 | Provenance | | |
| 9.4.1 | Pre-acquisition documents yes/no | | |
| 9.4.2 | Location | | |
| 9.5 | Purchase price | | |
| 9.5.1 | Currency | | |
| 9.5.2 | Amount | | |
| 9.6 | Insurance value | | |
| 9.6.1 | Currency | | |
| 9.6.2 | Amount | | |
| 9.6.3 | Date value was set | | |
| 9.6.4 | Location of insurance policy/other documents | | |
| 9.7 | Comments | | |

The model for CONDITION REGISTRATION

Condition registration

Name of institution:

Inventory number:

Artist:

Title:

Date:

1. DIAGNOSIS

Compiled by:

Date:

Location where examination took place:

Reason for the condition report:

1.1 Original condition (material and technique)

1.1.1 Model for data registration filled in:

yes (give reference)

no

1.1.2 Original condition:

Briefly describe the original condition – use the model for data registration.

1.2 Current condition of art work and material

1.2.1 Age of art work:

Record the age of the art work.

1.2.2 Material and/or conservation history:

Record in chronological order the changes to the materials and the restoration work that has been carried out in the past, including names of conservators/restorers, dates and reasons where possible.

Changes that can only be inferred through comparing photographs from different dates should also be mentioned, as well as changes that can be read from the present state of the objects, even if the executor, date or the reason for the changes cannot be traced.

1.2.3 Storage history:

Record in chronological order where the art work has been stored up until now and the storage conditions. The storage history should be traceable from the 'Location' field of the completed model for data registration. Relocation, internal exhibitions and lending history also belong to the storage history.

1.2.4 Illustration, visual and audio material:

Specifically in relation to the current condition or damage. For general photographs refer to the representative photographs named in the model for data registration. (Enumerate with dates, photographer, brief description and location.)

1.2.5 Dimensions:

State the dimensions of the whole work and/or the parts to compare with the dimensions recorded in the model for data registration. Indicate the accuracy of the measurements. Where necessary record how much space the work occupies when installed in a gallery.

1.2.6 Weight:

State the weight of the work and/or the parts. If the weight is not known, provide an approximation.

1.2.7 Description of Condition:

The subdivision of this field is flexible, depending on the sort of object, and may be adapted to follow a logical/relevant order.

Examples:

1.2.7.1 Describe the general condition of the whole and/or each part according to:

Deterioration within the art work:

- a. Effect of materials on each other within the work (chemical/ physical)
- b. Effect of construction, weight, electricity, mechanisms, other

Damage from external sources:

- a. Physical (mechanical damage, breakage, falls etc.)
- b. Chemical (climate, air composition, light etc.)

Condition of previous restoration work:

Parts that have been renewed or replaced by, for instance, a copy (transformer, neon)

1.2.7.2 Describe the present condition of material, supplemented with an enumeration of the material that has been added later where necessary.

1.2.7.3 Provide a prognosis for the increase in soiling, deterioration and the decay of the existing construction of the work.

1.2.8 Additional research required for a complete diagnosis: yes/no

1.2.8.1 Literature

1.2.8.2 Interview the artist

1.2.8.3 Question (former) museum workers

1.2.8.4 Microscopic examination

1.2.8.5 Scientific analysis of materials

1.2.8.6 Other:

1.2.9 Current situation, results of additional research

Conclusion current condition:

1.3 Compare the current condition with original condition

1.3.1 Comparison: the following sections may be used where relevant:

1.3.1.1 Visual comparison

1.3.1.2 Immaterial parts (perceptible features such as smell, light, movement): refer to sample material, videotapes, audiotapes etc.

1.3.1.3 Aesthetic function: research whether the art work can function materially and technically in its current condition. Use the model for data registration for the original condition to establish this (headings Description, Production and Identification). Consult the conservator or other experts who are familiar with the work.

1.3.2 Additional research to determine differences: yes/no

Inform the artist of the condition

Consult the artist

Consult the curator/director

Consult the owner (if the work is on long-term loan)

Consult external experts (conservators, manufacturers, institutes)

Literature (conservation and/or material-technical information)

Initiate photographic or other form of documentation

1.3.3 Current situation, results of additional research

1.4 Assess present and original condition

Determine whether or not there are discrepancies between the present condition and the original meaning of the object using the following question:

As a result of changes, damage or degeneration, has the meaning of the art work altered to such an extent that intervention has become necessary? (Use the checklist in the decision-making model.)

2. CONSERVATION OPTIONS

2.1 Preliminary examination

Indicate whether a preliminary examination has been carried out, what it contained and where the reports or supplements can be found. If the preliminary examination contains many different aspects, indicate this at the end in a summary or with a conclusion.

2.2 Material-technical options

Provide a survey of the options for preventive and active conservation and for restoration.

2.3 Weighing the options for conservation

Make a selection from the conservation options discussed and assessed above. Record the discussion and explain the reasons for the decision. Indicate what subsequent treatment is required or desired in the following order. If the decision has been made for 'No conservation/restoration required or possible', provide recommendations for preventive conservation/minimal conservation requirements (5).

1. Active conservation treatment
2. Restoration
3. No conservation/restoration required
4. No conservation/restoration possible
5. Preventive conservation/minimal conservation requirements.

3. PROPOSALS

Proposed by:

Date:

3.1 Conservation proposal or restoration proposal

3.2 Planning of conservation or restoration

4. TREATMENT REPORTS

Executed by:

Date:

4.1 Treatment reports on active conservation and restoration respectively

- 4.1.1 Execution/method
- 4.1.2 List of products used (brand names etc.)
- 4.1.3 Materials, parts added to object

5. RECOMMENDATIONS

Preventive conservation/minimal conservation requirements

Described by:

Date:

5.1 Depot/storage conditions

- 5.1.1 Location in order:

- 5.1.2 Storage:
Current storage:

Current packing material:

- 5.1.3 Action required:....., store as follows:
- 5.1.4 Climate conditions during storage:
 - a. Present storage climate
 - b. Store work under the following conditions:%RH;°C,lux,UV (absolute maximum and minimum conditions)
- 5.1.5 Special maintenance required during storage:
- 5.1.6 Regular inspection required during storage:
 - Pay particular attention to:
 - Present condition
 - Progression of natural deterioration
 - Frequency of inspections
 - Action in the event of changes:
 - (for example, make a condition report, photographic documentation of the condition, consult experts)

Planning & execution (example)

Task of technical department: executed by

* once, regularly (every six months, year, two years)

Task of depot supervisor: inspection

* structurally...times a year, minutes per inspection

Task of photographer: documentation.....

* occasionally, lasting days (e.g. times every 10 years)

5.2 Handling and transportation

- 5.2.1 Instructions for internal transportation:
 - crate/case/frame available for internal transportation:
- 5.2.2 Instructions for transportation: (state what is and what is not permitted)
 - packing material:
 - transportation crates:
 - (compulsory) position of crates during transportation:
 - method of transportation: (car, boat, plane)
 - temperature: maximum and minimum over ... hours
 - manner of moving crates: (e.g. on trolley with pneumatic tyres)
 - courier: (task)
- 5.2.3 Method of handling of art work:
 - as follows; or: never
- 5.2.4 Placing in and removing from crate:
 - as follows:; or: never

5.3 Exhibition conditions

- 5.3.1 Exhibition inscriptions:
 - see model for data registration: installation and presentation
- 5.3.2 Assemblage instructions:
 - refer to handbook, schematic drawings and other documentation
- 5.3.3 Climate requirements during exhibition:
 - Climate and light conditions:
 - rH and temperature conditions (state as absolute minimums/maximums);
 - light conditions (state as absolute maximums lux μ Watt/lumen)
 - Maximum duration of exhibition:
 - Maximum period object may function (electronic functions, visual material etc.)
- 5.3.4 Special maintenance during exhibition:
 - Instructions for invigilators/guards:
- 5.3.5 Regular inspection of possible changes during exhibition:

- overall condition
- progression of natural deterioration
- instructions to cleaners
- 5.3.6 Proposal for photographs/film of the condition before/after exhibiting:
re: damage reports
- 5.3.7 Do not exhibit:
- 5.3.8 Only exhibit exhibition copy:
- 5.3.9 Existing lending policy: (restrictions)
- 5.3.10 Proposed lending policy:
see also the specifications established above; adapt according to reason-
ableness and the situation for external exhibitions
 - a. Minimum conditions: (transportation crate and climate; see previous specifications)
 - b. Maximum frequency: (depending on susceptibility of object to damage)
 - c. Registration & courier: (tasks, agreements)
 - d. Only lend exhibition copy:
 - e. Proposed photographs/film of the condition before/after lending: (re: damage report)

Planning and execution of tasks during exhibition internal/loan (indicate number of hours/days)

Task of depot supervisor/technical department:

(pack work, prepare for transportation and where necessary, make crates with hanging and handling construction)

Task of registrar:

(prepare loan, complete forms etc.)

Task of curator/conservator:

(registration of the condition, the model for condition registration, travel with the art work as courier)

Task of conservator/curator of exhibition:

(carry out daily/regular inspections of changes)

Task of photographer:

(only in the case of damage or obvious deterioration after lending)

Renée van de Vall PAINFUL DECISIONS: PHILOSOPHICAL CONSIDERATIONS ON A DECISION-MAKING MODEL

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In Aeschylus's play *Agamemnon*, the Greek king of the same name is confronted with an extremely painful dilemma. He has been ordered by Zeus, king of the Olympian gods, to sail with an army to Troy and avenge the abduction of his brother's wife Helen. However, for a reason unexplained in the play, the goddess Artemis has turned against him. She prevents the fleet from leaving the harbour and the army is in danger of extinction. Agamemnon is told that there is only one way to placate her: he should sacrifice his own daughter Iphigeneia.

In her book *The Fragility of Goodness* the philosopher Martha Nussbaum presents Agamemnon's predicament as a typical example of **tragic conflict**: a situation in which one is forced to choose between two morally undesirable courses of action.¹ Both alternatives are undesirable because each of them violates a valid ethical claim: either Agamemnon will have to disobey Zeus and endanger the lives of his men, or kill his own flesh and blood. Whichever action he chooses, he will always commit a wrong.

In treating Greek tragedies like *Agamemnon* as paradigms for moral understanding, Martha Nussbaum has broken with a long-standing tradition in philosophical ethics of considering such tragedies irrational in presenting these problems as unresolvable dilemmas. Taking this view, a solution can always be found for moral problems – that is, if one starts from the right principles, and these are for philosophical ethics to determine.

Nussbaum contradicts this view by challenging its basic presuppositions.² She denies that values can always be compared – weighed by a common standard and ordered in a hierarchical system so that a rational choice between them is feasible. Against the traditional view on moral deliberation, which in essence is Platonic, she takes the side of Aristotle who viewed values as plural and noncommensurable. We may cherish a diversity of values – friendship, civil courage, honesty, generosity, piety towards the gods – without any problem. Yet situations may arise in which, for instance, our duty to a religion clashes with our parental affiliations. No measuring or weighing will ease the difficulty of the choice we then have to make. Moreover, once it is made we will always feel the pain of having done something wrong – even if our choice was obviously the better one.

Values cannot be compared and measured by a common standard. Therefore, Nussbaum follows Aristotle again in the view that moral reasoning does not ask for a purely rational or scientific procedure of deliberation. The realm of morals is not one of episteme, scientific knowledge as unshakeable as mathematics. It is a realm that asks for *phronesis*, practical wisdom. In the context of ethical problems regarding the conservation of contemporary art, it is this Aristotelian concept of practical wisdom that I would like to elaborate on.³

The inevitability of tragic choices

Conservators of art will hardly run the risk of encountering a situation as dramatic as Agamemnon's, but they are often placed before dilemmas that in some way resemble it. They have to make choices in which the sacrifice of some value is inevitable. For instance, whether to preserve the historical or material authenticity of a painting, or its (presumably) original visual appearance.⁴ The chances of encountering such dilemmas seem to have increased with contemporary artistic developments. As artistic media and techniques diversify and meanings proliferate, the possible values at stake in a particular work have become more heterogeneous. Thus, they are more likely to conflict than in the case of a traditional painting or statue.

To take one partly real, partly hypothetical example: what would have hap-

pened if it had proved unfeasible to seal the asbestos sheets sufficiently in Pino Pascali's *Campi arati e canali d'irrigazione* to prevent health hazards? Could they have been replaced by a different material? Or did asbestos have a special meaning for the artist, for instance because the roofs of the Italian houses of his youth were covered with it? Thus changing the material would have changed the concept of the work. It might have been necessary to replace the sheets, but then part of the work's meaning may have been lost.

What struck me, when I attended some of the meetings of the theoretical working group, was the keen awareness of the inevitability of such 'tragic choices'. The awareness that by choosing a certain restoration procedure to preserve one value – say, the traces of the artist's hand or the conceptual meaning of a material and its treatment – would almost always imply the loss of some other value, such as the visual integrity of the work. In fact, the whole procedure devised by the initiators of the project was intended to develop a method to cope with such a situation. They chose not to construct a theory on the specific nature of contemporary non-traditional works of art and then formulate certain general principles to guide future conservation decisions, but to assemble a series of difficult, practical examples. By so doing, they hoped to be able to reach more general conclusions.

When the group began thinking in terms of using some kind of model to guide deliberations it was conceived as a field of forces. The starting point for developing what became a decision-making model was based on an earlier one by Ernst van de Wetering and Rik van Wegen. The two chose a circle with seven vectors pointing inwards representing the various considerations to be taken into account. As they themselves say:

"(to represent) the basic nature of any decision in the field of conservation and restoration as a compromise; a compromise because many of the forces involved are opposed. Any change in our conception and evaluation of the more or less conflicting categories may change the final outcome of the decision."⁵

First of all this earlier model implied an awareness of the incommensurability of various values. For instance, there is no common standard for measuring both the economic and aesthetic values of an art work. One cannot subtract its functionality from, say, the importance of it serving as an historical document. Secondly, it implied that any decision will inevitably be the outcome of a compromise between conflicting values – a result which in other circumstances and with other preferences of the people involved may have been different.

Aristotelian approach

In the new model, developed for the special purpose of deciding on the conservation of modern and contemporary non-traditional objects, both assumptions have been preserved. They were designed for a more general use; yet it could be argued that in the field of non-traditional art works they are even more urgent because here the values involved may be more diverse, less clearly determinable, less established.

The same goes for a third, related characteristic of the deliberations: the strong awareness of the historic variations concerning aesthetic and other preferences that guide conservation decisions. This awareness lives in a much broader field than that of the conservation and restoration of contemporary art alone. The knowledge that choices in the past have often been based on tastes or considerations we no longer find acceptable has apparently led many conservators to exercise admirable caution regarding their own judgements. The rule to strive for maximum reversibility of interventions testifies to this prudence.

With regard to the three characteristics of the deliberation process – the awareness of incommensurable values, the necessity of compromise and the historic variations in preferences – the participants in the project proved to be genuine Aristotelians. Aristotelian ethics denies that rational moral choice can be

encapsulated in a system of general rules or principles which can then be applied by means of a process of logical deduction to subsequent new situations. Instead it starts from concrete situational judgements of a more informal and intuitive kind to which a certain universality is given.

In this approach, discernment lies with perception: the prime condition for sound judgement lies in recognising the salient features of a complex individual situation. Although the ability to perceive well is partly a natural talent, it can also – and should be – developed. For instance by consulting older, wiser people or by reading literature. Nussbaum considers novels and plays as prime vehicles for moral education. A more feasible procedure for conservation problems, however, might be found in the age-old practice of casuistry.

Moral reasoning

In their book *The Abuse of Casuistry* Albert Jonsen and Stephen Toulmin, like Nussbaum, distinguish two different approaches towards moral reasoning.⁶ Their prime subject is not ancient Greek tragedy and philosophy, but the theory and practice of Catholic moral consultation as developed in the Middle Ages and which peaked between 1560 and 1660.

The first approach might be said to consider moral reasoning as a kind of theoretical science, a body of sure knowledge, an episteme. It is rooted in the philosophy of Plato that sought a body of ideal, abstract knowledge of Good as certain as that of the then newly emerging science of geometry. It found a major expression in Kant's moral philosophy and has been the predominant approach in philosophical ethics for the past 300 years. This view holds that moral reasoning has to start from a few unshakeable and abstract general principles and is applied via a process of logical deduction to particular cases. The basic principles should be self-evident and therefore universally valid for everyone, at all times and places. Particular conclusions drawn on this basis hold with the logical necessity of syllogistic reasoning: all a are b; x is an a; therefore x is b. Principles and conclusions constitute a coherent and consistent system of thought.

The second approach has its philosophical roots in the ethics of Aristotle. It was predominant in moral theology until the mid-17th century and then became increasingly discredited. As a procedure it has survived, however, in some of the less theoretical sciences: Jonsen and Toulmin refer especially to medical clinical practice, but one could think of jurisprudence as well. With this approach, moral reasoning is not a theoretical science but a kind of practical wisdom or *phronesis*. Moral reasoning is supposed to start from the details and circumstances of a particular situation. It does not exclude rules, but understands them as guidelines that derive their intelligibility from concrete paradigmatic cases. Thus they are not self-evident. When confronted with a moral problem, casuistry first looks for similar cases instead of applicable general rules. It proceeds not via formal logical deduction or induction, but via comparison and analogy. It tries to determine resemblances and differences between the case at hand and paradigmatic cases. Casuistry reasons via analogy – whether the case at hand might be resolved in a similar manner or not.

It is obvious that the development of a moral taxonomy, the compilation of a collection of cases and their comparison, is a major tool in this kind of approach. Finally, the solutions reached are not intended to be absolutely valid for all similar situations: they are presumably right, yet might prove wrong when new circumstances arise.

A moral taxonomy

There is a striking resemblance between the procedures used by the working group and those of the casuists. What the participants have done, in fact, comes close to developing a taxonomy of cases. Each case has been considered in its own right.

Much time and deliberation was spent in trying to articulate the nature and urgency of a problem – or whether there was any problem at all. These deliberations, informed by art historical and scientific research being carried out as part of the project, were an exercise in perceptiveness: to conceive as completely as possible the features relevant for understanding a work, assessing the problem and weighing the likely consequences of various conservation measures.

There is a danger however in these procedures resembling those of casuistry. Since the 17th century, casuistry has acquired a bad reputation, being associated with opportunism and insincerity, with cleverly arguing falsehoods into truths. This is quite understandable because of the abuse in history by officials of the Catholic Church serving the powers of the time and because of the apparent lack of independent standards by which to measure the outcome of deliberations. Is there a guarantee against partiality, a safeguard that judgements are not weighed so as to favour certain interests over others?

In Kant's philosophy, for instance, it was the rational self-evidence of his first principle (the Categorical Imperative) and the logical necessity of his reasoning that was supposed to safeguard the impartiality of his conclusions. What does the casuistic approach offer instead?

The infamous 'restoration' of Barnett Newman's *Who is Afraid of Red, Yellow and Blue III* may serve as an example. Could we have argued against it without invoking the rule of reversibility that was so evidently broken in this case? The answer is that this rule can also be seen as the outcome of a process of practical moral reasoning. Its rationality may be based on the consideration of a series of known examples in which it is clear that the decisions of one generation of conservators have often been contested by the next generation, acting from different insights, working with different technical possibilities, holding different aesthetical preferences. It may be a matter of well-reasoned prudence then, instead of infallible principles, to proceed in such a way that the possibility of later reversal remains an option.

But if the outcome is the same, why bother? The point is that the project had to deal with situations for which there were hardly any precedents: a moral taxonomy had not yet been developed. The maxims that have emerged from a history of well-considered practice and seem to have acquired the status of principles, might have proven untenable – or not unconditionally tenable – in these new cases. For such unprecedented situations, the above-described casuist method of comparison and reasoning via analogy might be especially well suited. The choice of the casuist method also affects what one might want as a result. Rather than a code of guidelines or criteria, a compilation of thoroughly argued cases would be instructive: examples of well-judged decisions that a prudent conservator would take into consideration. In this situation, it was a wise decision.

Balancing the pain

A last feature of Aristotelian ethics, as described by Martha Nussbaum, brings us back to the unfortunate King Agamemnon. That is the importance of emotions and imagination in moral reasoning, the importance of our subjective response.

Agamemnon chose the lesser of two evils, yet the play's chorus condemned him. Why? Could he rationally have chosen otherwise, angering his god and endangering his army? Nussbaum says he was not to blame for his choice, but for the way in which he put it into effect. Once he had made his decision, he acted as if it did not hurt. He showed no anger, remorse or pain. He let Iphigeneia be killed as if she had ceased to be his daughter.

Art works are objects: they have sizes, weights, colours, textures – objective qualities which are there for all to see or measure. Yet we value them for being more than mere objects: we act and talk about them as if they were living creatures. It is astonishing how often in restoration and conservation discourse meta-

phors from an organic, medical way of thinking are used. And just as in our relation to living and sentient creatures, the nature of our responses to works of art matters for the moral quality of our conduct. Aesthetic qualities such as liveliness, purity or freshness are, as the Dutch art philosopher Rob van Gerwen states, response dependent.⁷ They require our individual and emphatic appreciation. Subjective response is indispensable to our understanding of a work and necessarily guides its interpretation and treatment. In the model, this subjective aspect is captured in the word *expressiveness*. One consideration for advising the replacement of the rusty trays in Pascali's work was that it possessed a freshness and purity making it undesirable to leave too many traces of repairs.

Valuing this subjective aspect does not imply that one should follow one's primary impulses about a work, or reduce the entire deliberation process to the whims of whoever happens to be in charge. In an Aristotelian view, emotions are not irrational urges. They can be developed and educated, they can be evaluated in a reasonable discussion. The same goes for our responses to art. In the end, it is the developed sensibility of a curator or conservator that guides the balancing of the pain – and unlike Agamemnon, he or she will not deny that the pain is there, because this is exactly what makes the decision instructive for others: to learn why, in which circumstances, this was the best thing to do; and what, in spite of all care and cautiousness, was irrevocably and painfully lost.

D.H. van Wegen BETWEEN FETISH AND SCORE: THE POSITION OF THE CURATOR OF CONTEMPORARY ART

On Kunstwollen and expressiveness

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The curator of contemporary art is confronted with the task of enabling the public to share in the experience of looking at art works that have not yet been freighted with historical interpretation, while ensuring that future generations will also be able to partake of these works. This article attempts to provide an overview of the theoretical and moral aspects of the complex problems of preserving contemporary art from the viewpoint of the art historian's practice in the museum, and to identify the approaches towards these problems that those responsible for preservation are often tempted to take. An alternative to these approaches is then deliberated, one that aims to do justice to the individual nature of non-traditional, contemporary art objects and the conditions required for optimum experiencing of the work, as well as the codes of ethics that have been developed for conservation and restoration.

As background to this deliberation, first the dilemma between conservation and presentation is outlined followed by the development of conservation theory and ethics. Here, the term contemporary art does not apply to the painting in a frame or the sculpture on a plinth, works that are still being created today, but to all alternative forms of modern-day art. Where traditional art is mentioned it does not imply any value judgement, but only indicates a work made in a traditional form.

The museum's dilemma

The museum is a mass of contradictions. As an institute it originated from opening up to the public collections of artefacts and curiosities belonging to royalty and the aristocracy or to societies of cultured citizens. It is this public access to their collections, which are often as not public property today, that is a distinguishing feature of a museum. At the same time museums are obligated to hand down their collections to future generations. By becoming part of a museum collection, art works are, as it were, preserved in the collective memory of humankind, or at least in that of a specific group.

The two most important duties of a museum, the preservation of a legacy for future generations and the displaying of artefacts to the general public, validate each other, yet they are also in conflict with each other. From a preservation viewpoint, the collection would be better stored in the dark or at least out of the public's reach. In practice, however, within certain acceptably considered boundaries, museum objects are indeed exposed to effects and dangers that irrevocably shorten or directly threaten their survival. Thus the museum is continually faced with the task of seeking compromises between its two main functions.

The development of conservation theory and ethics

One of the results of this search for compromises is known as conservation. The term embraces all those measures that serve to promote the continued survival of an art work. Those measures that directly intervene in the preserved artefacts themselves are termed active conservation. These interventions generally take place after change or damage has been found. Such changes may trigger interventions because the work's preservation is threatened or for other, possibly aesthetic reasons.

When a work becomes unstable or threatens to disintegrate, preservation clearly becomes an issue. Aesthetic reasons, however, are much more subjective. This can be of concern if the art work becomes less presentable due to surface grime or slight discoloration. A third reason to intervene with the state of an object, and again tied in with its appearance, is the desired legibility of a crucial

element of the work. For instance, a neon work with lights that no longer function does not tell us the original story.

The objective of conservation work is generally 'to restore'. However, it has transpired that restoration, in the sense of returning a work to an earlier condition, is pure fiction. Generations of art restoration has shown that every intervention adds its own interpretation to the work in question. As well as being an interpretation of the work, every addition is also determined by the technical possibilities and the general visual 'vocabulary' available at the time of the intervention. For instance, the emergence of *tratteggio* retouching would be inconceivable had Poin-tillism not existed as a means of expression in the same period.¹ Earlier restoration work can nowadays be dated with remarkable accuracy and sometimes even ascribed to a specific restorer by experts in restoration history. A large part of the work of conservators who handle art works of a certain age thus also involves undoing earlier restoration work and thereby the interpretations of their predecessors.

In opposition to these continuously changing interpretations – every age looks at the products of previous ages, no matter which, through its own spectacles – the search by art historians for an objective or 'historically accurate' interpretation is constant. In the 1930s the German art historian and theorist, Alois Riegl, defined the idea *Kunstwollen* as the "complex of conditions that produces the art work's particular design".² Thus *Kunstwollen* embraces both the artistic intention of the artist as well as all the social factors that have determined the actual genesis of the art work. One can therefore interpret Riegl's *Kunstwollen* as that which one would find if an objective and historically accurate interpretation were possible. Although we still inhabit the same context as the one from which contemporary art springs, paradoxically, and as a consequence of the individual nature of artistic concepts in contemporary art, an objective interpretation, or even one based on consensus, is even less accessible than with the more traditional art forms of the past.

In this sense, art restoration is always 'anachronistic' because it is always determined under the influence of an interpretation of a certain moment. In his *Teoria del Restauro* (Rome, 1963), the art historian Cesare Brandi formulated the principle that the original material identity of an object should always remain the most important source for ever-changing interpretations. To this he adds the conclusion that the original material should as far as possible be preserved. The practical application of this theory can be found in numerous codes of ethics for day-to-day conservation practice, in which restraint and reversibility of treatment are formulated as the most important principles. These codes of ethics have been drawn up with a view to keeping anachronistic additions to a minimum and to keep them reversible. In order to remain a departure point in the future for ever-changing interpretations, the original material should always remain recognisable despite any later additions.

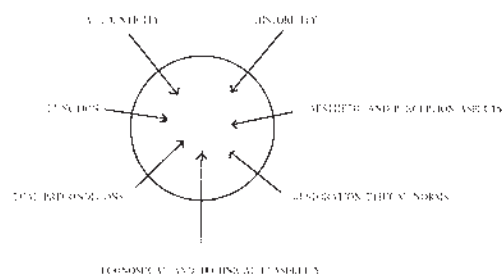
A later phase in the development of restoration theory describes how an intervention in an art work will not only always bear traces of the interpretation of a certain historical moment, but also how, at that moment, a choice is always made – explicit or otherwise – for particular aspects of the work. Thus, with conservation problems involving an intervention, there is not usually a single, universal solution. A choice always has to be made between various options, each of which only favours certain aspects of the art work. For instance, maintaining the original material may be done at the expense of its original appearance. A specific site for which a work was originally made – and this applies just as much to a late twentieth-century installation as a sixteenth-century altar piece – can have an intellectual or numinous impact which is lost whenever a work is transferred to another location, or the site itself drastically changes, whether for conservation or other museological reasons.

In 1987, a descriptive model for decision-making processes relating to conserva-

tion issues was presented to the Theory and History of Restoration working group of the ICOM (International Council of Museums) Committee for Conservation. This was a circle from the orbit of which vectors point inwards representing various considerations such as authenticity, historicity, aesthetic aspects, functional aspects as well as legal and economic preconditions.³ This model illustrates how decision making in a conservation process is determined by the importance ascribed to the various considerations. At the same time the model makes it graphically clear that the outcome of such a process is always a compromise in which there are no gains without losses.

This model breaks with the idea that various options and considerations are quantifiable and can be set off against a system of non-variable norms, which indicate a priori what the result should be. The model emphatically introduces the elements subjectivity, conflict and loss. In every instance, the most desirable solution for a conservation problem will have to be sought and found by weighing the positive and negative implications against each other.

In practice, along with explicit aesthetic and historical considerations, implicit factors also play a part in conservation issues. For example, the fact that completeness and a certain airiness are generally valued in a positive sense in our culture is often taken into account without us always being conscious of it. Besides describing a decision-making process, the ICOM-CC is also intended to reveal these hidden yet telling factors, to clarify the multidisciplinary nature of the question posed, and to give the loss of any value its own place. The ultimate intention is that the model will enable the decision-making process in conservation projects to be more thoroughly considered.



Descriptive model for decision-making processes relating to conservation issues presented in 1987.

A tragic conflict

From the contribution of the philosopher Renée van de Vall to the theoretical working group of the Conservation of Modern Art project, it appeared that the development in conservation theory outlined above has its parallels in more general theories on problem-solving. For the other members of the group, chiefly conservators and art historians, there was a highly agreeable sense of identification on learning that recent theoretical models and methods developed in philosophy also create a place for the loss incurred when one is forced to make a choice between two 'evils'. There will always be a regrettable loss, no matter which solution is chosen. The philosopher Martha Nussbaum describes these situations as 'tragic conflicts'. Van de Vall revealed the members of the working group to be genuine neo-Aristotelians. After all, Aristotle viewed values as plural and non-commensurable and stated that once a choice is made, an obviously right choice, one would always feel the pain because something is definitely lost forever.⁴

The conservation of non-traditional objects

The conservation issues associated with contemporary non-traditional art objects are not only distinguished by subjectivity, conflict and loss as described in the aforementioned model, but also have far more complex and indiscernible problems than traditional painting and plinth sculpture. There are broadly three reasons for this:

- 1 The extreme fragility and unpredictable ageing of the often highly unorthodox materials used.
- 2 The different role of materials and the creation process in the meaning of the work compared with traditional art.
- 3 The lack of historical distance resulting in an interpretation of the work based on a feasible consensus is not yet possible.

The problems of preservation linked to the type of materials used, which are often both extremely unstable and new so that the ageing process is often unpredict-

able, spring first to mind. This applies just as much to 'just' technical problems, requiring technical solutions and to which the applied sciences make an important contribution. Much more fundamental, however, is the difference in the role that the creative process and the material have on the meaning of the work. With traditional art the meaning of an object in a material sense is less ambiguous. Material and technique are to a great extent subservient to the meaning of the work, which is chiefly expressed in the form of a representation.⁵ The materials of contemporary, non-traditional objects are in that sense not usually subordinate to the meaning contained in a representation. Since the early part of the twentieth century, art has become increasingly conceptual. The material identity of an art work is sometimes declared as being entirely of secondary importance. The extreme consequence of Conceptual Art is that the object is replaceable and that the work, for instance a *Wall Drawing* by Sol LeWitt, can be remade. Conversely, it also happens that materials and techniques convey all manner of meanings so that the object acquires a fetish-type significance. For instance, the large installation *Eigentum Himmelreich* (Heaven's Property) by the German artist IMI Knoebel – consisting of paintings, drawings and sculptures – contains a part entitled *Grosse Palette* (Large Palette). In reference to the late Rainer Giese, whom Knoebel saw as a kindred spirit, he incorporated two ladders from the artist's studio.

Finally the expressive power of a work can be directly influenced by the fragility or evanescence of the material. This was the case with a challenging statement in ice called *Melting Pot* (Los Angeles 1998) by Michel Delacroix, which was made to melt during a three-day conference on the preservation of twentieth-century art.

A major consequence of the changing role material and technique play in the meaning of a work is that, in the case of active conservation procedures which directly intervene with the material quality of the art work, as outlined above, there must be a constant check on what role the material or the affected part plays in the meaning of the work. After all, every intervention can in fact have vital consequences for the meaning. Only once these consequences have been catalogued, can the pros and cons of a proposed conservation procedure be adequately weighed against each other.

In the first instance, it seems illogical that the lack of historical distance to art works should be a stumbling block to this. After all, we live in the same artistic and conceptual context as that in which the work was made. The *Kunstwollen* should therefore still be recognisable and the danger of additional interpretations and anachronisms incurred during conservation treatment kept to a minimum. Although this obviously applies to artefacts that originate from a powerful and alive tradition, a tradition that still acts as a collective artistic concept, it does not apply to contemporary pieces that largely originate from a highly individual artistic intent. When these works are similarly defined in terms of *Kunstwollen*, due in part to highly personal factors, tradition and movement do not have a deducible influence but fulfil the role of a context to which the work relates. Due to its unique origin, the interpretation – certainly in the beginning – cannot be anything other than an individual one.⁶ Only when there is an interpretative history of an object is there the possibility of an interpretation based more upon consensus.

To sum up it can be said that with regard to the active conservation of contemporary, non-traditional art objects, treatment directly intervenes in the material, which in itself often conveys meaning. Moreover, there is still no recognisable interpretation embedded in art history, and therefore none which can convey a degree of objectivity for such a work. Because there is no frame of reference to indicate the meaning of the work, the interpretative aspects of materials at stake during a conservation intervention cannot be defined. The gains and losses cannot be made explicit, so that a well-considered weighing up of these aspects, as intended by the model described above, cannot as yet be made.

The temptation of the curator: creating doctrines

Due to the complexity and imperceptiveness of the problems associated with conservation interventions in non-traditional contemporary art objects, it is even more difficult for those responsible to have an overview of the positive and negative effects of certain kinds of treatments than it is with traditional art. Moreover, curators who work with contemporary art often do so through a close personal involvement with the artist as a person and with his or her work. Not infrequently this concerns a work that still has to prove its right to exist, or a work that a curator, in his or her professional capacity, has personally experienced and has participated in the battle to secure a place for it in the annals of art history. At the same time, the purchase of contemporary art for museum collections often takes place in close consultation with the artists themselves. This makes it even more difficult, or virtually impossible, to adopt the attitude of one of Renée van de Vall's Aristotelians who realise the irrevocable loss incurred in making a choice, feel the pain and nonetheless accept responsibility for it.

The anxiety of making possibly reprehensible mistakes increases the desire for a system of graded standards that can simply and without further reflection be applied, i.e. a system of doctrines. In terms of the model described earlier, this means that the various considerations pointing inwards towards the circle would then be prioritised to a certain extent. The result would be that considerations that steer decisions in a different direction would be automatically declared of secondary importance. Guidelines would then be applied according to priority, replacing careful deliberation. Whenever there is the question of a loss of a value, this will by definition be of secondary importance and will therefore not have to be experienced as 'painful'.

Conservation codes of ethics as doctrines

One way of grading the various considerations would be to consider existing conservation codes of ethics as a fixed standard system that can be mechanically applied. Current codes of ethics underline Brandi's viewpoint that, in order to preserve an art work, the existing material object should be saved as far as possible, that conservation interventions in the art work should be kept to a minimum and then only to maintain the work as a material object – as a conveyor of information and as a source for continually changing interpretations. However, limiting intervention to what is needed for material survival will in practice often mean considerable changes to a work's external appearance.

Where Brandi's guidelines are applied without further consideration to non-traditional, contemporary art objects, the question may be asked whether justice is done to the specific nature of these kinds of art works. Much more than with traditional painting and plinth sculpture, whereby a representation is 'read' according to certain codes, contemporary art is about having a direct experience of the work. A museum visitor 'experiences' rather than 'regards' these kinds of works. With Knoebel's ladders in his *Eigentum Himmelreich*, or with objects from a performance that symbolically represent the original artistic act, ideas and meanings cling to the material itself so that the material object acquires significance as a fetish. But where this is not the case, it is chiefly the external appearance of a work that determines the expressive force of the artistic statement. Thus, where only the maintenance of an art work as a material object is considered, this will be at a substantial cost to the expressive force of much contemporary art. In extreme cases nothing more will remain of the art work other than 'archaeological' documentation, which simply provides information about its earlier existence as an art work.

From this it follows that when conservation ethics intended for traditional art are indiscriminately applied to non-traditional, contemporary art objects they can considerably overreach their objective, which is, to hand down a work to future generations so that they in turn can experience and interpret it on their own

terms. So while we indeed preserve the material object as an embodiment of *Kunstwollen* – and in certain cases the object has meaning as a fetish – we are meanwhile oblivious to the fact that the *Kunstwollen* can often no longer be ‘read’. In this case, we actually ignore the fact that as well as a material authenticity, there is a conceptual authenticity which is chiefly determined by the work’s external appearance. For the work to be continually experienced and interpreted anew this also has to be preserved. If in preserving the material object the original appearance is lost, then a future museum-going public – in a different way to interpretative interventions – is nevertheless still prevented from experiencing and interpreting the work in its own particular way. We can ask ourselves whether Manzoni’s soiled Achromes or the originally shiny, polished bronzes of Brancusi, which have now acquired the patina of time, are still the same works they were when originally made.

From a careful reading of the codes of ethics, it is also apparent that these codes expressly leave room for a more casuistic approach. The code of practice for the Dutch Art Conservators Association, in relation to the substitution of materials, states that “as much care as possible” should be exercised and that this should take place “only after careful research, and obviously in consultation with the client”. Thus, conservation codes of ethics also specifically allow replacement of material after the case has received due deliberation.⁷

The artist’s authorised solution

Another frequently recurring way of creating a hierarchical scale for the various considerations is to declare that the artist’s opinion is of a higher order than any other consideration. From his or her personal involvement the curator reconciles the identity of the piece – often defined as the integrity of the object – with the artist’s views. A proper handling of the work is then equated with following the artist’s opinion uncritically.

Obviously, artists are a vital source of all kinds of information on the origins and meaning of their works. Their views on the desirability and consequences of a conservation measure should therefore be assessed and taken into account when decisions are being made. However, the work and the maker are not interchangeable. The interpretation of contemporary art is the task of the art historian. When interpreting much twentieth-century art the iconography of the material used will itself ultimately prove to be a decisive factor. Elevating the artist as an authority on various questions of preservation is putting the problem and responsibility for a solution where it does not belong. When a curator, due for instance to insufficient historical distance, is unable to interpret an art work properly in order to assess the effects of conservation treatments, this responsibility cannot be simply shifted to the artist. The fact that artists are not the best spokespersons on the meaning of their work is already apparent from their decision to express themselves in an art work in the first place.

Just how pressing the need for an authorised solution from the artist is, becomes evident when we see how far people are prepared to go to stretch the artistic concept of the maker. If the artist is no longer available, a statement about a work – whether made shortly after its inception or later – is often used to solve an unforeseen problem. If an artist has never spoken specifically about the work in question, statements about other works are sought which are then used analogously. If none of these exist, then the artist’s ‘poetics’ can still be extracted from his or her views on art and life in general, followed by an extensive critical interpretation in order to reach a solution for a problem that was unforeseen in this form. After an artist’s death, his or her identity is not infrequently extended to the wife, husband or partner, or even a studio assistant. Although these people are often experts on certain aspects of the origin of the work (the partner in an emotional sense; the assistant technically or intuitively), it does not imply in any way

that they identify with the artist, and even less so that they are interchangeable with the artist as he or she was at the particular moment in the past when the work was made. They are therefore not necessarily the best qualified to interpret the specific expressiveness of the work and the materials used. Thus, to declare such people as authorities when solving conservation problems is again misplacing the responsibility. A possible effect of this was revealed with the treatment of Barnett Newman's *Who's Afraid of Red, Yellow and Blue III* in the collection of the Stedelijk Museum, Amsterdam.

From the reaction of artists who, as part of the Conservation of Modern Art project, were asked for suggestions on how to solve conservation problems, it became apparent that they too make a clear distinction between creating a work and the measures required for securing its continued existence. The sculptor Tony Cragg was extremely unambiguous about this. In an interview with Lydia Beerkens and Christiane Berndes elsewhere in this volume, he said that he does not want to involve himself specifically with conservation matters because it is not his job: "The artist makes the art work and does that but once. You can't make the same work again twenty years later."⁸ When the working group confronted Dutch artist Krijn Giezen with his disintegrating *Marocco*, he mainly saw this as a new artistic challenge. From this a new art work could emerge that would substitute the old one.

Is it then the case that artists may not change or add anything to a work once it leaves the studio? In my opinion the rationale of allowing artists to solve conservation problems is related to a graded time scale. The artist and the work come together through the artistic intentions in the *Kunstwollen* at the moment that the work comes into being. Afterwards these works take their place in art history and the artists go on to follow their own personal development. When problems arise soon after the purchase of a new work, which is not uncommon, and the artist is immediately asked for a solution, one can assume that the artistic concept and the personality of its maker have still not separated so that the moment of creation can be somewhat extended, as it were. But the greater the distance from that moment, the further away are the artists from the artistic concept. It is therefore impossible for them to still be regarded as part of the *Kunstwollen* of the work.

The solving of problems that were unforeseen when the work was created can also not be regarded as having already been part of the identity of the work as an historic phenomenon. The essential nature of the work with all its possible interpretations was, as far as the artist is concerned, determined at the moment the work was completed. On the other hand, during its lifetime, the work – independent of the artist – can acquire new meanings that were not originally included in the *Kunstwollen*. Interpreting the meaning of art works, including the implication of a conservation procedure to the relevant parts, belongs, as has already been stated, to the domain of the art historian. However, the curator/art historian working with contemporary art is, as such, incapable of suspending the assumptions of the age. It is therefore impossible to reach an objective interpretation of the relevant material aspects and to carefully weigh up the consequences of any intervention. It is precisely for this reason that curators – as the people responsible for conservation – should not frustrate the work of their future colleagues.

The dilemma of the curator of contemporary art

The curator as the person responsible for the continued existence of contemporary art is therefore in an extremely awkward predicament. Not only do curators always have to accept the sense of loss when art works for which they feel a strong and personal attachment receive conservation treatment, but, due to a lack of historical distance, little can as yet be said about the nature and impact of this loss. What the curator would actually like is to preserve the material identity of the art work without this necessarily being at the expense of the appearance and thereby the artistic statement.

Those responsible for preservation who create a hierarchical scale by either declaring the material identity of the art work inviolate and in so doing make the sensory perceivable appearance of secondary importance, or by elevating the artist or a representative (studio assistant or life partner) to an authority on conservation matters, are closing their eyes to this loss. If they do not do this, they face the tragic conflict described by Martha Nussbaum. Curators then find themselves in a situation in which they are forced to choose between two morally undesirable courses of action.

In practice the choice broadly comes down to maintaining the art work as a statement in which the expressive power of the work is the criterion and where everything is done to preserve the external appearance – even at the expense of the original material – or by being extremely careful to intervene in the object in order to retain the original material, because this is the only objective expression of its *Kunstwollen*. Both options are basically undesirable in that each of them violates a valid claim.

Furthermore, in the first instance, only an experience can be reconstructed that recalls or suggests the original one. Viewers that experience the work will be no longer the same as those who saw the work when it was first shown. Moreover, in subsequent presentations of the work increasingly more subjective, interpretative elements will creep in unnoticed, at the expense of the physical art work as an objective source of its *Kunstwollen*.

Conversely, when the expressive power of the external form is deemed subordinate to the material identity, is that which is ultimately preserved an objective document – since subjective additions are avoided. But, in many instances, as the source for an experience, it will only have value in as far as it functions as a fetish. In most cases an essential part of the conceptual authenticity and thus the identity of the work will then be lost.

In practice both approaches are found alongside each other. Depending on how much idealised freight one ascribes to the material used, or to the sensory perceivable appearance, the object is either treated as a fetish, or chosen in order to reconstruct the original appearance, even if this is done at the expense of the original material.

Theatre as truth, material as reference

It was mentioned earlier that much contemporary art is not ‘regarded’ so much as an experience undergone via sensory observation. In other words, the works are similar to visual, rather than literary theatre. What is represented may be static, but it often consists of movement – for example Tinguely’s kinetic objects or Bill Viola’s video art. With certain installations such as *Hok 1* (Cabin 1) by Suchan Kinoshita, museum visitors themselves add an extra dynamic to the work by inverting different-sized hourglasses containing various coloured fluids, in an enclosed space.

It is precisely this theatrical aspect that indicates in which direction a possible solution may be found for the dilemmas outlined above. Theatre as an art form communicates truth by means of illusion. In the theatre this does not happen in the form of an object, but through the visual experience of a presentation, the performance. Aside from pure improvisation, this external phenomenon is usually considered an original artistic product, quite separate from the written aspect of the piece. As a result interpretation has an explicit place.

An essential difference between theatre and contemporary art is that, no matter how theatrical in its outward appearance and literary in its connotations the latter may be, there is no written work to use as a reference for its execution. The material object is the only actual reference. Brandi’s rationale that the original material identity of an art work must remain at all times the most important

source for continuously changing interpretations therefore remains fully valid. Interventions to the material aspect of an art work in order to remain as close as possible to its original outward appearance whenever it is shown, and thus create the impression of an original experience, is ultimately placing interpretation on top of interpretation. To reproduce the original appearance it will be necessary, whenever this is done via interventions in the object, to fall back increasingly on documentation.

This does not necessarily imply that there is no room for repeating the original appearance of a piece when presenting contemporary art. In order to preserve both the artistic statement and to convey to a future public something of the original experience of the piece, the original appearance should be repeated without damage to the material identity of the art work. This can be done by separating the art work as a visual phenomenon from its material quality. The original art work as a material object can then be consolidated without the presumed original appearance necessarily being the only guiding principle. At the same time, justice can be done to the theatrical nature of the visual experience of much contemporary art by creating exhibition copies in which the main concern is to communicate the artistic statement to the museum public. Then the interpretative aspect – a taboo, undesirable and thus often denied in relation to conservation procedures carried out on the object itself – can have its own explicit place. The original material piece can then be preserved as an objective source of its *Kunstwollen* and also act as a score for each new execution.

The interpretation of the exhibition copy can also fulfil an interesting role as a commentary on the original work. The public and the art critics can then compare the way in which, for instance, the curator Maria de Corral reinstalls a work with the way the same piece is presented by curators like Harald Szeeman, Lynne Cooke or Rudi Fuchs – just as the conductor Bernard Haitink's interpretation of Mahler's Fourth Symphony can be compared with that of Christopher Hogwood.

The fact that artists sometimes think in terms of a theatre model is borne out by ideas regarding reinstallation within Conceptual and Minimal Art as well as in Arte Povera. The fact that artists then, consciously or otherwise, also come up against the absence of a score is evident from their attempts to define the interpretative margins when their work is being reinstalled. In an unpublished interview with Marianne Brouwer, Sol LeWitt said that while his earlier Wall Drawings could in theory be done by anyone, in the same way anyone can paint a Mondrian, certain of them required specific skills. Concerning the re-executing of several early Wall Drawings in the Netherlands, LeWitt maintained that while various people in that country could be found for the ink drawings, only two Americans could apply the early ones done in pencil. In reply to how the Wall Drawings should be managed after his death, LeWitt replied that the conservators assigned to the works should always be in touch with those who originally did them.⁹

Suchan Kinoshita also leaves little room for interpretation. With a view to replacing certain elements of her *Hok 1*, including the hourglasses which, because of the way they function in this installation have a limited life span, Kinoshita appoints 'godmothers' who take over the responsibility for re-executing the relevant parts. There will come a day, however, when Sol LeWitt's studio assistant is no longer around and the godmothers to Kinoshita's work will themselves have to appoint godmothers. If the material object can be seen as quite separate from the art work as a visual phenomenon and as such be treated separately, as proposed in the above, then the creation of such a chain of 'authorities' can be abandoned. For who could conceivably be a better interpreter of the role of the studio assistant or of the godmother than the art work itself?

***Piet de Jonge* MAN RAY, OR THE ETERNAL THEME OF THE WINK**

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In 1922, Man Ray used the tick of a metronome to determine the regularity with which he allowed his brush to descend onto an 'automatic' painting. To the needle of the metronome he attached a photograph of the eye of his ex-girlfriend, Lee Miller; her moving eye was like a spectator watching the creation of an art work. When the metronome stopped, Man Ray smashed the whole thing with a hammer. It is apparent from the title, *Object To Be Destroyed*, that its destruction was part of the work. Yet Man Ray never intended the piece to disappear from the face of the earth.



An art historian would recognise three art works described in the above paragraph: a painting, an object and an action. A collection supervisor would spot a serious problem: the art work described is broken. Yet for Man Ray something else was happening and he continued to be captivated by the broken metronome. Destruction did not mean the end of the object, it afforded it new possibilities. In 1932, ten years after Man Ray's original destructive act, the magazine *This Quarter* published the following instructions for the readers: "Cut the eye out of a photograph of a loved-one you no longer see. Fix the eye to the needle of a metronome and adjust the weight so that it beats at the speed required. Leave it to tick for as long as you can bear. Then try to destroy the whole thing with a single, well-aimed hammer blow." From this the reader of the magazine's edition on the Surrealists could make his or her own 'Man Ray', a personal version of *Object To Be Destroyed*.

Man Ray, *Indestructible Object* (1958). Ronny van de Velde Collection, on permanent loan to Museum Boijmans Van Beuningen, Rotterdam.
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During the second half of the twentieth century many art works have been made which have the object's final destruction enclosed within them. The viewer doesn't destroy it, its destruction is, as it were, inherent in the object itself. The hammer

blow is not prescribed by the artist but lies concealed within the object like a time bomb. Often this danger is even unintentionally built into the work, as the Foundation for the Conservation of Modern Art working group concluded. Over the last fifty years, artists have experimented with materials which had not previously been part of the normal sculptor's arsenal. The shelf life of plastics and other non-traditional sculpture materials is unpredictable; objects made from these materials threaten to slowly fall apart. Many of these artists never intended their work to vanish forever.

Up to the beginning of the twentieth century there were two categories of art works: objects that had been lost and objects that had survived. Thanks to Man Ray we now have a third category: the 'objects to be destroyed'. He introduced the notion of an art work with a short life span, the notion that an object could be made that had a deliberately short existence – only after it had been destroyed did Man Ray consider the work complete. With this he created the direct counterpart to art works that had been made to last for eternity.

Thus, while the artist was creating new possibilities, a plethora of new problems began to unfold – the artistic, conservation, legal and ethical problems which confronted the working group for the Conservation of Modern Art when they began to tackle the ten pilot objects.

In 1945, twenty-three years after the first, Man Ray made another version of *Object To Be Destroyed* for an exhibition at the Julien Levy Gallery in New York. Although he called this piece *Lost Object*, a printing error in the catalogue led to it being described as *Last Object*. Man Ray was so charmed by this accidental word play that he immediately adopted the new title. It is striking that Man Ray's view had changed in the intervening years: he now intended the object to continue to exist.

A few years later, in 1951, he moved to Paris where he exhibited the work once again. This time it was destroyed by young visitors who had clearly drawn the wrong conclusion from the object's description. Despite this, Man Ray was understanding about the action and remarked that in his youth he would probably have reacted in the same way. Hence, in 1958, he made the object as a multiple: one hundred metronomes with eyes were made under the title *Indestructible Object*. This greatly enhanced the object's chances of standing up to the passage of time.

In 1971, Man Ray once again addressed *Object To Be Destroyed* by taking another metronome. But this time, instead of attaching a normal photograph of an eye to the needle he stuck a ribbed plastic picture to it behind which the eye opened and closed with every beat of the metronome. This instrument, which quite literally winks, and which he called *Perpetual Motif*, also figuratively winks at all the previous versions of the metronome.

Riet de Leeuw THE PRECARIOUS RECONSTRUCTION OF INSTALLATIONS

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It is some years ago now that in the Kunstmuseum in Bern, somewhere on its upper floor, I came unsuspectingly across the remains of *Honigpumpe am Arbeitsplatz* (Honey Pump in the Workplace) – the installation that Joseph Beuys made in 1977 for the Documenta in Kassel, Germany. It comprised an electric motor, a neatly rolled transparent hose, a chalk drawing on a piece of wood, pots, a brass rod, butter, felt – I can't remember all the details any more – all standing next to each other in a corner of the space. I recall the area being dimly lit and I no longer know what else was there. Probably I was so surprised to find the work there and so enormously attracted to these remains that I hardly had eyes for anything else. Standing quietly there in the corner, neatly arranged, the whole had something touching about it. At the same time the work gave the impression of things that had been used and then taken apart and put next to each other as a mechanic might do.

In the same way, at the Kröller-Müller Museum in Otterlo, Beuys 'discarded' an installation he made for the German pavilion at the Venice Biennale in 1976 – the impressive *Strassenbahnhaltestelle* or *Tram Stop* monument. At the core of the installation was a tall iron column terminating in a head with twisted features.



Around the column were four barrels and a small distance away glistening tram rails cut across the floor with their bottoms turned upwards. A crank protruded from a hole in the floor. Rubbish and earth swept into small heaps bore silent testimony to the work involved to erect the monument. At Beuys's request the space, with its walls full of damp patches and peeling paint, was left just as he found it.

The installation was an enigmatic piece that evoked something mythical, something obscure. It refers to a memory of the artist's youth spent in Kleef. There on the way to school Beuys would pass a tram stop where a rusting relic still stood – a column made from seventeenth-century artillery which, by being topped off with a poised figure of Eros, had been transformed into a peace monument. Beuys did not understand the significance of the strange iron relic. He only noticed that it was in sharp contrast to the bare iron of the tram rails. The mystery probably attracted the child so that the name of the tram stop *Zum eisernen Mann* was automatically linked to the monument. At the Venice Biennale Beuys had an iron man – a head with twisted features – appearing out of the column. By doing so he was giving expression to how he perceived the monument from his youth.

Because of the meticulous arrangement of the elements – their positioning in relation to each other and to the surrounding space of the German pavilion in Venice – the monument became a special spot, a designated location. A place for remembering, but also a place for experiencing and re-experiencing. For in a pro-

Joseph Beuys, *Strassenbahnhaltestelle*: the original installation in the German pavilion at the Venice Biennale, 1976. Photo: Ute Klophaus

Joseph Beuys's *Strassenbahnhaltestelle* 'discarded' at the Kröller-Müller Museum. Photo: Cary Markerink

cess of transformations the monument was for a short time given a new appearance and the memory of its decline and dismantling could be experienced.

Given this background, it is evident why Beuys no longer wished to set up this monument in the museum that purchased it. That would have meant an impossible reconstruction of a completed phase of the process. In the Kröller-Müller Museum a new phase in the transformation process took place – the tram stop was taken apart, pulled down and discarded, as Beuys put it. The various elements were carefully sorted and placed on the floor: the long piece of rail freed from its original context, beside it the four barrels, tilted, then the column with the head, and then the crank and the cast iron bars all placed in a heap. Everything taken apart. Notwithstanding, the whole work appeared as if it were lying waiting for some future use. However, the once tense relationship between the elements created by their carefully considered positioning had disappeared.

What remains is a collection of separate components which look somewhat lost lying on a stone floor. They are often exhibited in the circular walkway next to the restaurant, and such an indeterminate setting heightens even more the sense that the work is displaced. You walk quickly past, also because it is impossible to get involved with it. Instead of drawing everyone's attention, as the work did in Venice at the time, *Tram Stop* now looks like a motionless body on the earth.

A second version of *Tram Stop*, also from 1976 and shown for the first time at the Mönchengladbach Museum, appears to represent an earlier phase of the process. The installation is in a less discarded state, although the direct reference to 'death' is here more tangible. Beuys laid the 'body' across the barrels, the crank rests on the iron bars and is thereby linked. The iron man appears to be laid out. In this manner the memory of a once working construction is still prevalent.

The work *Honigpumpe am Arbeitsplatz* was made especially for the Documenta in Kassel. In the central area, the Fridericianum rotunda, a piece of hose extended upwards as far as the skylight. Honey was pumped through this and flowed into another hose running downwards. Nearby electric motors activated a brass cylinder that moved through butter, making it warm and partly fluid. Before the honey began each new cycle, it was led along the space of the 'Freie Internationale Universität für Kreativität und Interdisziplinäre Forschung' set up by Beuys. Here the Hundred Days Conference took place, an on-going discussion forum between hundreds of individuals.

The artist was not only present during the forum, he was often in the main area busily engaged in monitoring his work, making the occasional adjustments and checking things – as a visitor to Documenta I was able to witness this at first hand. Thus Beuys linked up two different systems to each other: the visual one with the honey pump and the exchange of ideas of the Free International University. Both sources of energy influenced each other. This manner of working clearly shows how installation and action interact with each other in the artist's body of work. The installation is close to the action and vice versa. The honey pump represents humankind and the social order, while the Hundred Days Conference represents the continuing exchange of ideas and convictions which tie in with the classic notion of political action.

In the totally different setting of the museum in Bern the remains had no relationship whatsoever to their environment and barely with each other. They were motionless, no longer in operation. Beuys decided that a reinstallation of the honey pump would not work without the debating individuals of the Free International University, and thus there was no point to it.

extremely heavy, giant segments of paraffin, which collectively formed the sculpture, were hauled into the museum with the greatest difficulty and put down. 'Put down' was the strategy Beuys used towards the museum as an institute. According to the dictionary 'abstellen' also means 'put away', 'turn off' (engine), 'bring to a stop' and 'switch off' (light). It describes the kind of putting away that does not imply 'storing for a long period of time' or 'file away in archives'. On the contrary, the word has something highly tentative about it, as if the work will be resumed after lunch. In 'einfach abstellen' lies an expectation, the promise of a future functionality.

Beuys was not only extremely aware that the smallest nuances in context have consequences for the experiencing and interpretation of a work, he also allowed these to determine the way a work would be presented. The experience of Beuys's installations within the walls of a museum is entirely different to that in the lively atmosphere of the Documenta or the faded glory of Venice. In fact they require a different approach altogether. In a museum it all comes to a halt.

This awareness of Beuys goes way beyond the usual exhibiting or installing of art works. It has nothing to do with eternal value or masterpieces that have to withstand the test of time. In a subtle way Beuys makes use of all the values associated with the museum, but at the same time he provokes these values and questions them.

We can learn much from the artist's awareness. Art is about cohesion, about differences and similarities, about transformations, about interpretations. Art work, space, viewer and context are not in themselves independent and static variables, but elements that influence each other. The art work changes along with the forces that are exerted upon it. That applies in a sense for all works of art, but artists of this century have increasingly made use of the device that lays bare these forces – the installation. That is an art work, or rather a manner of working, in which thinking about the presentation is part of the art work itself.

And here the enormous paradox begins. For how does a curator or a conservator deal with such an in-built process? The preserving and exhibiting of such art works requires far more than simply storing in a depot, taking out and setting up. It demands of those involved with the installation a detailed awareness and knowledge concerning all aspects of the work in question – not only about the material and material condition, but also the possible interpretations which various arrangements of the work provide, how sensitive the work is to being exhibited, and how it triggers an experience in the viewer – sometimes an experience of his/her own perception.

If an art work only gains its form and meaning within the context of how it is presented, what should we then think about the reinstallation of Beuys's *Olivestone* from 1984? At the invitation of Rudi Fuchs, director of the Stedelijk Museum in Amsterdam, the artist made the work for a space in the Castello di Rivoli near Turin. In the so-called fresco hall, assigned to him for the opening exhibition, Beuys installed five 'stones' shining with moisture, while the hall itself was imbued with a pungent smell of olive oil. The 'stones' were in fact five large, eighteenth-century sandstone troughs originally used to decant olive oil. Inside each trough Beuys had placed a slightly smaller block hacked from the same kind of stone, leaving a small opening between the edge of the trough and the block of stone. Into this opening litres of oil were poured until the trough was brimming. Sandstone is porous and absorbent so the oil had to be replenished from time to time.

In Castello di Rivoli the troughs were arranged in the same way as the paraffin sculptures in Mönchengladbach – apparently artless, arbitrary, as if they could be deployed at any moment for their normal purposes. As if they had been standing on that spot glistening with oil for centuries, with traces of the substance on the

ground. What originally belonged in the cellar was now placed above in the beautifully decorated hall. In so doing, the domain of the oil had shifted to the domain of art and (social and political) action. The tall frescoed hall of the Castello was dominated by the horizontal line of the troughs. The whole emanated an intense stillness and – because of the obvious weight of the stones – something inert as well, as if they were bound to the earth, entirely absorbed in themselves. The oil, 'steadfast' in its fluid form, only served to confirm this sense of calm and heaviness.

In 1992, due to reasons of technical ownership, the installation was removed from the Castello. In that same year, it was reinstalled at the Kunsthau Zürich by the well-known exhibition organiser, Harald Szeemann, who is attached to the museum. But can one just do that? This rearrangement reveals precisely which problems confront the curator in such cases, certainly if the artist is no longer living.

The Kunsthau is an entirely different setting to a baroque Castello with an eighteenth-century frescoed hall. In the white, neutral space of the Swiss museum, in the seventies style, the stones are not so obviously 'present' as they were in Italy. The directional meaning of the work, from cellar to decorated upper chamber, is also lost. While the stones are placed in a way that is faithful to the original arrangement in the Castello, there they only took up half of the enormous space – a special, striking element of the installation – whereas in Zürich they fill the entire room. Here the visitor has to move between the stones and that is an entirely different experience. In the Castello the stones were far more at one with their site, as if they had been waiting there for centuries to be used. In Zürich they are so in evidence in a material sense that they define the entire space. And what about that untidy drop of oil on the floor of this spruce room? These rough troughs in a pristine white space create the impression that the work is now suddenly about 'sculpture'.

The one art work reacts more strongly to Beuys's installation than another. Precisely because contemporary art is now increasingly attuned to context, it has also in a sense become dependent on it. In his review of the Iron Window ('Het IJzeren Venster', 1985) exhibition at the Van Abbemuseum, Eindhoven, in which the then director Rudi Fuchs confronted three contemporary artists' works with those of three classic modern artists, the art historian Carel Blotkamp maintained that works by Mondrian or Malevich possess so much individual power that they can hold their ground on any wall and in any combination, whether they hang alone or are jammed between those of other artists. On the other hand, the curator or exhibition organiser has to be extremely careful in presenting particular works by Kounellis or Beuys as they are highly sensitive to context.¹

Blotkamp made a good point. A poor presentation can destroy an art work, and for an installation this applies to an intense degree. But his value judgement that Mondrian and Malevich thus made better work is obviously nonsense. Artists such as Kounellis and Beuys chose consciously not to present their work as an autonomous whole but to incorporate the space, setting, time and social aspects. The unfinished – the process of construction, destruction and reconstruction – is part of their work. The transition between painting or sculpture and installation is in fact a gradual one. A fragile construction such as a relief by the Dutch artist Jan Schoonhoven appears impotent on a depot rack or wrapping table. It requires the neutral surroundings and the careful presentation of a museum or gallery in order to radiate.

Taking what we now regard as art works out of context is also nothing new. Altar pieces, ethnographic art, they were all wrenched from their original setting and given new places, where we have grown accustomed to seeing them over the years.

Joseph Beuys, *Olivestone* (1984) as originally installed in the Castello di Rivoli, Italy.
Photo: Buby Durini

Joseph Beuys, *Olivestone* (1984), reinstalled at the Kunsthau Zürich since 1992. Photo: Lucia Degonda

With artists from the sixties and seventies who often made fragile, process-type works from ephemeral materials, the reinstallation of such pieces was a recurrent problem with every new exhibition. Can temporary installations be reinstalled? Can site-specific works be executed again? And is reconstruction the only and appropriate option to present such a work, to evoke an image?

Harald Szeemann, who reinstalled *Olivestone* in the Kunsthau Zürich, organised a retrospective of Beuys's work in the same venue in 1993, seven years after the artist's death. The work had to be presented at its best. In particular the image of Beuys as a sculptor was to be highlighted. Szeeman did not baulk at the idea of presenting a few large complex works 'in the spirit of Beuys' and having two unfinished works completed.

"The visitors were served the image of a controlled, restrained oeuvre, an almost systematically organised and ordered body of completed works," wrote the art critic Camiel van Winkel.² This presentation did not do justice to Beuys's varied artistic practice, he claimed: "I'm convinced that with the material left behind, it would have been possible to make a much more unstable and therefore more open exhibition than the one Szeeman has made. (...) With much respect – too much respect – for the artistic aura of the often, in a material sense, worthless objects, the works, some in display cases, are isolated from each other. Nowhere, not even for a brief moment, is the completed-uncompleted made uncomplete again."

No matter how honourable Szeemann's intentions were, he showed little consideration for the intrusive interventions. With exhibitions such as this one, he sees his role as a mediator who ensures that a work, once away from the intimate world of the artist, is brought into the open in an appropriate manner and as such is also handed down to future generations. Thus, as far as he is concerned, the task of an exhibition organiser is an extension of the artist's thinking and way of doing.

Szeemann's interventions are based not on an analytical, but on an identifying interpretation of the work. He knew Joseph Beuys very well and collaborated with him on various exhibitions, he therefore places himself in the artist's shoes. It then becomes self-evident that certain installations can be shown again in another location separate from their original context. Thus, recreating the work becomes an obvious part of the process of presenting the work again. By the same token the decision can then be taken to omit the destructive aspects – the anti-sculpture which manifested itself in Beuys's *Aktionen*.

When Uwe Schneede reconstructed the Actions in documentary form,³ he pointed out how important this art form was to Beuys's work: "Beuys's Actions combine elements normally separated in the work: object and sculpture, space and time, drawing and language, body and music. The unifying factor lies in his active handling of these elements. The Actions formed the true centre of Beuys's work."

Because Actions do not take on the shape of objects, Schneede adds, only after-images still exist. After-images on the basis of memories, witnesses, documents and pictures. It is then pointless to present remnants of Actions as autonomous sculptures, instead of parts of a continuing process.

In his review Camiel van Winkel states implicitly that showing 'original material' by Beuys can convey a false impression. It makes the works "dead objects in isolation". He concludes that the material form and the conservation of individual works, still mainly the starting point for reconstructions and reinstallations, should be subordinate to representing the artist's body of work as a whole.

The situation can therefore arise where it is decided not to reinstall certain works. Sometimes we must accept that the primary work no longer exists (see also Seminar 7 on installations). If that work was important to an artist's oeuvre it will have to be recalled in a different manner.

Recalling is all about remembering. With process-type, context-oriented art this

is an extremely important activity. While the problem of the state of the material and how it should appear is central to reinstallation and reconstruction, the activity of remembering comes from the viewer. In certain cases a faithful impression of the work can be given on the basis of photographs, spoken or written statements and possibly film or video recordings. This allows scope for the viewer's imagination and can sometimes even convey a magic or intense experience better than an anaemic and contrived reinstallation.

When the Rotterdam Witte de With Center for Contemporary Art decided on a retrospective exhibition of the work of the American artist Paul Thek in 1995, they were confronted with an insurmountable problem (see Groenenboom's introduction to Seminar 7). Thek's installations were often temporary, consisting of extremely ephemeral materials such as scrapwood, newspapers, commonplace objects, textiles and sand. How could these be represented in the exhibition? The installations showed the results of a process of working that was temporarily brought to a standstill but after the exhibition continued as before. Moreover certain of the elements used in these installations were used again in new works. It was impossible to reconstruct these installations on the basis of documentation.



Ultimately two installations were presented in the exhibition, *Dwarf Parade Table* and *Fishman in Excelsis Table*, chiefly because the essential materials of these works for the most part still existed. But even reconstructing these installations was very precarious. Reconstructions, years later in a different setting, are unable to convey an image of powerful vitality, the instantaneous effect of the work. Showing installations as rigid, autonomous end results does not do justice to their status. They quickly become art objects, which in fact Thek campaigned against in his work.

Witte de With was all too aware of that. After thoroughly researching the meaning of the work and the artist's intentions, it was decided to present the installations in the form of documentation such as photographs, a video and statements. The catalogue was a vital medium for providing an insight into Thek's environments. The documentation emphasised the fact that these works were meant to be temporary, that they no longer exist, that they can no longer be reproduced – in short that they are recollections, and that this should not, or may not, be denied them.

Reconstruction detail of Paul Thek's *Dwarf Parade Table* in the exhibition at Witte de With Center for Contemporary Art, Rotterdam, 1995.
Photo: Bob Goedewaagen

It is precisely this photographic documentation, which has shown to be sensitive to this genre, that can make the intensity, the original energy of such works visible in

a condensed form. This is apparent from the photographic material of Beuys's Actions. These Actions, as ultimate ephemera, as art forms carried out in time, can never again be experienced. Nevertheless we have preserved images of them. Sometimes very particular photographs recording a magic moment define our perception. Naturally the entirety of an Action is missing: the experiencing of the space, sound, the relatedness of the actions and especially the involvement of the public, since a photograph does not make someone a participant. Nevertheless, sometimes photographs convey an image in which everything comes together. There are shots of Beuys's Actions, taken by photographers who later became famous such as Ute Klophaus and Caroline Tisdall, which have both an interpretative as well as a purely documentary function. As Uwe Schneede in his previously-mentioned publication states: "These photographs served in the first instance as an essential intermediary, but eventually, with their aesthetic duality, were joined so inseparably with the originals – no longer in existence – that they came to represent them."⁴

Certain photographs have clearly influenced our impressions of an Action. Widely known are those of Beuys gesturing with his raised arm, the cross and the



bleeding nose; the gold-leaf-covered head of Beuys and the dead hare cradled in his arms; and the photograph with the coyote. About these Schneede says: "These instantaneous shots have, in one's memory, taken the place of the whole complex happening."⁵ Such penetrating photographs give the impression that the Actions were dramatic events. An impression that does not always tally with the experience of an event, but that is the dilemma of Actions photography. As Schneede points out, without these socially engaged photographs the Actions would no longer exist in our memory, but with these photographs we put the Actions behind us – so much so in fact that according to some, the pictures are of greater historical influence than the Actions themselves.

And yet, during the open-air Dutch exhibition 'Sonsbeek buiten de perken' (Sonsbeek beyond the Boundaries) in 1971, the American artist Robert Smithson, who died two years later, made his work *Broken Circle, Spiral Hill* in a sand quarry at Emmen, in the Dutch province of Drenthe. This comprised a circle-shaped peninsula and a dam as a positive form in the sand, with the water as the negative form, a 'Cyclop's eye' as Smithson called the megalithic stone – which already happened to be there in the middle of his Broken Circle – and a small sand hill covered with

black earth from which a spiral gravel path ran upwards. These are all materials that gradually perish in the elements. Every time the work was in such bad condition that something had to be done, the question arose about how it should be preserved. Would it suffice to preserve the work through documentation like photographs, statements and drawings?

In American Land Art, for example in various large-scale projects by Smithson, photographic documentation played an important role. These projects were mainly made far away from the populated world and could only be experienced via photographs. Smithson's famous *Spiral Jetty* (1970), a gigantic spiral of bulldozed rock on the edge of the Great Salt Lake in the middle of the desert, is one example. The artist took breathtaking photographs and a now famous film of the creation process of this work. In it many of the artist's fascinations are drawn together: the Museum of Natural History with its skeletons of dinosaurs; grumbling excavators with shovels, who can barely keep their balance on the blocks of rock as they discharge rocks and the sand; salt crystals clamped to the stones in the dead, pink-coloured brine, and the artist himself filmed from a helicopter, running along the



spiral, against the clock, back in time, with Samuel Beckett's words "Going nowhere, coming from nowhere" buzzing in the head. Smithson called this experience of emptiness the "aesthetics of disappointment".

After the work was made, the Great Salt Lake rose and gradually drowned *Spiral Jetty* in 1972. Thus, the documentation material became increasingly important, particularly when the primary work was no longer visible. For Smithson the photographs and film were pieces of evidence and initially these were sold via his gallery. However, when he realised that this material was regarded as the final art work, he put a stop to their purchase. The documentation then acquired an ambiguous status, halfway between the art work and the reference to it.

Smithson's *Broken Circle, Spiral Hill* is also in an isolated spot, in a sand quarry, but in densely populated Netherlands the work is much more a part of society. Although it was intended for the Sonsbeek exhibition, Emmen municipal council decided to take on the responsibility and to preserve the work permanently. Smithson thought it was splendid that the council was to take care of the work,

since this was seamlessly in tune with his ideas about land reclamation: the reclamation of exhausted quarries and mines in terms of art. Art not as a safe, isolated luxury in a museum or gallery, but as a phenomenon concerned with actual ecological problems.

The council has been involved now for twenty-six years. Within a couple of years after the work's creation it already needed maintenance. A wooden anti-erosion barrier was placed around the peninsula and dam, while the small hill was planted with low-growing shrubbery. When *Broken Circle* was largely under water in the early 1980s and thus in an extremely deteriorating condition, major conservation work was carried out. Two years ago this was again necessary: this time the project in its entirety was clearly raised.

The constant care of this art work and the 'embedding' of it into an acceptable social context – protecting the work yet making it accessible to the public at the same time – forms a lively element of the work involved, which has consequences for how it now looks. It is different from the very first, known photographs, but that is unavoidable. An important consideration is that *Broken Circle*, *Spiral Hill* is almost the only site-specific Land Art project by the artist that can still be seen. Moreover, his work can withstand remaking as long as the specific environmental factors are taken carefully into account. In Emmen it means for the public an unforgettable experience in a deserted sand quarry where they are confronted with the pre-historic past – just as they are with the megalithic stones nearby. For Smithson it was the place of an entropic landscape where a distant past meets the present.

It is all too easy to reduce Smithson's body of work to a few large-scale Land Art projects, his so-called masterpieces. It is precisely those younger artists who also regard their work as a process, use ephemeral materials and are not afraid to reveal some kind of seeking, that feel an affinity with Smithson's work. All his sculptures defy the definition of 'autonomous object' or finished 'presence'. With the *Site/Nonsite* works the usual conventional concepts for defining sculpture become unstuck. The physical boundary of the object no longer exists. The work as a whole can only be experienced and understood through various forms of documentation and presentation. All these divergent elements contribute to the meaning of the work. The maps, various kinds of sketches, photographs of the site, physical material (stones and sand) collected on the spot and exhibited in plain containers – all these, including the original site (preferably wasteland) to which the material refers, are part of the installation. All the separate elements are necessary to the whole, but the whole remains fragmented in the form of pieces of 'mirror images' of the original site.

Exhibiting this kind of tense emptiness in a museum requires a thorough awareness of Smithson's body of work as a whole. Within this the works cannot be strung together like pearls to form the proverbial necklace. An article such as Smithson's 'Monuments of Passaic' in *Artforum* is just as important as the large Earthwork projects for an understanding of his work. In 1995, during the discussion forum 'Remaking Art?' at Witte de With, the exhibition-maker James Lingwood said that a firm framework, a kind of dialectic is needed for an exhibition of Smithson's works in order to bring the concept of them alive again. This is all the more necessary precisely because he so consciously used the 'mausoleum' nature of a museum.⁶

Beuys, Thek, Smithson are all artists of whom the scope of their work is only gradually dawning on us. They are not artists who can be properly judged by identifying them with their masterpieces. Their works are not to be seen purely as objects, precisely because they are so much linked to the personality of the artist. Also the artists' chosen, transitory nature of their creations should not be denied. The

installations were made in the sixties and seventies as a conscious reaction to the object-oriented art world. They should not be treated as ready-made art works, lodged in museums and preserved.

When considering whether to show them again it is wrong to focus on the possibilities and impossibilities of preserving or reconstructing the materials. Rather the starting point should be the underlying concept, the meaning of the work, also within the context of the entire body of the artist's work. That does not mean that the original material is unimportant. On the contrary, without this material we would not be able to experience the power field of these works and our interpretation would no longer have an anchorage. But that is quite different to treating them as fetishes.

Certainly with these art works, vulnerable and sensitive in every respect, it is impossible to draw up a general theory about reinstallation. Every rigid approach, every purist viewpoint has to be avoided. Moreover the curator/exhibition organiser, the artist and the conservator have their own approach; these differences in perspective need to be made explicit to each other. In fact an awareness of the sliding scale between painting/sculpture, installation and performance is central to these works.

That is clearly evident here. The installation does not find itself 'somewhere in-between' for nothing. At a certain moment the work is brought to a halt and discarded, yet in that discarded work there was once so much energy invested that some of it remains radiating from the object – as a promise of future possibilities. Instead of forcedly reconstructing that energy, it is sometimes more useful to show the magic of the original movement via documented and fragmented recollections. The art, as a survival strategy, is to hold on to this energy.

Annemarie Beunen MORAL RIGHTS IN MODERN ART: AN INTERNATIONAL SURVEY

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Some artists have clear views on how their work should be preserved or conversely allowed to deteriorate. For example, Sigurdur Gudmundsson made an agreement with the Amsterdam city council that his sculpture *Wildzang* (1976) in a city park – made from a series of wooden poles – should not be maintained, but allowed to slowly rot away.¹ However, few artists are this clear in advance about how their work should be treated in the event of decay; it does not even cross the minds of many.

In case an intervention is necessary to preserve a work of art, the question arises whether the artist, or his/her heirs, should be consulted. An affirmative answer can be justified on moral grounds. Moreover, the bond between the artist and his or her creation is protected by copyright.

This article will examine the moral rights which artists enjoy on the basis of copyright and the role that artists play in the conservation and restoration of their work. Particular attention will be paid to the differences between copyright acts in Europe (the Netherlands, France and Germany) and the United States. Case law on works of art will also be discussed.

Copyright

A creator of a work of art automatically is awarded copyright on the condition that his work is an original creation. Thus, copyright applies to art works such as paintings, books, music, films and so on. This is questionable only in cases where the artist has expressly striven for the absence of a personal signature in the work, or where a work is made out of copies of someone else's creations. To enjoy copyright, a work does not have to meet requirements of artistic quality; the sole criterion is originality.²

Copyright may be divided into exploitation rights and moral rights. On the basis of the exploitation rights, artists may insist on being paid every time their work is used (royalties), for example, if it is reproduced in a calendar. Artists are thus paid in exchange for the authorisation they give others to reproduce their works or make them available to the public. The exploitation rights may be passed on to a third party. They remain valid from the work's creation until seventy years after the artist's death in the European Union, and until fifty years after his death in the United States. During this period, copyright protects artists against the unauthorised use of their creations and thereby stimulates the creation of new works.

Moral rights are the main concern as regards the restoration of works of art. These rights have no economic purpose, but they protect the bond between the artist and his work. An example is the paternity right, which is the right of an artist to be mentioned as the maker. However, the most important moral right is the right to oppose interventions in the work: the 'integrity right' or, in French, the *droit au respect*. The integrity right requires everyone to respect the integrity of a work of art because of the highly personal bond that exists between the work and its creator.

An artist may invoke his integrity right against anyone who intervenes in his work in a prejudicial way. With conservation or restoration, there always is a risk that harmful changes are made to the work. This is confirmed in paragraph 3.3 of the ICOM document *The Conservator-Restorer: a Definition of a Profession* (1984): "(...) the risk of harmful manipulation or transformation of the object is inherent in any measure of conservation or restoration (...)"³ A conflict with an artist who invokes his integrity right is therefore not unthinkable. Still, not all artists are aware of their rights. Many believe that having sold the work, they no longer have a say in what happens to it.

The Berne Convention

The fundamental principle behind the moral rights – respect for the personal bond between the work and its creator – is of European origin and dates from the beginning of the twentieth century. It was internationally introduced by the Berne Convention for the Protection of Literary and Artistic Works, which was signed in Bern, Switzerland, in 1886. This worldwide convention describes the minimum copyright protection that signatory countries are obliged to afford makers. It originally included only the exploitation rights; moral rights were added in 1928.

European countries signed up to the Berne Convention early on, whereas the United States only signed in 1989. This lengthy hesitation was due to the fact that the Americans were uncomfortable with the principle behind the moral rights. The Anglo-American or Common Law copyright system only guaranteed the maker of an art work the economic exploitation rights, assuming that a work should (in return for payment) be made available to as large a public as possible without being restricted by moral rights.

The fact that no moral rights existed in the United States for so long has seriously disadvantaged artists working there. Richard Serra, for instance, could do nothing to prevent the removal of his site-specific sculpture *Tilted Arch* from New York's Federal Plaza.⁴ The judge ruled that if Serra wished to retain some degree of control as to the duration and location of the display of his work, he had had the opportunity to bargain for such rights in the contract of sale. When an art work was damaged in the United States, artists were forced to resort to legal defences such as breach of contract, tort or defamation. Until recently, the absence of moral rights formed the main difference between American and European copyright law.

The integrity right in the United States

As a result of joining the Berne Convention in 1989, the United States was obliged to recognise moral rights. The American reserve against these rights of European origin is apparent from the extensive exceptions the U.S. laid down in its Visual Artists Rights Act (VARA) in 1990. This act was especially designed to introduce moral rights into American copyright. As is evident from the title, the VARA only applies to visual art; unlike in Europe, there is no protection by moral rights for other categories of art works.

Works of visual art by artists who have been employed by a client are also denied protection under the VARA. The broad interpretation applied to the concept 'employment' is apparent from the lawsuit *Carter v. Helmsley-Spear* in which the integrity right was applied for the first time in the U.S.⁵ Three artists protested against the partial removal of the enormous sculpture they made for a New York office building because, according to them, the entire work would thus be destroyed. In the first instance, the removal was forbidden, but this decision was overturned on appeal because the artists were said to have been employed, even though it was only a one-off commission.

The VARA came into effect on 1 June 1991 and does not apply retroactively. This was at issue in the case *Pavia v. 1120 Ave. of the Americas Assocs*, in which a bronze sculpture made of four parts located in the New York Hilton Hotel in 1988 was dismantled, so that parts of it could be located elsewhere.⁶ The artist resisted the mutilation of his work, which was intended as a single entity. When his work was still being displayed in a dismantled state three years later, he invoked the integrity right in the VARA. However, the judge ruled against him on the grounds that the mutilation dated from 1988, before the VARA was introduced.

Furthermore, visual artists may only invoke the integrity right if their work is intentionally distorted or mutilated. Paragraph 106A(a)(3)(A) of the VARA states: "The author of a work of visual art shall have the right to prevent any intentional distortion, mutilation or other modification of that work which would be prejudicial to his or her honor or reputation, and any intentional distortion, mutilation or

other modification of that work is a violation of that right.” The VARA also states that the moral rights protecting works made after 1 June 1991 only apply until the artist’s death. In respect of older work, they are valid as long as the exploitation rights, that is until fifty years after the artist’s death.

Although the U.S. has signed up to the Berne Convention, it is justified to conclude that the American moral rights offer considerably less protection than their European equivalents. Opinion is divided whether this situation will improve.⁷ Still, American artists can sometimes profit from the broader moral rights’ protection offered in Europe: if their work is threatened with distortion in a European country, they may invoke that country’s copyright protection.

Spiritual versus material ownership

The Berne Convention describes the moral rights in Article 6bis(1):

“Independently of the author’s economic [exploitation] rights, and even after the transfer of the said rights, the author shall have the right to claim authorship of the work and to object to any distortion, mutilation or other modification of, or other derogatory action in relation to, the said work, which would be prejudicial to his honour and reputation.”

It is not easy to distinguish between ‘distortion’, ‘mutilation’ and ‘other modification’. In short, an artist may reject any physical alterations to his work – whether harmful or restorative – carried out by the owner, a conservator or anyone else. In cases of actual harm, the artist may claim damages or demand that the work be restored to its original state. The ‘other derogatory action’ does not cover physical interventions but, for instance, situations where an art work is exhibited or reproduced in a detrimental context.

An artist retains his moral rights even once his work of art has been sold; it remains his spiritual ownership. The new owner acquires material ownership of the work, but he must respect the artist’s integrity right. Consequently, he does not have the sole say in what happens to the work. Here, a potential conflict lurks between the owner and the artist.

An example is provided by the German lawsuit *Felseneiland mit Sirenen* of 1912.⁸ To embellish her house, a house owner had commissioned a fresco depicting nude sirens on a rocky island. However, after a while, she decided to have the sirens clothed by another artist. The fresco painter protested and the German ‘Reichsgericht’ ruled in his favour, so that the fresco had to be returned to its original state. This judgment was the earliest case acknowledging the integrity right in Germany.

Moral rights such as the integrity right are inextricably linked to the person of the artist. Moral rights are not transferable as long as the artist is alive, and only he may invoke them. Following the artist’s death, these rights may pass on to the heirs. According to some copyright acts, transfer of the moral rights after the artist’s death has to meet certain conditions. In France and Germany, moral rights are automatically transferred to the heirs, but transfer to a third party has to be stated in a will. In the Netherlands, the rights must be transferred in writing (e.g. in a will), which many artists omit out of ignorance. In the United States, the moral rights remain valid for fifty years after the artist’s death, but only in case the work was made before 1 June 1991;⁹ in Europe, they last seventy years after the artist’s death, except for France where they last eternally.¹⁰ Thus, as a rule, the owner may only gain full control over the art work art fifty years (United States) or seventy years (Europe) after the artist’s death. This may be longer when the work at issue is covered by laws which protect cultural heritage.

It would be most beneficial to the owner if the artist gave up his moral rights. However, these rights are considered so important in Europe that artists cannot completely renounce them. This is possible only partially or for a specifically stated use of the work. For instance, a writer may agree to changes being made to his

novel within the framework of a film adaptation.¹¹ The important value placed on the integrity right in France was illustrated in 1994 when the heirs of the American film director John Huston successfully opposed the colourisation of his black-and-white film *Asphalt Jungle*. In this case, American law - providing no moral rights for films - had to yield to French law.¹²

To summarise, the owner of an art work must respect the moral rights of the artist. The artist may invoke these to oppose the distortion or mutilation of his work, but he must in turn also respect the property right of the owner. Therefore, a weighing of both parties' interests is the proper way for the courts to try and solve a conflict.

Weighing interests

Although we do not know of any case law on restoration issues where the integrity right was invoked, some assumptions may be made as to how a court would deal with such a case. Protests of an artist against interventions in his work will presumably not always be successful in court. The close of Article 6bis(1) of the Berne Convention requires that the intervention could be prejudicial to the reputation of the artist. It is the court that determines whether this is the case or not. This means that the interests of both parties will need to be weighed against each other. In doing so, the courts will take the specific circumstances of each case into consideration, such as:

- Did the artist give permission for the alteration?
- What is the extent of the intervention?
Protest will be successful less often in cases of minor changes than in cases where the work of art has been drastically altered or mutilated.
- What were the reasons for the intervention?
If the work was altered to deliberately prejudice the artist, a judge will more often rule in the artist's favour than if the changes were not intended to be prejudicial.
- Is the work of art accessible to the public?
If a publicly displayed work of art is mutilated, for example in a museum or in the open air, the artist's reputation will be harmed sooner than if his or her work is in the home of a private owner where only a few people are able to see its altered state.
- Is the work unique, or do more copies of it exist?
Alterations are less easily accepted in unique works.
- Does the work serve a practical purpose?
If so, alterations will more likely be allowed than in the case of a work of art. For example, architecture has to comply with changing demands for its use; alterations to buildings will be more readily accepted by a judge.
- What is the condition of the work?
If a work is in a state of disrepair and the cost of restoration to its original state is high, a judge may decide that the artist cannot demand that the owner pay for the repairs.
- Is the work of artistic importance?
All work that is original is protected by copyright. But in case law, the scope of this protection varies from case to case: important works are more likely to be protected against (minor) interventions than less important works. The judge will probably consult an expert to ascertain the importance of an art work.
- Is the work fixed or adapted to a building?
If the building is demolished the artist should accept that his work shares the same fate.¹³

Remarkably, Article 6bis of the Berne Convention does not mention the destruction of a work of art. The question of whether this article may be invoked in such a case

is also the subject of international debate. Some state that destruction may be regarded as the ultimate mutilation. Others are of the opinion that destruction does not harm the reputation of the artist because no one can be given the wrong impression by a work if there is nothing left to look at.

According to the traditional interpretation in Germany, the owner of a work of art may destroy it. This principle is based on two cases: the above-mentioned *Felseneiland mit Sirenen* from 1912, and *Hajek v. ADAC* of 1982.¹⁴ In both cases, the courts decided on the grounds of the artist's integrity right that the alterations made to the work of art had to be reversed, but that the owner also had the right to destroy the entire work. This happened in both cases. In the second case, the concrete sculpture was used by the army for explosives practice.

In French and Dutch case law, on the other hand, there have been certain cases where artists have successfully prevented the demolition of their work or have demanded compensation.¹⁵ Generally speaking, however, the protection of moral rights does not appear to extend as far as to preserve the work under all circumstances.¹⁶

Copyright versus preservation of cultural property

Copyright does not strive to protect cultural property. It protects all original works, regardless of their quality. Hence, copyright serves the individual rights of the artist, whereas separate laws have been introduced to preserve cultural property. These aims may well coincide, but they may also conflict. For instance, an artist may refuse to allow conservation or restoration work to be carried out because the work's decay is intentional and inherent in the work. Owners and conservators on the other hand argue for the physical preservation of art. The ethical codes which conservators are obliged to comply with describe the essence of the profession as being "the preservation of cultural property".¹⁷ Here, a potential conflict lurks with (the integrity right of) the artist, at least in Europe.

In the United States, there is no danger of such a conflict. The Visual Artists Rights Act deprives the artist of the opportunity to invoke his integrity right to challenge the conservation or restoration of his her work. Paragraph 106A(c)(2) literally states: "The modification of a work of visual art which is the result of conservation (...) of the work is not a destruction, distortion, mutilation, or other modification described in subsection (a)(3) unless the modification is caused by gross negligence." The goal – physical conservation – here seems to justify the means. This disregard for the artist's intentions indicates that the VARA merely protects the material work of art as such, as opposed to European copyright which protects the bond between the maker and his creation. Thus, it would seem that American copyright is guided by the principle of preservation of cultural property. This is confirmed by the fact that the VARA gives an artist the right to oppose the destruction of his work, but only if the work is of 'recognised stature'.¹⁸ This restriction to recognised art has met with much criticism because it denies the essence of copyright, which is to afford protection to **every** maker whose work is the original expression of his personality.¹⁹

In European copyright acts, the bond between the artist and his work is of central importance, whereas in the American VARA, the work itself is more important. Hence, fundamentally different interests are served here; those of the artist as opposed to those of preserving important cultural property.

Potential conflicts in conservation and restoration

From a moral rights' point of view, restoration conflicts between artists and owners or conservators may only arise in Europe, as we saw above that the integrity right may not be invoked against conservation in the U.S. Particular care has to be taken with regard to works of art, yet copyright does not specify what this care should consist of. Conservation or restoration is not mentioned in most copyright

acts, with the exception of the Dutch Copyright Act. Since 2004, it contains an article that explicitly requires museums to respect the moral rights of artists in case of the restoration of their works.²⁰

Only a few ethical codes on conservation speak of the responsibility of the conservator towards the maker of the object, but they do not state what this actually entails.²¹ There also is no legal obligation to consult the artist; copyright makes no mention of this. According to the German copyright lawyer Dreier, the conservator is not obliged to consult the artist provided the intervention is successful.²² However, it is questionable whether or not this may always be determined in advance.

It is apparent from French and Dutch case law that in case of the destruction of an original work of art, the artist should always be warned in advance so that the possibility of preservation may be discussed. If preservation is not possible, the artist should be given the opportunity to take photographs of the work. The Dutch copyright lawyer Limperg wrote: "In any case, it is always worth the artist's while to say something if he/she knows his/her work is under threat."²³

No legal obligation exists to consult the artist about conservation or restoration. However, this obligation may well be morally justified. After all, how can one restore a work of art without knowing what the artist's intentions were? Consultation with the artist at an early stage may also prevent that he invokes his integrity right at a later date. On the other hand, consultation could give rise to conflicts if it becomes apparent that the artist's wishes do not coincide with the interests of physical preservation supported by the owner or conservator. The following conflicts may arise:²⁴

- The artist does not agree with the treatment proposed for his/her work and wants another method to be used. Problems arise if the conservator and/or owner consider this method to be unsound.
- The artist wants to carry out the restoration him/herself. In terms of copyright law, this is the ideal situation, because any possible changes the artist makes will implicitly have his approval. Artists, however, are not conservators and are therefore not bound to ethical codes. An artist might not limit himself to the preservation of the work and may take the opportunity to make changes to the work, because he no longer supports the work as it is. The function of the work of art as a document of the period in which it was made is then lost. Although it is safer to allow the artist to carry out restoration work in terms of preventing conflicts with his integrity right, there is also a risk that the result will conflict with ethical codes.

A similar situation arose in the conflict between conservator Daniel Goldreyer and Amsterdam's Stedelijk Museum over the former's treatment of Barnett Newman's painting *Who's Afraid of Red, Yellow and Blue III*. Goldreyer restored paintings by Newman before the artist's death, and Newman approved of his methods. When the painting was vandalized with a knife, the Stedelijk Museum asked Goldreyer to restore it. From a moral rights perspective, the work was satisfactorily carried out. However, Goldreyer contravened the ethical codes of restoration. The Dutch legal scholar Kabel wondered: "...what if the museum, against the wishes of the copyright holder, wanted to provide the work with better care? The Stedelijk Museum should have been able to find a more refined restorer (...) than Goldreyer whose flattening use of a paint roller had the support of Barnett Newman's widow."²⁵

- The artist rejects conservation or restoration because deterioration is an essential part of his work. Since this inevitably means the destruction of capital for the owner, it is important that the artist expresses this intention at the time of sale. Furthermore, one may ask whether the case for preservation should not weigh more heavily than the moral rights of the artist where important works of art are concerned. The English legal scholar Dworkin proposes: "With important works of art, it could be argued that the responsibility for their protection

should shift from the private rights of the author to those public authorities responsible for protecting our cultural heritage, enforceable by public law means.”²⁶

In cases where artists’ intentions are not clear – as is often the case after they have died – the priority in conservation and restoration work must be the physical preservation of the authentic appearance of the work.²⁷

In all these situations, the artist’s right of integrity is opposed to the owner’s interest in preserving the work in an unchanged condition. Copyright offers no solution for such conflicts and there have been no judgments in such cases. It is therefore unclear whose interests will prevail in court. Each case is unique. Hence, the judge will always consider the specific circumstances of each case.

In European case law, there have been some judgments that relate to the owner’s obligation to maintain the work of art, the artist’s use of materials and the non-physical distortion of works of art. This is discussed below and once again, contrasts with American copyright law will come to light.

No obligation of maintenance

The question whether the owner is legally obliged to maintain a work of art is left unanswered by copyright law. Lawyers thus agree that copyright does not impose a maintenance obligation on the owner. Nonetheless, some are of the opinion that museums are obliged to conserve their collections on the grounds of their duty to preserve cultural property.²⁸ The fact that works of art are intended for long-term public display should carry an implied warranty from the museum to the artist that it will take particular care of his work. An implied warranty is, however, not enforceable by law. In the United States, an artist cannot invoke the right of integrity in cases where the way their work has been exhibited (e.g. positioned or lit) is prejudicial to the work, unless there is gross negligence.

The question of whether the owner of a work of art is obliged to maintain the work has been explicitly posed in a number of Dutch and French lawsuits. In the Netherlands, two contradictory decisions were taken in the case *De Haas v. Ulrich* from 1978. The owner Ulrich had a painting he had commissioned from De Haas overpainted because it had begun to deteriorate.²⁹ The court ruled that Ulrich should have consulted the artist about repairing the painting and should have offered him the opportunity to repair it. This court was therefore well disposed towards the artist. However, this verdict is an exception. In most other Dutch lawsuits concerning the destruction of works of art, the interests of the owner are taken very seriously. This also occurred in the case *Lenartz v. Sittard* in 1990. The city council of Sittard wanted to demolish a fountain that had fallen into disrepair.³⁰ The artist was informed of the decision. He demanded that the fountain be repaired and accused the council of not fulfilling its maintenance obligations. But the court ruled against him: repairing the fountain would be too expensive and it was unreasonable for the artist to make this demand. The court, furthermore, also questioned whether the city council was indeed obliged to carry out maintenance work on the fountain, considering that no such arrangement had been agreed upon by the city council and the artist. The court hereby suggested that a prior agreement is required if the owner is to be obliged to carry out maintenance work.

The French case *Munch v. Mulhouse* from 1992 implied rather the opposite.³¹ A glass paste mosaic had cracked and pieces had become detached; the artist demanded immediate restoration. The ‘Cour de Cassation’ – the French supreme court – ruled that the owner did not have to entirely repair the mosaic, but was obliged to carry out normal maintenance work to prevent or retard the work’s deterioration. In other words: the owner was only responsible for maintenance and not restoration. Unfortunately, it remains unclear as to whether the judge’s decision intended to indicate that the duty to carry out normal maintenance

applies to all French owners and commissioners of art.

This ruling is, however, an exception. International opinion says that copyright does not oblige the owner to maintain the work. If an artist considers the maintenance of his work of importance, he would be wise to stipulate this in an agreement with the owner.³² In 1986-87, the Netherlands Institute for Fine Art (which became part of the Netherlands Institute for Cultural Heritage in 1997) developed a model agreement for purchases by the state which attempts to meet artists' wishes. Under this agreement, the Dutch state is obliged to care for the work of art with due care.³³ This formula is, however, without obligations and does not create rights for artists. If the artist created the work to last for a specific, indicated length of time, the state is not obliged to maintain it beyond that period. Otherwise, the artist has to make more specific demands in the sales agreement. This also is the case if the artist rejects maintenance because deterioration is fundamental to the work: the artist can only invoke this if his intention is clear to the owner at the time of sale.³⁴ In all cases, specification in the sales agreement provides certainty for the artist.

Use of material

In several Dutch and French cases, courts have ruled that the risk of decay of the used materials lies with the artist. The first Dutch case took place in 1977. At Schiphol Airport, a work made of Formica panels by Hans Koetsier was unscrewed from the wall, whereupon it immediately bent. According to the judge, this 'bending' could not be blamed on human action but on the inherent qualities of the material, which meant that Koetsier could not invoke his integrity right.³⁵ In the above-mentioned case *Lenartz v. Sittard* of 1990, it became apparent that the fountain's decay partly resulted from its poor construction. This led the court to rule that the artist could not demand that the Sittard city council carry out expensive repairs.

In 1976, there was the French case *Roussel v. Grenoble*.³⁶ The artist, Roussel, had created an art work for the Grenoble city council made of old railway sleepers. After four years, the work had become so unstable it was a danger to people visiting the park where it stood. It was impossible to carry out repairs without drastically altering the character of the work. The mayor had the work removed, but without informing the artist. According to the court, Roussel could not expect his work to be granted eternal life: he had, after all, used second-hand sleepers. As in the Dutch case *Koetsier v. Schiphol*, the artist was confronted with the objection that the deterioration was inherent in the materials he had chosen to use.

In the above-mentioned French case *Munch v. Mulhouse* of 1992, the court reproached the artist not having ascertained where or how his mosaic was to be placed and therefore also the consequences of installing it in a fountain. The judge found that it thus was the artist's fault that the mosaic had cracked and become detached. This decision sounds reasonable. One might question, however, whether the artist should also be blamed for the deterioration of the material in the cases of *Koetsier v. Schiphol* and *Roussel v. Grenoble*. If artists use fragile materials, it is equally fair to conclude that they consider careful maintenance a priority. Furthermore, it is not always known in advance how quickly certain material will deteriorate, as was the case with plastics when they were first invented.³⁷ Still, according to the discussed case law, the risk lies with the artist. This makes it all the more important for the artist to demand maintenance in writing when he considers it of importance to the work.

Since European copyright law does not mention deterioration, case law and literature has to bring clarity to the matter. Conversely, the American Visual Artists Rights Act does specify deterioration and prevents artists from invoking their integrity right against it. Paragraph 106A(c)(1) literally states: "The modification of a work of visual art which is a result of the passage of time or the inherent nature

of the materials is not a distortion, mutilation, or other modification described in subsection (a)(3)(A).”

Non-physical modification

Dutch case law includes a number of remarkable judgments in which the non-physical modification of a work of art was considered an infringement of the integrity right. For instance, the incorrect placing of a work may violate the artist’s integrity right. This was examined in the case *Van Soest v. De Meerpaal* in 1989.³⁸ The artist Pierre van Soest had been commissioned by the community centre De Meerpaal to paint a picture measuring 6 metres x 15 metres, which was installed free-standing, at eye level in the centre. The centre was later renovated and the art work moved without Van Soest being consulted. According to the artist, it was rehung too high thus distorting the work. The judge, together with art expert Wim Crouwel, inspected the situation and reached the following conclusion: “The painting, to an important extent, derives its essential meaning from the space for which it was made and the way in which it is positioned within that space.” Thus, the repositioning of the painting, according to the judge, should have been done with Van Soest’s consent. The artist won the case and the painting was repositioned at eye level.

Thus, in the Netherlands, it is considered a non-physical modification when the installation or exhibition of a work is not carried out according to the artist’s intentions, or when it is later moved. This certainly holds for site-specific art. In Germany, there also was a debate about whether the arrangement of works made by Joseph Beuys in a museum in Darmstadt could be moved and separated without harming the artist’s intentions.³⁹ In a Dutch case of 1993, the artist Devens protested against a fountain being placed in the garden of the Town Hall in Eijsden, because it would disrupt the spatial effect of his own work in the same garden.⁴⁰ His work, made of concrete cubes and perforated metal screens, derived its meaning from the space for which it was made; this space therefore was an important part of the work. Art experts agreed that the fountain would completely destroy the visual effect of Devens’s work. The court accordingly prohibited the city council to build the fountain. Here, too, the artist was successful in invoking his integrity right.⁴¹ What convinced this court was that the artist’s view was supported by various national and international art experts.

There was no such expert opinion in a case concerning two monuments to commemorate the writer Winkler Prins in the Dutch town of Veendam.⁴² The first, a bronze statue, was designed by the artist Chiffurun. An imaginary straight line ran from the statue’s plinth to a point one kilometre away, where once stood the parsonage where Winkler Prins wrote his encyclopaedia. The Rotary Club picked this precise spot to erect a second monument. According to Chiffurun, this modified her work. She argued that the place where the parsonage had stood was an essential part of her work because it was connected to it via the imaginary line. However, the judge ruled that this part of the work was not protected by copyright because it was not, as copyright law demands, perceivable to the senses. He literally considered: “This part of her work has remained only a concept.” The problem here is that works which art experts consider as art do not always enjoy copyright protection. Furthermore, the judge considered it was unreasonable to expect the Rotary Club to know that the parsonage’s location was an essential part of Chiffurun’s work. The artist’s protest was therefore rejected.

Still, Dutch courts recognise that the space in which a copyrighted work of art is installed may be an important element for the work’s presentation, which may not be changed at will. However, this has to be evident (for instance, recognized by various experts) if the artist is to have any hope of successfully defending his integrity right in a case of mutilation or distortion. An artist has a stronger case if his work’s intentions are clearly recorded. When an artist is commissioned to make

a work for a specific site, it is sensible to exactly describe the intended location in the contract. In case the work is not installed there or is later moved, the artist's protest will often be successful because of breach of contract.⁴³

In the model agreement of 1986-7, the Netherlands Office for Fine Art reserved a right for the artist to state the correct positioning or installation of his work.⁴⁴ The state may install the work elsewhere, but only in consultation with the artist and in such a way that the work is exhibited in the best possible way. Despite such clear contracts, however, the artist can still lose. In the Netherlands, for example, permission was given to remove a wall hanging that had been especially designed for a crematorium because there were complaints that it was too cheerful. The same happened when people complained that a painting in the children's ward at a hospital was too sombre. An art work on top of an old peoples' home which announced in neon letters (translated in English) 'OMA's Ninth', was also removed after complaints from the public. The building was designed by the Office for Metropolitan Architecture, hence OMA, but this word also is Dutch for grandma.⁴⁵

Changing times can also lead to the removal of a work. In united Germany, the heirs of a Russian sculptor protested in vain against the removal of his Lenin sculptures from East Berlin.⁴⁶ In a few French cases, it has been ruled that works of art that threaten public safety (for instance because their condition has deteriorated) may be removed.⁴⁷ In the United States, artists usually have to give way to their opponents: the over-painting of wall paintings that were considered indecent was left unpunished and the removal or repositioning of (parts of) site-specific sculptures took place unhindered.⁴⁸ The VARA, moreover, states in paragraph 106A(c)(2): "The modification of a work of visual art which is the result of (...) the public presentation, including lighting and placement of the work, is not a destruction, distortion, mutilation, or other modification described in subsection (a)(3) unless the modification is caused by gross negligence."

Summary and conclusion

Copyright law grants moral rights to artists, giving them a say in what happens to their work during the rest of their lives. After their death, the heirs may continue to exercise these moral rights (although on a limited scale in the United States). However, it is questionable whether this can happen satisfactorily: heirs need to know the artist's intentions with regard to the work at issue.

Artists may invoke their right of integrity to prevent (threatening) modification or mutilation as well as non-physical alteration. If the preservation of a work requires intervention, a conflict may arise between the artist and the owner and/or conservator. However, copyright does not speak out whether the integrity right should prevail over the property right of the owner in such cases. Furthermore, there is no case law about such conflicts. If cases like this do arise, the judge will most probably consult art experts, including conservators.

Considering the unpredictability of judicial rulings, it is advisable to consult the artist on the preferred method of treatment of the work and reach consensus.⁴⁹ Even then, not all differences of opinion can be avoided, which is why it is better if the artist provides guidelines for preservation of the work when it is sold. The 1986-7 Model Agreement of the Netherlands Office for Fine Art took a step in the right direction by requiring artists to "supply a detailed description of the materials and techniques used, to help any future conservation of the art work".⁵⁰

As is evident from case law, artists cannot demand that the owner maintains or even restores the work unless a mutual agreement has been reached. If artists consider the physical maintenance of their work of importance, it is their responsibility to make such an arrangement with the buyer. If artists omit to do so, then they are left at the buyer's mercy. In the case of (threatening) interventions which the artist does not agree to, he may invoke his integrity right. In order to prevent this, the owner may choose to take the initiative of first asking the artist's advice.

It is prudent, at the time of purchase, to ask the artist to write down guidelines about whether or not conservation and/or restoration work may be carried out and, wherever possible, how. Such guidelines are not binding. This is important because in the future, improved conservation methods may become available. If the artist refuses to agree to conservation or restoration, he should explain his reasons in order to clarify the work's intentions. Any potential buyer must be informed if decay is part of the work. Then the buyer will know what lies in store for him – and can decide whether to proceed with the purchase – while the artist can later defend his wish not to allow conservation work. It must therefore be clear in the agreement of sale that the art work's future has been considered. In case the artist makes special demands with regard to positioning, lighting and so on, he can also include these in the agreement.

While some artists willfully want their work to decay, conservators may find this hard to accept. The artist's choice for deliberate decay is difficult to reconcile with the ethical codes of conservators, which specify their duty to physically preserve works of art. With important works of art, it may be argued that the general interest served by the preservation of cultural should prevail over the individual intentions of the artist.⁵¹ American copyright supports this view: the VARA specifies that an artist may not invoke his or her integrity right to prevent conservation or restoration. Here, the protection of the bond between the work and its creator has to yield to the aim of preserving cultural property. From a legal perspective, American conservators are therefore in an easier position than their European colleagues.

In the European copyright tradition, there is a deep-rooted respect for the personal bond between the artist and his or her work. Furthermore, involving artists in the treatment of their work is often considered as a moral obligation, even though this does not always make it easy reach a decision on the treatment to be carried out.⁵² After all, the ethical codes for conservators always approach a problem from the perspective of the preservation of cultural property and therefore, they sometimes are difficult to reconcile with the intentions of the artist, whose moral rights should also be respected. Furthermore, compared to earlier art which is out of copyright, contemporary art brings with it a range of specific problems. The large variety of materials used and the speed with which they degenerate constantly present conservators with new and complex choices.

PART TWO

Dionne Sillé was project manager at the Foundation for the Conservation of Modern Art.

Since the first initiatives of Dutch conservators and curators in 1993 to tackle the problems of the preservation of modern art collectively, an enormous demand has built up for the exchange of knowledge, experience and ideas with international colleagues. Dutch curators wondered whether the approach was more methodical in other countries. And there were numerous questions about the works of foreign artists – works with conservation problems for which there were no off-the-peg solutions in the Netherlands but for which these might be available elsewhere.

In the course of the project, contacts gradually increased with colleagues in museums and research institutes across the world. This led to the idea that structural cooperation and exchange of knowledge could help bring the problem under control and that an international debate on the methodology would prove enlightening. For the participants in the Dutch research project it was therefore essential that the results of the Conservation of Modern Art project be evaluated internationally.

In 1996, the European Commission's Raphael funding programme offered a real opportunity to implement this proposal. Our application to set up an international cooperative programme with thirteen partners, with a symposium as the central objective, was accepted.

International programme committee

It was decided that all the partners would formulate the symposium programme together. Besides the presentation and evaluation of the Conservation of Modern Art project – the research on the pilot objects and the resultant models – there would also be material contributions by the international partners. The symposium's programme commission (see page 431) set the following aims:

- Besides providing information, the symposium would also ensure its exchange; the principle aim was to stimulate debate on the approach to the complex problems of the preservation of 20th-century art collections. This means that, apart from case studies and the technical problems of materials, the discussions would also focus on methodology and the ethical, aesthetic and art-historical dilemmas.
- An interdisciplinary approach was another key objective. To this end, representatives from numerous disciplines – curators, conservators, conservation scientists, philosophers, art historians, lawyers – were invited to contribute. As for museums, staff from various levels – including directors – were to be involved in the debate.
- Moreover, the organisers aimed to give a new impulse to international collaboration for the preservation of modern art.

With these aims in mind, the committee and the representatives of the thirteen participating museums and research institutes drew up a programme for a three-day conference. At a workshop in May 1997 the partners discussed the proposals of the programme committee and added their own ideas.

The programme

The symposium *Modern Art: Who Cares?* was held in Amsterdam from 8 to 10 September 1997 and attracted over 450 professionals from most countries in Europe as well as many other parts of the world. The programme included a series of lectures, an even larger series of seminars, a roundtable discussion with artists, a directors' forum and a visit to an exhibition of objects discussed in the Conservation of Modern Art project at Museum Boijmans Van Beuningen in Rotterdam. All the partners contributed papers and seminar introductions, presenting the results of their own research or discussing their own museological policy relating to the conservation of modern art.

The lectures at the symposium were grouped according to subject, case studies alternating with theoretical homilies. The seventeen seminars, each on a different theme, took place simultaneously. Unfortunately, this meant that participants could only attend one seminar. So to enable everyone to benefit from the other sixteen seminars, the conclusions of all the debates were presented the following day in the plenary session and the principal results were printed in a seminar newsheet.

Collective conclusions

To round off the symposium the following conclusions were presented, based on the addresses, seminars, discussions and findings of the participants:

1. Conservation of modern and contemporary art is only possible if information is available on the materials and techniques used by the artists and, not least, on what they mean to the artist. The fact that these data are largely unavailable endangers the preservation of modern and contemporary art. Documentation and research in these areas should therefore be a structural part of conservation strategy.

To this end, museums of modern art must invest heavily in the collection, availability, research, and exchange of information, and make a clear choice for their international, national or regional function as institutes charged with preserving and passing on 20th-century fine art. To generate the necessary knowledge:

- interviews with artists are a major instrument in the collection of information;
 - research into the documentation and conservation of non-material artistic expressions merits special attention;
 - art-historical and art-theoretical research is essential for the development of a methodical approach to the collection of these data.
2. More efficient collaboration is vital, both within the museums and among the institutes and various disciplines or professions – conservators, curators, conservation scientists, artists and managers. Free-lance conservators working independently must also be part of this network. Collaboration and exchange should be developed in particular in:
 - opening up research findings into methods and techniques of conservation, scientific and material research, and information on conservation treatment that has been done;
 - gathering information on materials and techniques used by artists, and their meanings;
 - making these data accessible on the Internet, through an information network.
 3. Conservation is not just the task of conservators, but the responsibility of the museum organisation as a whole – including management level.

There is a need for the development of clear logistic and management systems aimed at the use and conservation of modern and contemporary art, centred on the diversity of materials and their meanings.

When works of art are acquired, the consequences for their conservation must be assessed and integrated in management from the start.

Methods of risk management are to be developed specially for these fragile and diversified collections, and integrated in conservation policy.

Proceedings

Below is a survey of the symposium's programme. This is followed by the proceedings on the symposium, which strays somewhat from the real programme: lectures relating to the Conservation of Modern Art project are contained in the first part of this book – in the chapters to which they relate thematically. Part II contains the lectures of those not directly connected with the project. Thus the thematic structure of the symposium programme is only recognisable in the survey.

The content of each seminar is discussed in detail: both the introductions and the minutes of the discussions with conclusions are reported here. The seminars represent a wide range of themes and issues, from conservation of kinetic objects and collaboration with artists to aspects of copyright. Together they give an idea of the current state of play in the field of modern and contemporary art preservation. This is followed by a chapter of Discussions, containing the proceedings of the directors' forum and the roundtable debate with artists.

Lecture programme

Opening's speeches

- Rik Vos, general director of the Netherlands Institute for Cultural Heritage, Amsterdam
- Jan Riezenkamp, director-general of Cultural Affairs and Labour Relations, Ministry of Education, Culture and Science, the Netherlands (see page 239)
- Evert van Straaten, director of the Kröller-Müller Museum, Otterlo and chairman of the Foundation for the Conservation of Modern Art, Amsterdam

Introductions to the conservation research of contemporary art from the positions of: the curator

Piet de Jonge, curator at the Museum Boijmans Van Beuningen in Rotterdam: Water melons and burned holes – two examples of modern art and modern materials (see the chapters on Gilardi, page 137, and Peeters, page 43)

the project

Dionne Sillé, project manager, Foundation for the Conservation of Modern Art/Netherlands Institute for Cultural Heritage, Amsterdam: The Conservation of Modern Art project; outline, conclusions and future programme (see introduction on page 14)

the conservation scientist

Thea van Oosten, conservation scientist at the Netherlands Institute for Cultural Heritage, Amsterdam: Problems relating to the materials of the objects investigated in the Conservation of Modern Art project (see her article on page 158)

the conservator

Christian Scheidemann, free-lance conservator, Hamburg: Men at Work; the significance of material in the collaboration between artist and fabricator in the 60s and 70s (see his article on page 242)

Ethical aspects of the conservation of contemporary art

- Jaap Guldemon, curator at the Van Abbemuseum, Eindhoven: Artificial respiration: some remarks on the conservation of Tony Cragg's *One Space, Four Places* (see his article on page 79)
- Ernst van de Wetering, professor of art history at the University of Amsterdam: Modern art and the problem of restoration ethics (see his article on page 247)

Registration as part of preservation policy

- Christiane Berndes, curator at the Van Abbemuseum, Eindhoven: The registration of modern art – the model and actual practice (see her article on page 173)
- Jean-Christophe Ammann, director of the Museum für Moderne Kunst, Frankfurt: Preservation policy for a museum collection of contemporary art (see his article on page 282)
- Erich Gantzert-Castrillo, conservator at the Museum für Moderne Kunst, Frankfurt: Development of a registration system in the Museum for Modern Art in Frankfurt and experience in the documentation of artists' methods and materials (see his article on page 284)

Case studies: Jean Tinguely

- Lydia Beerkens, conservator at the Foundation for the Conservation of Modern Art, Amsterdam: The case of Tinguely – The significance of art-historical research for the purpose of conservation (see chapter on Tinguely, page 23)
- Andres Pardey, scientific assistant, Museum Jean Tinguely, Basle: The conservation of Tinguely's work in the Museum Jean Tinguely (see his article on page 259)

Conservation approaches for video and other installations

- Pip Laurenson, sculpture conservator at the Tate Gallery, London: The conservation and documentation of video installations (see her article on page 263)
- Carol Stringari, conservator at the Solomon Guggenheim Museum, New York: Development of a structure for the preservation of installation art; case studies from the Guggenheim collection (see her article on page 272)

Decision making in the conservation of contemporary art

- IJsbrand Hummelen, coordinator of Conservation and Restoration Research at the Netherlands Institute for Cultural Heritage, Amsterdam: Development of a decision-making model for the conservation of contemporary art (see decision-making model on page 164)
- Renée van de Vall, philosopher and lecturer at the Faculty of Arts and Culture, University of Maastricht: Painful decisions: philosophical considerations on a decision-making model (see her article on page 196)
- Elisabeth Bracht, conservator at the Stedelijk Museum, Amsterdam: Case study of the conservation of works by Elsworth Kelly – the dilemmas (see her article on page 250)

Specific problems with modern art materials: practice and theory

- Shelley Sturman, head of object conservation, and Marie Laibinis-Craft, conservator, National Gallery of Art, Washington: The fabrication and conservation of Frank Stella's magnesium reliefs (see article by Marie Laibinis-Craft on page 254)
- Pieter Keune, director of the Foundation for Artists' Materials, Amsterdam: Lacking information from manufacturers: Standards for modern art materials are needed (see his article on page 154)
- Stefan Michalski, senior conservation scientist at the Canadian Conservation Institute, Ottawa: Conservation lessons from other types of museums and a universal database for collection preservation (see his article on page 290)

Legal aspects of the conservation of contemporary art

- Koen Limperg, solicitor with De Brauw Blackstone Westbroek, The Hague: Legal aspects of conservation – the international situation (see the article by Annemarie Beunen on page 222)

Seminar programme

The 17 seminars are listed in the table of contents of this book, and fully reflected in the following chapter.

Discussions

- Museum directors' forum: Jean-Christophe Ammann, Jaroslav Aňdel, Maria de Corral, David Elliott and Rudy Fuchs; moderator Jacqueline Burckhardt
- Artists' forum on cooperation in conservation: Suchan Kinoshita, Michelangelo Pistoletto and Carel Visser (artists), Marianne Brouwer (curator), and Christian Scheidemann (conservator); moderator Piet de Jonge

Ladies and gentlemen,

From time immemorial, this country has had to protect itself against flooding. One of our main weapons in the struggle is the Delta Plan, a huge hydraulic engineering project designed to guard against any repeat of the flood disaster of 1953, when large parts of southwestern Netherlands were inundated.

But we also have a second Delta Plan. The Delta Plan for the Preservation of Cultural Heritage is designed to protect our national cultural heritage against the ravages of time. In 1991 it emerged that Dutch museums had fallen a long way behind in the conservation and management of the cultural heritage. The then Minister of Culture, Hedy d'Ancona, immediately decided to launch a large-scale rescue operation. Substantial extra funds were allocated for the implementation of this Delta Plan. Now, six years on, most of the backlog of work has been tackled. But perhaps the most important result of the Delta Plan has been its psychological impact. It has made us all aware that conservation is an item that should always be at the top of the agenda. We must never forget that.

The recently established Netherlands Institute for Cultural Heritage, one of the organisers of this conference, is an expert institute in the field of conservation and restoration. As such, it has a duty to continue the good work to hold back the encroachments of time on the cultural heritage in the years to come.

The Netherlands government feels a responsibility not only towards the legacy of the past, but also towards the products of our modern era. And that means preserving not only contemporary art, but also, for example, relatively recent buildings of special architectural or historical interest. An interesting selection project is now under way to decide which modern buildings are to be listed as historic buildings.

*Our conference today is about the conservation of modern works of art. The large numbers in which you have come here to Amsterdam show how important we all think it is to share our knowledge and experience with other countries. Because research on the conservation of modern art objects confronts us with a number of pitfalls and problems, key questions and dilemmas which these works of art seem almost deliberately to present. In this connection, I would like to tell you a story taken from Tom Wolfe's book *The Painted Word*.*

Imagine the scene: the greatest artist in the history of the world is sitting in a café, impoverished and unknown. He has cadged a free glass of water and is hoping to scrounge some leftover food from the surrounding tables. Suddenly he is inspired to create the greatest work of art in the history of the world. He has nothing to draw with, not even a pencil or a burnt match. So he dips his finger into the glass of water and begins recording this greatest of all inspirations, this high point in the history of man, on a paper napkin, using ordinary tap water as his paint.

Of course, in a matter of seconds the water has sunk into the paper and the grand design has disappeared. The artist slumps to the table and dies of a broken heart. The manager comes over and sees nothing but a down-and-out with a wet napkin.

Now, the question is: would that have been the greatest work of art in the world or not? The conceptual artists of the sixties and seventies would have said yes, of course it would. What matters in art is not the permanence of the materials and all that stuff, but the genius of the artist and the process of creation.

You are all specialists in the conservation of modern art, of course, and no doubt you would fish the napkin out of the café's dustbin and do your best to conserve it. But should we in fact? Should we try to preserve everything? Is it really so terrible if we have to write things off from time to time? Wouldn't that actually be far more appropriate, in view of the materials and methods used by twentieth-century artists?

Is it really necessary to pass on the entire legacy of the twentieth century to the twenty-first?

No work of art can truly be preserved. The original state can never be retained indefinitely. Even so, some art objects – a Titian or a Vermeer, for example – do pretty well in that respect. For works like these, conservation means stabilising them in a particular condition. But in the case of some modern works of art, despite their considerably more recent date, conservation is far more a question of postponing their eventual and inevitable extinction.

This might also be the case with the greatest work of art of all time, if – as in Wolfe's hilarious story – it consisted of no more than a few streaks of pure, 'authentic' tap water on a paper napkin. Works of this kind can be seen as temporarily prolonged performances. At a particular point in time they come to an end and can only survive further in some other form: as photographs, films or even as descriptions.

This fact poses an immediate dilemma for curators and conservators: are such unconventional solutions legitimate? How far can we go in this direction? What criteria should we apply? Questions to which there are no ready-made answers.

Contemporary artists use their often unconventional materials in a highly personal way. There is now no general consensus as to the symbolic meanings of a material or its value. So conservators can easily make mistakes. Any intervention involving the materials or techniques of the artist has implications for the meaning of the work.

After all, placing objects in a museum has a certain alienating effect and endows them with a new significance. A urinal in a museum is rather different from one in the street. A cracked urinal in a public convenience will quickly be replaced and nobody will think twice about it. But what about a urinal on display in a museum, a urinal elevated to the status of a work of art. What should we do about the crack then? Use glue? Make a replica?

I can just imagine the confusion that arises: should the cleaner mop that greasy corner of the gallery (by Joseph Beuys) or leave it alone? The whole thing can become totally Kafkaesque when you imagine the possible consequences if we were to lose all feeling for materials and their meaning. It would be like that invisible masterpiece on a paper napkin: possibly there, but no longer tangible.

Even so, museums do have an important duty to care for works of art constructed of perishable and impermanent materials. This means that extensive information has to be assembled about the artist's methods, the materials used and their meaning for the individual work and the particular artist. Just as a surgeon examines a patient from top to toe before reaching for the scalpel. Only then, on the basis of all this information, can a sensible decision be made about the method of conservation.

The Netherlands Institute for Cultural Heritage and the Foundation for the Conservation of Modern Art deserve nothing but praise for the work they are doing to develop methods and procedures to get to grips with the dilemmas and difficulties in this field. In the course of this work, there has been an increasing realisation that it is only through an interdisciplinary approach that all aspects of the problems of conservation can be properly addressed.

Art historians, conservators, scientists, lawyers and philosophers are all working together, a fact reflected in the programme for this symposium. For curators and conservators are often confronted with insoluble technical, aesthetic and ethical dilemmas. Artists visiting museums don't want to see their works laid out like corpses in a mausoleum. They are grieved by the physical deterioration of their works. They want a living work of art for the public to experience.

But the aim of the museum is to display the work of art just as the artist created it. The original material is important. This is a typical aspect of our Western cult of

authenticity. I remember a story I once heard about a restoration project undertaken in India by Western conservators. They wanted to conserve a wall painting in a temple. The monks were shocked to the core when the conservators proposed to fix the original flaking paintwork with synthetic adhesives. So far as they were concerned, it was perfectly all right to repaint it. As long as the overpainting was done with consecrated pigments, that would not destroy the essence of the wall painting: its religious meaning. Ironically, the preservation of the authentic mural using non-sacred materials would constitute a desecration of the temple, even if those materials were completely invisible to the human eye.

So it is often not the artist who insists on the aura of authenticity, but rather the art historian and the museum. For them, oddly enough, the material is more important than the spirit of the work. Safeguarding that authenticity is a laudable aim in itself, but perhaps we should occasionally have the nerve to seek to bring the work back to life and restore some of its original immediacy, rather than preserve it as a visibly ageing relic of the past.

These are dilemmas, interesting dilemmas, which are an inseparable aspect of modern works of art. Museum directors who purchase works which are difficult to conserve should be clearly aware of the consequences, both financial and ethical.

Ladies and gentlemen, research on the problems of conserving modern art will be successful only if it is undertaken internationally. Modern artists often work internationally and it is accordingly no accident that partner museums have been invited by the Netherlands Institute for Cultural Heritage to participate in the research project being undertaken by the Foundation for the Conservation of Modern Art. It is encouraging to see the increased European and American awareness of specific conservation problems in the field of modern art and the considerable readiness that now exists to share know-how and allow access to archive material. The new media, like the Internet, make it easy to exchange such information rapidly.

That is why this kind of conference is so important at this particular time. Not only so that we can exchange information and expertise during these three days, but so that in future we can approach each other with increasing ease to agree international cooperation between expert institutes and museums. That way we can increase our understanding of the materials and techniques used by the Raphaels and Michelangelos of the twentieth century. Just as Vasari described various mythical works of art of the ancient world, so the dilemma of the greatest work of art of all time, the water-stained paper napkin, may yet acquire a typically 20th-century solution.

Thank you

Jan Riezenkamp
director-general of Cultural Affairs and Labour Relations at the Netherlands Ministry of Education, Culture and Science

Christian Scheidemann* MEN AT WORK: THE SIGNIFICANCE OF MATERIAL IN THE COLLABORATION BETWEEN ARTIST AND FABRICATOR IN THE 1960S AND 1970S

Christian Scheidemann is free-lance conservator.

In the autumn of 1989, the Ace Gallery in Los Angeles exhibited sculptures of Minimal Art. One of them was Carl Andre's work *Fall* from 1968: twenty-one L-shaped, hot rolled steel plates (2. 54 x 182. 88 x 1493. 52 cm) lying on the floor and leaning against the wall. Another was Donald Judd's *Wall* from 1974, metal sheets made of galvanized steel which each stand five feet high and 'float' in front of the three existing walls of a room.¹ Both works were on loan from the collector Guiseppe Count Panza di Biumo of Varese, Italy.

A few months later, in the magazine *Art in America*, both artists distanced themselves vehemently from their supposed works calling them forgeries (Carl Andre in *Art in America* 3/90 p. 34, and Judd in 4/90 p. 33).

What had happened? In order to save on the costs of shipping these very large and heavy pieces from Italy to America, Count Panza had had both works refabricated in Los Angeles. He had done so with utmost conviction. In an interview in the



July edition of the same magazine, he reacted to the artists' criticism: "It is in the nature of a minimalist, conceptual and environmental art that it is not realized by the artist's hand. The project is the original, its realisation is left to a third party – that is to say, a specialist's workshop."

This dispute between artist and collector raises one of the most crucial questions for the understanding of modern art: how important is knowledge about the significance of the material used in the sculpture of our time?

Since many presentations of modern art already include exhibition copies of the actual works, it becomes more and more difficult to distinguish between a manufactured original and a manufactured copy. Besides, to what extent is a piece of art still genuine after the 'delegation' of labour to an assistant? And finally: what kind of insight does a conservator need to be qualified to work on industrial materials used in art objects?

Carl Andre, *Fall* (1968), installed at the S.R. Guggenheim Museum, New York, in 1970. Collection: G. Panza di Biumo, Italy. Photo: Gianfranco Gorgoni, New York, courtesy of Paula Cooper, N.Y.

Reconstruction of Carl Andre's *Fall* at the ACE Gallery, Los Angeles, in 1989 (destroyed).
© Art in America

Serial productions and the assistant's role

At the beginning of the 1960s a rather factual, objective, unemotional art emerged to oppose the strong gestures of Abstract Expressionism. It was untouched by any kind of individual signature, untouched by brush or fingerprint. Only the technical process was supposed to be recognisable, the fact that it was exchangeable and reproducible.

Already in the late fifties, the then graphic designer Andy Warhol manufactured rubber stamps in various sizes up to 12-square centimeters out of soft Artgum erasers, carving out stars, suns, butterflies and flowers. Thus for the first time he realised a professional repetition of images, which were then water-coloured.² Later, he took advantage of his background as a graphic designer and improved the method. In his book *Popism* Warhol stated: “In August 1962, I started doing silk-screens. The rubber-stamp method I’d been using to repeat images seemed too home-made.”³

His silkscreen method enabled him not only to reproduce everything from photographs, with this kind of objective picture-transmission he also introduced a delegable medium with which any assistant could produce Warhol’s art works.

The consequences of this division of labour between artist and assistant can be understood from the next example. When doing research on a relief by Jan J. Schoonhoven entitled *R 75-2*, in order to restore it, I sent a letter to the artist. Only one week later, on 19 July 1991, I received a reply – not from Schoonhoven, but from his assistant Aad in ‘t Veld – stating the following:



Jan Schoonhoven asked me to answer your letter. Since 1970 it has been me who executed the reliefs by Jan Schoonhoven and also restored them. Thus, I also produced the relief you are talking about. The white paint is latex. Always the same Vinyl Latex or Acryl Latex, mostly Vinyl, Super of Flexa – which is manufactured by AKZO Coatings Holland.

If you wish, I could restore this relief for you. Jan recommends to paint the whole thing white again, if the owner doesn’t mind. Then the object will reflect light again. In Jan’s opinion it should be painted over every third year, then it will become even more beautiful. But if anyone objects and would prefer it more dull and more dirty, then that’s also fine – this could also look beautiful, although it is not the nature of his work. Often I also find that when restoring a work I want to justice at least to the discoloration of the Stauboder and then I do it. The very, very old reliefs by Jan are left alone, of course.

Prepared to help, best regards,

Aad in’t Veld

Jan J. Schoonhoven, *R 75-2* (1975), plywood, cardboard, latex paint, 80 x 60 x 4 cm. Private collection, Hamburg. Photo: Chr. Scheidemann, Hamburg

Jan J. Schoonhoven signing a work executed by his assistant Aad in ‘t Veld. Photo: Aad in ‘t Veld, Delft

Schoonhoven himself once stated: “I am the architect, the assistant is the engineer.”

This letter very clearly indicates some problems as well as the phenomenon of the delegated production of art works:

— The artist has not fabricated the work, but his assistant.

- The materials used are standardised and available to anybody as long as they are being produced. But beware when the production runs out!
- The assistant offers to 'restore' the work.

Semiotic of material

Still, an everyday object can have a subtle significance. What kind of semiotic value the artist may attribute to it, is illustrated by my experience with Pistoletto.

In 1965 the Italian artist Michelangelo Pistoletto, who in the early sixties became famous for his reflecting mirror panels ("the spectator being part of the image"), bought a street lamp of the type hanging over pedestrian crossings. The technology at that time was a club-shaped mercury vapour lamp. The work in which Pistoletto used it was entitled *Lampada a Mercurio*; it obviously took up the notion of reflection, transformed into warm yellow light.

In 1992, when preparing an exhibition, the artist asked me if I could procure such a bulb to replace the original one, as he was afraid that it might break after being in operation for almost twenty-five years. In the meantime, however, the technology had gone out of production for ecological reasons. We did find a similar lamp instead, same shape, same colour temperature, but of a different technology: that of sodium vapour. Of course Pistoletto refused this surrogate, as the technology did not respond to his semiotic of materials.

Minimal artists share an interest in the radical reduction of artistic expression through a particular approach to material and volume. We can see how the material itself becomes more and more important, to the point where it constitutes the artistic statement itself. Another shared philosophy is, as Sol LeWitt put it: "Irrational thoughts should be followed absolutely and logically."⁴

On the other hand, if we look closer at the work of Carl Andre and Donald Judd, two of the main protagonists of Minimal Art, it may become obvious that art-historical terms such as Minimal Art or Minimal Artist may possibly subsume individual artists – their particular intentions and working methods varying in the extreme.

Certificate and reconstruction

Judd's specific concern about material and any potential reconstruction becomes obvious from the certificate of his work *Untitled* in the Guggenheim Museum, Collection of G. Panza (1970, cold rolled perforated steel, 29,40 x 350,52 x 297,18 cm). Judd wrote:

I hereby grant G.P., his successors and assigns the right to reconstruct the work if it is ever dismantled, destroyed, stolen or lost, provided that this is done by reference to, and in strict and exact compliance with, the document and all of the details and instructions set forth (...). I, or my personal representatives or my estate, am notified in writing of the reconstruction of the work. (...) no more than one such realisation of the work may exist at any time, except that a copy may be made (...) for temporary exhibition purposes, (...) the work is to be (...) destroyed immediately after the exhibition ends (...).

I or my duly authorized representative or my estate shall be notified of any such temporary realization and of all details relating to its later destruction. I further grant G.P. the right to recreate the work, to save the expense and difficulty involved in transporting it over long distances, provided the original work is promptly destroyed by G.P. (...) the document and this certificate (...) shall constitute proof of ownership of the work, and it is not necessary that the work now in existence, or any later recreation of it, be signed. Ownership (...) only to be transferred by the transfer of the document and this certificate and the realized work, if it is then in existence (...), 7/12/75. Hand-written addition: exception: this piece should only be remade by Bernstein. (Bernstein was Judd's fabricator on Long Island.)

Michelangelo Pistoletto, *Lampada a mercurio* (1965), club-shaped mercury vapour bulb, street lamp, enameled steel, 80 x 45 x 45 cm. Collection of the artist. Photo: P. Bressano, Turin

This text would mean Donald Judd actually gave Count Panza the right to reconstruct this particular work in order to save on shipping expenses, be it with certain provisions. In 1970 Judd obviously still trusted him.

Soon after, when Panza had had a couple of Judd's works refabricated from blueprints the wrong way around, the artist wrote him a letter saying: "The technology and craftsmanship of my work is part of the art. Work made without my supervision is not my work. You cannot continue to do so!" (D. Judd, 'Una stanza per Panza' in *Kunst Intern* 11/90, part IV).

Throughout the different concepts of original and refabrication we need to keep in mind that the subject matter is first of all to legally protect an object as a genuine piece of art, because as Judd said: "This work is my original and unique creation."

The material is the matter

With Carl Andre, the situation is different: he never made a blueprint, nor does he have his pieces fabricated from sketches. He chooses plain metal of a certain size and quantity and then decides on the specific configuration at the final location.

His pieces are never too large not to be installed by himself. One day in February 1996, during a conversation we had, I asked him if he saw himself as a concep-



tual – or minimal – artist. He put his strong square hands on the table and answered in utter surprise: "Just look at my hands – I am a sculptor!" And so it is: what matters is the material. For Andre, working with materials is before anything else a physical approach. For four years, Andre used to work on the railroad as a freight brakeman. In an interview with Jeanne Siegel for *Art International*, November 1970, he talked about the influence of this experience on his work: "So I was continually shifting cars around and making new strings of material. And of course there are the steel rails going on for miles, and ties, and just all the industrial material – coke, iron, ore, scrap metals; all the materials going through there are raw materials that I was tremendously interested in too."

The traces of time in industrially manufactured art works

Quite revealing is Andre's approach when a work of his is damaged. If part of it is broken or lost, he does not exchange single plates but claims the entire piece back to configure it into a new work of art. To protect his work as a genuine original, his certificate is an important part of it. Regrettably, Carl Andre refuses to have his certificates published.

Andre's pieces all have biographical characteristics, he always tries to connect his works to everyday history. In a conversation with Piet de Jonge, in August 1997,

Donald Judd, *Untitled* (1970) from the S.R. Guggenheim Museum (collection G. Panza di Biumo) installed in 1970 at Leo Castelli Gallery in New York. ©The Solomon R. Guggenheim Foundation, New York

Donald Judd, *Untitled* (1970), pencil drawing 26,4 x 33 cm, unsigned. ©The Solomon R. Guggenheim Foundation, New York

he explained: “My large metal floor pieces very much benefit from pedestrian traffic flowing over them. Rarely used railroad tracks become dull and rusty, heavily used railroad tracks keep silvery bright in all weathers.”

There are numerous incidents which prove Carl Andre to have an almost romantic relationship with materials. In a way, Donald Judd was also quite open to the beauty of patina. In an interview with Donna Williams, Peter Ballentine (Judd’s studio supervisor) explained: “The artist’s intention was not necessarily to have the pieces in a pristine state of high polish at all times. In fact, though streaking and fingerprints are considered unacceptable, an overall, evenly tarnished surface for these works was not to be considered undesirable.”⁵



Conclusion

Some of the concepts discussed here obviously contain the will to establish the permanent New; they represent a constant longing to escape history – which can never be fulfilled. The notion of industrially manufactured perfection as a representation of inaccessibility and objectivity will always be in contradiction with the biographical life span of the material at hand.

None of those involved – artist, collector and dealer – wants to give up the auratic qualities of the original, even though the criteria of authorship have become invalid through the division of labour. The claim of originality seems to have been given up, the artist’s work being produced by his own assistant or some manufacturer of his choice, but only in appearances.

What, then, is the difference between a manufactured original and an identically produced copy? The answer is this: the concept of originality has not at all faded, but surprisingly widened – any light bulb can be declared art, as long as the artist declares it! As for the material, the sole difference is the history of the object. One can always produce a second object, yet it will not bear the traces of time.

Since we do not want to make the same mistakes as those conservators who every fifteen years issue new directions for supposedly final goals of conservation for architecture and other historic monuments, there are no final answers to the questions asked. Conservators – together with art historians and natural scientists – will continually have to balance their understanding of the unavoidable traces of history even within more recent works of art, and the artist’s claim for the pristine condition and originality of his art. Like Carl Andre said in my last conversation with him: “When handling art we must always remember five important things: gloves, gloves, gloves, gloves and gloves!”

Carl Andre, *Stile (Element Series)* New York 1960 (proposed), New York 1975 (made). Western red cedar, private collection. 4-unit stack, on floor; 4 tiers of 1 timber each, centered and at right angle, 28,8 x 28,8 x 86,4 cm each and 115,2 x 86,4 x 86,4 cm overall. Certificate: 05.12.1989. Photo: Volker Döhne, Krefeld

Carl Andre, *Steel-Magnesium Plain*, New York 1969, private collection, Switzerland: 36-unit square (6 x 6) on floor, 18 plates of each metal alternating 0,9 x 28,8 x 28,8 cm each and 0,9 x 172,8 x 172,8 cm overall. Certificate: 19.11.1983. Photo: Eeva Inkeri, New York

Ernst van de Wetering CONSERVATION-RESTORATION ETHICS AND THE PROBLEM OF MODERN ART

Ernst van de Wetering is professor of art history at the University of Amsterdam.

At first sight conservation-restoration ethics seems to be a cultural, and thus temporal phenomenon. This may imply that it is only valid to a limited extent; that it is relative by nature. There is, however, a deeper significance in conservation-restoration ethics as enshrined in existing codes. This makes one wonder whether these codes do not in fact formulate truth instead of temporary conventions.

Conservation-restoration ethics is based on the apriori, all too often confirmed by experience, that conservation-restoration is always an interpretation of the object concerned and therefore implies the risk of being a mistaken, anachronistic interpretation. Another apriori at the root of conservation-restoration ethics is that we have a responsibility for the future in allowing upcoming generations to have a past as we ourselves have had one, and that we do not have the right to interpret their past irreversibly on the basis of our own anachronistic interpretations.

Based on these apriories, Cesare Brandi came to the conclusion that besides relevant documentation it is primarily the original material of an object, or what is left of it, that can serve as a sound basis for future generations to build their own interpretations of the original appearance, function etcetera of the object. From this it follows that the conservation of the original material has the highest priority, in whatever condition it has survived.

This, however, does not mean that we are not allowed to reconstruct the object to a greater or lesser extent. Such reconstruction should – according to existing codes – be carried out as far as possible only in a reversible way, that is: without impairing or destroying the original material, nor the traces of its construction etcetera. This rule is in accordance with what was earlier stated.

Because of the foregoing we are obliged to adequately document the object as we have found it. We are allowed to intervene in the object if this is inevitable or beneficial for a satisfactory ‘reading’ of the work, depending on the context in which it is seen or used; but then we should also document how we have intervened. Such documentation, as well as the treatment that may have been carried out, demand the greatest honesty.

It should be emphasised that although in this approach the object primarily has the function of a source about itself, this does not imply that we have to approach it as an historic ‘ruin’. Nevertheless the original substance demands our highest respect, given our responsibility to the future.

This logical construction, which slowly developed in the nineteenth and twentieth century, is based on what could be called an anthropologically or even genetically determined human condition, constituted by humankind’s need for a past on the one hand, and our need to care for future generations on the other. Basic to all this is humankind’s need of a memory and a built-in urge regarding the transition of memories to later generations.

Torn between the present and the future

In theory, the only way to intervene in this natural continuum may be a cultural revolution: the destruction of the past in order to build a completely controlled future. We have seen in the last century that cultural revolutions fail in the end and that human nature, in the sense described above, cannot be bridled.

Nevertheless modern art, and to some extent art in general, tends to revolutionise culture by striving to influence the present and the future as well as our perception of the past. One could say that much late nineteenth- and twentieth-century art by its very nature has, or tries to have, an existential impact on the way we experience the past as well as the future. It attempts to have the quality of a statement, a manifesto, which, as it were, determines the present with as much

force as possible. It is the 'here and now-ness' that counts!

The conservator-restorer involved in putting the work of art as a statement across, by being involved in organising and shaping its presentation, can, according to the conservator Hiltrud Schinzel, be seen as an 'art-promoting person' while helping to present the work with maximum impact. In that situation, the conservator-restorer deals primarily with the visual impact of the work according to the artist's real or presumed wishes. He or she participates in a performance that is rather theatrical than museal in the traditional sense.

But: the theatre is the place where lies create truth – interventions are taken which in the view of conservation-restoration ethics are heavyhanded and highly unethical – radical repairs including complete reconstructions or, in the case of paintings, overpaintings. Such interventions may be carried out for the sake of the moment and may imply a serious loss of authenticity of the object as a source about itself and its maker.

Thus in the field of contemporary art the conservator-restorer is torn between two forces: the existential power of the work as a statement in the present and his or her awareness that the object at some point, probably very soon, will be absorbed into the stream of time, becoming an historical object as well and deserving the utmost care as a source about its original appearance, own meaning and function for future generations.

Different speeds of transformation

Apart from the anthropological and restoration ethics anchored in a conservator-restorer's role to preserve the past for the future, and the existential involvement of the artist to make a strong statement, there is thus a third aspect involved – the inevitability of the object's transformation over time. This transformation does not only involve the ageing and changing of the material but especially takes place in the minds of the beholders. As to this last type of transformation, Brandi noted in his *Teoria del Restauro* that the object is constantly reborn in the minds of those who see it and that it is undergoing a multitude of transformations in the process.

For the conservator-restorer it is important to be aware of this phenomenon. To someone, for instance, who has known the artist or was once an assistant in his/her studio or helped in the presentation of the object, the speed of transformation is much slower than for the young conservator-restorer of a later generation. The first category of conservators tends to prolong the present, in an effort to support the strength and actuality of the artist's statement. For the young conservator, the same artist and the same object may be already history, with all the consequences this may entail for the care of the object as a source about the past and the sense of responsibility for its transition to the future. In this situation, the autonomy of conservation-restoration ethics already takes over for younger conservator-restorers while for older ones the present and the 'theatrical' function of the object prevails.

The transformation of a work of art is tragic. Who would not like to prolong its 'here and now-ness'? No doubt, like other aspects of human life, the existential forces at first have priority over prudence and conservative forces. But, like in the existential situation of humankind, the transition of present into past is inevitable. And behind existential forces such as the lack of fear for risks, in a present situation there is also the natural inclination to care and the need to prolong life. It is then the classical ethics of conservation takes over even before the object's existential power as part of the (prolonged) present has faded.

Of course, given the transitoriness of many objects of contemporary art, the task to preserve is almost impossible. However, unless transitoriness is an integral and explicit part of the artist's statement, one should not be resigned to these objects decaying, believing that a proper documentation would suffice to maintain

the memory of an object. Documentation is always biased. One should rather stick to the adage that conservation-restoration does not mean doing the possible, but that it should mean doing the impossible. The classical ethics of restoration may then be the force behind the development of technical innovation which, as so often happened in the past, would make seemingly impossible acts of preservation possible.

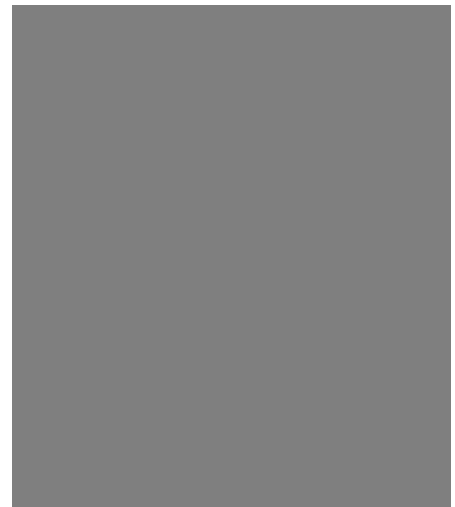
Elisabeth Bracht THE RESTORATION OF KELLY'S WORKS AT THE STEDELIJK MUSEUM

Elisabeth Bracht is conservator at the Stedelijk Museum.

ELLSWORTH KELLY The American artist Ellsworth Kelly was born at Newburgh, New York, in 1923. At the age of eleven he enrolled at the School of the Museum of Fine Arts in Boston, where he was mainly occupied copying works by old masters and attending art history classes. Between 1941 and 1942 he was an art student at the Pratt Institute in Brooklyn, New York.

During the Second World War, Kelly took part in the landing of the allied troops in Normandy and ended up in Paris. Highly impressed by the city, he later returned in 1948 when he was finally able to visit its museums.

Kelly remained in Paris until 1954. He was very much impressed by such innovators of twentieth-century art as Brancusi, Matisse, Arp and Taeuber-Arp, but also by the Byzantine and Roman art of the French churches. About this he said: "I admired and felt the anonymous structure of the work of Brancusi, Vantongerloo, Arp and Taeuber-Arp, whose studios I visited. Their works reinforced my own ideas for the creation of a Pre-Renaissance, European type of art: its anonymous stone work, the object quality of the artefacts, the fact that the work was more important than the artist's personality."¹



Thus after six years in Paris he returned to New York, strongly influenced by European culture.

Kelly's development then differs from the American mainstream of those days, Abstract Expressionism. Kelly: "When I left Paris in 1954, I saw no art that was being made like mine. Returning to the US, I found no one making art that way either."

From the beginning, Kelly's works were large and had clear shapes and colours, with harmonious proportions exuding an atmosphere of rest and serenity. His sources of inspiration include details from architecture and so-called primitive art, which he also collects. Kelly: "I would like to see much larger. I am not interested in painting as it has been accepted for so long – to hang on the walls of houses as pictures. To hell with pictures: they should **be** the wall. Even better: on the outside wall of large buildings. Or stood up outside, as billboards or a kind of modern **icon**... it should meet the eye direct."

The Stedelijk Museum in Amsterdam owns numerous works by Ellsworth Kelly: the sculpture *Blue Red Rocker* (1963), a number of drawings, silkscreens and coloured lithographs, as well as five paintings – *Blue, Green, Red I* (1964-65), *Two Panels: Black with White Bar II* (1971), *White Triangle with Black Curve* (1972), *Red Curve II* (1972) and *Blue Curve VI* (1982). All of these works were acquired by the then director of the museum, Edy de Wilde. They are all large-scale – some more than four

Ellsworth Kelly in front of *Blue Curve VI* (1982) at the Stedelijk Museum. Photo: Rob Versluys

Workshop of Ellsworth Kelly at Spencertown. Photo: Jack Shear

metres wide – and painted in either one, two or three different clear colours.

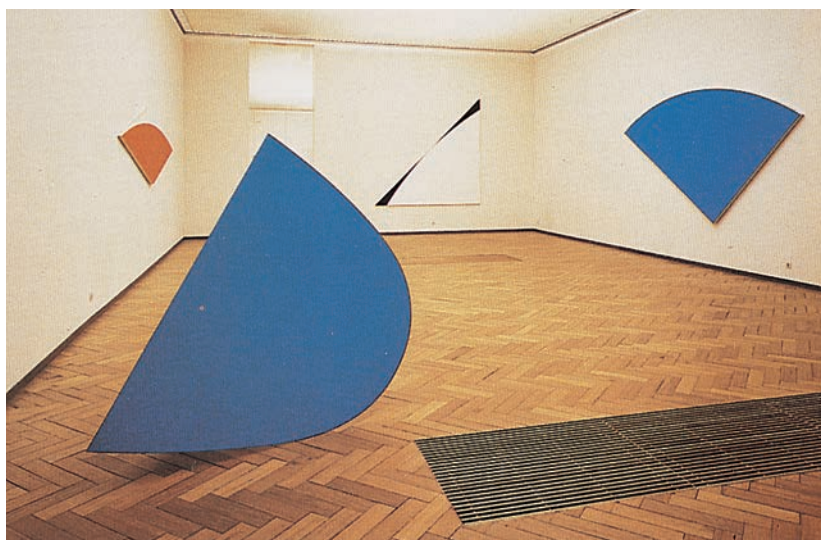
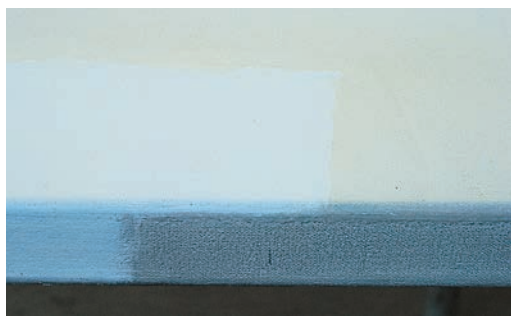
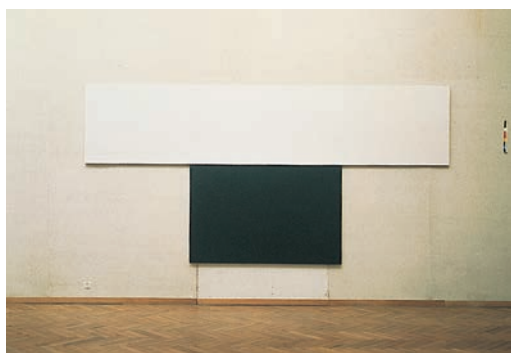
The sculpture *Blue Red Rocker* was not executed by the artist himself, but the paintings were – in his characteristically precise and deliberate manner. The canvas stretchers are extremely stable and beautifully finished; the support, a strong white cotton, has been very carefully stretched. In a personal discussion, Kelly said he always uses oil paint – applying it in steady strokes with a paintbrush. The structure of the brush is faintly visible in his works. Yet Kelly has stated: “In my own work, I have never been interested in painterliness or what I find is a very personal handwriting, putting marks on a canvas.”

It is remarkable, then, that he should use a paintbrush rather than more neutral tools such as paint rollers or sprayers. As a finishing layer he favours a very thin varnish based on a synthetic resin (butyl-methacrylate), which he calls ‘sealing’. Spraying the varnish onto the paint has always been done by conservators.

Damage

Due to a most unfortunate concurrence of circumstances, the sculpture and four of the five paintings have suffered damage. These works take up an extremely important position in the collection, but they are also very vulnerable.

During an exhibition in 1983, *Blue Red Rocker* was so badly damaged that it was



necessary to remove the paint and re-spray the aluminium. The restoration was carried out in consultation with the artist, who sent the original enamel paint from the United States. The work made in 1963 now has a coat of paint from 1983.

In the painting *Two Panels: Black with White Bar II*, in two parts, the black part originally had a matt surface. For reasons unknown to us, in 1975 a large, annoyingly shiny spot appeared in it – the matt varnish had become polished in places. Wishing to restore the work himself, Kelly requested to have the black part sent to him. It was revarnished the same year, with a synthetic resin. The result is vastly different from the original, the total surface now having the same shine as the damaged spots. The paint is no longer matt but glossy.

The white part of the work has gradually changed colour over the years: a yellowish discolouration that did not appear evenly, but in large round patches. In 1989 it became so offensive that the art work could no longer be exhibited. The yellow stains in the white paint were absolutely atypical for Kelly’s work. The problem did not occur in any of our other works by this artist, neither are we aware of the problem having occurred in other collections.

The museum’s conservators of paintings, Louise Wijnberg and myself, were unable to analyse the discolouration without further scientific research. The Central Research Laboratory for Objects of Art and Science, now part of the Nether-

Left Ellsworth Kelly, *Two Panels: Black with White Bar II* (1971), and (below) during conservation. Collection: Stedelijk Museum, Amsterdam

Right Works of Ellsworth Kelly from the collection of the Stedelijk Museum. Collection: Stedelijk Museum, Amsterdam

lands Institute for Cultural Heritage in Amsterdam, were consulted. Judith Hofenk de Graaff and Matthijs de Keijzer of the scientific staff carried out the investigation.

Analysis of paint samples

Meanwhile, the same laboratory had already examined two of the three other damaged works. During a stormy night in 1993, the museum's roof gutters became blocked; as a result, dirty rainwater leaked into one of the so-called gallery depots, spaces between double walls in the exhibition rooms, where Kelly's four large paintings were stored. The rain caused terrible damage. The work *Blue, Green, Red* suffered two long vertical dripmarks, while the surfaces of *White Triangle* and *Red Curve* were covered with brown stains and drips.

By analysing the latter two paintings, we knew exactly what materials Kelly had used. A remarkable find was that their cotton support had been primed with highly toxic white lead mixed with an animal glue. The binding agent of the paint was oil; the pigments used were zinc white, cadmium red and bone black. On top was a thin layer of acrylic varnish.

After analysing the white paint samples of *Black with White Bar II*, Matthijs de Keijzer compared the results with those of the earlier examined works. The aim of this research was to find answers to the following questions:

- What were the component parts of the primer?
- What pigments were used?
- Which binding agent was used for the white paint?
- What were the component parts of the varnish?
- Would it be possible to see from the cross section how the yellowing had originated?

A surprising layer

The artist had noted the materials used on a label on the back of the stretcher:

- *Cotton Duck*
- *acrylic-liquitex gesso*
- *oil colors: Winsor + Newton, ivory black, Permalba white*
- *sealed: Butyl methacrylate polymer.*

But the results of the investigation showed some discrepancy. The primer indeed appeared to be an acrylic paint, filled with titanium dioxide. Next was a layer of white paint of the same composition used in the two reference paintings tested: oil paint with barium sulphate, titanium dioxide and zinc white. Such a mixture of white pigments does point to the use of 'Permalba white', as stated by Kelly.

Correspondence between Matthijs de Keijzer and the firm of Winsor and Newton, however, revealed that they never carried a 'Permalba white'. The information supplied by Kelly therefore must be considered partly incorrect. Indeed, it appears that even an extremely precise artist like Kelly may not be trusted blindly when it comes to a statement of the materials used.

An acrylic varnish was applied to the white paint. So far, the combination of primer, paint layers and varnish in the white part of *Black with White Bar II* is identical to that of *White Triangle* and *Red Curve*. But to everyone's amazement an extra layer of white paint was found on top of the sealing varnish. The thickness of this layer was very irregular, which points to its having been applied with a sprayer.

The yellowish discolouration could be attributed to this paint. No dirt was found between the top white layer and the varnish, which indicates that the layers were applied soon after each other. As already stated, Kelly does not do his own varnishing but leaves it to a conservator. It is highly likely that this conservator applied the top white layer of paint after the sealing. Why this was done, became clear to us during the restoration.



Ellsworth Kelly, *Blue, Green, Red I* (1964-1965).
Collection: Stedelijk Museum, Amsterdam

Feather crack

Ellsworth Kelly strongly urged the director of the Stedelijk Museum to be allowed to restore the white part himself, his hand being still steady enough to do it. Though he resented stains or other damages to his work, he did not mind overpainting as long as it was done by himself. In the light of his earlier claims that he does not value a personal handwriting, this is remarkable.

The museum's conservators and curators felt that a new top layer of paint, even if applied by the artist himself, was not a good idea: a fresh layer on top of one over twenty years old showing discolourations, cracks and other symptoms of old age, would doubtlessly present new problems in the future. And the restoration had to be completed rather soon because the work was to be shown in Kelly's retrospective exhibition at the Guggenheim Museum in 1996.

In any case, the discoloured layer of paint covering the varnish had to be removed because it had been added after completion of the work. A strong paint remover had to be used. The acrylic varnish made it possible to remove the top layer without damaging the underlying original layer of paint.

At this point we discovered the reason for the overpainting: a feather crack measuring 10 centimetres in the original paint. We confined ourselves to removing the discoloured top layer of white paint. The painting had to be released for the exhibition, and we wanted to hear the artist's reaction before deciding on possible further treatment.

Kelly saw his restored work during this exhibition and was very pleased with the result. Overpainting was no longer considered necessary.

Surface cleaning

As for *White Triangle* and *Red Curve*, the artist was much involved in the restoration from the beginning. He strongly felt that the works would have to be overpainted if the stains could not be removed entirely. A disruption in the smooth, clear surfaces was unacceptable for him.

Again, collaboration with the Central Research Laboratory was an absolute must. The materials had already been tested by Matthijs de Keijzer; Judith Hofenk de Graaff and IJsbrand Hummelen helped us find a detergent for the delicate surfaces. This cleanser would have to remove the brown dripmarks and the surface dirt without affecting the naturally matt surface of the paint layer. Various combinations of detergents in water with varying pH values were tried out on the sides of the paintings. The detergent ultimately chosen was a combination of dodecylbenzolsulphanate, diammoniumcitrate, trisodiumcitrate and natriumtripolyphosphate, one gram of each per litre.

The artist found the result of this surface cleansing most satisfactory. No further work was done on these paintings.

The surface of the third damaged painting – *Blue, Green, Red* – differs from that of the others. The layer of paint is very matt, almost powdery, and the work is unvarnished. The paint under the dripmarks has been affected and will have to be cleansed and retouched locally. Traces of this damage will remain visible, along with other blemishes such as visitors' fingerprints, scrapes et cetera. Lucy Belloli of the Metropolitan Museum in New York, having had to restore similar damage in a Kelly, remarked in a personal discussion: "Keep the big picture in mind and accept minor irregularities."

In the end it was the interdisciplinary collaboration of the artist, scientists, curators and conservators that enabled us to complete the restoration of Kelly's works. He did not further insist on restoring the damages himself, but allowed the conservators to find solutions first. Without Ellsworth Kelly's modest and fair cooperation, the restoration would not have been such a success.



Storage for large paintings at the Stedelijk Museum

Ellsworth Kelly, *White triangle with black curve* (1972) and *Red curve II* (1972). Collection: Stedelijk Museum, Amsterdam

Ellsworth Kelly, *Red curve II* (1972). Detail of the water damage 1993. Collection: Stedelijk Museum, Amsterdam

Marie Laibinis-Craft* AN INVESTIGATION OF FRANK STELLA'S MAGNESIUM RELIEFS

Marie Laibinis-Craft was conservator
at the National Gallery of Art.

In the past few years filiform corrosion has begun to appear on the etched magnesium panels of some reliefs by Frank Stella. This type of corrosion produces disfiguring random tracks of white oxidation, which affects the integrity of the painted surfaces as well as the overall aesthetic of the reliefs. Two of these, *Long Beach* and *Jarama II*, made in 1982 as part of the *Circuit Series*, exhibit this unusual corrosion.

Long Beach, consisting of twenty painted panels, was installed in 1984 on the first level galleria at the Four Forty-Four Plaza (formerly known as the Wells Fargo Building) in downtown Los Angeles. This outdoor environment affords protection



from direct sun and rain, but subjects the relief to changes in temperature and humidity, as well as atmospheric pollution and damage from human contact such as cigarette smoke and constant touching. Six of the panels are made from fibreglass and aluminium honeycomb; fourteen are etched magnesium. The front surfaces of the latter are covered with filiform corrosion under both painted and clear coated areas.

Jarama II, comprising seven etched and painted magnesium panels, exhibits less severe corrosion. The relief was donated to the National Gallery of Art in Washington DC in 1982 and has been kept in a controlled museum environment. Yet some of the front surfaces have begun to turn black, in unpainted, clear coated areas. Studies of the filiform corrosion process indicate that the blackening may represent a preliminary stage of this type of deterioration. In addition, other paint-

Frank Stella, *Long Beach* (1982), mixed media on aluminium, fibreglass and etched magnesium, 274 x 671 x 91.4 cm. Right a detail of filiform corrosion on etched magnesium panel, lower centre. Collection: The Four Forty-Four Plaza, Los Angeles. Photo: Wharton Griswold & Associates

ed magnesium reliefs by Stella, which have been examined over the past few years, have begun to develop or show incipient signs of filiform corrosion.

The cause and future implications of this filiform corrosion led to a research project currently in progress at the National Gallery of Art. The fabrication of the reliefs was documented through interviews with the fabricator and the artist; the information obtained has been used for the experimental design of possible methods to treat this type of corrosion. Another goal of the project is to provide useful information for developing means to protect the as yet uncorroded reliefs.

Art-historical background

Over a ten year period, beginning in the mid-1970s, the American artist Frank Stella produced several series of relief sculptures or paintings. Of these, over a hundred are made of painted metal and fibreglass honeycombed panels. Thus, over a period of thirty years his art work evolved from flat rectangular canvases painted in one colour to a collage of various shaped panels created with a variety of colours and textures. This development is a direct result of Stella's constant concern with illusionistic and pictorial space, first encountered in the 1960s with his 'black stripe' paintings. Stella then began to move away from these shapes and formats, to explore the use of other materials that would subsequently replace the stretched canvas as a support. This dramatic stylistic shift in his work occurred in 1970 with the development of his *Polish Village* series.¹

In order to manipulate the shapes of his paintings and their position within the picture plane, Stella began using new materials for supports. Around 1971, he became influenced by aspects of Russian Constructivism and more preoccupied with the idea of building up or 'engineering' the pictorial object: "I started building a painting instead of painting a painting," he explained.² In his *Polish Village* series, Stella was interested in creating shapes that were less derived from the overall support shape, and in which colour would operate independently of form. The paintings are large collage-like constructions of painted wood, cardboard and felt, with surfaces of different colours and textures. By the third group of this series, Stella began to use Tri-wall®, a honeycombed (corrugated) cardboard – which, coincidentally, was manufactured at the same plant that produced a material he incorporated into his next series: honeycombed aluminium.³

With this transformation came a change in the scale and architecture of his work, but also complications. The freehand drawings for the *Polish Village* series were converted to scale by a draftsman, so that the shapes of the interior supports could be cut by a computer-operated table saw.⁴ Apart from the heavy overall weight, Stella encountered drawbacks with the *Polish Village* series, including problems with collage elements that would peel away from the varied surfaces.⁵ The construction processes were also complicated and time-consuming.

This led to a change in the size, material and construction as well as in the fabrication site of Stella's next series.⁶ The twenty painted reliefs of his *Brazilian* series (1974-75) are much smaller in size and distinguished from earlier works by his innovative use of honeycomb aluminium panels.⁷

Pleased with the strength, weight and aesthetic properties of the aluminium honeycomb panels (a material used for the manufacture of airplanes that became commercially available in the 1950s), Stella continued using the material for the next ten years in the following series of reliefs: *Exotic Bird* (1976-77), *Indian Birds* (1977-79) and *Circuits* (1980-83), up to *Cones and Pillars* (1984-87).

Etching the magnesium panels

For the fabrication of his reliefs, Stella started working with Swan Engraving Company in Bridgeport, Connecticut, in 1974, where he experimented with new materials and techniques that would subsequently be applied in his large-scale, painted reliefs.⁸

Frank Stella, *Jarama II* (1982), mixed media on etched magnesium, 319.9 x 253.9 x 62.8 cm. Right a detail of blackening on etched magnesium panel, lower right rear. Collection: National Gallery of Art, Washington D.C. Gift of Lila Acheson Wallace (1982.35.1).

Around this time, the magnesium alloy AZ31 was beginning to replace zinc as an etching plate material.⁹ Stella liked the qualities of the magnesium because it had aesthetic and structural properties similar to aluminium and it could be etched.¹⁰ In the process of etching the relief panels Stella drew on his experience of having been a printmaker since 1967. The etched criss-crossing grid lines on most of the panels in his *Circuit* series, for example, are based on patterns utilised in the *Polar Coordinates* group of prints.¹¹ In addition, he felt that “the etching process caught the true brushstroke”.¹²

Stella would draw out the relief designs; then, together with his studio assistants, he would make Fome-Cor® maquettes of each relief in different scales. While drawings were primarily used to produce the negative image for the etching process, occasionally he would draw on the sheets with a lithographic grease pencil or work on the magnesium surface directly with an engraving tool.¹³

Although the etching process for the magnesium panels was essentially the same as that for print plates, adaptations had to be made to accomplish it on such a large scale. In a discussion with Pete Dutchess of Swan Engraving Company (8 January 1997), who worked with Stella on these panels, he described the etching process:

“Large unsensitized magnesium sheets, purchased from Spectrulite Consortium Inc., were initially prepared using a floor polisher with abrasive pads and a slurry of pumice and water. A light-sensitive ‘positive-acting’ coating was then applied to one whole side of the sheet. Next, a sheet was put into a printing frame, with the negative of the entire image placed on top, and all the air was evacuated from the frame package.

Following exposure to an arc lamp that burned the image into the coating, the sheet was developed; then an acid-resist coating was applied to the back side and to areas of the design that would not be etched. A special etching machine that could rotate the sheet 360 degrees was built to accommodate the large panels.

After etching, the sheets were cleaned to remove oils and acid residues and then backed with an aluminium honeycomb mesh and a sheet of aluminium. The backings were adhered with an epoxy and weighted. When cured, the sheet was either cut and/or bent according to the designated design.

During the fabrication of Stella’s reliefs, the types of coating products, materials and techniques would vary depending on when the pieces were made. Some of the reliefs were painted in a nearby building in Bridgeport; others were shipped to Stella’s studio for painting.”

In 1980, Stella began making the drawings and Fome-Cor® maquettes for the *Circuit* series. By 1981, all of the panel enlargements by Swan had arrived at Stella’s studio for finishing and painting.¹⁴ Once at the studio, exposed edges on some of the honeycomb panels were filled with an epoxy putty. Next, the panels were cleaned with various solvents; prior to painting they were protected with an application of Awl-Grip®, a marine grade 2-part polyurethane.¹⁵ Stella indicated that he also experimented with other coatings such as Acryloid B-72®, but found application on large surfaces difficult. However, depending on the temperature and humidity, the polyurethane also proved to be difficult at times.

Stella used a variety of paints, oil sticks and inks to paint his reliefs; as far as he could remember no coatings were applied over the painted surfaces.¹⁶

Results

Long Beach is constructed of twenty panels cut into various shapes attached to each other with coated steel brackets and galvanised screws. Fourteen are etched magnesium panels, varying in thickness; three are honeycomb with fibreglass surfaces; and three are honeycomb with aluminium surfaces. Some edges of exposed metal honeycomb are sealed with epoxy, while others are left open. A clear coat-

ing, applied to the underside of the painted magnesium panels at Stella's studio, was identified as polyurethane using Fourier Transform Infrared Spectroscopy.¹⁷

Filiform corrosion is located under the clear coating on the back, as well as below the paint on the front sides of all the etched panels. The oxidation product is thick, crystalline, white in colour, and the surface of the metal below the clear coating is black. Using X-ray diffraction, the corrosion product was identified as magnesium hydroxide.¹⁸ Since it was first observed in 1989, the corrosion has progressed and begun to lift both the clear coating and paint layers on some of the panels.¹⁹

Jarama II is the second relief of three painted versions, derived from the drawing of the same name. The relief is constructed of seven coated and painted etched magnesium panels attached to one another with coated aluminium brackets. Some of the honeycomb sides are filled with a grey epoxy. Again, the clear coating applied at Stella's studio was sampled from two different panels and identified as polyurethane by Fourier Transform Infrared Spectroscopy.²⁰

Although advanced stages of filiform corrosion have not been observed, on two panels (one located in front and another towards the rear) the clear coated, unpainted areas have begun to turn black. As previously noted, this darkening may be indicative of filiform corrosion.

Examination of other reliefs constructed with etched magnesium panels has revealed either intermittent or no presence of filiform corrosion.²¹

Further research

When Frank Stella became aware of the filiform corrosion on his magnesium panels, he discontinued using the metal for his reliefs. In an interview in 1997, he said: "One of the reliefs was almost destroyed when accidentally subjected to extreme conditions of humidity during travel, (...) the paint on the relief had been pushed off the surfaces because of the severe amount of corrosion, and many of the surfaces had to be reworked."

When asked about the aesthetic changes to his reliefs, Stella said he didn't mind the "darkening of clear coated areas of the panels to some degree, nor the corrosion in areas where it did not interfere".²² Although his general feeling is that nothing can be done about the corrosion, he welcomes suggestions regarding the future preservation of his reliefs.

At the National Gallery of Art, tests are in progress to determine ways of reducing or eliminating the flow of oxygen and moisture to the corrosion cell, as well as effects of relative humidity. Filiform corrosion will be initiated on samples of etched and unetched magnesium obtained from the fabricator; various treatment options and environmental conditions will be investigated. Samples of the metal and corrosion product will be analysed by X-ray diffraction and Scanning Electron Microscopy.

The purpose of the research and testing is not only to establish a better understanding of the formation of filiform corrosion on etched magnesium, but also to determine whether structural damage may occur to the magnesium panels if this corrosion is left to continue. Results of the research will then be discussed with Stella, to ensure that any treatment options are in accordance with his aesthetic and artistic intentions.

Conclusion

Filiform corrosion can be an aggressive form of oxidation that may originate as a surface corrosion problem, but whose damaging results may become more than cosmetic.²³ On the etched magnesium panels of Stella's reliefs, impurities possibly leading to the initiation of this process may have been deposited after the etching and/or before or during the application of the clear coating.

In the case of *Long Beach*, the uncontrolled environment provided the neces-

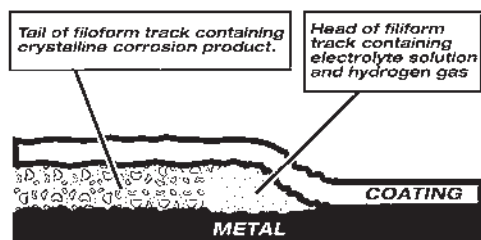


Diagram of cross-section of filiform corrosion cell showing head and tail of a filament (source: see note 23).

sary conditions to accelerate and support the growth of filiform corrosion. If the relief remains in its present environment, the process may continue to the extent that the painted surfaces will almost certainly be at great risk. With *Jarama II*, in a controlled environment at the National Gallery of Art, the darkening of the etched magnesium panels may represent the preliminary stages of this degradation progressing at a much slower rate. Because filiform corrosion is still not fully understood, scientific research and testing is crucial to deter future damage.

FILIFORM CORROSION A phenomenon known since the early 1940s, filiform corrosion is a type of oxidation that most often occurs on coated metals such as steel, magnesium, aluminium and silver. But it has also been found on uncoated metals.^{24, 25} This special form of oxygen cell corrosion results in a network of random, thread-like tracks of corrosion product which leave a shallow groove in the metal surface.²⁶

Initiation of filiform corrosion requires the presence of an anion such as chloride to form the electrolyte solution in the head of the filiform track. This is the anodic site which on magnesium panels was determined to have a pH of 2 or 3.²⁷ The cathodic site is alkaline and located directly behind the head.

Studies of filiform corrosion on magnesium found that the filaments consisted of an active black head filled with a clear solution, and a tail filled with a white corrosion product of magnesium hydroxide.²⁸ As the head progresses, bubbles of hydrogen gas form under the film.²⁹ Corrosion scientists have determined that oxygen is the limiting reactant for the electrochemical reaction, but are still uncertain whether oxygen is supplied to the head by way of diffusion through the porous tail and/or through the particular coating.³⁰

The formation of the black colour on magnesium commonly occurs on magnesium alloys. Through analyses, corrosion scientists at Dow Chemical have identified this black discolouration as magnesium oxide; but they have not yet been able to define its composition or structure. In addition, they observed that aluminium alloys of magnesium darken rapidly under conditions of high humidity.³¹

Since water and oxygen are necessary to support the electrochemical reaction, the formation and progression of filiform corrosion has been linked to environments of high relative humidity. Previous studies found that filiform corrosion occurs within limited ranges of relative humidity that differ according to individual substrate. For all metals, at 100 per cent relative humidity no filiform corrosion occurs because the corrosion product is hydrated and forms a gel which prevents the flow of oxygen to the head, whereas below 35 per cent RH the head of the cell is dehydrated. Of the metals tested, filiform corrosion was found to be most aggressive between 85 and 95 per cent RH.³²

The mechanism and rate determining stages of filiform corrosion as well as its prevention and control are still not fully understood, therefore research continues. For example, one study on aluminium alloy panels found that the application of a thin layer of paraffin wax greatly reduced the growth rate of the tracks.³³ Another study, on architectural aluminium, indicated that "higher levels of filiform corrosion were noticed in sheltered areas (such as those protected by an overhang) than in regions frequently flushed by rainwater".³⁴ An investigation of annual cleaning at certain test sites has shown that this cleaning greatly reduced, though not completely eliminated, the development of filaments.³⁵

Andres Pardey THE JEAN TINGUELY MUSEUM: CARING FOR MACHINE SCULPTURES

Andres Pardey is scientific assistant
at the Museum Jean Tinguely.

In 1991 Jean Tinguely – the master of kinetic art – died, leaving a large number of sculptures from all of his creative periods. His widow and heir, Niki de Saint Phalle, had to decide on their preservation and the possibility of making them accessible to the public. She and Dr Paul Sacher, a patron of art, took the initiative to create a museum entirely dedicated to his work – also because they realised a centre of conservation, research and documentation was needed for Tinguely's fragile works. In addition, the museum was expected to fulfil a role as a centre of advice. The Basle firm of Hoffman-La Roche Ltd., celebrating its centenary, decided to finance the museum in honour of the great artist, who was also a citizen of the town and had created several works for the company. The architect, Mario Botta, designed the building specifically to suit Tinguely's kinetic sculptures, with rooms large enough to display them and a range of built-in technical equipment to operate them.



Not self-destructing

In 1996, the Jean Tinguely Museum opened its doors to the public. The collection comprises a large number of drawings and seventy-six sculptures of which fifty-five machine works were donated by Niki de Saint Phalle. All of Tinguely's periods are represented. There are several early reliefs, two drawing machines *Méta-Matic No. 10* and *Balubas* (1959), radio sculptures, black sculptures made between 1965 and 1968, large, later works such as *Klamauk* (1979) and the 12-metre long *Méta-Harmonie IV*, and *Fatamorgana* (1984).

Jean Tinguely's machine sculptures are notable for their often quite complex movements. The sounds they make, the inclusion of running water (in his fountain pieces) or the incorporating of media such as radio and film, all extend the technical 'palette' of these works. Movement is driven by electric motors which now, because of their age, are museum pieces in themselves.

Tinguely created several self-destructing machines. A number of works, often monumental, were intended to last only for the duration of an exhibition or a 'happening'. Happenings such as *Homage to New York* and the *Etudes pour un fin du monde* played deliberately on the central theme of the ephemeral nature of the pieces and the concept of auto-destruction.

However, the idea that all Tinguely's sculptures were intended to auto-destruct is inadequate and will not do as an excuse for neglecting to maintain and restore them. Alongside these Tinguely created other works involving similar aesthetic values without the intention of self-destruction, but merely hinting at what their

View inside the large hall of the museum with,
from left to right: *Plateau Agriculturel* (1978), *Grosse Méta Maxi-Maxi Utopia* (1978), *Fatamorgana* (1984)
and *Dernière Collaboration avec Yves Klein* (1987).
Photo: Christian Baur, © Museum Jean Tinguely
Basel

Jean Tinguely, *Méta Matic No. 10* (1959), donation
Niki de Saint Phalle. Photo: Christian Baur,
© Museum Jean Tinguely Basel

other 'siblings' actually did. Of course he did not build his machines to last an eternity. From a technical viewpoint his materials and techniques were often inadequate and defective. Yet it is equally true he did much to ensure the survival of his works: restoring them, giving important pieces to private collectors and collections where he knew they would be taken care of, and even technically 'improving' his machines.

Individual operating times

A real understanding of Jean Tinguely's art is possible only when the machines are seen in motion. A Tinguely machine sculpture that does not move is like a painting without any shades of blue, a symphony orchestra without strings, a text without vowels. Thus the museum has been built to display and maintain these works of art in the best possible way.

At the museum's technical heart is an operating system for the lights and machinery which enables us to control some 500 electric sockets individually, and either start the machines according to a pre-selected programme or allow visitors to start them by pressing a button.

The main challenge has been to determine an individual daily operating time for each of the sculptures, in accordance with their state of preservation and tech-



nical requirements. The calculations enable the sculptures – for instance those on loan that have owner's specifications – to be individually integrated into the operating programme.

The large machines have been programmed in quarter-hourly phases, allowing them operating periods ranging from a minimum of four minutes a day to a maximum of eight hours. Running times vary: *Méta-Harmonie II* (1979), on loan from the Emanuel Hoffmann Stiftung Basel, operates thirty-two minutes a day; the *Plateau agricole* (1978), owned by the Jean Tinguely Museum, for 128 minutes; and the *Grosse Méta Maxi-Maxi Utopia* (1987), donated to the museum by Niki de Saint Phalle, for as long as 288 minutes a day. Machines worked by foot-operated buttons are closed down after each operating period, for a ratio time varying from 1:3 (one minute operating, three minutes at rest) to 1:15.

Regular checks on these settings, and their adaptation to changing conditions such as wear and tear, have enabled the sculptures to stand up well to 'exhibition stress' even though the museum has had huge numbers of visitors since it opened.

Since the museum is devoted to the works of only one artist, it is hoped the public may reach a better understanding of his intentions: if one sculpture is not working, the others will give a fair impression. In a small collection, or in an exhibi-

tion with just one kinetic work, this would be impossible – the reason too why works exhibited under such conditions are either destroyed or fail to operate.

Daily checks

The conservation of Jean Tinguely's sculptures is carried out with strict adherence to the specific qualities of his works in mind. It always involves the technical maintenance of a piece of machinery and the approach required is quite unlike that involved in conserving a painting or a classical piece of sculpture. Both the work's original condition and its operating mode must be taken into account. Apart from its physical components, this 'original condition' includes its movements – which are generally not smooth but have jerky, irregular rhythms that are essential aspects of its character.

Each machine is a combination of constructional supporting parts and moving elements. Movements and power are transmitted by means of gears or V-belts. The moving parts have bearings and guides as well as rods and V-belts. All these are bound to suffer because of the various forces on them. The electric motors, with their fine windings and magnets, are also subject to wear and tear.

The inevitable process of attrition can be delayed by good care and lubrication, though never prevented. Various measures help to avoid damage to the machines, including tensing the V-belts correctly and distributing their loads evenly; lubricating the bearings and regularly checking them for wear; checking the electric motors for density (they should not lose oil), changing their carbons regularly and running them only on the correct voltages.

Even such simple preventive procedures will delay the deterioration of the machinery and thus the sculptures to a great extent. If the considerable power needed to operate them is correctly adjusted, if the bearings are not allowed to become either too dry or clogged with grease and if the motors are regularly serviced, damage to the moving parts can be limited. All this, however, involves daily checks and taking immediate action if a machine is not running as it should – for instance by switching it off. Moreover, the sculptures must be cared for in such a way that they are properly protected and can operate at the same time. Technical maintenance must therefore be carried out unobtrusively.

Restoration guidelines

A prerequisite for the conservation and restoration of Jean Tinguely's works is comprehensive documentation. This includes recent photographs of his works, archive photographs of their previous condition, videos to illustrate the movements of the machinery – particularly its speed (the transmission ratios of the motors are not always known) – and an extensive technical inventory specifying for instance the length of the V-belts and data on the motors. Repairs are aimed at maintaining a work's original condition. Parts may only be replaced if this is indicated technically and is both aesthetically and ethically viable. If a machine sculpture is damaged, there are certain guidelines for its restoration:

- Repair is better than replacement. A non-functioning bearing can be fitted with a bronze sleeve to start it working again; a motor can be rewound; a worn V-belt can be shortened.
- If replacement is necessary, parts should be chosen from an aesthetic and not just a functional viewpoint. A technician carrying out repairs will naturally tend to 'improve' a machine, fitting a stronger motor or a modern V-belt instead of the old-fashioned leather strap. However, changes of this kind affect the appearance of a sculpture and are to be avoided, particularly as most of the original components are still obtainable.
- Functional additions are permissible only if they make no difference to the appearance of a sculpture and are absolutely necessary to make it work – for instance when bearings wear out. Tinguely himself simply welded such areas

open. Where this has already been done it can sometimes be repeated, otherwise a piece of moving metal can be fitted to take the strain.

All non-moving, static parts of a Tinguely sculpture that are not subject to wear and tear can be dealt with according to the standard principles for restoring iron sculptures. It has to be noted, however, that the supporting parts of a machine can also suffer from great force. Special attention needs to be paid to the welded and soldered joints, which have to be checked regularly and renewed when necessary.

Continuity guaranteed

There are obviously not many experts to carry out such restoration work. It calls for a thorough knowledge of the sculpture concerned and an understanding of Jean Tinguely's working methods – the way he set about creating it.

In the Jean Tinguely Museum this work is done by Josef Imhof, who was Tinguely's assistant for many years. In consultation with the museum's management, Imhof carries out the maintenance and restoration of the machines. His job has changed considerably. As the artist's assistant his aim was merely to make the machines function. Now, working in a museum, he has to conserve and restore them far more carefully, being much less free to change the sculptures.

An important aspect of every treatment of a machine sculpture is the discussion on what to do and how to do it. Of course, the views of a former artist's assistant and those of an art historian are not always the same. But thanks to Imhof's expertise, the management's experience, and the archives that have been set up, it has been possible to run the Jean Tinguely Museum successfully for almost two years now. Since Imhof's knowledge and the discussions about restoration are well documented and he will train a younger assistant, the continuity of the work on Jean Tinguely's machines is guaranteed. We also hope to make our expertise available to other institutions, so that we can support the conservation of Jean Tinguely's works in other collections.

Pip Laurenson THE CONSERVATION AND DOCUMENTATION OF VIDEO ART

Pip Laurenson is sculpture conservator at the Tate Gallery.

At the Tate Gallery, London, we have developed a special approach to the conservation of video art works (some general guidelines are given in Appendix I). Most of the conservation literature relating to video has been written for archives and those responsible for vast collections of material. Although information about the structure of tape, its storage and its deterioration is applicable to any video collection, there are important differences between the care of art works and the care of archive material. The focus of this article is the conservation of video as art.

The Tate's collection of video is small and recent. Although we own three videos from 1972 by Gilbert and George, the majority of art works in this medium were made and acquired in the last six years from living artists. In most cases the artist can therefore be involved in the conservation process. There are three categories in which video is represented at the Tate:

1. As part of an installation that incorporates many different materials of which video is just one element. For example Matthew Barney's *Ottoshaft* is an installation combining a variety of materials including vinyl, tapioca and plastics alongside video.
2. As the primary medium where the equipment and display specifications are essential to the impact and meaning of the sculpture. For example Gary Hill's *Between Cinema and a Hard Place*, which includes twenty-three monitors of various sizes, modified by the artist and laid out in a particular way, displaying a series of images.
3. As the primary medium where the display details are loosely specified. These videos are usually displayed on a monitor or as a simple projection. Here the relationship between the display and the meaning of the art work is peripheral. Examples of this type include Gary Hill's *Remarks on Colour* or Gilbert and George's *Gordon's Makes Us Drunk*.

When the Tate Gallery buys or is given an art work for the collection, it acquires the rights for display and loan. For video art works, preserving these rights is only possible if the Gallery has an archival master tape and if the installation is fully documented. The archival master tape enables display format material (discs, tapes, etc.) to be produced when required, and the documentation provides the information needed for correct installation. Both the preservation of the video signals and the documentation of the display details are therefore central to the conservation of video art.

Preservation of video signals

The term 'video' covers an array of rapidly changing technologies both in terms of the formats on which an art work might be made, archived and displayed and the equipment used in its presentation. Video signals are commonly stored on magnetic tape, although this is probably something which will change in the next few years.

Modern magnetic tape is made from three different layers.¹ The video signal is encoded into the top layer of the tape, which is a binder layer made from polyester polyurethane in which the magnetic particles (which carry the video signal) are embedded. It is susceptible to chemical deterioration by oxidation and hydrolysis and it is vulnerable to wear and tear. When videotape is played, the tape heads of the playback machine make direct contact with this upper layer in order to decode the signals. Abrasion to the surface of the tape results in loss of these magnetic particles. The effect is loss of information, most commonly visible as white streaks across the picture known as 'drop out'.

Good storage and management will slow the chemical and physical deterioration of magnetic tapes (see Guidelines in Appendix I). However, good storage and management are not sufficient to ensure the preservation of the video. In addition to the risks posed by deterioration, there is also the problem that video formats change and become obsolete.

Video is a coded system. This means a particular tape can only be played on a machine designed to decode that format. It is pointless to preserve encoded information if the machine to decode the signals back into picture and sound is no longer available. One strategy would be to preserve the playback equipment alongside the tapes. However, this approach has not been adopted at the Tate Gallery because it would be very difficult, if not impossible, to maintain these machines to function at their optimum and to employ the skilled personnel to operate them once obsolete. Instead an ongoing preservation program ensures that the videos in the collection are always stored on a current format.

The broadcast industry drives developments in video technology. Although choosing a format that is used in industry helps to ensure that it will be in use for a fairly long period of time, any format will eventually become obsolete.² A regular transfer of the video signals onto new stock, to overcome the problem of material deterioration, and onto new formats to overcome the problem of obsolescence, is therefore essential for the conservation of these art works. The Tate Gallery plans to do this every five or six years. Copying video signals without the loss of information or picture quality is therefore essential and can be achieved using digital technology.

Assessing the art work

When the Tate Gallery considers an art work for the collection, the conservation department prepares a report. This is an invaluable opportunity to assess the condition of the art work and identify any problems. This is particularly useful for video works, as it provides a chance to make contact with the artist or dealer and explain the procedure for conservation, and to discuss the details of the installation and the importance of obtaining the master tape.

Video signals are recorded as analogue signals or as digital signals. At present, most video art works coming into the collection have been made as analogue video. Even if an artist has edited the material using digital technology on a computer, the output is still largely on analogue formats. Common analogue formats include VHS, low and high band U-Matic and Beta SP. Even Optical VideoDisc, which the Tate Gallery uses as a display format, is an analogue format.³ Every time an analogue signal is copied, information and therefore picture quality is lost. With digital technology, information can be copied repeatedly without the loss of picture quality. For this reason the Tate makes a digital copy whenever a video art work enters its collection. This tape then becomes the Gallery's archival master.

The term 'master tape' usually refers to the edit master, i.e. the first tape that was made from the original footage after it has been edited into its final form. The artist or the dealer usually retains this. When dealing with analogue video, it is essential to archive from the first generation master because of the deterioration in quality each time an analogue signal is copied. Traditionally the concept of a master tape therefore relates to analogue technology. The first generation master tape of an analogue video should have the best quality picture and sound. However, sometimes this is not the case. Tapes become damaged or lost, or technical errors may have occurred in the first generation master. With digital video, as long as the specification of the formats has remained equally high and the tapes have been well looked after, there should be no loss in quality between different generations. It is important to ensure that the archival master tape is produced from the best quality source material available.

The master tape is viewed before the art work is acquired to ensure that it is in

good condition and that a good archival master can be made for the Gallery. The following aspects of a master tape are checked:

- Whether it has colour bars and tone as references at the beginning of the tape.
- Whether any drop out or tape damage has occurred.
- Whether there are any faults or technical problems with the audio.
- Whether the combined chrominance and luminance levels are below 110% (this information is significant to the choice of display format).
- Whether the artist feels the colour levels are correct when the video is viewed on a correctly calibrated monitor (this helps to establish objective criteria for installation).

The pre-acquisition report will comprise:

- A brief description of the art work, including whether it is part of an edition.
- The estimated cost of archiving the video material.
- The estimated cost of displaying the art work, including equipment costs, the cost of making an exhibition copy of the video, construction costs (for example, corridors to keep the light out of the Gallery space or a frame to hold a screen).
- An estimate of conservation time required.
- Any other details with cost implications, for example copyright clearance for music or images used by the artist.
- Any practical details which might affect the suitability of the art work for the collection, for example potential health and safety problems.

When the video is acquired by the Gallery, the archival master is made at an outside facility house. The formats used for the Tate Gallery's archival masters are professional non-compressed digital formats. Although these are high-quality formats, the conversion from an analogue to a digital signal still means that there is a risk of changes occurring in the visual appearance of the video material. The Tate's relationship with a wide range of professional bodies both in and outside the industry, such as The British Film Archive, The National Sound Archive and commercial sound and video facilities houses, is essential to the conservation of video. Commercial facilities houses are able to maintain equipment and have staff with a level of expertise that would not be financially viable for the Gallery to provide in-house. However, commercial video engineers work within the requirements of broadcast standard material rather than with art works. Therefore it is important to work closely with these professional engineers, to ensure that they understand what it is we are trying to achieve and that the unique characteristics of an art work are preserved. Whenever possible, this is done in conjunction with the artist. Once the archival master has been made, the artist is asked to view it against the original. This is done in a viewing room with two monitors that have been calibrated to match.

Intervention

The considerations of conservation ethics, in particular intervention, are applicable to new media such as video. As discussed, the conservation approach is to transfer the video material onto a digital format from the best available master tape, preserving the unique character of the original. Although in many cases preservation involves converting analogue signals into digital signals, the visual appearance of the video remains unchanged. The character of a particular video art work will be affected by a number of factors. These might include the technology used to make it; the budget restrictions under which the artist worked; the skill of the artist; and the intervention by the artist to manipulate or use the technology in a particular way. It is important that these aspects are preserved and the material is not indiscriminately 'improved' or altered. This requires vigilance on the part of the conservator.

However, there are cases where some intervention is necessary, for example when the artist's master tape has been damaged. These decisions are made in consultation with the artist and the curator, and any treatment is documented.

Installation and display

The conservation of video art works includes documenting the installation and details that the artist considers essential. The artist is therefore interviewed about the history of the work, the equipment for the installation and the relationship between the equipment and the meaning of the art work (see Appendix II). The installation might involve considering equipment, lighting, architectural space, and acoustics. Few artists are accustomed to handing over the responsibility for installation to an institution. However, in my experience artists are interested in the conservation of their work and willing to give their time to answer questions.

The four main areas of display requiring documentation are sound, pictures, environment and equipment. Installations where the equipment is integral to the work will require particular care in documentation because of the obsolescence of display equipment. Although it is possible to document how an art work is installed with existing equipment, it is impossible to predict how technology will change the way video will look in the future.

The installation *Between Cinema and a Hard Place* by Gary Hill provides a good example of a complex installation where the equipment is integral to the work. This installation includes a series of images that feed into twenty-three monitors of different sizes. Gary Hill has taken the cathode ray tubes out of their casing, effectively disembowelling the monitors. The circuit boards and cathode ray tube technology become a sculptural element. It is clear that cathode ray tube technology will be superseded in the next few years by liquid crystal display panels.⁴ The Gallery has acquired an extra set of monitors, which will provide spare parts for some time. However, this will only be a temporary solution, and the problem of how to replace this equipment when it is no longer widely available remains.

Bill Viola's *Nantes Triptych* presents another example where the display technology is essential to the meaning of the art work. This installation is made up of three large screens; the two side panels are 2946 mm high and 2210 mm wide. The central section is the same height, but 3931 mm wide. The two side images of the birth of a child and the death of a woman are back-projected. The central image is a front projection of a man floating. The projected image passes through a gauze material into a white rectangular space. The atmospheric mood of this work is created by the way it is installed, including the use of cathode ray tube projectors. Recognising that cathode ray tube projectors are likely to become obsolete, the artist has said that the projectors used to create the two side images could in the future be replaced by large liquid crystal display panels. However, the artist feels it is essential that the central image is created using projected light.

Video is now firmly established as a mainstream medium in contemporary art and is present in every contemporary collection. The first step in preserving these works is to accurately document them. As the vocabulary develops to describe their nuances, so too will the sophistication of our approach to their conservation.

Appendix I

TATE GALLERY GUIDELINES FOR THE CARE OF VIDEO ART WORKS⁵

Management of video material

All video material should be labelled with:

- the accession number and/or artist's name and title of the work, and
- the status of the material (i.e. archival master, exhibition format et cetera).

For each art work one would expect to hold material falling into the following categories:

- Archival format, which at the Tate will be a digital tape format.
- Exhibition format, which at the Tate is usually a disc format.
- Curator's viewing copy, which is usually a VHS, sometimes with time code in picture.

In addition, other material held might include the original tapes deposited with the Gallery by the artist, pre-edit rushes, et cetera. All should be clearly labelled.

The status of the material affects who has access to the tape or disc and how it is managed. For example, master tapes would never be played unless as part of a monitoring process or in order to make copies (or 'clones') for archiving or display. Master tapes are always accompanied by a member of staff if they have to leave the storeroom in order to go to a facilities house for copying or checking. Master tapes are never lent.

Only exhibition format material is sent if a loan is agreed. In most cases this is an optical laser disc which is condition-checked before and after it goes on loan. If the work is shown on tape, exhibition tapes are destroyed at the end of the loan, and enough tapes are made to ensure that the work can be shown for the duration of the loan without the picture quality being seriously compromised.

Curator's viewing copies may be viewed by curators or researchers in the library or in their office. They are usually VHS tapes and sometimes have time code recorded in picture, which is a useful tool and is also an added security device.

All of the material mentioned above is stored together and its location is recorded on a database.

Storage

Very little research has been published about the storage of video. Although different tape manufacturers make recommendations, they do not provide the background information on how these were arrived at (see note 1, Mary Baker, p.108). However, all agree that video tape should be stored at temperatures below 20 degrees centigrade, and that the humidity should be controlled at somewhere between 30 and 50% RH. Low humidity and low temperatures will slow down the deterioration of tape.

However, cool storage is not always available. At the Tate Gallery, until a cool storage facility is set up, we store our tapes in glazed cabinets with metal shelves, in a controlled environment of 55% +/- 3%, with seasonal temperature fluctuations between 17 and 23 degrees centigrade. The tapes are stored vertically, away from dust and pollutants. This is the way they should be stored.

Choosing archival formats

Choose a professional digital format to ensure the highest possible quality and reliability of tape stock. The standards by which digital tape formats are compared are the sampling rate, the bit depth and the bandwidth.

- Choose a format that is likely to be in wide use in the industry for a reasonable period. This will mean that commercial facilities houses will continue to invest in equipment and personnel to support this format.

- Consider its compatibility with new formats. It is usually possible to predict where technology is developing in general terms.

Choosing display formats

When choosing a display format, the following criteria should be considered:

- Reliability, i.e. its ability to run repeatedly eight hours a day, seven days a week with minimal maintenance and wear and tear.
- Ease of operation: the ideal is a system that can be operated simply by switching the power on in the morning and off at night or even perhaps computer controlled. However, anything on a timer should allow the possibility to be easily over-ridden for openings and out-of-hours private views.
- Capacity to be controlled externally and synched up to other video, images and sound if necessary.
- The quality of the sound and picture.
- The cost.

In a large museum, the reliability of a display is very important; for this reason the Tate shows most of the video art works in the collection on Optical VideoDisc. There are two ways in which discs are made, by moulding and by cutting. The moulded discs are more than twice as expensive as the cut discs but their quality is better. Discs can be made in plastic and in glass; although the plastic discs are cheaper, they are less reliable than the glass discs.

Advantages of Optical VideoDisc as a display format:

- Highly reliable display format.
- No wear and tear whilst playing.
- Simple to switch on.
- Can be externally controlled to a high level of accuracy by an external source; therefore can be synchronised with other equipment.

Disadvantages of Optical VideoDisc as a display format:

- The format will be superseded in the next five years by higher quality digital disc formats.
- The quality of VideoDisc is not as high as professional tape formats.
- Technical problems can arise in the making of the disc. Often a compromise occurs between the sound and the picture quality in the manufacture of the discs. Art works with high chrominance and luminance levels are not suitable for laser disc, as these cause moiré patterning. VideoDisc is therefore not suitable for all artists' art work.
- There are two types of Optical VideoDisc: CAV (Constant angular velocity) and CLV (Constant linear velocity). The CAV discs can hold thirty minutes (54,000 frames) and have the capacity for freezing on a particular frame. CLV discs can hold sixty minutes of video. However CLV are not widely available, nor is the picture quality as good as on CAV discs and there is no freeze frame function.

The choice of Optical VideoDisc as a display format is a compromise between reliability and quality, however it is still the best display format readily available at present. The new digital systems, which are now being introduced either on disc (DVD) or playing direct from a computer hard disc, promise better quality and greater flexibility and control. However, the high level of compression employed and the novelty of the technology make it difficult to judge their potential usefulness. When choosing an exhibition format it is important to discuss the advantages and disadvantages of any system with the artist and if possible ask him/her to view the display material once it is made.

Compression

Recent advances in digital video have seen the development and introduction of new compression systems. The most significant of these are the system employed by Sony for the Digital Betacam tape format and the Motion Picture Experts' Group's MPEG II which is the basis for the Digital Versatile Disc (DVD). Compression enables more video to be encoded onto a smaller area of tape, computer hard disc or onto a CD type disc, by eliminating redundant information. Presently there is a debate about the effects of the different compression systems on video material. Although MPEG II uses a very high level of compression, some argue that the much milder compression used for Digital Betacam (sometimes described as 'no loss') is acceptable for archival use.

Until more is known about these systems we should be cautious about transferring video which was not made using a compression system onto a compressed format. Not only do we require great accuracy in copying tapes from the original but also artists' videos sometimes incorporate non-standard video signals. Problems might therefore occur when working with artists' videos which are not encountered by others using broadcast standard video material.

The conservation record

The conservation record for a complex installation will include:

- A precise description of the art work.
- A condition report with a history of the tapes.
- Equipment details identifying which parts of the equipment are key to the meaning of the art work and why they are important.
- An installation manual which records the light levels of the room, the sound levels and details of how to calibrate the equipment, as well as wiring diagrams, plans of the space (showing entrances and exits) and lighting and seating arrangements.
- Documentation of any control systems used for the art work.

Some installations are less defined than others. This might be the artist's conscious intention. However, it is important to establish the parameters of possible change, for example the largest and smallest acceptable sizes of monitors.

Appendix II

QUESTIONS

To follow is a collection of questions which are written as a prompt when interviewing artists and should not simply be sent to them. They are not exhaustive.

I The video material

- a. When was it made in terms of the artist's career?
- b. What format was it shot on?
- c. Where was it made, who was involved?
- d. Was there any source material, either in images or in sound, which was not live video (this relates to copyright questions as well as identifying any graphics systems used, et cetera)?
- e. Is the video in parts or in one continuous piece?
- f. Are there any technical problems that the artist is unhappy with?
- g. Are there any credits for actors or crew? When should these appear (wall text, catalogue)?

II Copyright and editions

- a. Was the art work commissioned? Who funded it?
- b. Has the art work ever been shown on television?

- c. Is the footage used in any other art work?
- d. Is the art work an edition? If so, what is the nature of the edition?
- e. Is there any material that the artist used either as images or as audio that might require copyright clearance? (If so, did they clear it?)
- f. Who holds copyright?

III Display

General Questions

- a. Is the way in which the work is to be displayed tightly defined by the artist?
- b. Where has the art work been shown before, and how? How does the artist feel about the way the work has been shown in the past? Has it ever been shown in a way that the artist was not happy with?
- c. What display formats have been used in the past? Is the artist happy with the use of laser disc?
- d. Are there any synchronising requirements?
- e. What equipment is required to show the art work?
- f. What are the light levels needed?
- g. Is there anything about a particular piece of equipment now being used to show the art work that may become obsolete while the artist believes it is essential to the art work?
- h. If the art work has sound, what are the specifications of the speakers?
- i. How loud should the audio be?

Questions specific to single-channel works

- a. If the work is a single-channel piece, can it be shown in the auditorium?

Questions specific to installations

- a. Is there an installation plan?
- b. How should the public gain access to the art work (door plans)?
- c. Discuss health and safety requirements in terms of entrances and exits, fire exit signs, barriers, emergency switches.
- d. Warding requirements?

Questions for works which are acquired with equipment

- a. Has the art work ever been shown for eight hours a day, seven days a week? What is the most likely technical problem to arise? (This question is only relevant if the equipment is acquired with the work.)

Questions for video art works shown on monitors

- a. If monitors are used, what size constraints are there on the monitors? Max/min what height should they be?

Questions for projected video art works

- a. If the art work is projected, what projector is used?
- b. What type of screen is required? Are there any types of screens which have not been suitable and if so, why?

IV Access

- a. How does the artist feel about serious researchers having access to the art work, either in the form of excerpts or the complete video viewed on a monitor?
- b. Can the Gallery show excerpts in the auditorium to illustrate a lecture, or in education material supporting a display (e.g. CDROM, etc.)?
- c. Can the Gallery show excerpts of the video on the internet as part of the Gallery's Website? (If the answer is 'no', document the reasons.)

ANNOTATED BIBLIOGRAPHY

Useful books and articles; most do not discuss conservation issues directly but are technical books on video and related technologies.

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Carol Stringari INSTALLATIONS AND PROBLEMS OF PRESERVATION

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Installation art and its preservation is a burgeoning field of interest with many contradictions and ambiguities. Thus far no clear methodology for the care and long-term existence of installation art has been established. Issues of documentation, re-interpretation, material condition, artist's intent, and criteria for preservation are not defined and often defy conventional conservation ethics. The material nature may not be the essential part of the work in relation to its conceptual nature, but we must acknowledge the physical object in order to address future questions regarding the state of preservation, obsolescence of technology and materials.

Discussion of installation art is predicated on the notion that we understand the concept of installation, and this in itself can be problematic. The word is often used as an umbrella term for many genres which are not, in fact, considered installations by the creator.

In his *Dictionary of the Avant-Gardes*¹, Richard Kostelantz describes installations as "art made for a particular space, which need not be a gallery. Such art theoretically exploits certain qualities of that space, which it will inhabit forever or be destroyed when the exhibition is terminated".

For purposes of this paper, installations will be defined as any site-specific work which may or may not be destroyed after being exhibited. Installation art is a hybrid art form that may include architecture, various media, performance and technology.

Misconceptions

Interdisciplinary study and serious attempts to document and understand an art work within its original context are essential in order to avoid misinterpretations in the future. To date, we have not been sufficiently aware of potential problems to be faced by curators, registrars, and conservators when the works are reassessed within a new and often incompatible context. Without proper documentation, one may encounter a subjective discourse between individuals who were not present when the work was conceived. That can lead to disaster for the 'essence' of the work.

In some cases the artist may be available, but may not care or wish to dredge up old ideas. Artists may even wish to re-invent the piece – which is perfectly understandable from their perspective, but what about our responsibility as caretakers of historical objects?

There are several ways in which installations may depart from rigid notions of preservation and traditional approaches towards the care of collections:

- Materials may no longer be available, or technology is obsolete for recreating the work.
- The art work itself may not exist anymore or may never have materialised (except on paper).
- The artist may be alive and wish to 're-conceive' the work.
- The conservator may be asked to replace materials or find creative solutions for preserving ephemeral materials.
- In many cases, an installation is a response to a particular space and possibly a particular moment in history; without this context, the work may become void of meaning or substance.

Curators, conservators or technicians interpreting plans for the work or refabricating it will vary widely in sensibility, which makes this process highly subjective. Unfortunately, time and money restrictions also hinder the successful completion of an installation or refabrication of a work.

Obviously, all of this will be more complicated when the artist is deceased and an installation is being recreated. Many things then become speculation. Often there are misinformed and sometimes arrogant decisions made to interpret the work of an artist, without regard to original intent: history is easily rewritten and works can be completely misunderstood. If we have any ability to ward this off, we should certainly strive to do so. It is our collective responsibility, as museum professionals, to preserve both the material nature and the conceptual nature of the art works in our care.

Questions of temporality

Many installation works are not actually conceived in their entirety in advance but rely quite heavily on circumstances during the process. Artists often work directly and spontaneously on a work at the time of installation, allowing it to develop in response to a particular space or letting it evolve during its creation. Some artists are better than others at preconception. This can sometimes result in a work being unresolved or less than 'perfect' for an exhibition. If the work is purchased out of an exhibition, it is then frozen in this state – defined as an historical moment. The ambiguity of the artist may be reflected when the institution who purchased the piece attempts to contact the artist during a reinstallation and the artist wishes to conceive the work differently. This is not necessarily a problem, but if one of the museum's goals is to preserve the integrity of the work it owns the question arises: can such works be mutable, or will each new conception be a new acquisition?

What exactly, then, is being purchased when a museum acquires an installation?^{2, 3}

The conservators' role at the time of acquisition is to apply their knowledge of materials in order to fully document the installation. They should be able to anticipate certain materials issues and technological requirements having an impact on the life span of the work.

Many problems regarding the care of these art works are not yet resolved or may even be irresolvable. But hopefully raising the issues will assist other museums in understanding and interpreting their own works of a similar nature. The need for communicating experience and information is obvious, since many of us are confronted with exactly the same problems and are responding to them quite differently. If some form of network or exchange could be set up to record experiences with different artists' work, it may save much unnecessary reinvention of the wheel. It would be useful to have an accessible record of curators and conservators who have had particular experiences with specific artists – as often occurs during the staging of an exhibition, when they may well be exposed to an overall sense of how an artist thinks and works. This might also save the artists from fielding phone calls by conservators who tend to ask the same questions repeatedly. A way to retain the information might be to include a short essay in exhibition catalogues on the artist's intent and the long-term preservation of the work (if applicable).

Food for thought: some examples

One of the earliest examples of installation art I traced was an intervention in the exhibition 'First Papers of Surrealism' in New York, held at the Whitelaw Reid mansion at 451 Madison Avenue in 1942. André Breton was the organiser of this exhibition, for the benefit of the Coordinating Council of French Relief Societies. Breton asked Marcel Duchamp to come up with a provocative installation. Duchamp purchased 16 miles of string and proceeded to create a huge spider's web throughout the exhibition space. This intervention, which made it very difficult to view some of the works, is cited as a metaphor for the prevalent opinion that the work of Surrealists was obscure and difficult to read.

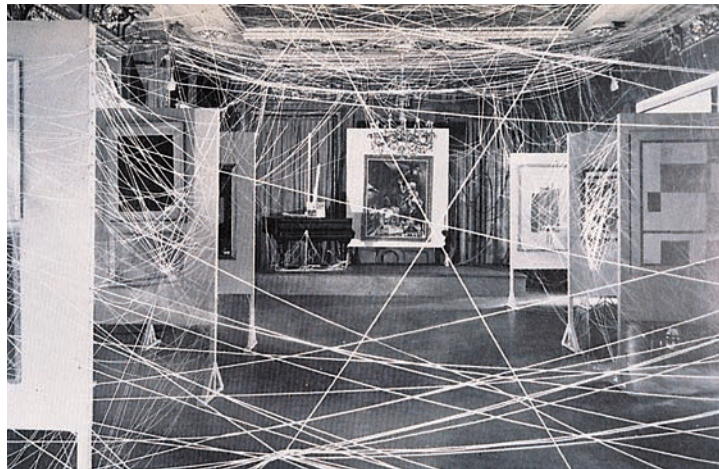
In addition to the string installation, Duchamp also created a 'happening' way before its time. He employed a group of youngsters dressed in athletic gear to play

around and within the web. They were told to respond to any objections that “Mr Duchamp told us we could play here”.⁴ This was a truly radical event at the time, and Duchamp did not even show up for it.

I do not believe such an ‘installation’ was ever meant to be preserved. There is photographic documentation and it is recorded in historical texts. It may be that one day some curator decides to recreate it, but then it will not be a work of art – only an historical depiction. As far as I know the string no longer exists. Today, in our anxious attempt to preserve materials and record every event or creation, we would probably save something like this.

It is a famous example, but undoubtedly there are numerous works of this kind throughout the twentieth century which could be categorised as installations and are now lost completely. Attempting to preserve every such work may be beyond the requisite responsibility of historians or conservators, falling into the fetish collection category. It can be very difficult, however, to distinguish between preservation and fetishisation when the inherent nature of institutions is to memorialise and sanctify – not to mention that conservators may feel quite threatened by the notion of an art work having no material substance.

Not all cases are so extreme, however, and the nuances of the discussion can be quite interesting.



In memory of the earthquake victims of Mezzogiorno and in solidarity with the left-wing political party Lotta Continua, Joseph Beuys conceived *Terremoto* during a political discussion in 1981 when he was in Rome (Palazzo Braschi). The installation includes a linotype press which had been thrown away by Lotta Continua; manifestos from this political party were placed on the machine, advertising the Third Way – which opposed the official, existing social systems of Marxism and its opposite, capitalism. The Italian flag was wrapped in felt, wax was poured onto the keyboard, and there is a rubbish can with fat and lead.

There are also numerous blackboards arranged in the manner of a house of cards. On one of these, diagrams of Jupiter and Saturn constellations are shown. The others reflect Beuys’ theory of human expression, depicting human sorrow and a range of emotional facial contortions .

In this sculptural context, Beuys treats the themes of human emotion, mechanical processes, political opposition, alchemical procedures and planetary references. The importance of the work is the experience of its entirety and not so much each element in particular. It is this overall effect which generates a specific reaction from the viewer.

Relationships between elements are precarious, reflected in their unstable positioning. This tenuous arrangement is extreme in the case of the blackboards:

they are placed at angles, supporting each other like a stack of cards. Beuys used blackboards during lectures and happenings, and they are often part of his works. Their meanings vary – some are relics of an action or lecture, others have been given a sculptural status.

Although in some cases Beuys did use traditional blackboards, in this instance they are painted chipboard – not slate. They present a preservation challenge due to their fragile surfaces. They are meant to lean directly on the floor and against each other; the images are done in chalk and are very vulnerable. The character of the work does not support the possibility of fixing the chalk. Former attempts to fix these chalkboards (by an unknown hand) were unsuccessful and have left a mottled gloss on the surface. The public, being attracted to them, often attempts to add to the composition by smearing the chalk and writing comments in the dust which builds up on the surface. Removal of the dust presents a challenge because it is not possible to clean the boards thoroughly without disturbing the chalk or creating halos around the image.

How much of the dust can and should be removed? To what extent would this dust be acceptable to the artist and when will it become unrepresentative? For the conservator as caretaker of a museum object, the approach to the preservation of this work is not obvious. Beuys stated: “That is why the nature of my sculpture is not fixed and finished: processes continue in most of them – chemical



reactions, fermentations, colour changes, decay, drying up. Everything is in a state of change.”⁵

Our concern for the long term preservation might be an absurdity to Beuys, the artist and creator of transformative works. According to several sources, Beuys’s widow feels that it is important to relax and have fun with the work: try to enter into the spirit of the pieces.⁶ Therefore, a relaxed attitude has been adopted about the dust on these blackboards – to remove whatever possible without disturbing the chalk and to preserve the overall ‘feeling’.

With time, however, the images may become invisible. Then this attitude will require a re-evaluation. The work of Joseph Beuys needs study before preservation decisions are made; each work is quite complex and may operate under different criteria. The general conclusion with regard to this work is the necessity for understanding the intent of his works, and to find a balance where conservation standards are upheld without getting bogged down in minute details.

James Turrell’s works often consist of nothing but a plan or the construction material to create a space, with specific lighting and technical requirements. In *Sky Window* he utilised the window and what the window framed as integral to the work. Turrell works with the space, creating an environment which speaks profoundly to the viewer or visitor.⁷

The problem here is not that of preserving an object. This installation, set up in the Panza Villa in Varese and now belonging to the Guggenheim Museum, is a site-specific work and will not inhabit any other space. Recently it was deinstalled in order to complete renovations to the villa. The documents were carefully reviewed in order to ensure that it will be reinstalled correctly. When the artist created the work, specific instructions were given as to how the existing space should be modified to enable the creation. A certificate of ownership and Document of Realisation are an essential component of the work.

Although the environment/installation was primarily constructed with new walls, they were most certainly a response to the villa – for example, to the lunette window. Other essential components of the piece are the daylight, especially the direction of the light, and what can be viewed from the window. All of these components would be impossible to recreate in another building or landscape. If the building were destroyed, the work would live on only as documentation.

The artist is very clear in the documentation that certain technical parameters must be followed. He specifies with utmost precision such details as lighting, projectors, wall finish, the height of the floor under the entrance etcetera. He also states that he should be contacted and sign off on any re-creation of the space.

As far as I know, the re-creation of his works after his death has not been addressed – so possibly the work will die with him. This points to the necessity of well structured interviews with the artist, to define the works in the museum's collection and hopefully to document his general philosophy for the continuation of his oeuvre (Guggenheim museum curators are planning to confront these issues with the artist, but at present they feel that no Turrell work should ever be re-created without his involvement). The outcome of the interviews should contribute to the overall comprehension of the artist's work. Results of such an interview should be accessible to others who encounter similar works and are trying to interpret his work and future documentation. Some important questions for works by Turrell would be:

- How much latitude (if any) is allowed for changes in materials, dimensions, technology?
- Will someone be designated as executor who can sign off on re-creations after his death?
- Is there someone who the artist feels has a profound and accurate understanding of his work?



Città Irreale, Millenovecentoottantanove was conceived for a show at the Guggenheim Museum, New York, in 1989 – created in situ as an immediate, spontaneous response to the space. At the artist's request a number of different materials were collected. The artist then worked with these elements to gradually create the igloos. He began to cut the glass sheets with grand gestures but this method in fact turned out to be impractical, so the art handlers measured them and carefully fitted the broken glass onto the clamps.

The work begins with a very simple structure, the igloo, which Merz transforms during the creative process. It refers to energy, shelter, electrical poles and oppositions. Both its meaning and physical structure are complex and layered. Opposing forces and materials combine to form a precarious architecture, with stable and unstable materials juxtaposed and supporting each other.⁸

An interesting issue pertaining to the work is the existence – or non-existence – of the neon element. Originally, this was a separate work. Two versions of the neon piece were in the exhibition, one owned by the Stedelijk Museum Amsterdam and one owned by a private lender. The neon work from the private lender was used on top of the large igloo at the last minute, being an unpredictable aspect of the creative process. It was an integral part of the installation – which was titled after this element – at the Guggenheim.

The work was acquired by the Guggenheim at the time, but not documented clearly. There was no indication whether this neon element was supposed to be copied or borrowed from the lender every time the work was reinstalled. An attempt was made by the art handling/technical staff to re-create the element, but this was neither successful nor authorised: the artist has suggested that we show the piece without the neon element. Until further decisions are made, this is how the work will be installed.

These issues are not particularly important to the artist, who works in a style contrary to formulaic interpretations and rigid outlines. However, the fact that the museum acquired a work which is incomplete needs to be documented and defined. This raises questions about exactly what is being purchased when an installation is acquired, and what freedom does the owner have when reinstalling it? The materials for this piece have been retained, but it is also unclear to what extent they are replaceable and how close to the original replacements must be. For example, a roughly cut piece of glass may be easily substituted, but should shapes and sizes be specified? If the latex yellows and discolours, should it be replaced? And when will the materials no longer reflect the 'meaning' of the work? Is it preferable to have the elements which were tied and cut by the artist's hand, or doesn't it matter?



The installation *Cry Dragon/Cry Wolf: The Ark of Genghis Khan* (see next page) by Cai Guo Quang, a contemporary Chinese artist working in New York, was created as a site-specific work in conjunction with the Guggenheim staff for the 1997 Hugo Boss exhibition. Hundreds of sheep skin bladders were used to make five rafts, with alanthus branches, string, and wooden oars. Three Toyota engines are suspended from the ceiling and kept running during the installation.

The skins arrived deflated and mouldy – so they needed to be soaked, cleaned and inflated with a compressor. Also, many areas had to be patched. On the inside the skins were coated with sesame oil, however, which made it difficult to achieve a bond. Several adhesives were tested. The artist brought a very toxic rubber cement type material, with MEK as the solvent, from Japan. This appeared to be the only effective adhesive, although possibly not the most stable or most healthy choice. Epoxy was used to fill areas of gathers which were torn and broken.

Alanthus branches, fairly easy to obtain, were collected from the park service. However, the artist was quite particular about the sticks and their groupings. The branches were brittle and split easily, and the process of tying them into bundles was time-consuming. The Toyota motors were adapted to make them run on electricity instead of the unsafe and expensive gasoline combustion of the originals. The motors require constant maintenance and a barrier or alarm must be used to protect the public from the exposed engines.

Mario Merz, *Città Irreale, Millenovecentottantanove* (1989). Right a detail from above showing the neon element. Three Igloos: 500 x 995.7 cm; 399.7 x 800.1 cm; 250 x 497.8 cm, Solomon R. Guggenheim Museum. Photos: David Heald © SRGF, New York

The work also raises issues of preservation, materials and their degradation, and changes in scale to accommodate different spaces. We are becoming more aware of the need for proper documentation and since the museum's technical staff carried out the work, a complete file was produced on its material nature and installation requirements. The artist was actively involved in the process. The extensive and complex documentation prepared by various museum departments contains the following:

- A precise numbering system for all elements.
- A diagram and blueprint of the installation with XY coordinates.
- The height of each raft, the curves and the relationship of the piece to the gallery – which the artist expressed as important concerns.
- Photographic documentation (many views) and video tapes.
- A lighting report.
- A maintenance record for the motors, including details on the purchase of extra parts and their storage in a proper environment.
- Design of storage and cost analysis for maintenance, transport and long-term storage.
- Notes on conservation, how to obtain replacement parts, the artist's feelings about the long-term preservation of the work.



Although the artist preferred that the piece was not dismantled, it was impractical and virtually impossible to move and store the work intact.

Complete documentation was easy to gather because the artist is very meticulous and clear about the materials and how he sees the piece. However, the work has been considered for other spaces and the artist is willing to make significant alterations to accommodate smaller rooms.

A scheme for documentation

These few examples present different scenarios, each with its own set of criteria. They reflect a range of potential issues and raise important questions to ponder when confronted with similar works. One common thread linking all of these examples is that careful documentation is the key to the interpretation and decision-making process for the future. Time can blur the most crystal-clear idea. Quite common is the tendency to apply contemporary sensibilities to historical objects; as these works become more planted in the history of art, there will be a tendency towards revisionism and skewed perceptions.

The issues and questions raised by these examples can also be applied to more contemporary works which include electronics or computer generated images. Although each object will have its own concerns, the philosophical basis for discuss-

ing the museum's role as caretaker remains the same: how do we best serve the art? This may be by maintaining and storing the materials in their present state, or by transferring images or information to a more stable electronic form, or by deriving a plan for replacement of obsolete technology in conjunction with the artist.⁹ In all cases, accurate information about the intent of the piece is a prerequisite. Working with colleagues in other disciplines – art historians, technicians, registrars, industrial scientists, fabricators – is necessary for a holistic understanding of the pieces and to foresee pitfalls.

Thus, it is essential to set up a scheme for documentation and to produce a thorough document when the original piece is constructed. Every work will have its own requirements, so the outline cannot be too rigid. It should be kept in mind that the inherent nature of creativity defies our obsessive need to categorise and catalogue. Acknowledging this, the following outline can serve as a guide for those of us who have the responsibility for seeing these installation works into the future:

1. Photo-documentation of all stages of the process and, if applicable, video and sound documentation.

2. Complete notes and documentation for the initial development stage.

This is often crucial in the understanding of why certain things were done. Many times compromises are made during installations due to cost factors, time restrictions and limited availability of materials. Knowing the history behind certain decisions makes the reinstallation of a work much easier. Within any institution, it is quite difficult to establish a methodology for recording these decisions. They are often made during informal conversations or during last-minute installations and do not get passed along. The appointment of a documentation coordinator would facilitate this process – he/she keeping up with the work, asking questions about any decisions taken and attempting to understand what the concept is as it unfolds.

3. Coordination between the curator, registrar, conservators, technicians and lighting specialists in order to understand the 'whole' installation.

In this way uninformed and inappropriate decisions can be avoided as much as possible.

4. Solicitation of reports from all participants in the project.

This would include technicians, curatorial representatives, curators, registrars, lighting consultants, electricians, etcetera. These reports would be collected and reviewed by the documentation coordinator, citing all inconsistencies.

5. Central archive to file reports.

Easy access in the event that the piece needs to be refabricated. This reduces the possibility that individual files will be lost and that personnel changes within the institution cause loss of valuable information.

6. Interview with the artist.

It is ideal if the artist can be persuaded to focus on the banal aspect of documentation at some time close to the installation of the original work. In that way artists are able to give an accurate representation of the process and how they feel about the work. Information acquired in retrospect is often transformed quite dramatically and thus can be difficult to reconcile with the original documentation. The interviews should be done by one designated person who understands the piece and is able to establish a dialogue with the artist. The interviewer should keep it brief and precise, knowing what essential questions should be answered. It is

counterproductive to ask the artist repeatedly the same questions or have many people within an institution bothering the artist with these details. Although we may feel it is very important, it is often not the artist's main concern.

7. Presentation of potential pitfalls for the future.

Many artists are reluctant to discuss how they feel about the work being reinterpreted or reinstalled in the future. They often find that the piece is only relevant to the present situation; in such cases the documentation of the piece may be the only necessity. The work then becomes a moment in history, never to be constructed, only read about or viewed in photographs or films. But over time the attitude towards reconstructing the work may change and the artist may become more willing to have works reinstalled in different environments, with different criteria and on a different scale. The initial interviews can be helpful in obtaining information about the importance of elements such as specific materials and what to do if they are not available, and about the parameters for altering a colour, light, measurement, etcetera – depending on the situation at hand. Some artists are very casual about their ideas and enjoy having them transformed by history and circumstance; others are far more tied to their materials. In some cases, the relationships inherent in the piece must be preserved in order to preserve the intent. One must carefully study whether these things are crucial to the essence of the piece or not.

8. Architectural plans and blueprints should be retained and preserved in as much detail as possible.

9. Conservation treatments.

Any treatment of the pieces should be carefully documented, as well as the thought process behind it. When working with living artists, they may supervise repairs or alterations. These decisions may not be in line with conservation standards, therefore it is helpful to have documentation as to why certain materials were chosen; the reason is often as simple as the artist being familiar with a certain product or having it on hand at a crucial moment.

10. Reinstallations.

When a work is reinstalled, there are inevitable grey areas where decisions are made which may not conform to the original specifications, or they may be an interpretation of an unclear document or blueprint. It is extremely helpful to have these decisions documented, since 'mistakes' or 'misinterpretations' are often handed down and become more drastic alterations after several generations.

Obviously this process of documentation takes many hours and personnel to organise, enter data, file data and update records. This is not always possible within the hectic pace of a busy institution that is understaffed and working on many projects simultaneously. However, this type of documentation ultimately saves time and money for the institution: the research and preparation for reinstallation does not have to be started anew every time if all documents are in place. Increased understanding of the historical responsibility by museum administrators will allow this to become more routine within institutions.

Beware of the tendency to fetishise – the conservator is at a loss when there is no substance to lay hands on. Although we have a responsibility to document and preserve the art works, it is important not to lose sight of a bigger picture where art exists in a continuum. If a work has been, or is, nebulous, possibly that is the nature of the piece. Documentation at all costs, whether that means harassing the artist and their studio or attempting to preserve the most ridiculous detail which

has no effect on the overall concept, can be detrimental to the process. It can also destroy good working relationships between the artist and the museum professional.

In attempting to create a scheme for understanding this genre of art, I sincerely hope that respect for the creative process and its spontaneity is not lost. The fact that art is not always created in a rational, orderly fashion is fortunate, and we should not lose perspective. The harmonious whole and not each singular element is what constitutes a successful work. When this Gestalt is lacking, it may be necessary to 'retire' the installation. Retirement... another field of study.

Jean-Christophe Ammann ON THE AGEING OF WORKS OF ART

*Jean-Christophe Ammann is director
of the Museum für Moderne Kunst.*

There is a story about an abbot who slept for 300 years. It takes place in the Swiss canton of Wallis. One summer's day the abbot leaves the monastery around mid-day to go for a walk. Tiredness overcomes him and he lies down for a little nap. When he wakes up, it is already late afternoon. This is very embarrassing for the abbot, since he had left the monastery saying that he would only be gone for a short while. He hurries back.

On reaching the monastery, he can't believe his eyes. The old monastery building has been painted white, the portal has been renovated, the path widened. The abbot is annoyed and can't understand who could have ordered these changes. He knocks at the door and a young brother opens it. "What are you doing here?" asks the abbot. "And besides, who are you, what do you want here?" Astonished, the porter asks what the abbot wants. "Now hold on a minute," replies the abbot harshly, "I'm the abbot of this monastery." The startled porter calls for the other brothers who politely ask for the name of the abbot, who is now becoming increasingly annoyed. The chronicler goes through the list of previous abbots of the monastery and finally finds the name of the abbot standing in front of them. There is no date of death, but the entry reads 'missing'. When the abbot hears that he has slept for three hundred years, he turns to dust.

It may be that some art works will face a similar fate in the future. Or, to put it another way: imagine that we go into the depots to lift works out of their boxes or remove them from their fittings and they turn to dust.

What do we know about the durability of the polyurethane used in the wonderful ensembles by Peter Fischli and David Weiss? How much do we know about the durability of the large-format photographs by Thomas Ruff, which are mounted directly onto perspex – are they resistant to light and how long does the adhesive last? What will Miriam Cahn's large-format works in black crayon drawn on tracing paper look like in the future? How long will the unprotected and chemically untreated drawings last (the artist opposes any form of protection)? Will the paper eventually become brittle with age? What will a work by Dan Flavin look like when the original fluorescent tubes are burnt out but no longer available in the diameter he originally used? How will the character of the work be affected if narrower tubes are used?

The Storyteller (1986) by Jeff Wall has been in our museum since 1991. One day the Canadian photographer Geoffrey James came to visit me and noticed that the cibachrome had faded considerably. I had already suspected this might be the case, though I couldn't be sure because archive photographs in the case of cibachromes are not the most reliable material for comparison. Subsequently, Jeff Wall confirmed the poor state of the cibachrome, and with his help we were able to replace it.

Yet it is interesting to note that a cibachrome is supposed to have a life span of between twenty-five and thirty years, yet this one had started to fade after just ten years. How easy it was when artistic materials consisted only of oil on canvas, bronze or stone, or pencil on paper. I won't even mention ball-point pens, because they are of course highly sensitive to light, as the case of Alighiero Boetti shows.

I know of some museums which exhibit their most significant drawings in the form of phototypes. Behind glass and with low lighting so that not even a specialist can distinguish between the original and a phototype. In the seventies I organised an exhibition of Austrian art dating from between 1900 and 1930 for the Lucern Museum of Art, for which I borrowed some drawings by Egon Schiele from Eberhard Kornfeld in Bern. It wasn't until the drawings were hanging on the wall

that I noticed a significant difference in the hue in one work, though they were all from the same period. When I checked, it turned out that this was a phototype. I rang Ebi Kornfeld and told him what I'd discovered. He laughed loudly. He only wanted to test me to see if I would notice the difference. The next day the original arrived.

The result might not be so amusing when, in the future, we have to spend the already tight budget for purchases of art works on their conservation and restoration. And, realistically, we have to accept that some works of art – even costly ones – are doomed to destruction.

Erich Gantzert-Castrillo THE FRANKFURT MUSEUM FÜR MODERNE KUNST AND A PRIVATE ARCHIV: REGISTRATION SYSTEMS FOR CONTEMPORARY ART

*Erich Gantzert-Castrillo is conservator at the
Museum für Moderne Kunst.*

In June 1991, after a construction and installation phase of four years, the Frankfurt Museum für Moderne Kunst opened its doors to the public.¹ The visitors accepted the museum in a manner that motivated us all greatly; we finally had time for other things which had been waiting in the wings. These included the development and compilation of a new registration system.

When Jean-Christophe Ammann took over the museum's collection, in October 1987, it consisted of a mere 162 inventory items and was thus easy to keep a check on. But when the museum opened, the number had already increased to 866. Today, the collection comprises 5000 items. A cornerstone of the collection of contemporary art was laid between 1980 and 82 when the City of Frankfurt acquired 81 major works from the collection of the industrialist Karl Ströher, who died in 1977. The *Ströher Archiv* was donated by his heirs to the Museum für Moderne Kunst.² In the past, the index was not compiled in keeping with museum practice. The extensive documentation is presently being worked on by Dr Rolf Lauter, and the information gleaned from it will be included in the Index to the Collection.

Initially, the museum used a conventional card catalogue system for its collection, together with photocopies, a photo archive and countless files with information. The major problem with the old index was that key data such as titles, year, sizes, techniques and materials were often kept on different pieces of paper and in different formats. You can easily imagine the difficulties, lost time and misunderstandings to which this can lead. We therefore urgently needed to standardise this information.

In search of an electronic record system

In order to devise a new index of the items in the collection we first assembled a team of art historians and conservators. This team met weekly to discuss the various needs, the design and the scope of the inventory. Later, the group was expanded to include colleagues from the secretariat, the administration, the library, and the text and catalogue editors. We soon realised that a new collection index would have to contain a wide range of information, drawn from all the museum's departments. As a consequence, we opted for electronic data management (EDP).

The City of Frankfurt was going to decide on a joint EDP system for all the Frankfurt museums, so we assumed that we could use a filecard system like the old one for the new index until the decision was made. But then the city ran out of money and we were left to our own devices. The only advantage, for us, was that we were now able to choose and develop a software and hardware system tailored to our particular needs. At this point, we had several incompatible systems: our address management system was handled by a time-worn IBM sponsored computer, the editors of the index had a Macintosh and there were privately-owned Macintoshes in the PR Department and conservators' workshop.

In September 1993, I was travelling to Aarau in Switzerland accompanying works on loan to the Aargau Kunsthhaus. During a coffee break in the administration wing of the building, I watched a member of the museum staff filling in entry masks at a PC. I inquired what program she was using. She informed me that it was part of a graduate project carried out at the Restoration Department of the Bern College of Art:³ in a practical course at the Aargau Kunsthhaus, a database had been developed by Simon Dutoit using FileMaker Pro for Windows 3.1 (running on an IBM-compatible PC under MS DOS/Windows). On my return, I told our team about it. We invited Simon Dutoit to come to Frankfurt and present his program at the Museum für Moderne Kunst. He did so and was also so kind as to leave us, free of charge, a Mac-compatible copy of what was then the unfinished program – and remarked

humorously that at least he could not be held responsible for possible bugs.

This system corresponded in many ways to what we had in mind. It formed a strong starting point for our own database. For the new index of works in the museum's collection, we decided to use FileMaker Pro data software as developed by CLARIS: we had been given a favorable impression while using it earlier on to develop smaller programs such as the address files in the PR Department and a file of various materials for the Conservation Department.

An integrated computer network

Meanwhile, we are working with the new relational FileMaker Pro 3.0 version. The hardware platform consists of 15 Macintosh PCs, one of which houses the relational database and the server. This server runs the network by means of cables that had already been installed in all of the rooms, up to the joiner's workshop, during the museum's construction. We chose Apple Macintosh computers because the system is so user-friendly, even for colleagues who tend to shy away from PCs. To date, all the financial resources for purchasing the software and hardware have been supplied by donations from the Friends of the Museum für Moderne Kunst and other donors.

The program as we run it today is made up of 46 entry masks for recording and managing data relating to loans, PR, the library, the artists' file, publications, the photo archive, and the documentation of preservation and conservation. These entry masks can all be called up and accessed via a main menu. The input of data into the masks is only possible after entering the password for the respective department.

In order to use the system's entry masks, various data items on the art work are needed – maker, title, year, size, technique and material, origin, price, et cetera. These data also have to be entered in an Inventory Ledger, the document per se; this is a regulation set by the municipal authorities and which they monitor carefully. The information is supplied by the Conservation Department and forwarded to the editors of the index, who enter it in the Inventory Ledger. Then, completed with an inventory number, they put it into the database. All further entries or changes of data are made via the inventory number.

Different approaches to data gathering

As a first step, however, precise data have to be compiled and checked with regard to size, techniques and materials of each work. The compilation of such data varies with each different goal. Independently of the Museum für Moderne Kunst, I have been assembling an archive on techniques and materials of contemporary artists for many years. In 1968, when I started work as an art conservator at the Wiesbaden Museum, I was confronted with large gaps in this information. Because pinpointing techniques and materials was fundamental to my work, I devised various questionnaires on painting, sculpture and objects, drawings and prints, as well as on art as part of buildings, and sent these to the artists from German-speaking countries. The questionnaires were completed by hundreds of artists and published in facsimile in 1979 as a book, Volume I of the *Archiv für Techniken und Arbeitsmaterialien zeitgenössischer Künstler*. I undertook this work in my free time and at my own expense; the costs of publishing were covered by a Wiesbaden art collector. The book went out of print in a relatively short space of time. Although the interest among conservators was limited, the *Archiv* attracted many artists, interested laymen, collectors, technical staff in related fields, art teachers and art historians. In 1996, it came out as a reprint.

Meanwhile, I have been collecting information for a second volume – although I was unable to pursue the matter intensively once I became involved in setting up the Frankfurt Museum für Moderne Kunst. For some years now, my wife Elisabeth Bushart and I have continued to build up the archive. Her experience, gained from

working with collections of contemporary art, is a meaningful supplement to the substance of this work. We run the archive in our free time and have mainly financed it from our private means. We have also received outside financial support from an art collector and, most recently, from the Cultural Foundation of the State of Hessen. The latter funding enables us to expand our range of PC instruments.

Unlike the Frankfort Museum für Moderne Kunst, where the approach to gathering data on artists refers to individual works in the collection, our archive endeavours to compile information on the entire oeuvre of an artist. We have opted to confine ourselves to a small number of artists when recording information on techniques and materials, but we wish to record the full range of their artistic activity. The artists in question all occupy a special position as regards their respective artistic approach and the choice of techniques and materials used. They include sculptors and 3D artists, painters, photographers, video and installation artists, making use of materials and media such as wood, paper, paint, milk, rice, wax, plaster, stone, metal, plastics, photos, slides, videos and computers.

Interviewing the artists

We have been personally acquainted with the artists represented in our archive for many years. Mutual trust is the main prerequisite for fruitful cooperation. For many artists, conservators seem to be critics when it comes to technical issues; this can prompt them to refrain from being involved. Artists also sometimes fear they are providing information that their fellow artists will seize upon for their own use, and it is at times difficult to put such doubts to rest.

We develop the sets of questions on the basis of our daily work. In cooperation with the artists, the data records on their works are prepared drawing on existing catalogues and art archives, and supplemented with questions. These records are sent to the respective artists, who change them if necessary. The way they reply differs from case to case. There are artists who prefer the form of an interview, others want to have plenty of time to think about things and therefore prefer to reply in writing. In each case, it is a very involved process.

The artists with whom we are in contact are in great demand in the art world, and sometimes it is difficult for us to fight our way to the top of their list of priorities. At the outset, some artists remain at a distance, while others welcome us with open arms. It can generally be said that artists today are more open-minded towards issues of conservation and restoration. There are various possible reasons: contact with conservators can be invaluable for their work, they may have had difficulties with the materials and techniques used, or they are familiar with the irritating problems of damage occurring during transportation and exhibitions, problems with museums and collectors, and so on. Moreover, the artist's role as a producer within consumer society has in itself changed. Artists now face many more questions on the durability of their work and they are expected to provide answers.

The interviews with artists and the information they provide are being brought out by the Ferdinand Enke publishing house, which has already handled the reprint of Volume 1. We have elected to present the interviews in a book in the form of Volume 2, because this will appeal to a much broader group of interested parties. The importance of this group for opinion forming and increasing the awareness of the specific problems of preserving and restoring modern art should not be underestimated.

The Archiv's data system

In our archive, we have to constantly expand and update the information. To manage this, we have developed a program running under FileMaker Pro 3.0. A data record is set up for each art work or group of works the artist has produced. The record can be accessed via several masks.

This is the general design:

1. The main entry mask, entitled *Artist and work*.
This first of all highlights basic information on the genre – painting, drawings/prints, photos, sculpture/3D object/reliefs, objects and installations. The following data are entered in additional fields:
 - Artist, title, the respective group of works (wherever applicable), year, measurements.
 - Number of parts.
 - Edition, publishers, location, collection.
 - Published data on the work, with references (catalogue etc.).
 - A media field for illustrations.
 - Information on techniques and materials.
 - A field for remarks.
 - A field for questions on materials and techniques, products and firms, and finally substantive questions.
 Vertical scroll bars are used for information the artist has provided on materials and techniques, products and firms, as well as for the answers to any substantive questions.
2. A mask for damaged pictures.
3. A mask for listing illustrations of the works in question; these data appear in a window with a vertical scroll bar in the main mask.
4. A mask to input film and video documentation.
5. A mask listing photographic documentation, with a pop-up field for the class of photograph (e.g. artist at work, studio scenes, transport situation etc.).
6. A mask covering literature: in a pop-up field, a list of books and essays relating to the theme and the art work in question is provided. This includes references to specific preservation and exhibition issues, information from manufacturers on the materials used and, above all, statements by the artist and/or his assistants as well as quotations by friends or conservators.

The museum's data system

In the Museum für Moderne Kunst, the layout for the entry masks and the necessary scripts for the hardcopy index were prepared by a free-lance staff member, Dr Mario Kramer. Today, he still manages the Index to the Collection; the art historian Anna Fasold is in charge of the FileMaker program. On behalf of the Conservation Department and assisted by a student freelancing for us, I have compiled the necessary mask layouts for the documentation of paintings.⁴ The layout is that of our current documentation forms, like a typewriter page.⁵ A full-page sized screen is really comfortable for working on compiling masks and for everyday work.⁶

We then started to register the paintings. Because of time constraints, I was unable to handle this task on my own; we therefore accepted the help offered by lecturers in a specialist class for art conservation and restoration at the Bern College of Art. Until today, the input of data on paintings has been done under my supervision by two graduate students at the College, each with a six-months scholarship, and then processed further by a graduate of the Hamburg Restorers' Seminar on a freelance contract.⁷ The data compiled by the students were first entered in status protocols and subsequently, if in an altered form, into the masks.

One thing was crucial for the success of our work: the contact and cooperation between conservators and index editors. We now have one mask each for the pictorial medium, the reverse side, the ground, the layers of paint, the varnish, the frame and photographic data; a mask for information on the artist and commentary or an appraisal of the works; other masks deal with data on the art work's general condition, recommended treatments, restrictions for exhibitions, special storage conditions, and loan restrictions.

As stated above, the program contains a total of 46 entry masks. Besides the masks for paintings, there are those for objects/pictorial objects, sculptures/three-dimensional works/reliefs and printed graphic art/drawings/photographs. We have repeatedly changed and optimized the original mask version in the course of our work. Presently, we are developing masks for the area of installations as well as for film and video.

To date, information on conservational and restorational measures are still entered in the field *Measures for pictorial medium*; special masks for this are currently being designed. The data conversion from the present masks into future masks will be quite straightforward using FileMaker.

The upper section of the masks feature fields for basic information on the work and its inventory number. These are automatically called up from the artists' list when the user is in Find mode.

Beneath this section there is a series of pop-up lists, behind which we have positioned *Value Lists* with the various technical terms for materials, techniques and tools with reference to, for instance, the pictorial medium, layer of paint or varnish. These Values can be inserted individually by a click of the mouse. Next to them there are standard fields, to be completed manually for numbers and numerical values.

The use of pop-up fields within the documentation masks facilitates the input of data into the fields. More importantly, it leads to a consistent use of descriptive terms. The lists contain standardising concepts in order to define a work – for instance, for a material used in a pictorial medium one can choose hardboard, plywood, cotton duck, paper on linen and so on. There are also describers of the condition of the pictorial medium, such as 'good' or 'bad'. The status protocol for the object/pictorial object provides a terminology list with generic terms such as 'combine painting', 'collage', 'mobiles', 'ready-made' or 'rotorrelief'.⁸

Under each block of pop-up fields there are standard fields into which, if necessary, further data can be fed as free text. Where necessary, the masks contain a field into which drawings can be entered using the paint-box kit provided in the program. Although it would have been possible to incorporate an integrated picture database into the index masks, we decided not to do so. Our PCs have different speeds, and given the small transfer capacity in our network it would take too long for the pictures to assemble and appear on the screen. This would hinder us too much in our work. We therefore chose to create a picture database using Cumulus, a pictorial database program. The pictures are scanned in along with their inventory number. In the near future it will be possible to call them up in the masks at the press of a key.

Pros and cons

It was clear from the start that we would have to devote a great deal of time to this type of index. With regard to decisions on the technical equipment we have always been able to rely on the advice of a two-man company as our main partner. To date, the company has helped us on all technical issues and problems including the installation of the network. Both men work as developers for the FileMaker program produced by the software house CLARIS.⁹

Apart from the fact that we ourselves lack the time to follow up on the ideas, concepts and information collected, we also lack the funds for additional personnel and better hardware. This has delayed improvements to the program. But I hope that our experience will help those facing similar problems in systematically registering works of art. To conclude, I shall state the pros and cons of FileMaker and similar database programs:

— Purchase costs are low.

- The manual is laid out clearly, written in an easy-to-understand manner, and meaningfully rounded up by the integrated FileMaker Pro help function.
- The program offers great potential for putting one's own ideas into practice to fulfill individual needs and the masks can be laid out in a wide variety of ways.
- Changes to the masks can be handled by those who maintain the database, without the assistance of the software manufacturer.
- The program is able to cope with the range of data needed to fulfill the requirements of an independent art conservator or an institution such as the Museum für Moderne Kunst.

The disadvantages of the program are that it does not do the work for you.

Stefan Michalski CONSERVATION LESSONS FROM OTHER TYPES OF MUSEUMS AND A UNIVERSAL DATABASE FOR COLLECTION PRESERVATION

*Stefan Michalski is senior conservation scientist
at the Canadian Conservation Institute.*

There is no doubt that the preservation of contemporary art collections involves novel and complex problems unfamiliar to the staff of a traditional fine art museum. Yet none of these problems is novel to the museum world as a whole. Furthermore, the concepts and techniques developed by other types of museum that have long dealt with preservation offer useful tools to museums of contemporary art.

For preservation surveys in all types of museums, a database application is currently being developed at the Canadian Conservation Institute. It accommodates all those problems that appear novel to the preservation of contemporary art collections.

'Material' versus 'knowledge'

Preservation problems fall into two broad categories, reflecting the two worlds philosophers have debated since history began – and will debate forever. In classical terms, it is the objective versus the subjective. In mid-twentieth century post-structuralist terms, where any real separation is considered naive anyway, it is Lyotard's scientific knowledge versus narrative knowledge.¹ In the current rebirth of a common-sense reality that was lost during the post-structuralist heyday, it is Popper's physical states versus objective knowledge, which the eminent English museologist Susan Pearce has used recently to re-examine the artefacts in museum collections.²

Since the term 'objective' has been applied to both sides of the divide, and 'subjective' has varied from personal to impersonal uses, I will use 'material world' and 'knowledge world' as reasonably accurate and ordinary terms.^{3, 4} The material world is that which we can reliably deduce as existing independently of human knowledge (and its input device, perception) – chemically changing bits of mixed molecules (ageing, coloured paint in the knowledge world), additional layers of molecules (dirt in the knowledge world) and spaces between clusters of these molecules (cracks in the knowledge world).

Modern 'scientific' conservation in its naive moments claims the purity of the world of materials, and curatorship in its naive moments claims the purity of the world of knowledge – or more precisely, of a very specialised sub-section of that knowledge. Conservation has always found itself shuttling between the two worlds and informing specialists of each world about the concerns of the other, as illustrated by the flow chart in the decision-making model (see page 164). To the post-structuralist this is synchronic discourse, to the technocrat it is flowcharts and feedback loops. In common-sense terms it is the infinitely variable world of human activity that is built from a few ordinary skills – perceiving an object, thinking about that object, talking about that object and acting on that object, alone or with others, with all the impersonal and personal knowledge one may already have or acquired in the process.

Possibly novel material problems

The preservation of contemporary art collections appears to pose some novel material problems:

1. Contemporary art objects are bigger and/or more fragile than traditional art objects

When one moves from a traditional into a contemporary museum, it becomes obvious that the average contemporary art object is bigger, and therefore more costly to house and transport, than the average traditional painting. The tradi-

tional museum has experience with a few large art works, but it does not deal with artist after artist pushing the fabrication limits of traditional and non-traditional materials. Often as a result of sheer size, but sometimes simply as a result of delicate used materials like feathers, many contemporary art works are also more fragile than traditional ones. In the last few thousand years, for both sacred and secular purposes, art works were designed to tolerate, even assist, shipment from studio to client. Alternatively, they were constructed as durable components of a building or monument. Now contemporary artists borrow the techniques of the theatre designers, architects of World Expositions and shamans. Unfortunately, while theatre sets, World Expositions and the paraphernalia of the shaman were considered ephemera by their original masters and audience, they are not seen as such by modern artists and their collectors.

Still, architectural conservators do preserve flimsy structures that were never intended to last long. See for example a description of the restoration of a late nineteenth-century building/sculpture in the shape of an elephant, clad in sheet metal and containing within its belly a small museum, both suffering from humidity problems. It is an ironic reversal of the usual museum/art work relationship.⁵ Ethnographic museums routinely preserve elaborate ritualistic artefacts of paint, feathers and bones, and have developed many methods of mounting and housing these items – as the recent and comprehensive *Mount-Making for Museum Objects* shows.⁶ Natural history museums do preserve and display everything, from the gargantuan to the incredibly delicate, and have a journal *Collection Forum* devoted to the theory and technique of collection care. A two-volume handbook of preservation techniques has been published by the extremely active Society for the Preservation of Natural History Collections.⁷

2. Contemporary art objects are more vulnerable to small defects

Small (and inevitable) defects are easily overlooked in traditional art works, but they are not easily overlooked in most contemporary art works. There are two material causes for this. The first originates in the perfect uniformity of manufactured materials compared to traditional ones. Within large areas of glossy paint or new plastic sheeting, a small scratch, loss or accretion is much more noticeable than if it were surrounded by rough texture or complex imagery (visual noise). This difference would be detected by any simple scanning device, not just the human eye. However, I also believe humans use defects in a very powerful way to develop everyday knowledge of their world. We use them as a signature of objects, to recognize one among many, and to recognize change in our material surroundings and thus the passage of time.⁸ Within our profession, these innate abilities blossom into endless debate over ‘authentic’ and ‘patina’. Needless to say, this problem of the noticeable small defect occurs in all museums that collect twentieth-century objects, science and technology museums as well as those of decorative art.

The second aspect to this problem arises from the opposite of manufactured uniformity – manufactured complexity. A single tiny defect in a single electronic component can render a video screen dead, a kinetic sculpture immobile or a computer installation defunct. This is also related to the more general problem of obsolescence.

3. Contemporary art objects are more vulnerable to technological obsolescence

We may lose specific sources of pigments and marble, but we will never lose the ability to directly experience or to restore a traditional art work at reasonable cost. Compare this to a 1980s video installation or computerised art work, for which the parts are obsolete and soon irreplaceable. Without functioning components, the art work becomes a pointless shell. This problem is the pre-eminent fact of life for science and technology museums as well as for archives.

The problem follows the three stages in the history of technology. Artefacts, art works and records produced by pre-industrial crafts can always be restored by individuals simulating the original crafts. Mechanical artefacts, art works and records produced during the machine age, even at its most elaborate, can always be experienced and restored by enough money being invested for painstaking shop work. For example, the first hundred years of sound recordings, based on the mechanics of groove and stylus, can still be played back – independently of the original record players. The most recent playback machine for archives uses lasers to read old records without even touching them. Similarly, replication and restoration options for Tinguely's *Gismo*, described elsewhere in this publication and a former work by Beerkens are all still feasible.⁹ They may, of course, be expensive to restore and subject to the usual dilemmas over authentic and inauthentic. Replication of prior electronic technology in the electronic age, however, is in an impossible cost category, due to the large variety of formats and the industrial manufacturing complexity of each record and playback device. The lifetime of these objects will depend on a complete stockpile of spare parts.

Archives address this issue through 'migration' of their records to newer formats and abandonment of the original record. The Tate Gallery has chosen this same approach for their video collection, as Laurenson states (see page 263). Unlike the descriptions in the archive literature, where massive numbers and costs are overriding elements, the Tate expressed strong concern that the transcription process did not distort the aesthetic or texture of the original record. This is a luxury possible only for small 'art' collections and dependent on individuals with highly specialised technical knowledge.

I know of no systematic museum response to this problem, despite its prevalence. Part of the solution, obviously, is the emulation of mass market systems such as the parts and service infrastructures of any large manufacturer. Museums will need to stockpile parts and service manuals beyond the normal mass market lifetime. They could follow the lessons of other historic specialty markets such as car restoration, for which old parts and service manuals are exchanged or re-manufactured within small global networks. Even here, however, only sub-groups of objects – Ford Model T's, Volkswagen Beetles – support a manufacturer's response to the need, and only mechanical parts are replicated. Cooperative networks or consortiums between museums of contemporary art and those of science and technology will be essential if even a few technological art works are to achieve a life span anywhere near that of a traditional piece. Unfortunately, if the much larger collections of science and technology are any indication, it is far more likely that museums will abandon any such aspirations and learn to live instead with mute, lifeless shells of artefacts, augmented by audio-visual records or simulations. They will leave the active maintenance of historic machines to the private sector, where operation of the machine takes precedence over all ethical niceties of the museum world. If conservators of industrial collections have learned anything in the recent past, it is the importance of bridging this gap, of informing the private sector of methods and strategies that produce a functioning object with the least collateral damage.

4. Contemporary art objects are novel in their use of motion and sound

Movement in kinetic sculptures is just a special form of display. The issue of wear and tear, how much to operate the art work each year, is identical in principle to the issue of light exposure of traditional art works, or the risk assessment of letting them be transported or of hanging them unprotected in front of the public. All art works are being 'used up' as material objects, either in slow cumulative fashion or in intermittent events.

Specific maintenance and operating issues of moving machines are well-known in the world of science and technology museums, transportation museums, agri-

cultural museums, etcetera. The difference in attitude between commercial art galleries and art museums is not unlike the difference in attitude between machinery restoration clubs and machinery museums. Each defends its notion of 'meaningful' use of objects. The dilemma of performance versus preservation, dynamic versus static, has always been central to musical instrument collections as well. Since high monetary and mystical value can accrue to musical instruments, codes of ethics and collection guidelines have been developed that provide useful comparisons for contemporary art collections. See the ethical and practical guidelines in the recent publication by Barclay, *The Care of Historic Musical Instruments*.¹⁰

5. Contemporary art objects are more likely to suffer rapid chemical decay

Some important modern materials degrade much more rapidly than traditional ones, usually due to internal acid hydrolysis. These cause either directly perceived changes such as the yellowing, cracking and disintegration of plastic art works and paper collage, or indirectly perceived changes such as the loss of information in movie films, magnetic audio tapes and magnetic digital media. Of course, these problems are again very familiar to archives.

I have recently reviewed literature on the only way to preserve the original of such materials for any significant length of time: low humidity or low temperature control.¹¹ The literature on conservation of audio-visual and electronic media is extensive, see for example *Archiving the Audio-Visual Heritage* and *Environnement et conservation de l'écrit, de l'image et du son*.^{12, 13} The literature on 'plastic' conservation is rapidly expanding, see for example *Saving the Twentieth century: The Conservation of Modern Materials* or the excellent 'An Introduction to Plastics and Rubbers in Conservation' by Sharon Blank in *Studies in Conservation* (1990).^{14, 15}

Novel knowledge problems

The preservation of contemporary art collections may also pose some novel knowledge problems:

1. Contemporary art works are more vulnerable to loss of impersonal narrative knowledge

By impersonal narrative knowledge the post-structuralist means social, cultural and moral knowledge, all that is created and shared by the community and learned in various degrees by each individual.^{16, 17} In ordinary parlance it is referred to as cultural context. Will a viewer (or conservator) of a Pop art piece ever fully understand the piece in the manner of a knowledgeable New Yorker of the time? Does it matter? Etcetera, etcetera.

Three forms of origin can be lost or changed for an art work (or any made artefact): the time of birth, the place of birth and the community of birth.¹⁸ Loss of the time of birth, in the sense that one loses all the fashions and details peculiar to the time of birth, is simply time's inevitable arrow. It is lamentable only inasmuch as we deny our own mortality, or the authenticity of the present. Contemporary art collections will lose their hold on the word contemporary. Their keepers would do well to read Lowenthal's *The Past is a Foreign Country*, which strongly influenced history museums over a decade ago.¹⁹

Loss of the place and community of birth is not inevitable. It usually takes an act of theft, a rupture with original meaning. Ethnographic artefacts face such rupture by definition – they are the collections of displaced objects. This fact has generated a body of literature containing everything from diatribes on the thieving imperialist European male aesthetes who created these collections, to subtle dilemmas over repatriation by communities that are fighting attempts by some representatives to typecast themselves as their older, outdated versions. For a starting point in this literature, see *Cannibal Tours and Glass Boxes: The Anthropology of Museums* by Ames.²⁰ Of course, even the so-called European canon of tradi-

tional 'fine' art is itself displaced from its authentic homes within the church and the aristocracy. The gulf between our response to a great painting of Christian themes and the response of its contemporaries is well-worked ground in art history. At least for Europeans and their offspring, however, these were not ruptured from their general place and general community of birth.

The claim to special problems in this area by contemporary art can be reduced to little more than the normal conceit of the present. True, it is magnified by the preciousness assigned by a powerful consumer culture to its most mysterious and expensive consumer items. True, it is compounded by the contemporary artist's attempt to transcend the traditional art work. But, compared to the rupture of 'ethnographic' art works from their community and place, it is not a problem of loss at all – it is the opposite. It is a problem of the density of knowledge of our own time, our own place and our own community that confuses us. Of course it will generate difficult decisions for conservators, but the difficulty will be multiple and conflicting strands of knowledge, of balance, not the silence of theft, of lost voices, oblivion. I do not believe these decisions require any intellectual tools not already developed for traditional preservation dilemmas.

2. Contemporary art works are more vulnerable to loss of personal narrative knowledge

This is not novel to contemporary art collections either, but of course it is novel to the present. The fact of 'living memory' creates legal and professional obligations to transfer valuable personal knowledge to impersonal forms, just as it did for Vasari. Thus staff at contemporary art museums have developed various strategies for collecting associated information on artist techniques and intention. This is a problem of bureaucracy and resources – all museums that actively collect new objects do the same. For each new acquisition, the large systematic collections of natural history museums and electronic archives routinely collect associated information along with intended significance, without which the objects become meaningless or literally 'unreadable'. Each work then becomes a material package of object and records which needs preservation.

As for viewers, it is inevitable that this generation will pass and take all their emotional and personal knowledge with them. Two types of museum face this on a much more profound and emotional level – war museums and memorial museums such as those dedicated to the Holocaust. All these must face the transition between an audience with direct personal knowledge, their descendants who heard direct personal knowledge, and eventually an audience with only impersonal knowledge.

A database for collection preservation surveys

Development of a computerised database, especially one for expert advice and risk assessment, forces a profession to clarify its concepts and define its terminology to a degree unnecessary for normal human discussion. The risk, of course, is a reductionist model incapable of dealing with real problems. If one can avoid that trap, the benefit is much greater effectiveness for those few individuals our culture assigns to care for its collections.

I am currently developing a database package for preservation surveys. It combines the traditional concerns of conservation and preventive conservation surveys – facilities observations, staff questionnaires on policy and procedures, and collection observations – but it will eventually perform risk assessment calculations based on both the survey and a large amount of hidden data previously entered, such as all the natural disaster risks mapped by locality and elevation. On entering a collection room, the surveyor groups artefacts by type and enters this type by selecting from a comprehensive list built into the survey. Within the hidden tables of the database, this selected type has already had various common material vul-

nerabilities attached to it – for example, woollen textile is particularly vulnerable to insects, ornate wooden furniture to humidity fluctuations, Colour Field paintings to light and handling, video art to chemical decay and technological obsolescence. Each of these factors will then influence the risk assessment – the effect of too much light, poor security, warm temperatures or lack of a spare-parts programme, etcetera. This entry will help determine which artefact groups are given priority in the recommendations.

This is the hidden expert part of the database. Each of these hidden parts can, of course, be modified by a user if they disagree with the default estimates. Beyond the built-in assumptions of vulnerability, the survey also permits entry of atypical vulnerability – more light sensitive than usual for a Colour Field painting, more chemically unstable than usual for a video record. The surveyor is also asked to estimate, where possible, the time it will take for significant damage to occur in the present situation.

Thus the database addresses material problems in preservation at two levels, both dependent on expert knowledge input. The first is generic, built-in; the second is at the surveyor level, the level of direct perception and deductive intelligence.

The concrete issues associated with knowledge preservation – associated records, repair manuals – will be built-in. Thus selection of the term ‘kinetic sculpture’ could automatically trigger relevant questions on such issues. Or it will simply be linked to the staff interview question on collections policies, for instance on spare parts (which would only be triggered by certain types of museums such as those of contemporary art).

In the current version of the database, the many intangible knowledge issues have been reduced to a simple question about artefact ‘value’, entered as a rank order from one to five or as an optional monetary value. The purpose, after all, is not to explain everything but to estimate the priorities of various artefacts and their preservation details. There is also a text field for further commentary. As these accumulate, popular entries will be assigned to a built-in list along with any commonly accepted implications. Thus the database is designed to learn new issues from users, and reflect them in revised versions.

When I was asked to write a paper for the conference *Modern Art: Who Cares?*, I was in the process of developing the prototype of the preventive conservation database for an historic museum application. A systematic deduction of all the issues that could arise in a contemporary art collection appeared to generate many novel issues, but every issue eventually resonated with some prior experience of mine with either a natural history museum, archive, science and technology museum, ethnographic museum, commercial gallery, or with some part of their respective literature on preventive conservation. As for the post-structuralist/post-modern dilemmas of contemporary art and its more literate avant-garde, these resonate with much of the last decade of museology – exemplified by the books edited or written by Pearce or her colleagues at Leicester University, or the angst of thoughtful material culture curators everywhere.^{21, 22, 23, 24}

We collect things. Old things just get older, but new things must first lose their newness. We cannot prevent that. All we can do for the recently new, we have learned already from the old.

Training conservators of modern art

The problems encountered in the conservation of modern art differ widely from those in traditional art. Special training programmes, however, are scarce. In fact a new, multidisciplinary education is required. The Danish Konservatorskolen in Copenhagen and the Limburg Conservation Institute (SRAL) in Maastricht, the Netherlands, are initiating special curricula and leading the way to collaboration in this respect.

Introductions

- Mikkel Scharff, head of department at Det Kongelige Danske Kunstakademi/ Konservatorskolen in Copenhagen, Denmark, and
- Anne van Grevenstein, director of the Limburg Conservation Institute (SRAL) in Maastricht, the Netherlands, presented their views and plans to include modern art in conservation curricula: the complexity of these art works warrants special training programmes on a multidisciplinary basis.

Main themes of discussions

- Need for special education recognised
- Sharing of information and experience required

Chairperson: Ulrich Schiessl, professor at the Hochschule für Bildende Künste, Dresden

Minutes: Tonnie Bakkenist, scientist at the Limburg Conservation Institute, Maastricht

Anne van Grevenstein & Mikkel Scharff A NEW CURRICULUM: THE CONSERVATION OF MODERN ART

Modern art in its many aspects presents the conservator with problems that differ from those of more traditional works of art. Often the conservator has to deal with new materials and combinations of materials, and frequently the character of the materials is non-durable or even self-destructive. Furthermore, the work of art can be partly immaterial, e.g. representing an idea or including different sensations.

As was the experience of the research project Conservation of Modern Art, this conservation will benefit from a multidisciplinary approach: problems are best diagnosed and possible solutions are best found through proper research and discussions among relevant professionals such as conservators, art historians and scientists. Often it is even possible to include the artist in decision making concerning conservation and restoration. The concept of modern art might also change the conservator's traditional focus from material aspects to more abstract ones – that is, towards conservation of ideas and experiences, a shift that also necessitates an adjustment of traditional conservation ethics.

For the above reasons, the successful conservator of modern art will need a specialised education. In the research project mentioned, the complexity of the conservation of modern art has been duly inventoried and classified and systematic approaches have been developed. Now the question is how to translate this complexity into a full-time training programme. Starting from the existing programmes for the education of conservators of traditional art, we are confronted with the awkward task of selecting relevant components and discarding others. Also, from the wide ranging aspects of materials, techniques, and artistic intentions in modern art a feasible and therefore limited choice will have to be made. The basic point is to teach people how to analyse and solve conservation problems of modern works of art while paying due attention to the meaning of these works. Because teaching

materials and techniques will perform be limited to general knowledge, in this case the emphasis should be on knowing where to find expertise.

The concrete formulation of a training programme and the subjects therein has only just started, just as the setting up of a network of (guest) teachers and specialised institutions is in an initial phase. The aim is an education that balances basic conservation skills against context-oriented conservation and includes knowledge of art, approaches to composite materials, multidisciplinary communication, decision-making, and 'functional ethics'. Subjects for such an education could be:

- Modern art history
- Philosophy and ethics of conservation
- Documentation techniques (photography, drawing, interview)
- Chemistry
- Physics
- Moulding and casting, gluing, soldering and welding
- Preventive conservation.

Furthermore, structure, decay and conservation of a number of representative materials – e.g. metals, plastics, glass, ceramics, wood, paper, leather, textiles, painted surfaces, oils, fats, blood and foods – should be taught. The training in conservation methods for these kinds of materials should end up with a conservation approach to composite objects.

Parallel to these more traditional topics, a number of 'representative' modern art case studies should be given. Topics to be included: the diagnosis of conservation problems based on research and analyses, condition reports, discussions with owners and artists, group decision making on a conservation method and its consequences — including legal aspects, practical conservation and exhibition, evaluation and publication of reports. Throughout the training programme, topics like quality in art, accession and de-accession are to be discussed.

Since the range of teaching materials in the conservation of modern art is limited, publication of reports in an agreed form on the Internet is suggested. Like reports on case studies, summaries of theses in exam projects are exchanged with other training institutions over the Internet.

Among the institutions, the duration of education, the degree of specialisation and the educational level may differ. The two institutions collaborating in this seminar, the Limburg Conservation Institute (SRAL) in Maastricht and the Konservatorskolen in Copenhagen, already have fixed plans to include modern art in their curricula in various ways. They also have plans for direct collaboration, including the exchange of case-study seminars in 1999. Details concerning the curricula will be worked out.

***Tonnie Bakkenist* PROCEEDINGS**

1. Need for special education recognised

The discussion confirmed that although thinking about training programmes for conservators of modern art was initiated at some places some time ago, their real development had just begun. For the participants it was clear that the variety of materials causes a variety of practical, technical, ethical and aesthetic problems and that therefore a curriculum must be developed which can cover this broad spectrum. All agreed that modern art in its many aspects presents the conservator with problems that differ from those of the more traditional works of art. The conservator of modern art must be able to grasp the complexity of works of art within their art-historical, art-theoretical and aesthetic context, and should know the

meaning of the object and the artist's intention.

Because modern art conservation is so complex, short courses on this subject after or alongside a 'traditional' conservation training were not found sufficient. Specialised education as indicated by the speakers was considered a necessity. However, topics dealt with in current curricula are also important for the modern art conservator. Therefore, grafting a specialisation in modern art upon a traditional conservation education programme might be an option – although this will only be effective if the distinct conservation problems of modern art are catered for separately.

2. Sharing of information and experience required

Based on this idea, pilot programmes were set up during the last few years by the Konservatorskolen in Copenhagen and the Limburg Conservation Institute (SRAL) in Maastricht. In the last year of the M.Sc. programme 'Monumental Art' in Copenhagen, a six-month specialisation in the conservation of modern art was organised as an addition to traditional sculpture conservation. At SRAL in Maastricht, the pilot programme was intertwined with the current postgraduate programme 'Conservation of Paintings and Painted Objects'. The two modern art students followed the theory classes but also partook actively in the project Conservation of Modern Art. Modern art objects were available for practical conservation, including documentation and investigation, and for reconstruction exercises.

Of course, nobody can have a deep knowledge of **all** aspects of the conservation of modern art. Discussions are therefore continuing on the topics to be included in the modern art conservation curriculum and at what in-depth level these have to be taught. The choice of materials and techniques seems endless. In addition to 'traditional' materials such as paper, ceramics, glass, metals, stone, textiles, wood, animal glue and varnish, all kinds of new materials were invented in this century: synthetic polymers (commonly known as plastics and rubbers), electric appliances, synthetic yarns, new light sources like neon, synthetic paints and glues, to name a few examples. Recent developments in the use of modern media in art extend this already wide field even more.

Another problematic new topic is the conservation of immaterial concepts of art. Also the knowledge of processes of decay going on in (composite) materials, and of conservation techniques tailored to these problems, is still very scarce. In addition, the ethical aspects of modern art conservation are still much in debate. It is important to know the artist's intention with a particular object and whether its meaning depends on the precise materials, colours, exhibition modes and so on. Interviewing artists may provide important information for the present and future conservation of objects.

For these reasons, participants pleaded that all information about the conservation of modern art works should be available for the professional community via various means like conservation journals and the Internet (see seminar 'An International Computer Network'). The expertise and experience conservators have gained over the last twenty years should be gathered and made accessible.

The same holds for education in the conservation of modern art. It was considered essential to start sharing the information on and experience in the teaching of conservation of modern art by:

- Exchange of teaching materials, students and teachers;
- Collaboration between teaching institutes, research institutes and conservation workshops for modern art;
- Joint classes/workshops for students from different institutes to create common knowledge and to start and/or improve networking too.

Another recommendation was to encourage teaching institutions to develop new, specific teaching materials.

After the symposium

The encouraging discussions during the symposium *Modern Art: Who Cares?*, the results and recommendations of the project *Conservation of Modern Art*, and the experience gained from the pilot study programme, helped the Limburg Conservation Institute (SRAI) to develop a new curriculum for the conservation of modern art. In cooperation with the Netherlands Institute for Cultural Heritage, they started a new course in September 1998 in which three streams are integrated:

- Conservation of paintings and painted objects
- Conservation of decorated historic interiors
- Conservation of modern art.

The three-year postgraduate course at the Institute is followed by two years of internships in different museum workshops (modern art museums for the modern art students). In their first three years, all students will partake in about 75 per cent of the basic theory classes and 25 per cent of the basic practical classes. The rest of the time separate courses and practical conservation work will be devoted to the specialisation. Theory classes on the history and ethics of the conservation of modern art and on nineteenth- and twentieth-century paintings (art theory, critical theory, interpretation, iconology of materials) will be part of the curriculum. The papers of the project *Conservation of Modern Art* and the proceedings of the subsequent symposium will serve as some of the core texts for students of conservation of modern art, who will be encouraged to discuss these. Examples for reconstruction exercises will be modern art objects, which will also serve for conservation practice (taking up about half of the time). Moreover, twelve one-week workshops will be organised on specific modern art subjects or focusing on specific/modern use of traditional materials by artists – modern wood and wood products, paper, glass and ceramics, metal, textile, plastics, electricity (motors, electric light), video/digital imaging, transport (handling, packing materials), modern paint systems and moulds.

At the Konservatorskolen in Copenhagen, the curriculum is still in the planning stage. This is expected to be completed by the year 2000. Then, their collaboration with the Maastricht training programme will also be decided on. A few of the workshops will be held jointly, and plans for a further exchange of students, teachers and teaching materials between the two institutions are being developed.

Electronic media: rethinking the conservator's role

Art works using new electronic media challenge conservators not only to keep track of rapid developments in technology, but also to redefine their position as an intermediary between artists and technicians. Moreover, electronic art upsets traditional notions of 'originality' and 'authenticity'.

Introductions

- Derek Pullen, head of sculpture conservation at the Tate Gallery, London, sketched a potential conflict of roles: conservators collaborate with the artist in displaying an electronic work of art and also record the evolving changes. This might affect the integrity of the art work.
- Pip Laurenson, also conservator at the Tate Gallery, described the conservation of video art at this museum. Her lecture is on page 263.
- Barbara Otterbeck, conservator at the Kunstmuseum Wolfsburg in Germany, related how constantly evolving video technologies lead to the necessity of copying and transferring information to new formats, thus calling for a new concept of originality.

Main themes of discussion

- Technical support for display and maintenance
- Problems in preserving the artist's intent
- Replacements and obsolescence
- Storage and deterioration of magnetic videotape
- Recommendations

Chairperson: Saskia Bos, director of De Appel Foundation, Amsterdam

Minutes: Pippa Balch, free-lance conservator, London

***Derek Pullen* THE CHALLENGES OF A DUAL ROLE**

Electronic media is a broad term which for the purposes of this seminar can include all art works that use video, tape, disks and electronic devices to control motion, sound and/or light, often in conjunction with more tangible objects and spaces. I hope to provoke some debate on the conservator's role in the conservation of contemporary art and the developing specialism of conserving electronic media.

Conservators who work with conventional paintings, sculptures and works on paper are involved in more than just the restoration of art works. Among many other tasks, for example, they advise and implement preventive measures to ensure that works are safely stored, moved and displayed. Their training promotes an ethic in which the art work is sacrosanct and must receive the best possible care. The conservator is traditionally trained for a role charged with preventing alterations and minimising interventions, or at least ensuring that they are reversible. This professional duty to protect the art work operates in a relatively straightforward manner while the art in question is static and definable: a painting, an object, a sculpture or work on paper, etcetera.

A problem with much electronic media is that both the content and the medium change in response to where, when and how the work is shown. It is definitely not static and can be very difficult to define and document. Various technicians are involved in the formatting, copying and transmission of the work, and the conservator has to deal with them as well as the artist and curator. All have different objectives and few have a concept of conservation ethics. Does the conservator therefore also have to adopt the roles of diplomat and teacher?

The knowledge and skills needed for electronic media extend beyond those encountered in basic conservation training. Can we explore what this knowledge and skill base is by looking at what the conservator actually does, or needs to do when involved in the acquisition, display, maintenance and storage of electronic media art works?

Conservators need to discuss whether dealing with electronic media is fundamentally different or just an extension of existing conservator skills and responsibilities. Does electronic media conservation require a real expertise in new technologies, or is it sufficient to have a basic understanding and be able to manage the technicians? Is understanding and preserving the artist's intentions the real difference between a conservator and a technician? What is best practice in this field of conservation? What research is needed?

The electronic art work not only involves exhibition visitors by demanding their time and prolonged attention, it also engages the display staff, including conservators, in technical decisions that have a direct aesthetic impact. The conservator's role may be as both a collaborator, working with the artist to achieve a unique work for a particular exhibition, and a recorder – a definer of the changes that evolve. In this role conservators facilitate the display in a much more obvious fashion than by specifying barriers for paintings or display cases for small objects. But they need to be aware of the challenges to their primary purpose of preserving the integrity of the art work.

Creator and recorder – here is a potential conflict of roles of which the conservator must be conscious. A conservator will be used to defining a conventional art work by its technical parameters. But with some works, including electronic media and installations, documenting will include making clear just how much scope for change and alteration the artist intends and resisting pressures to define a work too tightly.

Conservators of contemporary art already know that on rare occasions they can influence the appearance of art works by directing artists towards less problematic materials and techniques. Such influence must not be used to stifle innovation or de-fuse the danger, difficulty and controversy that can follow cutting edge art works. A certain distance helps to keep the role of artist and conservator defined.

In the office and laboratory electronic media are also making a dramatic impact on the way conservators communicate, collect and record information, investigate and treat art works. These developments show every sign of dramatically affecting all our lifestyles and roles in the next century. Managing information is the skill that everyone will need. How effectively that skill is applied will largely determine the role of the conservator within an organisation.

Barbara Otterbeck HOW DURABLE IS VIDEO ART

Today, video art, video installations and projections are part of almost every public art collection. The conservation of this medium is therefore becoming ever more urgent. Videotapes are still stored in bookcases, for example, and old pieces of technical equipment are unhesitatingly replaced by the next system because of costly maintenance and a lack of spare parts.

The image today comes from the 'machine'. Permanent technical improvement of photo-processing requires a conservator's intense and continuous involvement with an art form and its techniques which is just thirty years old. Dealing with conventional art works the conservator is mainly concerned with the physical substance of the original, but with the conservation of video art the term 'original' and

'authentic' must be reconsidered – especially in respect to the 'materials' necessary for its presentation. A painter copying Da Vinci's *La Gioconda* could not create a painting identical to the original, not even if he were an expert, whereas the work of a video artist can be reproduced endlessly and with almost no loss of identity because of analogous and digital carrier systems. The use of digital media implies that the reproduction is no longer fixed to a specific material quality.

"Video art is an unforeseen secondary manifestation of media technology, but by no means a chance one," wrote Walter Grasskamp in his article 'Video in Kunst und Leben' (Video in Art and Life) in the magazine *Kunstforum* 5 of 1979. Indeed, at the beginning of the 1960s video systems were already being employed as a medium of control and surveillance in banks, transport systems and security-sensitive institutions. Since the development of video systems made this kind of monitoring easier and cheaper, traffic junctions, pedestrian tunnels, department stores and administration buildings, car parks, prisons and industrial sites have been equipped with video surveillance as well. The sphere of deployment was extended to include demonstrations and public rallies with the introduction of portable systems, the so-called 'Portapak' by Sony.

Surveillance, therefore, is the task for which reasonably priced and flexible video systems were developed. Now, it is a matter of course that video technology is widely accepted as an artistic medium. This is surely due to the interest of especially one artist – Nam June Paik. Even before cheap and portable video cameras existed, he was already waiting for this combination of video recording and television electronics. In 1965, in New York, Nam June Paik bought one of the first of these systems and presented the results of his earliest use of it in a gallery on the very same day.

Since this moment, video art has established itself as a way of employing the new media. The video camera had no longer the exclusive role of an anonymous monitoring organ but also that of a technical audience. The first area in which artists used it was the documentation of phenomena that existed for only a short time, that could only survive as a document – to record an action or a performance easily and at low cost.

Which concepts were typical of this artistic employment? To sum up, one can emphasise two focal aspects of video art: self-observation, as was done in Germany by artists like Ulrike Rosenbach, Rebecca Horn and Friederike Pezold, and the intellectual-conceptual field in which for example Jochen Hiltman used video techniques to criticise television. However, after the first artistic use of electronic possibilities in German Television (WDR) in 1968 – 'Black Gate Cologne' by Otto Peine and Aldo Tampellini – it was scarcely possible to continue using the large sphere of electronic media in the Federal Republic of Germany.

From this time on, it continued mainly in the USA. There, by using the synthesizer, advantage could be taken of video's complex technical possibilities. Nam June Paik and Peter Campus produced almost all their images in experimental studios and with the aid of the large television companies. This indicates that, unlike Germany, in the USA there was close cooperation between the artists and the television companies and that the quality of the results was very high.

A particularly interesting use of video as an artistic medium are the so-called 'closed-circuit installations' made by artists like Peter Campus, Dan Graham and Bruce Nauman in the sixties. These installations made it possible for the observer to become part of the art work for the first time. The observer does not simply stand in front of a finished image, he must participate as a single, individual person in order to complete the work of art.

In the meantime, artists' videos and video installations have become a firm component of almost all public art collections. As a conservator at the Kunstmuseum Wolfsburg, a museum demonstrating a keen interest in video art and installations, I deal with a large team of technicians and electrical engineers all busy with the installation of works of art. Concerning a conservator's tasks and function, some of the main questions arising from this collaboration are: Who is responsible for what? What has to be documented? What has to be preserved? And in what way can this be done, and by what means can 'moving' images be documented?

From exhibition to exhibition, there is a continual change in the relation between space and projection of a video installation and copies are made on a wide variety of film media. So what is authentic? Does our concept of 'the original' still exist, still function?

These questions and the experience of working directly with Nam June Paik, who was also very interested in the topic, led to the concept for a symposium *How durable is video art?* in the Kunstmuseum Wolfsburg. Our aim was to approach this multifaceted theme of the preservation of video art from as many aspects as possible. We invited technicians, conservators, art historians, a media lawyer, a philosopher and the artist Nam June Paik to speak on this theme. I would like to sum up some of the most important statements here.¹

Harald Brandes, head of the Video and Film Conservation Department of the Bundesfilmarchiv, explained what conservation means to him:

"First, video material must be stored properly. The question is: Can conservation signify the retaining of such a wide range of systems? To collect the relevant machinery for all these systems in the archive would entail the development of a technical museum in a relatively short time, and its budget would be swallowed to a large extent by the maintenance of these machines. The real problem will not be the repairs, but the availability of replacement parts."

So how could the problem be solved?

"It is necessary to transfer collections now on specific systems onto modern systems before the original machinery becomes obsolete. Since analogue copies are never possible without a loss of information, attempts must be made to switch to digital systems as soon as possible. With digital technology, copies can be made almost without loss."

Doesn't a part of the original get lost every time a copy is made?

"The reproduction of copied image and sound information alters quite grotesquely – a result of technical improvements in the quality of both hardware and software."

Quite apart from these aesthetic and ethical aspects, the omnipresent availability of digitally recorded works will lead to considerable new problems of copyright. It was for this reason that we invited a lawyer specialising in art and media law to comment on the copyright laws regarding works of art.

Dr Wulf Herzogenrath, director of the Kunsthalle Bremen, and the philosopher Hans-Ulrich Reck concerned themselves with the question of authenticity and the concept of the 'original'. What determines the artistic effect of the object? How immanent in the work is the fact that a specific old appliance is used, one of recognisable age, form and material qualities, or lack of qualities?

Using the example of Paik's *Candle TV* (Museum of Modern Art, Frankfurt), Herzogenrath expanded his own theory that the 'original' is only the artist's initial idea, the structure of the reproduction of images. The room can be varied, the appliances are unimportant with regard to their aesthetic presence, the original candle burns down every day and dies out with the passing of time, with Paik's life span – and yet it is still an original Paik. Videotapes disintegrate and installations can only be presented authentically as long as appliances are available which

comply in form and size to the artist's instructions.

To tackle this problem, Herzogenrath demanded that in Germany large firms such as Sony, Panasonic and Grundig should create a pool of appliances enabling video art to survive, and not just for the next twenty years. Moreover, he requested money, a laboratory and a centre of research where early videotapes by artists of the second and third generations can be saved.

So what are the demands made upon the conservator with respect to electronic works of art? The increasing reproducibility and the immateriality of works are an expression of a changed form of art. This transformation began with photography and film, now includes video art and video installations, and has culminated in interactive spatial environments and network works concerned solely with processes. Until now, the infrastructure of the art world such as museums, galleries, curators and not least conservators has proved insufficiently able to follow this rapid development. The demands made upon architecture, lighting, personnel and know-how are completely different from those in the traditional arts. In the handling of electronic works of art, the conservator is increasingly confronted with the tasks of a 'cooperator' – the one who coordinates the communication of all those involved in the installation of an art work: the technician, the electrical engineer, the curator and the artist. In order to make this possible, conservators must acquire well-founded knowledge, particularly in technical terminology.

The questions on a work's origins and the techniques used will most probably remain essentially the same as those for a classical work of art. But a new sensitivity must be found, as well as an extension of the concepts of authentic and original. To quote Hans-Ulrich Reck: "In art, the authentic is neither a material quality nor is it established by the use of particular media. The authentic is a place of signification in a multi-faceted field of associations. It is created by purposes, concepts, artistic intentions, but also by institutions, expectancies, formed attitudes. It determines a new form of cooperation that transcends the artist's individual framework of action to date. On this basis, a new, much more highly rated role could be established for conservation: it is independent, constructive and essentially participating in the creation of the authentic."

When I asked Nam June Paik how we can find out which version of a work of his is the original when he himself cannot help with the answer anymore, he said: "Everybody can make this piece, but I sign. When I die, it is your problem to find out which is original. You have two originals: one piece and a better quality copy."

***Pippa Balch* PROCEEDINGS**

1. Technical support for display and maintenance

The discussions following the introductions made it clear that the conservator has a broad role in the care of electronic media. However, the problems conservators and curators have to face in this field are comparable to those of contemporary art more generally. Both require a flexible approach and a technical knowledge of the media used.

A high level of technical awareness is needed to set up systems for the acquisition and maintenance of electronic media. Initially most of the information has come directly from industry. However, as conservation practice for electronic media is developing, research in the field is beginning to be published and results are made available in the conservation world.

Leading from Barbara Otterbeck's introduction, the practicalities of the display of electronic media were discussed and in particular the need to coordinate and educate staff in the museum for the running of an installation and the day-to-day

maintenance of equipment. A key issue here was found to be passing on the knowledge of what 'working properly' looks like for each installation, and planning a line of response in case a problem arises.

Participants of the seminar from the company Montevideo in Amsterdam, which manages a large collection of video art works and represents video artists, described their service of providing the equipment and technical support for their touring installations. Barbara Otterbeck described that the Kunstmuseum Wolfsburg has established a rental company, together with a specialist supplier, for technical audio and video equipment which serves a network of museums and also offers a full service support. This kind of company is important for museums and comparable institutions that do not have the in-house resources to supply the necessary level of equipment and expertise.

2. Problems in preserving the artist's intent

The issue of preservation of the artist's intent was raised several times during the seminar. Many cases were mentioned in which conservators or curators had had a dialogue with the artist.

It was considered important to develop an awareness of the impact that a piece of equipment has on an art work and of the limitations of the systems employed. Equipment such as a TV monitor is often clearly an integral part of an installation visually. Particular playback and projection equipment may also be specified for a video work, since different machines can give very different qualities to the projected image. Although the way in which information is stored does have less effect on the appearance of a work, subtle changes such as increased saturation of colours – occurring when information is transferred from analogue magnetic tape to a digital format – may not be acceptable for some pieces. Therefore, the artist must be involved in the decision to make such a transfer.

There was an interesting difference between the policies of the museums represented at the seminar and a company such as Montevideo. A museum having taken a work into its collection, has an interest in preserving the possibility of showing it in its original form. At the Tate Gallery, for example, a discussion with the artist is held at the outset to establish what this form should be – how the piece will be displayed and in what format the information should be stored. The Tate generally acquires editioned or unique works and then supplies the resources to maintain a single, best copy of each. In contrast, Montevideo archive artists' copies and find that as new technology is developed they become involved in catering for artists' wishes to make use of new methods in ways that change the appearance of a piece.

Many institutions provide information and advice for artists. The point was made that conservators should be aware of their possible influence on the creation of an artist's work. Technical changes that make art works easier or safer to install also risk weakening the impact of 'difficult' art.

Barbara Otterbeck pointed out that the original form of an electronic art work cannot always be maintained. An example was one of Bruce Nauman's works, *Falls, Pratfalls and Sleights of Hand* (Clean Version, 1993), included in the Kunstmuseum Wolfsburg. After one of the five three-lens video projectors broke down, all of them were replaced by new LCD-projectors – in agreement with the artist. As a result, the characteristics of the image have also changed. This updating does not apply to all Bruce Nauman's works, however. In the case of *Shadow Puppets* at the Kunstmuseum Basel, for instance, the image characteristics of a three-lens video projector are very important because only this type of projector can create a coloured shadow effect.

3. Replacements and obsolescence

The last topic led to the discussion of electronics maintenance, since maintenance

often makes the difference between being able to show a piece in its original form or finding a compromise using replacement equipment. It was agreed that this was a key issue for the future. Even if spare parts are available for a piece, it is an immense problem to find storage space for spare parts for a whole collection of electronic media art works. The problem is exacerbated by the fact that the electronics industry does not have an interest in keeping up production of outdated equipment, or even producing systems with long-term stability and durability. Although the cost of maintaining and storing machines is already an issue, it was suggested that the situation could become more critical with the newer media such as computer-generated art. The cost of replacing a part would be prohibitive, especially for those works that are perceived as being of minor importance.

The point was made that video is already seen as a traditional medium by Internet artists, and that perhaps it will be suddenly superseded as the next generation becomes influential. Others disputed that artists will continue to use video, partly for economic but also for aesthetic reasons, and that there is even a kind of nostalgia associated with some forms of video which attracts certain artists.

4. Storage and deterioration of magnetic videotape

Not surprisingly, the problem of the deterioration of magnetic videotape (or more specifically the coating of the tape) was discussed, and how best to preserve the information contained on it. This stemmed from the question of whether it was necessary to transfer the information onto digital format or whether cold storage and good care of the analogue magnetic tapes was a more appropriate course of action.

The cold storage option was generally agreed to slow down, although not to halt the deterioration process – it could extend the tapes' life span twenty or thirty times. There is, however, a danger that corresponding play-back equipment will become obsolete in the meantime. D. Veenstra from Montevideo commented that their suppliers advised against storage below a certain temperature, but there is very little experimental evidence on effects of cold storage such as increased brittleness and shrinkage.

Advice from industry on the care of video tapes is aimed at the best results over a period of a few years rather than the long-term performance required for video archives and art collections. The method favoured by the Tate Gallery is to transfer video material on a digital format and then copy it onto new stock, or a new format, when this becomes necessary due to deterioration or the more pressing threat of obsolescence. They monitor their tape collection in order to ensure that tapes are copied before deterioration or obsolescence causes the loss of information. They are dealing with a relatively small number of extremely valuable pieces, and so can justify the resources needed to produce and maintain digital master copies. Other institutions, such as large archives or smaller museums, would not necessarily take this route.

Stefan Michalski cited the National Media Laboratory in Canada as an institute independent of industry, but supported by it, that has undertaken and published research on the lifetimes and quality of different video formats. Michalski advocates the use of cold storage. He is concerned with the possibility of a total loss of information if digital tapes are not monitored. Also larger collections do not have the resources to constantly monitor their tapes and copy them onto new digital formats, so the use of cold storage would be an alternative preservation strategy. As for the Kunstmuseum Wolfsburg, they store their video collection off-site with an archive storage company since they have neither the storage space nor the equipment required for maintenance within the museum.

5. Recommendations

The participants of the seminar recommended increased collaboration with the

electronics industry to help provide solutions for some of the problems associated with the maintenance and storage of the art works. Cases of successful relationships with commercial companies were cited. At the moment, the problem is that the industry is not geared to the standards required by conservators and does not necessarily have the sensibility needed to detect the nuances of a work of art, for instance in the production of master copies. The industry cannot be relied upon to provide back-up for the development of long-term conservation solutions.

A second recommendation was prompted by the observation that in many museums a kind of hierarchy of art forms exists and electronic media has a lower status than more traditional art. This should be rectified, especially since newer media will be used which also need conservation strategies.

The seminar was a rare chance for conservators and curators dealing with electronic media to meet for open discussion. Particularly since the subject is a relatively new one, there is a willingness to learn and share information. This will be instrumental in the development of conservation methods, helping conservators and curators find solutions for the problems facing them.

Ethics and the theory of conservation of contemporary art

The Museum of Contemporary Art may be a contradiction in terms: the objects in their collection are far more prone to decay than traditional art works, and in line with the ICOM (International Council of Museums) Code of Ethics a museum should not accept objects that cannot be taken care of. Should the Code then be revised? And for responsible conservation, at what point should the choice of preservation or destruction be made?

Introductions

- Claire van Damme, professor of modern and contemporary art at the University of Ghent, inferred a daring proposal from the contemporary artist's use of transitory materials, ready-mades and direct or indirect quotations of other artists' work: conservation by means of reuse or recycling. Declaring herself to be neither in favour of nor against this option, she hoped that formulating the problem would stimulate the discussion.
- Hiltrud Schinzel, freelance conservator and guest lecturer at the University of Ghent, elaborated on the conservator's problem of understanding the contemporary artist's intention, due to the current diversity of artistic means. Moreover, as a consequence of post-modern attitudes, art is being staged as entertainment; here, the conservator takes part in the creation, which is not quite in line with his/her essential task. Advanced simulation techniques may even make this task obsolete.

Main themes of discussion

- Problems with the Code of Ethics:
 - To preserve or not to preserve contemporary art in decay?
 - How far should preservation go?
- Artists versus conservators
- Conclusions

Chairperson: Peter van Mensch, senior lecturer of theoretical museology and museum ethics, Reinwardt Academie, Amsterdam

Minutes: Nicole Ex, art historian and lecturer of conservation ethics, Netherlands Institute for Cultural Heritage, Amsterdam

Claire van Damme REUSE AND RECYCLING: NEW WAYS TO CONSERVE EPHEMERAL ART?

The use of ephemeral and transitory materials, the integration of real or ready-made components and evidence of environmental awareness are extremely relevant with regard to the conception of modern and contemporary art. It also leads us to concepts such as transitoriness, reuse, appropriation and recycling.

Recycling demonstrates the transformation of one material into another, new substance. Paper, for example, originates from such a process; moreover, paper itself is often subject to further recycling. Reusing and appropriation are, on the one hand, characterised by the use of materials of which the original function or intention is changed by the artist's plastic or conceptual manipulation. Examples are ready-mades, assemblages, installations and so on.

On the other hand, the artist may be so interested in the subject matter or conception of some works, or in specific artists or artistic expressions, that he either indirectly or literally by citation appropriates some aspects and integrates them in his own work. Twentieth-century art incorporates many kinds of 'art about art' as an ironical or critical comment on more or less established artistic expressions.

Considering the specific contemporary attitude, some characteristics of art today and their traces in the artistic debate, one might wonder if in some cases a new type of conservation could be conceived for deteriorating, unintentionally transitory works of art: reuse or recycling. It wouldn't be the first time that artistic expressions and criticism influence in some way or another theoretical reflections on conservation or restoration. So, one should investigate the (im)possibility and the (in)admissibility of using real works of art as ready-mades for a new creation or transforming them into 'ready-made' aids or converting them into another art work with variable recognisability.

Works of art that look very decrepit raise the question of an eventual recycling and transformation into a new substance for new creativity. I have no intention to speak in favour or against this possibility, or to put forward a consistent position. Nevertheless, I would like to formulate the problem in a circumspect way and to present some considerations and questions step by step, hoping to stimulate the discussion on this subject.

1. Facts and generally acknowledged points of view

The following propositions on modern and contemporary art are relevant to the problem of reusing or recycling art works in an unintentional state of decay:

- Many contemporary art works are – intentionally or not – transitory and liable to premature damage.
- Many works are conceptual above all.
- Many works are characterised by a preference for old, damaged and decrepit materials.
- Many works show a warm-hearted interest in the reuse of materials and remainders connected with culture.
- Post-modern mankind is often inclined towards nostalgia, reuse, citation and cultivation, and is characterised by fetishism and a passion for collecting.
- Art is an expression of culture; the neglect and damage of art works is ethically unacceptable.
- It is our duty to protect the cultural heritage, to conserve it, to look after it and to preserve it for the future.
- The number of works of art is extensive; and their quality, historic and socio-cultural relevance vary. Depositories, if not lacking, are overcrowded. Effective conservation and restoration of each work is financially unfeasible.
- To conserve everything is impossible.
- Many contemporary art works are conserved out of their original or functional context.
- Many works are conserved fragmentarily or by means of secondary aids (photographs, texts, video, film, sketches or project-drawings, attributes of performance and so on).

2. Some reflections on 'art about art'

In fact, the subject broached here deals with the phenomenon of 'art in art'. This phenomenon has been presented in many forms from the end of the nineteenth century onwards to the actual post-modern era, as 'art about art'. A brief and superficial outline with some concrete examples – which, of course, might be completed and explored – will show that a specific work of art can end up in the oeuvre of an unfamiliar artist not only by citation or by means of critical debate or comment, but also in its material quality.

Some examples:

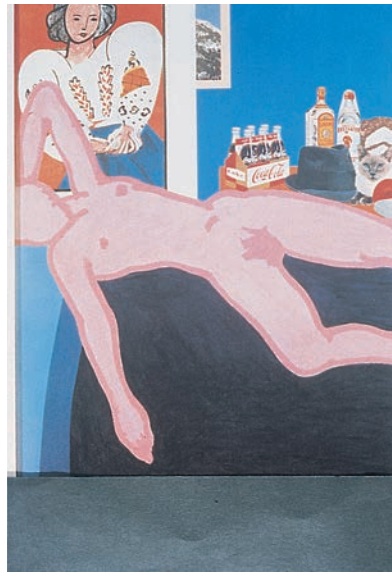
- E. Manet, *Emile Zola* (1868; Louvre, Paris) contains citations from his own work

Olympia, from Velázquez's painting *Bacchus* (1629; Prado, Madrid) and from a Japanese print.

- T. Wesselmann, *Great American Nude* (1962; coll. Mrs Robert B. Mayer), has a literal citation from H. Matisse's *La Blouse roumaine* (1940; Musée d'Art Moderne, Paris).
- M. Lersch, *Le Voyeur* (1985) is composed by confronting a fragment of T. Wesselmann's installation *The Bathroom* (1963; Museum Ludwig, Cologne) on one side and a fragment of a work by H. de Toulouse-Lautrec on the other.
- More recently: in M. Bidlo's *Not a Picasso* (1986), the citation from Picasso becomes a painted copy combined with a reference to R. Magritte's *La Trahison des images: Ceci n'est pas une pipe* (1928-29; Private collection, New York).
- For his work *L.H.O.O.Q.* (1919; coll. Mrs Mary Sisler, New York), M. Duchamp used a reproduction of Leonardo's *Mona Lisa* and not only manipulated the original painting but also questioned traditional art values.

Right T. Wesselman, *Great American Nude 26* (1962) and
Henri Matisse, *La Blouse roumaine* (1940).

Below George Segal, *Portrait: Plaster Figure of Sidney James with Mondrian's 'Composition', 1933, on an Easel* (1967).



In all these examples we have to do with quotations, not with the introduction of real art works into another artistic system. But let us look at other works:

- The installation *Pierre Lepennec* (1992; Private collection, Brussels) by M. Maeyer is based completely on a show of small paintings created by an imaginary light-house keeper from the coast of Brittany. Although these paintings were produced by Maeyer himself, nevertheless the concept of this installation confronts us with the eventuality of a material integration of one artist's work in the realisation of the other's.
- G. Segal, *Portrait: Plaster Figure of Sidney Janis with Mondrian's 'Composition', 1933, on an Easel* (1967; Museum of Modern Art, New York). In an interview, G. Segal admits that it was Sidney Janis's own idea to be portrayed holding his favourite Mondrian. Using a copy of the painting in the sculpture was never even considered. When Segal suggested putting the painting on an easel, Janis offered without a moment's hesitation his favourite English display easel, a work of exquisite craftsmanship and a match in quality for the Mondrian. This work is really important because it deals with the phenomenon of 'art in art': an art work, in its material substance, has been introduced directly as a ready-made – and not by means of reproduction, citation or any other referential system – in a new artistic context that gives it a new function and another meaning.



However, this first category confronts us with the direct or indirect reuse of art works, in fragments or in their entirety. In both cases the original remains recog-

nisable and easy to identify, although it is integrated into the world of another artist.

In a second category, works of art and their creators are less recognisable. The concrete, individual character of the inspiring work has no longer been respected. This is the case for a lot of critical comments on artistic conceptions, for example, *Yellow Brushstroke II* by R. Lichtenstein (1965; the artist's estate); it is also the case for new interpretations, such as F. Bacon's series of *Popes*, after D. Velázquez's *Pope Innocentius X* (1659; Galleria Doria-Pamphili, Rome) and for transposition into other media – e.g. C. Sherman, *Untitled, 224* (1990), after Caravaggio's *Sick Bacchus* (1593; Galleria Borghese, Rome) – or for other strongly manipulated conceptions. In these cases, the inspiring subject is incorporated with subtlety in another language and a new plastic expression. It is no more than implicitly present.

These considerations sufficiently demonstrate that reusing and recycling an artist's concepts is a frequent phenomenon. One might wonder if an analogue atti-

Right Cindy Sherman, *Untitled 224* (1990) and Caravaggio, *Sick Bacchus* (1593).

Below Robert Rauschenberg, *Erased Willem de Kooning Drawing* (1953).

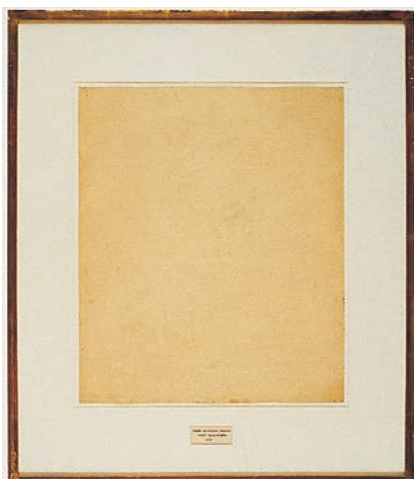


tude with respect to the material quality of the art work is a possibility. Should we accept appropriation only on a metaphorical level, by means of illusion? Should we tolerate reusing and recycling only as a mental phenomenon which does not manipulate the work of art in its concrete quality? In case a work is in danger of becoming a final loss, another artist might integrate it into a new work of his/her own, including implicit or explicit references to the original import. Couldn't this be a valuable option?

3. Material intervention in art works and the phenomenon of artist couples

Even when ethical considerations are respected, material interventions in art works raise many questions as the problem of restoration demonstrates. Yet, history proves that changing an art work's material quality and appearance does happen. Let us look at some examples:

- A. Rainer over-painted his own paintings in such a manner that the original subject would often be destroyed by or disappear under his aggressive brushstrokes.
- R. Rauschenberg's *Erased Willem de Kooning* (1953; the artist's collection, New York) is more significant because he attacks Willem de Kooning's work by erasing it, thus explicitly making a critical statement about a specific artistic conception.
- Franky D.C. uses old paintings collected at flea markets, mostly traditional nineteenth-century works, for further manipulation. He uses the paintings as a starting point for his own creations. When necessary, he restores them minute-



ly. Often, he adds objects or orange spots in alkyd paints and other materials or objects to the original. The artist is fascinated by the question of positioning the spots: where to put them in such a way that they are visible and invisible at the same time – enough to maintain the mystery and yet respecting the essential characteristics of the work. In some cases, it remains in his studio for several years until the artist takes a decision.

Such work has been shown at the Museum of Contemporary Art in Ghent without any problem. Nevertheless, when I organised a symposium on Contemporary Art and Vandalism – at the University of Ghent, in April 1997 – the artist M. Buylen gave a lecture entitled *About Art, and Vandalism as a Superior Kind of Art*. His subject: Franky D.C. In his opinion, Franky D.C.'s actions are vandalism.

As the last cases demonstrate, we are faced with the phenomenon of two authors being responsible for one work. But this is not specifically a contemporary situation. Studio practices, for example, or the collaboration of several specialists in the seventeenth century are well-known. Later, with the examples CoBrA and the Jeune Peinture Belge, painting has become a creative dialogue between two or more painters and between painters and poets.

More recently, we have grown familiar with the phenomenon of artist couples. Here, the involvement of both partners in the dialectical process leads to the cyclical appearance and disappearance of each specific personality. It is no longer easy, or even possible, to detect the specific contribution of each participant. In some cases, both artists sign the work; in others, the work has only one signature.

4. Reflections on conservation by means of reuse and recycling

Conservation by means of reuse and recycling would lead to similar reflections concerning material realisation and final result. But as creation and conservation have different aims, one might raise objections concerning the loss of identity or the changed significance of the original work of art. This, namely, seems to be absorbed by an unfamiliar artistic conception and to have endured a metamorphosis.

Indeed, the original work integrated in the new creative process may no longer speak for itself – and the spectator will not always notice that he/she is dealing with a duality. Nevertheless, in some cases, some formal or material characteristics may have remained and may help to define the new work's purpose, although functioning within another idiom. The primary sense of the work may be sought and preserved by means of research and documentation.

Concerning the meaning of an art work, however, this raises many questions. To what extent does the work really have an autonomous meaning? How can one find and define it? Does it make sense, in the case of reuse, to speak in terms of 'mutilation of significance'? Significance is often a matter for specific debates on art, and the environmental context and concepts of particular exhibitions are also meaningful. Discussions on the meaning of art works can lead anywhere. Moreover, as the history of art proves, creation and destruction often go hand in hand. Perhaps recycling is even more delicate. The new material not only incorporates a split in ideology or spirituality, but also makes connections with the original work that is no longer visible to the naked eye.

Both with reuse and recycling, one may wonder if such thoughts make sense, and whether they are not the result of a dualistic view about form and content. Art is spiritualised material. So, one may also wonder whether a deteriorating, non-conceptual object still meets the conditions of spiritualised material and can still be considered a work of art. If not, ethical objections to conservation by means of reuse and recycling are no longer relevant. Considerations of conservation would no longer be useful, only an ecological relevance would remain. Nevertheless, even if this supposition would make sense, one has to consider the fact that the object

was once an artefact; in other words, it represents a cultural product that cannot be considered as trivial. This leads to the importance of preserving evidence and reference works.

However, the question of reuse or recycling art is a question that has no concern with masterpieces. How much conservation and restoration even would cost – and although I fear that some experimental realisations will not necessarily be selected for ‘first care’ – I am sure common sense will mostly prevail about a lot of works and money for restoration will be found, if necessary, by sponsorship or other fund-raising. The real problem is that of works characterised, more or less, as mediocre: works that remain in repositories for many years, in poor circumstances, deteriorating silently, often unseen by the public, hidden in the depots of museums and other cultural institutions. Should we prefer the pile of art works in these circumstances, their silent but inevitable death through further deterioration or destruction – should we prefer this state of hypocritical beatitude to a conservation by means of reuse or recycling which may sound anarchistic but gives creativity a boost anyway? Or is creativity precisely the cause of all this misery, this mass of art in repositories, depreciated and abandoned also by the artists themselves?

Perhaps there are too many art works being produced and we nearly collapse under this burden – is a surplus of art conceivable? Perhaps what we look upon as art is not art at all – is there good or bad, superior or inferior art? What criteria should we base our judgement on?

The question is whether we should preserve and consecrate any work of art. Each definition of art is vague and relative, conservation of the WHOLE is practically and financially unfeasible, and we have to make decisions. In that situation, why should we raise objections to conservation, in some cases, as a dynamic principle to keep the art work out of reach of the destructive powers of the repository, this cultural necropolis, and to keep it alive within the world of art and the debate on it? In such cases, conservation by reuse and recycling would not be a type of vandalism but a creative principle: the work of art which is reused conserves its historic relevance by means of documentation and faces the future by means of the adventure of a new creation.

The dialectical relationship between contemporary art theory, art development, art criticism and the theory of conservation and restoration is hazardous. It is a product of its time, therefore relative and maybe trendy. On the other hand, any point of view, any presentation of a question and any interpretation or answer are bound to have a contemporary character. This does not necessarily imply that they are meaningless or absurd.

***Hiltrud Schinzel* MIXED MEDIA, MIXED FUNCTIONS, MIXED POSITIONS**

For the artist as well as for the conservator of modern and contemporary art, numerous materials, techniques and media are at hand – comparable to food in a self-service restaurant. Being an artist, who would not willingly taste them all? The appetite of the creative mind is enormous. Often artistic intention no longer determines the choice of the artistic medium, material and technique. On the contrary, the artistic intention may make joyful play with the possibilities of new media and materials and thereby the invention of new imaginative forms. But material and technique are tricky playmates. They look manageable and controllable, but being antagonists they demand a skilful opponent. Ubiquitous and complicated material problems in art are the consequence.

This calls for the help of the expert: the conservator. Yet, conservation does not just mean safeguarding the material, as we all know, because the intrinsic, ideal

value of an artistic work is automatically linked with it. Understanding the intention and meaning of the work is the basic requirement of any conservative intervention. Who could in earnest pretend today to have in his pocket the knowledge of multiform contemporary artistic intention? Not even the artists themselves do.

Unfortunately, damage and decay often reach a work sooner than its common understanding and before a stable and generally accepted art-historical interpretation and evaluation has taken place. Consequently, in many cases the conservation of contemporary art has become so difficult and problematic that its very principle is called into question: the Hamlet virus – “to be or not to be, that is the question” – is busy contaminating conservators’ brains.

Indeed, the answer to this problem presupposes a profound knowledge of the nature of art, or more precisely about the function art actually has. The question is philosophical. Art has always been justified as a materialisation of central cultural values, such as myth and/or religion, which give meaning to life and death. This insight is widespread in the history of philosophy from Plato to Whitehead. As far as traditional art is concerned, the necessity of conservation has never been doubted as a means of keeping intact art’s spiritual content – which could be gleaned from contemplating the work, the shaped material.

Until modernism, artistic content or the so-called ‘spiritual’ in art was conceived of as exemplary. The history of conservation shows that one endeavoured to recover the meaning of an art work with the ideological and material means of one’s own time. After the establishment of the historical sciences in the nineteenth century, art’s meaning has been scientifically researched by art history. The conservator up to now could act responsibly if he fulfilled the demands of aesthetics and history as described by Cesare Brandi in his *Teoria del restauro* in 1963.

Multifold new media is a phenomenon that has its origin in the industrial revolution of the nineteenth century. Before the industrial revolution, art referred to nature and human life in its diverse social surroundings. With the industrial production of technological materials and economic goods, art’s content expanded insofar as all these things are components of human life, too – and therefore artistic material. Concerning traditional art, we possess an iconography which has been researched by art history and complemented with iconology. All these new industrial materials also have semantic meanings.

Often it may seem that the use of new materials is arbitrary. But remember the interview with Tony Cragg in the research project *Conservation of Modern Art*: the artist emphasised that his selection of consumer goods or ‘objets trouvés’ is indeed conscious. Yet, he also stated that the artistic eye has its own intellectual faculties which cannot be verbalised. This verbalisation would be the task of the interpreting art historian. Unfortunately the analyses and interpretations necessary to get a semantic view of a work are that complex, and the field is so new, that art history up to now has not had time to establish an iconography, let alone an iconology. Nevertheless, iconography is very important for the content and meaning of contemporary art; strictly speaking, its knowledge is a prerequisite for any responsible conservative action.

The semantic meanings of non-industrial artistic items and subjects are changing in the course of history. Due to the subjectivity of contemporary works they may include a traditional, a non-traditional or a transformed traditional meaning. Here we lack an up-to-date iconography as well.

Cultural policy is changing the structure of museums and exhibition houses in Europe. In a world of diminishing money left over for culture, they need as much promotion for their financial survival as any luxury goods. Thus, museums have changed from meditation temples into places of cultural tourism. Consequently

art, just like anything else in the contemporary world, is looked upon as being a product which needs promotion in order to be sold on the market, especially the tourist market.

Which qualities of art can be and are sold? Not mystic content or its being exemplary, of course. The attempt to sell such ideals would be very difficult and complicated as they are no subject for tourist divertimentos. And as far as art in a democratic society is considered to be a common good, the 'price' is that art has to subordinate itself to superficiality to a certain, even high degree. The qualities of art useful for promotion are the following:

1. The entertainment value of the work itself or of the exhibition show

The more entertaining the show, the more interesting it is, both for the public and for the sponsor – who is indispensable, even inevitable today.

2. The work's uniqueness in history

Concerning contemporary art, this quality does not yet apply: its historical position is not yet determinable. Therefore, it is momentarily replaced by its monetary value.

3. The 'decorative' or so-called aesthetical value

If a piece lacks this value, at least its shock value can guide attention to it and make it attractive thereby. This goes together nicely with entertainment value.

4. Authenticity, the 'signature of the artist'

Even this is favoured by the public. However, contemporary artists amply make use of consumer goods, and often the production of the work is taken over by specialists like electricians, engineers, software-specialists, etcetera. Accordingly, authenticity often exists only in a restricted sense or not at all.

The advertising effect of these four values is important both for art-promoting institutions and for sponsors. Conservators are involved insofar as they have to give more attention to preventive conservation because of risks arising from large numbers of visitors.

In post-modern thinking, the traditional value of art's exemplary status is often forgotten: being exemplary is taken for being new, and post-modernism preaches that after modernism new things cannot be invented in art. The post-modern philosophical lament denies all contemporary cultural life the power of any forthcoming and genuine new intention and energy. In my opinion, the very fact that modern media, materials and techniques lead to new artistic forms proves just the contrary.

The idealistic endeavours of modern artists to elevate and purify, i.e. the idea of art as religion, receded into the background in post-modern thinking. Art is exploring subjectively and anthropocentrically its own history and all kinds of foreign domains, and quantitatively it is expanding enormously. Consequently art's traditional qualities diminish in direct proportion. Often, craftsmanship is replaced by experiment and religious appeal by irony. The Duchampian gesture of declaring a fabricated utensil to be a work of art is very often repeated. Looking at multi-form installations we often cannot decide whether the combination and arrangement of the objects follow formal rules or are linked to an iconographical concept, or whether being arbitrary is their concept. Also technical and material difficulties resulting from unconventional and not yet assessed new media and applications are seldom foreseen and taken seriously. The artists usually no longer feel responsible for the durability of the work because, due to non-traditional creating techniques, they are no longer the only ones on whom its appearance depends.

Consciousness of the value of materials for the art work diminishes to the same degree as artists and art promoters are ignorant or neglectful of its material significance. The material's physical and chemical behaviour is often looked upon as being of no importance, whereas its aesthetic and metaphoric properties are valued. As a matter of fact, one cannot be separated from the other. The artist's

fascination for new media and mixed media is so enormous that often the medium itself is the content of the work of art.

Advertising uses multimedia diversity too, and it is often very close to modern art production – indeed so close that advertisers openly proclaim to be the better artists because their products sell better, as Michael Schirner did in the Kunsthalle, Düsseldorf some years ago (27 September 1992). This comparison, of course, is essentially wrong because the intention here is completely different: advertising aims to promote a specific product for selling, while art's aim has always been to show contemporary circumstances and to give meaning to life.

Moreover, simulation techniques that imagine future and historical life pretend to disrupt the linear sequence of time. As a consequence, some post-modern philosophers even deny its existence. In due course, this may lead to a disorientation in many fields of life. Such a view, if taken seriously, can lead to a neglectful attitude towards conservation.

The constellations of post-modernity are fascinating. However, it is obvious that they can lead to ethical problems for conservators.

1. Problems resulting from the immense diversity of artistic means

There have never been as many artistic means as today. No artist's lifetime is long enough to become acquainted with all current artistic materials, media and techniques, let alone to develop technical skill in them. As a consequence, the conservator is asked to advise and help the artist during the fabrication of an art work of which the materials and techniques are as yet untried. We can call this 'manufacturing support'.

2. Problems resulting from the new artistic media and art's new function as entertainment

The conservator now often has to help to install a temporary exhibition and to stabilise unstable material for the duration of the exhibition. We can call this 'short-term anti-degradation support'. Strictly speaking, these new functions cannot be subsumed under the terms of conservation and restoration for two reasons:

1. The new practical help demanded concerns fabrication, and not the repair of an existing damaged work – which is the implicit meaning of the words 'restoration' and 'conservation'.
2. Until now, restoration was concerned with saving damaged art of the past according to its present cultural evaluation for as long a period as possible. For contemporary work, let alone for work still in the making, a common understanding and a stable evaluation do not yet exist. For responsible conservation, a stable evaluation is an indispensable prerequisite: without an ethical background, it is at best dubious and ad hoc. The new practical tasks should be called 'material and technical fabrication and installation advice', rather than conservation/restoration. If subsumed under the latter, the situation is comparable to prenatal preventive advice in medicine and the general application of genetic science. Ethical and even legal problems are the consequence. The conservator's function and responsibility should at least be de-fined before he/she starts such a supporting activity.

3. Problems of determination resulting from shifting functions of artists, art historians, art critics and conservators

To the extent that non-artistic persons in traditional terms are becoming important in art production, so in the art products themselves one finds more and more quotations and similar foreign elements. The old masters could quote infinitely, but there was a well-established link between the work and the citation. Today's citation is mixed and arbitrary: it is syncretic in nature. Therefore, its meaning generally is far from evident; as a rule, it does not have to have a meaning at all.

In plastic arts, citations are consciously or unconsciously a kind of criticism of

the thing that is quoted. Already by selecting a quotation, the artist is a kind of visual critic. If he/she intellectually degrades works of his/her fellow artists by means of post-modern ironical quotation, or even violates another artist's work in order to demonstrate his/her negative criticism or appreciation as was done recently in Amsterdam and Ghent, preventive conservation is confronted with new problems.¹

Thus, art criticism which has been the domain of the critic and the historian is taken over by the quoting artist. His factual damaging of some other's work could be more destructive than any verbal misinterpretation by an art critic; still, many people may applaud both actions for being clever advertisement and art promotion. Either way, the professional functions of the artist and the interpreter of art blend.

This is also happening to other participants in the process. Since everything and nothing can be art, seemingly everybody and nobody can be an artist. Boris Groys, philosopher of culture, for instance spoke of the curator as an artist and of the collection and exhibition as forms of art.² He even called the conservator an artist, promoting him to the position of 'régisseur' for the exhibition scenario.

For the conservator this constellation is problematic. History has shown that the creative restorer as a rule produced misinterpretations of the artistic work. This made caution, reserve and discretion a matter of course for conservators today.

These post-modernist art reflections and expansions of the artistic personality dissolve any well-defined position of the art producing person. The artist and the art promoter are melting together, and insofar as the conservator is an art promoting person he is not exempt from the process.

Peter Klaus Schuster, director of the Nationalgalerie, Berlin, calls the Hamburger Bahnhof Museum of the Present Time "a place to capture the spirit of our time. Without any collection and lacking an acquisition policy, the space functions more as a stage. It is a short-stay museum. While it is determined to break with history of art and aestheticism, the Hamburger Bahnhof is still a special place which one immediately associates with the idea of art."³

Unfortunately, the bipolarity of historical and aesthetic values is the basis of Brandi's *Teoria del restauro*, which up to now has been the fundament of conservation theory. The statements by Groys and Schuster are linked with the new conditions of art's display: today it is dominated more and more by entertainment demands, which replace historical or art-critical guidelines. With entertainment, the stage-setting is of crucial importance for the show's success. In due course, the subjectivity of the stage-setter is called a creative act, by Groys and others. Such thoughts support art's entertaining effect being exclusively valued. As a consequence of this partial evaluation, the individual work is robbed of its autonomy: it is employed to function as a decoration for a theatre performance.

A sidelong glance into history shows that there have always been works of art which were made and meant to have a long material and ideal lifetime and others designed for short term events. Remember, for instance, the enormously large and pompous decorations for baroque royal festivals, which had been designed by Rubens and van Dyck for the English court. After the events, they were destroyed and only rarely have sketches been preserved. In contemporary art, works that were not designed for long duration either tend to be conserved for economic reasons.

Stage-setting and economic interests do not make the distinction between short-term and long-term art difficult, but they definitely influence the decisions of what will be preserved. Still, this constellation is as old as art production itself. The main issue of conservation ethics was and is to keep as free as possible from short-term trends. Accordingly, the main characteristics of responsible conservation are precision, caution and discretion. Accuracy and caution demand long working times, discretion demands a lot of modesty from the restoring person. Although without these characteristics conservation sooner or later turns out to be misleading, discretion and modesty are counter-productive on stage and long working times are economically unbearable for a short-stay museum.

Theatrical demands and conservation ethics therefore are contradictory. In contemporary common behaviour of individual stage-setting and personal advertising, the ethical conservator is anachronistic, yet in daily practice he is a necessity. In relation to conservation history, any fashionable culture politics is very short-term.

4. Problems of determination resulting from the new media and the uncertain definition of 'genuine art'

The expansion of art has the positive result of greater freedom. Because of two possible consequences, this freedom may be dangerous:

1. Dilettantism

Technical dilettantism may lead to an extremely short life span of the artistically intended appearance of a work of art. Often the change of appearance can lead to a severe change in the understanding of the work, which has consequences for theoretical and practical interpretations like conservation.

Up to a certain point, this problem has already been confronted with the introduction of historical and archival research, documentation and delegation of specific tasks to outside specialists. Yet, let's not forget that dilettantism can be very charming as a quality in its own right.

2. Kitsch

This consequence is more dangerous and more difficult to face: the reduction of art to ironical self-reference may lead to kitsch. Where art introduces foreign domains and persons, is mainly guided by subjectivity and is close to advertisement, it takes the risk of approaching kitsch. For contemporaries, the borderline between kitsch and art is as difficult to draw as that between an original and a contemporary fake. Kitsch flourishes in times of deep social, economical and cultural transformations, a constellation that became evident by historical research of nineteenth century art.

Today, we are confronted with the problems generated by the transformation of the industrial world into a computerised communication and information world. With new, not yet assessed and unreflected promoted technologies, new problems arise – which we cannot solve. One who cannot put up with this, will either deny the problem or expand it to all regions of life. Both reactions are kitsch.

The conservator may get involved in judgements of artistic quality. Notwithstanding the introduction of traditionally non-artistic elements and persons, a work contains much subjectivism of the artist's own 'private religion', his inmost conglomerate of ideas. This makes it notoriously difficult to interpret his work objectively. Searching for objective signs of quality in contemporary art, we oscillate between two extremes: depersonalisation and idiosyncratic proliferation. Depersonalisation can lead to kitsch, as has been pointed out above. Over-individualisation, subjectivism and anthropocentrism in traditional art are characteristics of Romanticism. They can either flourish and become pure poetry or disintegrate into kitsch.

How can we distinguish between art and kitsch if we have no established criteria for quality? Art deals with being, kitsch with appearance. In practice, perhaps today it is even more difficult to distinguish them: due to modern media we have become used to a phoney world in many domains of life – on TV and computer screens we can have many rational and irrational worlds in our homes at will, and it is hard to draw the line between reality and fiction.

Moreover, the development of simulation techniques is just beginning and how far will it go? Nobody can imagine now. Perhaps the mystification of religion as artistic content will be followed by the mysticism and mystification of simulation, or in more fashionable terms: virtual reality. Bill Gates, head of Microsoft, has bought the license rights to reproduce masterpieces from museums all over the world, enabling him to simulate, to 'recreate' them on the walls of his Californian residence – even in the bathrooms. In former times the nobility could afford to

keep private chapels in their mansions without being able to buy God himself. Today, money has more chances: it can buy license rights for art's simulation without the necessity to take care of the physical work of art or the museum building.

These perspectives make us see our profession in another light: they may have utopian consequences which are worthwhile thinking about. If whole worlds can be virtually reproduced, the art world included, what importance then will we attach to whether the simulated subject is art or kitsch? By definition anything simulated lacks genuineness. In these circumstances, what will be the role of the professional conservator who has to safeguard the material work of art? If one can reproduce anything at will, what value will the so-called original have – will the physical work of art still be necessary then?

After all, the physical material has the unsavoury quality of needing care and storage. Who would not gladly exchange a fragile, care-needing, space-claiming object for a multimedia show where one just has to change the CD ROM? Simulation offers more prospects and more variations than any traditional artefact possibly could. Groys's dictum "Kunst wirkt als Erscheinung, nicht als Gegenstand" (Art functions not as an object but as appearance) speaks for a whole trend.

It appears that conservation in a virtualised world will be totally superfluous. In this perspective, works of art no longer seem to have to be 'realised' in order to become present. To what extent material works of art for historical reasons will or need to be saved in future, if their appearance can be well simulated, remains to be seen. It will probably depend on the space they occupy in a future world of rubbish awaiting disposal.

Anyway, a future selection will depend on a future system of values and evaluation. One thing is certain: the growing fragility of materials and the common uncertainty about the ideal content of contemporary art will be no great incentive to prolong its physical existence, which would be costly and inessential for artistic delight.

The aim of conservation is to keep cultural consciousness alive by materially taking care of cultural artefacts. The conservator should not try to influence cultural developments, because we do not yet know which will be the culturally relevant relics of contemporary time. Conservation has to adapt itself to cultural circumstances on an ethical basis; at the same time, it has to keep distance from fashion trends. This is not easily done. The profession demands much engagement and wisdom.

Surely we are now in a state of transition. Until now, the conservator's activities have been both unable to do justice to contemporary art and far too laborious for daily practice. Yet, if we want to save the art of our time we will have to confront the problems mentioned, to reconsider the conservator's position of today and most likely to enlarge our field of activity. This, as the project Conservation of Modern Art documented, can only be done on an interdisciplinary basis. Cultural and social changes, the multitude of artistic materials, media, theories and anticipated technical possibilities have all led to the disorientation that lies behind the problem of conservation. To confront this disorientation, we urgently need information from experts in the various disciplines our profession is involved with – and a joint brainstorming with these specialists.

Nicole Ex PROCEEDINGS

1. Problems with the Code of Ethics:

To preserve or not to preserve contemporary art in decay?

Museums acquiring a contemporary work of art rarely consider the fact that, without extensive conservation, it may pass away in ten years' time. What to do when

the life of an object indeed comes to an end was quite clear to the Dutch curator, Hans Jansen: "Its physical death has to be accepted, simply because restoration would take too much time and money." Besides, he said, a deteriorated object such as Tinguely's *Gismo* is merely a phantom of the original creation: "The brilliant and decorative piece turned into an old man, a dusty shadow of what it once was."

Some participants agreed, but not all of them found *Gismo* a hopeless case. There seems to be a 'generation change', as one participant put it: for those who personally saw *Gismo* getting older, the change is difficult to accept, but "when you never had the chance to see the original state, you seem to be more open to its decayed condition. For myself, I was amazed that it was still so lively and colourful."

Hans Jansen rejoined: "When it costs 50,000 dollars to preserve such a work, this prevents contemporary artists to go on with new objects." Instead of investing in the past one should invest in the present: museums of contemporary art exist to present the objects of a contemporary generation. "But why not save a total loss as a document," proposed an American participant, "so that next generations may at least get an idea of the artist's work at the time?" The Norwegian museum director, Per Boym, agreed that one should not simply discard a decaying object but keep it for some time, because it is impossible to decide beforehand what one will have to do in the future.

To this, chairman Peter van Mensch said the ICOM Code of Ethics points out that museums' main responsibility is the care of collections. In line with this Code, a museum director should not even accept an object when he knows it cannot be taken care of. But institutions of contemporary art rarely take these notions into account, said the American art historian, Andrea Kirsh: they state, either implicitly or explicitly, that their primary responsibility is to present current highlights of art; it is inherent to this function that objects fade away. Nevertheless, institutions are taking care of the objects even if they last for only two decades – and in this respect the ICOM Code is not very helpful, perhaps even 'rigid': in the end, it is still the curator's decision whether to stick to the idea of contemporary art and accept a short-life span, or to keep the piece as a relic, the way traditional museums do.

The Dutch art historian, Ernst van de Wetering, suggested a solution: "Why not make copies and expose these, so that the originals can be kept in fair shape? Let us be dishonest in an honest way: live with copies and say they are authentic. It is the aura of authenticity that counts. Thus, we can maintain the original as a document of contemporary art history, for instance. Furthermore, a copied Kelly may be better than a damaged one restored." This proposition, however, was generally rejected as non-ethical. Moreover, the copies would also change and the amount of artefacts be doubled.

2. Problems with the Code of Ethics:

How far should preservation go?

The Code seems to be disputable not only when it comes to the basic choice of 'destruction or revival', but also concerning the conservation/restoration of contemporary art. The principle seems to be: do as little as possible, and make it reversible if you can.

The American conservator, Daria Keynan, explained the Code as merely a guideline: "It's what you strive for, that's all it is. You would like to do as little as possible, but sometimes that is a whole lot. You want the treatment to be reversible, but the object was dirty and so you cleaned it, and I guess that is not reversible." In the United States, she added, curators have a disputable tendency to enhance avant-garde art by refreshing dusty surfaces: they say that avant-garde must look forever young, because when it looks old the message it is supposed to transmit won't get through. It seems that European curators are more restrained, participants agreed. No research has been done on the subject though.

One participant experienced the Code as a quite specific set of rules: “When we talk about ethics,” she said, “we talk about the obligation to the object codified in the Code of Ethics. It exists to maintain and back-up the professional status, and I think we all understand its implications.” However, Daria Keynan stated that preserving or restoring a work of modern art always implies its alteration. The conservator is like a text editor: “When he restores an object, he fixes just one interpretation; by doing so, all future interpretations will depend on the conservator’s understanding of the work at that time.”

To deal with this strong editorial position, Keynan considers the conservator’s work as part of the object’s history. This leads to a non-technical account in her conservation reports: “I started writing not only about what I’m doing, but as much as I can understand about my reasons for doing it: the context of the object and the artist’s motivation as well as the exhibition details of a restored work of art (time, place and specific role) – so that in twenty years’ time, when its context may be completely changed, other art professionals can still understand why it was restored in this specific way.”

3. Artists versus conservators

Referring to a critical remark on a restoration suggestion for Tony Cragg’s *One Space, Four Places*, curator Jansen stated that the problem was Cragg’s influence on the process: replacement may be understandable from the artist’s point of view, but conservators should not accept this view as a restoration guideline. The artist’s ideas and intentions are important strictly on an information level.

Moreover, an artist’s attitude towards his work may change completely over time. Should it then be preserved according to his new ideas, or in line with the originally given meaning? Daria Keynan: “If you focus on the artist’s changing ideas about his or her work, you ‘ll have a different work of art with a different meaning every ten years.”

An artist’s interference with the conservators’ work may cause problems, but what about a conservator meddling with the technical aspects of the artistic process? Usually, it will be in the artist’s interest to take long-term conservation into consideration. This does not necessarily imply a direct contact between artists and conservators, as Ernst van de Wetering put forward. In magazines such as the Dutch *Km* (on Artists’ Materials), aimed at both artists and conservators, advice on specific materials and methods is given. The same sort of magazine appears in the United States. There is even a tradition of artists calling conservators for advice; only on single materials, however, not on their combinations – thus, they still compose incompatible materials into an unstable mixture. But such magazines may help in ‘preventive conservation’.

4. Conclusion

On the whole, the tendency was to obey the Code. The chairman, Peter van Mensch, pleaded a necessary compromise between ICOM’s fundamentalist attitude – to preserve everything, forever – and that of some contemporary art museums to remove their artefacts every ten years or so. As an example, he mentioned the Code of Ethics of the American Institute for Conservation that appears to be more liberal and show a shift from uniquely stressing the preservation of the material object towards respect for the artist’s intention. To this, however, it was retorted: “Americans do believe in the intention of the artist, as long as the art world is allowed to keep the object.”

The conservation of modern art in Eastern Europe

Although in East-European countries conservation budgets for modern art are low, the example of Poland shows that conservation scientists are busy keeping professional standards up-to-date. Their first need now is to establish an information network. This should be part of an international system for the exchange of knowledge on the conservation of modern art.

Introductions

- Iwona Szmelter, conservator and professor at the Faculty of Conservation and Restoration of the Academy of Fine Arts, Warsaw, presented her article 'A Phenomenon of Modern Art and its Conservation' as published in *The Restorers Bulletin (Biuletyn Informacyjny Konserwatorów, Dziel Sztuki*, vol. 8, no. 2 (29) 1997, Łódź, Poland), which was entirely devoted to the problems of conservation of modern art in Poland. Together with Jadwiga Łukaszewicz, Monika Orłowska and Paweł Karaszkiewicz, she briefly summarised recent conservation research projects in which they have been involved. In these proceedings of the symposium *Modern Art: Who Cares?*, Iwona Szmelter's article is published in an abridged version.

Main themes of discussion

- Low budgets for conservation in Eastern Europe
- The need for an international information network
- Different conservation methods and materials
- Expert support for storage and transport

Chairperson: Jaap Mosk, scientific editor at the Netherlands Institute for Cultural Heritage, Amsterdam

Minutes: Steph Scholten, policy adviser at the Netherlands Institute for Cultural Heritage, Amsterdam

***Iwona Szmelter* A PHENOMENON OF MODERN ART AND ITS CONSERVATION**

Ever since the time of Romanticism, the aim of art has been to project the artist's individual emotions and attitudes. The artist, the creator, has been able to manifest his extreme individuality – which of course also meant liberalising art from the fetters of the correctness of academicism. This was the ground on which modern art was cultivated. An artistic liberty began and, with it, a journey for art to the unexplored frontiers.

The years of communist rule over Central and Eastern Europe constituted, in general, a departure from the tendencies of twentieth century art. Since the thirties, Social Realism had been both the official doctrine and everyday practice in the Soviet Union and since the end of World War II also in the countries under its domination. In the domain of public life, the function of artistic expression was limited to the glorification of political ideas – a role similar to that played in Western totalitarian systems. The works, classicist in their form, were produced within the traditional disciplines of the academies. From the technical point of view Social Realism preferred works made in durable materials, such as stone sculptures and oil paintings, and makeshift decorations. The character of these latter works, such as mass-produced gypsum sculptures and water-colour paintings, was determined by their propaganda functions.

Today the legacy of these times, although unwanted, is not being demolished but it remains unconserved, undergoing the processes of natural decay. Sometimes it

is disassembled and stored in museums, thus constituting panoptica of Social Realism.¹ In Poland such a museum is located in Kozłówka.

The years of liberalisation in Poland (from 1956) and in Czechoslovakia and Hungary (the 1960s) are marked by the surfacing of domestic avant-garde art from hiding. These works of art, often directly referring to Western contemporary art, were created in conspiracy, parallel to the officially recognized production. The other countries remaining under Soviet domination found their way back to participation in the common melting pot of universal culture closed until the late eighties.

However, all the artistic currents of the twentieth century had their representatives in the underground, parallel to the same phenomena in the West. For the specifics of this art – including its diversity and individualism placing it outside the currents of the official doctrines, both aesthetic and political – had the same origin: namely a long and great tradition of seeking for the truth. A large exhibition was organised in Warsaw in 1989 under the characteristic title: 'How Are Things?'. The title of another exhibition, shown at the Zacheta Gallery in 1996 and presenting contemporary art from Estonia, Latvia and Lithuania, was no less symptomatic: 'Personal Time'. In a way specific for each nation, artists were at liberty to express their minds and emotions.

As far as the technical aspects of the works made in our part of the world is concerned, they have been enriched with the experience of invention and, of course, poverty. Under conditions of a permanent lack of professional artist materials, this experience helped to find substitute elements and to use the artists' own 'inventions'. Supports, paints or plastics made in our countries were of a substantially poorer quality than those produced in the West. Independent of economic necessity, there were always artists ideologically interested in 'poor' art materials, in substances suitable for the painting of everyday things, informal materials and so on (see photo).

Presenting a coherent methodology for the conservation of modern art constitutes an extremely difficult task. The difficulty stems from both the individualism and the dissimilarity of the works as well as from a lack of distance in time. The old and often verified rule of history, saying that events which are still happening are much more difficult to interpret and to order than those that are distant in time, finds its solid confirmation in the area of the conservation of modern art. A conservator's collaboration with the artist in order to acquire data and to plan the future of his/her work constitutes a significant novelty here. Tendencies within the visual arts change so rapidly and the spectrum is so wide that the artist's personal views are frequently required. They may assist in discovering the artist's original intentions and creed, and help to determine the substance of the art work before the conservator begins treatment.

Following are the steps of a long-term project intended to arrange for the preservation of works of modern art as well as for educating art conservators in this discipline:

1. Documenting data concerning individual artists' productions, their biographies, artistic philosophy and the significance of their work, with particular emphasis on contemporary materials and techniques.
2. Conducting interviews with living artists and supplying them with questionnaires, with a view to recording their intentions and beliefs and discussing materials and techniques used in particular works.
3. The establishment of a computer database designed for use in museums' systems, and of an academic centre for conservators' education.
4. Investigating the potential for international cooperation with an information network concerning the subject.
5. Updating the information on both theoretical and practical achievements in

Structure of 'poor materials': Tadeusz Kantor, *Composition Cracovic* (1959), oil, tempera, gypsum on canvas, 93 x 70 cm. Private collection. Photo: Iwona Szmelter

Detail of Tadeusz Kantor's *Composition Cracovic*. Photo: Iwona Szmelter

the area of the conservation of modern art.

6. Conducting studies on conservators' means and technologies and their application to contemporary materials, atypical supports and media – including an analysis of contemporary plastics, industrial painting materials and binders, based on the achievements of materials science and engineering, with particular attention to their use and their future conservation in works of art.
7. The establishment of standards for the conduct of conservators concerning both ethics and methodology, for the evaluation of artistic intentions and autonomous reasons for creative acts with respect to material preservation; the establishment of a model for conservators' diagnosis and procedures.

Experiences gained during the practical conservation of a few dozen paintings and works of related visual arts – such as collages, 'emballages' (wrapped works), assemblages and interdisciplinary compositions – allowed me to formulate a catalogue of typical problems and to deduce some of the conservator's challenges. The catalogue comprises aspects such as:

- Difficulties with the identification of the object's meaning, with collecting information and with contacting the artists.
- Technical difficulties with the preservation of unmodified surfaces of restored works of art, such as those of porous objects or paintings that lack varnish, and keeping the original texture of unpainted areas (see photo).
- Problems with the identification of the object's materials and the high costs of technological examination due to the use of high-tech equipment and to collaboration with specialised personnel.
- Ethical dilemmas concerning the conservation and replacement of ready-made objects and decayed organic materials in art works, such as food, bones, plants, non-durable papers (see photo).
- Decisions concerning 'conservation through documentation', carried out in those cases where the object is to be either disassembled or destroyed, and the recording of ephemeral art – sometimes performed by the artists themselves as another element of their work.

In most cases, the best solution seems to be consulting with the artists.

The necessities of everyday conservators' practice have stimulated my own investigations and the publication of a work whose title translates as: 'Methods and Means of Conservation of Tears and Losses in Paintings' Canvas Supports' (published in Polish) in 1986.² My research also resulted in the works: 'Problems with Relining Paintings' (1992) and 'Methods of Relining Paintings with the Application of Acrylic Adhesives and an Attempt to Formulate the Optimum Relining Adhesive' (1993).^{3,4} There exists an unquestionable necessity to carry out further studies on the selection of conservators' media and techniques for individual needs in the conservation of art.

In cooperation with the Centre for the Protection of Public Collections, a questionnaire entitled 'Technique and Technology of the Works of Modern Artists' was developed in 1990.⁵ Thanks to our connections within the National Museum as well as the extraordinary involvement on the part of our students, a methodological summary entitled 'Conservation and Restoration of Contemporary Art Works – Reflections at the Close of the Twentieth Century' was put together in 1996.⁶ Work on the special issue of *Biuletyn Informacyjny Konserwatorów* (The Restorers Bulletin), dedicated to the theme of conservation and restoration of modern art in Poland, and the preparation of a seminar devoted to the same issue but related to the whole of Eastern Europe, have given us a good insight into the subject with all its problems and tendencies.

Apart from the conservators' practices and research, the topic of the conservator's prophylaxis has been raised in relation to the collections of modern art in the Museum of the Warsaw Academy for Fine Arts and in the Warsaw Studio Gallery. Students of the Faculty of Conservation and Restoration of Works of Art made a survey of approximately 500 pieces. Out of these, more than a dozen have been urgently admitted for conservation. After the introduction in 1998 of the Conservators' Documentation Scheme by the Centre for Monument Documentation, all works will be equipped with new cards and will remain under continuous conservator's care. Within the framework of such prophylaxis, depositories of modern art collections should respect the prescriptions concerning storage and transportation conditions as specified by conservators.

Despite numerous efforts on the part of art conservators, institutions that are authorised to protect monuments in Poland seem uninterested in keeping records of the data concerning the output and the intentions of contemporary artists as well as of the materials and techniques of their art. In our country such attempts have been made by myself in Warsaw and by professor Wladyslaw Slesinski in Krakow.⁷ Similar initiatives were taken some years ago in the United Kingdom, Germany and the USA.⁸ However, such databases are rather incidental. There is an urgent need to have a common overview for all these vital initiatives.

In the symposium *Modern Art: Who Cares?*, professor Britta Schnitzel of the University of Freiburg pleaded setting up an international network for the exchange of information on the materials and methods used by artists and the possibility of creating an expert system for application in conservation.⁹ This allows us to hope for a better protection for modern art. It is worthwhile to visualise the necessity for similar initiatives in Poland and in Eastern Europe as a whole, particularly within the emerging network of experts. With the exception of a narrow circle of art conservators, only a few people realise that there is a need for collecting such data concerning artists, their work and the artistic commentaries of past epochs, which are becoming more and more difficult to acquire.

Steph Scholten PROCEEDINGS

1. Low budgets for conservation in Eastern Europe

From the presentations and the ensuing discussions, several conclusions can be drawn. First of all that the conservation problems confronting conservators in Eastern Europe do not differ greatly from those in the West. It was felt that models, methods and protocols (to be) developed in research projects for modern art should and will be applicable anywhere. It is a waste of energy and time, participants agreed, to try to invent new models aimed at the specific situation of individual countries or regions. It was also considered advisable to use existing structures and institutions, such as ICOM (International Council of Museums) and ICCROM, instead of establishing new ones.

Professionals in Poland are aware they are up to date with current information, although it is difficult to judge whether this is also the case in other countries of Eastern Europe. Of course, as the Polish participants explained, the resources of most institutions and private individuals in Eastern Europe are limited. Many people have to work in two jobs to make a living, so they do not have a lot of extra time to invest in projects that do not yield bread and butter. For institutions this means that sometimes they cannot afford to invest in certain equipment and materials. Due to the present process of transition in most of these countries, circumstances change a lot. New structures have not yet been established while the old ones have not yet been fully discarded. Generally, there is very limited support for investments in the conservation of contemporary art in Eastern Europe.

Detail of Tadeusz Kapinski, *Cross-composition* (1956), oil, sand, silicones, mixed media on canvas, 118 x 74 cm. Private collection. Photo: Iwona Szmelter

Objects after restoration: Alina Szapocznikow, *Instants assemblage* (1971), gloves, brush, in polyester, 26 x 16 x 11 cm and 28 x 42 x 22 cm. Photo: Iwona Szmelter

2. The need for an international information network

In East-European attempts to re-establish continuity in history, most attention is paid to traditional art, i.e. art from the periods before communist domination. This makes it more difficult here than elsewhere to establish a network of conservation professionals for modern art, something that is considered to be priority number one. Such a network should of course be part of a larger international system.

Participants found that the best way to set up such a network would be by using already existing personal and/or professional contacts. In the end there should be a number of key people in each country who can serve as contacts for the dissemination of information.

The internet provides an efficient platform for the exchange of information. In Eastern Europe, access to computers is not considered to be a major problem but unfortunately many older people working in the fields of conservation do not speak a second language. This complicates the international exchange of information.

3. Different conservation methods and materials

Several countries in Eastern Europe have a long tradition in conservation. This has sometimes led to the development of different conservation methods. These should be confronted with Western alternatives, discussed and evaluated on their merits. Professionals should therefore meet on a regular basis, preferably when concrete case studies are at hand. Conservators in Eastern Europe are used to making their own products instead of buying them ready made. Now that the markets have opened up, this will probably change. However, professionals have to be convinced of the quality of these products. Some methods of conservation have not been used widely in Eastern Europe, for example the conservation of acrylic paint. Relevant knowledge is therefore limited and should be worked on.

4. Expert support for storage and transport

In East-European countries, inadequate storage facilities and transport cause a lot of damage. Participants expressed their interest in the Dutch Deltaplan model that puts preventive/passive conservation forward as the most efficient way of conservation. Active conservation and restoration is of no use if objects are going to be kept under poor conditions. This could be one of the areas of support for the conservation profession in Eastern Europe: the transfer of knowledge and experiences on this point.

Packing and transport of modern art

Modern art works and especially installations are unique, vulnerable and complex. Therefore, the packing differs with every work. In order to prevent damage, packing systems should not only be suited to the material characteristics of each object, they should also serve the two functions of being suitable to transport and store the work. In addition, museums should develop specific procedures for handling, packing and transporting art works, supervised by a conservator who is familiar with the object. Training of new staff is also required.

Introductions

- Hester Stöbe, conservator at the Museum für Moderne Kunst/Stiftung Ludwig in Vienna, discussed the advantages of a packing suited to both transport and storage. Drawing on several examples of packing and re-installing, she argued for various means of documentation.
- Wies Raanhuis, free-lance conservator in Zaandam, the Netherlands, presented some instances of damage and called for international cooperation in the exchange of knowledge on packing and transport.
- Stephen Hackney, conservation scientist at the Tate Gallery, London, presented some results of research into the field and the systematic approach developed by the Tate Gallery. He explained that conservators should supervise procedures for handling, packing and transport, and pleaded specific training of new staff.

Main themes of discussion

- The art of packing: supervision and training required
- Expertise in all-round packing systems to be developed
- The importance of proper documentation

Chairperson: Cornelia Peres, senior conservator at the Van Gogh Museum, Amsterdam

Minutes: René Boitelle, conservator at the Van Gogh Museum, Amsterdam

Hester Stöbe TRAVELLING INSTRUCTIONS FOR INSTALLATIONS

An installation is an assembled piece of art. It can produce a static effect like classical sculpture or painting, or with technical means it can be a dynamic process. Art works that are equipped with electronic or other technical devices can only be seen as complete if they work perfectly.

For the transport of installations, some of the still highly specialised rules applied to 'classical' art works have to be changed. The trouble about moving installations is their uniqueness. Every installation has its proper form, its proper composition and use of materials, therefore the packing differs with each one. Seeing an installation consisting of a hundred small pieces, one can imagine that it is impossible to change the packing or the storage containers each time after travelling. Both the containers and the packing materials that are used to move installations often serve as storage devices for keeping the objects in depots as well, so the packing aims at a mix of transportation and storage. Clearly, this is not the optimal solution. Nevertheless it should be considered as a possible solution and discussed as such – instead of declaring it 'impossible' because of conservation guidelines. We'll have to come to some sort of agreement: a solution that provides few site-specific adjustments. I hope to convince you of the advantage of such packing by showing photographs of the installations. (See next pages)

Every installation needs proper directions on how to handle it in case it has to be moved, or at least instructions for re-assembly – such an art work is worthless otherwise. Not only the packing of each installation is different, also their docu-

mentation is hard to manage with old-fashioned protocol sheets. In other words, it is hard to make generalisations.

The question is how to create handling guidelines that are intelligible to 'insiders'. The most important thing would be to develop a clear protocol and to use simple audio-visual documentation. The easiest solution would be instructions by the artists themselves, but in reality such guidelines do not exist. The artist created the installation, sold it and then a picture for a catalogue is taken. In the end, the installation disappears to a depot. Sometimes an entry protocol is made stating where damages can be found and that's it.

Today, in some cases after more than thirty years, we realise that certain installations have become worthless because a lack of information makes it impossible now to reassemble them, or because their original components were separated during storage. The only information on them that still exists are old catalogues. With these, however, all we can generally see is one photograph showing the installation from one single point of view, followed by a mysterious article on its art history. Obviously, practical information about the setting up and directions for the assembly were not deemed important enough.

It turns out to be very hard to track down information. Often the artist isn't interested in his earlier work anymore. In addition, it's not his task to draw up a catalogue on his own oeuvre. But as if that is not enough, he may even have changed his points of view radically. At this point, guessing starts. Therefore, we decided to acquire the (travelling) instructions as soon as an object is purchased – if possible, instructions made by the artist himself.

The so-called *Mind-expander*, an art work created by a group of young architects in 1968, demonstrates that an installation can hardly survive without instructions. In 1996 it was exhibited in Bonn. The installation consists of a polyester chair with a helmet hanging over it. The helmet contains a light as well as a sound installation, which can be switched on and off. As the art work was stored incorrectly, the helmet made of Perspex was broken, the light and the sound installation were missing (the sound tape as well) and on top of this the group of artists, who split up a long time ago, weren't interested in their 'foolish' creations of the past anymore.

We built a reconstruction of the old Perspex helmet and the electrician repaired the light installation, which was quite an achievement. The hardest thing to restore was the tape. We asked many people what kinds of sounds had been recorded on it. The answers differed from 'cardiac sounds' over the 'twittering of birds' to 'music of the sixties'. By chance – luck is needed at times – one of the former artist group members lived near Bonn and was still interested. He gave the information the electrician required and stressed the importance of a circuit breaker; he also decided to use a tape with cardiac sounds. And we opened a huge file on this particular case...

A courier achieves the status of an important information carrier and has a significant spectrum of extended tasks. Couriers have to be practical persons, be able to work hard with their hands and direct the setting up or assembly of an installation, or at least contribute to it. During the preparation phases of any exhibition, contact with the art conservation field has to be enforced.

Some installation artists travel the world with their art works and go on assembling these even after they have been sold. This is expensive for the exhibitor, but thus he/she can at least assume the object is installed exactly as it should. Well-known artists often use assistants to do this work for them. Also, installing implies a new kind of work for art conservators: the specialisation in one single artist. As a personal assistant one becomes the contact person for the museum as well as for the conservators.

Mouse museum (1965-1977) by Claes Oldenburg, consisting of 400 pieces. © Museum Moderner Kunst, Wien

Painting Lesson no. 6 (1998) by Tevet, 50 pieces. © Museum Moderner Kunst, Wien

Mind expander (1968-69) by Hansruher und Co. Photo: Peter Baum

However, this kind of assistant exists only in connection with well-known artists. If such an information carrier is non-existent, well-organised (transportation) instructions or other documentation is needed. This material should be easily accessible and needs to contain a lot of visual information, supplemented with written instructions, including a complete numbering of all the installation's components. Because every installation has its own proper form, it is hard to draw up a general documentation format. Therefore, I will analyse various methods of visual documentation, taking their transferability and durability into account.

The sketch or drawing is a classical means of documentation, contributing additional artistic material to the art work. To his installation *Henschrecken*, for example, Vostell fortunately added a sketch. The work consists of twenty black and white cameras under three large photographs and four boards finished with asphalt lie on the floor. The cameras are connected with a camcorder documenting the whole situation.

Today, thirty years after the installation was created, Vostell's sketch explaining the video transmission system and assembly still provides enough information to reconstruct his work – it was possible to repair the electronical system without difficulty. In addition, a photograph in the catalogue showed where to place the four boards. The sketch, combined with the photograph, provided sufficient information to enable us to conserve the work. For reassembling technical installations, a circuitry diagram is an essential tool – without such a sketch they become worthless.

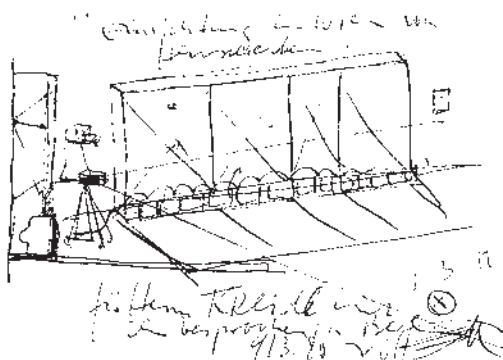
Because of its size, Vostell's installation is stored in a depot outside the Museum für Moderne Kunst in Vienna. The packing serves for both storage and transportation. For the technical equipment the original packing material has been maintained. The photomontages are wrapped up like paintings usually are: with lupo and cardboard. In addition, the bones that are fixed to the board are sustained and protected with foam rubber. When transported, they are carried openly but securely fixed with special belts. In storage they are wrapped loosely just to prevent them gathering dust.

Photographs are a 'comfortable' means of documentation: easy to handle, easy to understand, and there are several simple methods to reproduce them. Moreover, it is possible to make notes on them. Our entire inventory is archived on paper. Therefore it is easy to add photographs and there is still some space for all this information. Photographic documentation particularly suits installations consisting of a large number of odd pieces.

In the case of the installation by Tevet, we were lucky: the artist himself came to Vienna to set it up. When the numerous cardboard boxes were emptied, lots of photographs were taken. To make the setting up easier, Tevet had drawn an exact positioning plan – which is an essential tool. On each element to be screwed, the screws were simply stuck at the bottom with adhesive tape. Elements without screws were supposed to be fixed with double-sided adhesive tape or a silicon adhesive. Tevet wanted all components to be clean – so we washed, dusted and retouched these. He had no problems with authenticity: we were allowed to glue, replace and so on. And as for interviewing the artist, one of the topics of this symposium, we really did make use of the opportunity. For a good documentation such interviews are indispensable.


The process of assembling has been photographed completely. When disassembling the installation, each piece was numbered and an assembly plan was reconstructed.

Instead of traditional photographic documentation, digital photography is becoming a more and more suitable medium. But in spite of its rapid development this medium doesn't approach mechanical photography as yet. In terms of quality and



Henschrecken (1969/1970) by Wolf Vostell, 280 x 800 x 200 cm. © Museum Moderner Kunst, Wien

Sketch of *Henschrecken* (1969/1970) by Wolf Vostell.



cost-efficiency it lags far behind. Still, it will certainly come up to, and replace, mechanical photography in a couple of years.

A transportation company with whom we often cooperate, constructed a proper vehicle to provide the equipment needed for digital photography. We are waiting for new developments in this sector, but as soon as the inventory lists are digitised we will be forced to use digital documentation anyhow.

To document the way an installation is set up, video recording is often used. The greatest advantage of video documentation is the possibility to combine sound and visual information. Especially installations with both visual and sound effects can only be documented by video recording. Storing and archiving is no real problem; in addition it is easy to make copies and add auditive information. In a couple of years, digital video transmission will be easily accessible. Today it is still too expensive and technically too complicated.

As all these examples show, the problems of transporting installations are caused by their individual nature. Individuality is expensive and takes our time, so... look before you leap!



Wies Raanhuis TRAVELLING ACCIDENTS

Modern and contemporary sculpture is a complex matter requiring specific techniques of packing and transport to prevent damage. New objects are often damaged on their first journey to an exhibition. For example, after being transported by air transport, the small plaster object *Cabinet* by Lili Djourie arrived in the gallery as a total loss – in spite of the fact that it had been packed in a specially designed crate. Nobody knows what happened in transit.


During the preparation of a first transport many things can go wrong. The artist may not have paid attention to practical matters like packing because he/she was too busy putting the finishing touch to his/her new work and its installation. Often there is a lot of time pressure to finish one or more objects, so a work may be ready just in time for transport but the paint still wet. There is no budget and no time to think about suitable packing – or if there is, the knowledge on packing with respect to the quality of the materials used in the sculpture is frequently insufficient.

The same kind of problems may occur later when the sculpture has become part of a collection. It is not unlikely that you will find the object in the depot the way it once entered the collection: badly wrapped or not wrapped at all. In many cases it will remain this way for a long time, which may cause additional damage.

It is because of these experiences that I argue for cooperation and the exchange of information. National and international cooperation regarding knowledge and new developments of packing and transport will contribute in banishing unnecessary hazards right from the start. The exchange of experiences via the Internet or regular publications would not only inform the artists but also conveyers, museums, collectors, galleries and everyone else involved.

The damage transportation can cause is illustrated by the following examples. The works have been restored, meanwhile, and provided with proper packing materials.

The first example is *Heel to Toe, Woman Trapped in a Man's Body* by Dennis Oppenheim, which became part of the collection of the Dutch Kröller-Müller Museum in 1996. The work consists of a three-metre high cowboy's boot, made of iron wire and metal gauze. Within the boot, turning around on a pedestal, is a ballerina made of epoxy covered with a polyester resin. Her tutu is made of polyester reinforced with glass fibre and she is totally covered with stearin. The installation arrived in a very bad condition: the boot had to be reconstructed, the ballerina had two broken arms, and the stearin surface was broken in many places. This is the



Dennis Oppenheim, *Heel to Toe, Woman Trapped in a Man's Body*: the ballerina's broken arm, the ballerina after restoration, and the especially designed new crate. Photos: Wies Raanhuis

part of the installation for which I designed the packing after the restoration.

The combination of polyester and stearin leads to cracks and fractures when exposed to shocks, so in the design of the transport casing it was important to prevent and to cushion shocks. A professional crate from the Crocodile Packaging firm was chosen, which can open and close with clamps instead of screws. At the bottom of the crate a wooden console was made, cushioned underneath and on top with soft polyethylene foam. The round foot of the ballerina fastens onto this with Velcro. Supports were made around her waist and head, cushioned with the same foam and exerting no pressure. This construction allows for some mobility while shocks are prevented as much as possible.

The next example is the art work *Stella* (1977-1987) by Gilberto Zorio. The largest part of the installation is a five-pointed star, 325 cm in diameter. One of these points has an extra peak, made of polyester and covered with rubber. Over the frame, built with steel and wood, saddle leather is glued. The object is placed obliquely against the wall by means of a long pole of stainless steel.

Stella was stored unprotected in the depot for a long time. In combination with the object's heavy weight this has gradually caused various damages. The leather is dirty and damaged in several places; the rubber, seriously degraded in the course



of time, became detached from its polyester basis. After the restoration an open packing for storage and transport was designed in consultation with the museum. The two parts of the star are packed separately, the greater part in an open crate. The points of the star are protected by a cover made of unbleached cotton; they rest on a cushion of hard polyethylene foam. A cover of unbleached cotton, that can be attached by means of Velcro, was also made for the open crate. The other part of the star and the leather parts are placed on a pallet cushioned with PE foam and protected by a neatly fitting cotton covering.

A great deal of damage to modern sculpture is caused by handling, storage and transport, but we must realise that no packing system can guarantee the absence of hazards. Successful handling will always depend on the knowledge, willingness and concentration of all those involved.

There is a useful publication about the packing and transport of paintings, as well as manuals about handling museum items. At several institutions, and on an individual basis, research is done on the hazards of handling and transporting art. Proper packing systems are also being developed. It is necessary to gather all this information and knowledge and to find a way to exchange, organise and publish it – not only for the benefit of museum collections, but also to inform conveyers, private collectors, galleries and artists and every one else in the field.

Stephen Hackney RESEARCH ON THE TRANSPORT OF ART WORKS

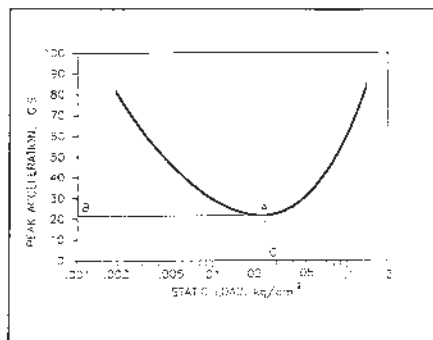
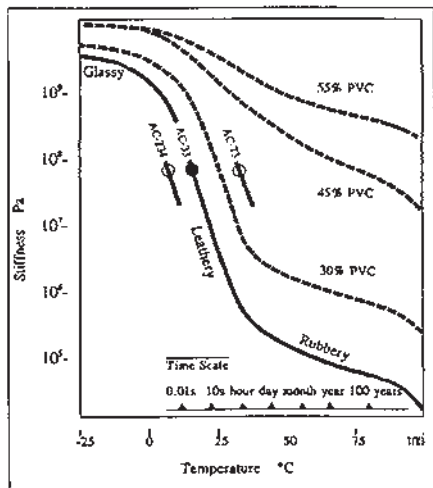
Air and road transport have increased dramatically in the latter part of the century and this is reflected in the increased transport of art works. Preparing works for transport and loan is now a significant aspect of a museum conservator's work. The number of loan exhibitions continues to grow and many museums now regularly transfer their own collections between various display locations and stores. It must therefore be assumed that all modern art works be required to be frequently handled and transported. Conservators have attempted to resist these events but since many now consider that art transport is an inevitable part of museum activity it is important to make sure that we understand the risks involved and develop efficient ways of protecting works from both short-term risks and long-term deterioration. Success in this activity prevents unnecessary immediate damage but unfortunately it also increases the demand for art works to be made accessible for future travel.

The 1991 Art in Transit Conference held at the Tate Gallery brought together research on the transport of paintings. The concern was that conservators were not being consistent in their advice on the transport of paintings and that this was partly because not enough was known about the risks involved. As a result of the research carried out before this conference, the transit environment has been better characterised, the factors that most affect paintings have been identified and investigated, and packing and transport arrangements assessed.

Significant conclusions of this research were the importance of avoiding exposing paintings to temperatures at or below freezing point, the ease with which moisture-content can be controlled by wrapping, the need to calculate static loading of cushioning material to prevent shock and allow the design of efficient packing systems, the provision of a numerical assessment of fragility for paintings and frames of 30-50G, the low energy of forced vibrations and the inability of researchers to correlate vibration at the levels encountered in transit with damage to paintings. The main emphasis was on international loans by air but, in the process, handling and movement within the museum were identified as significant and unpredictable risks.

Modern paintings fit into this analysis, but, whereas the majority behaves in a similar way to more traditional paintings, some may be particularly vulnerable. Modern paintings tend to be in relatively good condition and it is therefore difficult to resist the valid requests from both curators and artists that they should be allowed to travel to major exhibitions. However, large, flexible, unframed, unglazed or unvarnished works are all susceptible to handling risks, display restrictions and transport complications. Any damage that occurs will be more serious in comparison to their sometimes-pristine condition and they may also be unusually difficult or occasionally impossible to restore, either because of the narrow tolerances required or because of unresolved ethical problems. Despite these difficulties, museums can and do devise procedures to deal with these objects and transport them around the world.

Some modern art works are constructed from unusual materials or have a unique structure. In particular many three-dimensional art works (art objects and sculpture as opposed to paintings) present a range of less easily predicted problems. Frequently their weight, size, design and condition conspire to make them very difficult to handle and transport. A conservator who is familiar with the construction and materials of a particular art work is best placed to devise and supervise procedures for handling, packing and transport, but he or she must do so by tailoring established principles to the peculiar needs of the work. This is quite a challenge



Change in stiffness of acrylic paint, AC-33, with time, temperature, and pigmentation (titanium white). Horizontal shift in curves shown for other common acrylics. Taken from Stefan Michalski, 'Paintings – Their Response to Temperature, Relative Humidity, Shock, and Vibration', in: *Art in Transit*, Washington 1991, pp. 223-241.

Dynamic cushioning curve for polyester urethane foam when dropped from a height of 75 cm. The foam thickness is 10 cm and the density is 33 kg per cubic metre. Taken from Mervin Richard, 'Foam Cushioning Materials: Techniques for their Proper Use', in: *Art in Transit*, Washington 1991, pp. 269-277.

since it requires a greater degree of analysis of the problem than is necessary for better defined categories of objects.

First, the most extreme vulnerability is identified, such as the presence of heavy masses attached to lighter, fragile material, delicate surfaces on difficult to handle objects, hygroscopic material combined with easily corroded metals, light-sensitive structural material such as canvas or paper, de-laminating adhesives, unknown plastic components, and many other specific problems. Then, secondary vulnerable aspects are noted. Provided all the main risks have been assessed in the context of the proposed transport arrangements, individual solutions can often be found and, at a price, the objects protected in transit or handling. Alternatively, if the risks are assessed to be just too extreme, then at least decisions not to loan can be made in this knowledge.


But if the analysis is incorrect then this may lead to excessive caution and over-packing against some wrongly perceived risks and also a failure to protect against unnoticed risks leading to actual damage. Too often packing systems reflect the anxieties of their designer but do not cover all the risks. Of course, we rarely have a complete knowledge of the fragility of an object and we cannot entirely predict the actual transport conditions, so some level of approximation is inevitable.

In order to improve our performance in dealing with these kinds of problems at the Tate Gallery we are in the process of establishing a more systematic approach to the categorisation of objects within the collection. We identify their fragility and vulnerability to particular factors and assess the chances that these risks will be encountered. This is a major undertaking for which we hope to find further collaborators and funding. Our aim is to work towards standards that will be recognised throughout the profession. These will make decision-making easier for conservators preparing works for loan and specifying packing and handling conditions, and will also allow those receiving large numbers of works for exhibition to work to a consistent standard.

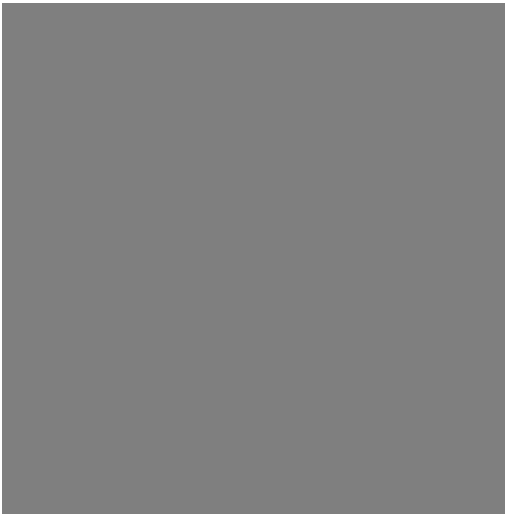
Since 1991 further research at the Tate Gallery has been concerned with the movement of large art works by lorry, specifically in connection with the need to cope with the Gallery's many commitments to transport art works economically within the UK and in Europe. The need to integrate transport and storage in conservation policy has become more clearly established, particularly for unframed paintings, sculpture and other unprotected objects. Transit/storage frames for paintings and dedicated storage cases for sculpture that are also suitable for road or air transport are seen as the mainstay of this approach. Wherever possible physical barriers are used to protect art works. For medium or smaller size paintings glazing, using low reflecting glass, and backboards provide protection at all times. For works on paper this is traditionally the most important method of protection.

These barriers have a number of advantages as well as preventing accidental impacts. Microclimates within such enclosures maintain moisture content, exclude particulate and external gaseous pollution, and prevent direct touching of the surface. Rigid frames and backboards reduce vibration response by increasing the natural frequency of an object.

Recent studies on the dangers of glass breakage in transit have shown that this risk is fortunately not as great as previously suspected. Indeed, in our tests, if the frame was sufficiently rigid it was not possible to break the glass on a frame within a packing case, even though we effectively destroyed the case. In further tests, when glazing was broken with a hammer, the damage to the painting was less than for unglazed works that were hit in the same way. Because glazing is close to the surface of a painting, it is not possible for shards of glass to cut into even very degraded canvases, except at the point of impact.



Testing the temperature and humidity response of a painting wrapped in a transit frame. Photo: Tate Gallery



Attempts to break the glazing on a frame inside a packing case. Three packing cases have been destroyed in separate attempts without breaking the glass inside. Photo: Tate Gallery

Couriers and, more importantly, staff familiar with the installation of objects are necessary to ensure that carefully worked-out procedures are followed. The importance of training must not be forgotten. Training of new staff, regular revision for established staff and the integration of new knowledge into existing procedures require frequent formal sessions.

This all assumes that procedures have been devised by research and by the experience of practical application and that the expertise is being maintained and further developed. Museums that do not have such expertise and skills should not be involved in transport and display.

In all collections there are individual works and whole categories of works, such as pastels, that it would be unwise to transport and handle excessively. These works can usually be identified because they present problems even within the museum. For the majority of works transport is likely to become a requirement sooner or later. The risks in the transport of modern art works can be minimised by taking the right precautions. However, these precautions are taken only against a range of expected problems and the predicted response behaviour of the art work. Expensive protection cannot be extended to less likely risks and therefore there will always remain a small risk of major damage to very important art works.

However, from all available statistics, in the short term the risk of theft appears to be very much greater. Security is not our direct responsibility but what we can do is to correctly identify the vulnerable elements of an art work, understand the conditions to which it is likely to be exposed in transit and devise effective preventive procedures for its handling, packing and transport. What we also need to do is to observe any damage that is directly attributable to transport and to develop reliable statistics.

***René Boitelle* PROCEEDINGS**

1. The art of packing: supervision and training required

Modern art works and installations are difficult to handle and their physical properties are not easily understood. Recent years show an enormous increase in contacts among museums worldwide, and exhibitions are being organised all year round everywhere. This growth involves more and more transportation of art works. Unfortunately, the everyday reality is that conservators are confronted with damage to art objects caused by improper handling, packing and transportation (both within and outside the museums or galleries).

All participants in the seminar agreed that in order to retain the present condition of art works, and to avoid damage in future, these actions should be supervised by a conservator. All members of staff involved in the transport of art should be instructed and advised properly by the conservator responsible. It was stressed that he or she should be present at all times during packing, unpacking and installation of the object.

In some public institutions, effective procedures concerning these actions already seem to have been achieved. However, reactions from the participants illustrated that in many cases a protocol to control the transportation of an art work does not yet exist. This omission apparently concerns both museums and private galleries and leads to the conclusion that such a protocol will have to be developed in institutions.

2. Expertise in all-round packing systems to be developed

It was agreed that packing systems should be designed specifically for every individual piece. Standardisation for this kind of objects seems impossible. Measures should be taken according to the characteristics and the condition of the art work,

after a careful assessment of each risk involved in its handling and transportation. Doing too much can be as ineffective as doing too little.

Participants stressed that a packing system must be designed in which each installation can be both transported and stored, thus minimising the handling of the object when not on display. Of course, one should consider whether every type of material used in the object could be stored in the same crate. The packing should be designed to require as little handling of the object as possible.

It was mentioned that in most cases small museums and galleries do not have sufficient resources (properly trained staff and proper equipment) to produce the right packing systems for their objects. Conservators from outside are rarely asked for advice on problems of packing and handling.

Every institution responsible for the care of art works should maintain the level of professionalism of all those involved. It should be possible for technicians and engineers to specialise in designing specific packing systems according to the requirements of the conservators. Everyone working in conservation – also in the smaller institutions and galleries – should have access to this expertise.

Finally, the participants agreed that good packing systems need not be very expensive. However, if the object acquired by a museum requires an elaborate construction, not only the costs of its acquisition but also those of its handling, packing and maintenance should automatically be taken into account. It was noted that insurance companies are becoming increasingly aware that damages can be avoided by taking proper precautions concerning packing systems.

3. The importance of proper documentation

The documentation of packed objects of art, especially installations, should include as much detailed information as possible – written reports, sketches, photographs, interviews, and preferably also a video recording showing the unpacking and preparative procedures for exhibition. In the case of kinetic art, such recordings were mentioned to be a necessity. In order to secure proper installation, a copy of this documentation should be kept as close to the object's packing as possible.

These issues and actions will be addressed in an international congress on the packing and transport of objects of art to be held in 2002 in collaboration between the Tate Gallery, London, the National Gallery, Washington, and the Canadian Conservation Institute. The last international Art in Transit Conference, devoted to paintings, was held in London in 1991.

An international computer network for the exchange of information on artists' materials and techniques

Communication and improved access to information is essential for the maintenance of high standards in the preservation of contemporary art. But which technology should be chosen?

Introduction

- Britta Schinzel, professor of computer science at the Institute for Computer Science and Social Research of the University of Freiburg, Germany, discussed the choices that will have to be made when setting up an international information and communication network for the conservation of modern art. She also introduced the RESTART project which incorporates special search technology, a newsgroup and an expert system.

Main themes of discussion

- An own network or a connection to existing channels?
- Classified information and limited access
- The use of existing databases
- A knowledge-based system
- Conclusion

Chairperson and minutes: IJsbrand Hummelen, conservator/coordinator of Conservation Research at the Netherlands Institute for Cultural Heritage, Amsterdam

Britta Schinzel RESTART: A NETWORK AND AN EXPERT SYSTEM FOR THE CONSERVATION OF MODERN ART

Development of an intranet

Together with thirteen partners from all over the world, the Netherlands Institute for Cultural Heritage intends to set up an electronic communication network on the conservation and restoration of modern art through the Internet. This implies that a collection of relevant information should be established, as well as a network within which interested researchers may communicate and interact. For this, Netscape and other providers' access has to be guaranteed in order to reach Internet devices like the World Wide Web and discussion forums.

Information about anything, including artists' materials and techniques and about conservation, can be converted into electronic form and thus made available for a larger community using electronic devices. But first the art theory and art conservation community will have to take a series of decisions: namely, what information should be available for which groups in the community, and through which electronic devices and networks? In principle, many carriers of information and information tools are available:

- Databases and languages for complex searches within them;
- Digital catalogues of libraries and tools for finding access to filtered information, like searching machines finding entries to diverse libraries via keywords;
- Web sites within the Internet or on compatible private nets by linking-through pages or by using searching tools;
- Or information may simply be stored on diskettes or CD-ROMs for use on individual PCs.

To develop the system intranet, we may investigate and place relevant information on any of these devices – an acquisition process that usually entails a large amount of work – and we may search for already stored information relevant to our subjects, e.g. in databases provided by several institutions, museums and universities.

We should decide which information we want to collect by:

- Searching via classical methods, e.g. libraries;
- Scientific investigations;
- Searching in electronic libraries using searching machines and retrieving from existing databases, inspection of Web sites and other electronic devices;
- Inferring, using statistical or knowledge inference and data mining, from facts recorded in databases or in our future knowledge-based system.

Next, to whom do we want to present which information? Related to costs, these are the options:

- CD-ROMs and diskettes can be sold or given away for free according to which person or institution is requesting the information.
- Access to databases usually incurs costs because normally the developers of a specific database have to buy a costly database system to fill in the data.
- Access to Web sites usually comes for free and is open to everybody on the Internet. Therefore, we need a careful exploration of what to present and advertise within the net.

For a communication network or intranet on Internet devices such as the World Wide Web and discussion forums, access through Netscape Navigator or any other Internet browser is a necessity. However, searching for and selecting complex information on the Web is a difficult task because there is as yet no intelligent support or assistance for the user on the Web. This is particularly evident in the selection of services and information and for navigation through the complex space of available information. Database search facilities are widely used on the Internet, but are recognised as limited in capacity for adequate support.

The proposed RESTART project between the Netherlands Institute for Cultural Heritage and the Institute for Computer Science in Freiburg intends to develop new intelligent search technology for use within art conservation. The system will support users in selecting knowledge and in navigating through the Internet/the space of possible user information.

Within the RESTART project we will also set up a moderated mailing list or a newsgroup and nominate a skilled moderator. We will carry out an investigation of conservation-relevant databases for information on art theory and practice, museums and galleries, conservation and restoration. The goal is to set up a list of relevant information providers and connect this with a list of postal and email addresses of people and institutions who are cooperating at different levels of intensity, in order to provide them with access to the information. To this end, the following points have to be decided:

- Do we want free access for everybody to all information?
- If not, who do we want to connect with what sources of information?
- Which groups of people and institutions should be connected within which forums? Should these forums be open or moderated, i.e. will every mail posted be communicated to everybody within the net or should there be a person who selects relevant posting, and rejects irrelevant or otherwise inadequate ones?

Development of an expert system

Within the intended project EXPERT-RESTART, an expert (or knowledge-based) system on the conservation of modern art should be developed. Key words are Artificial Intelligence (AI), knowledge-based systems, case-based reasoning, data mining, and art conservation theory and practice.

Knowledge-based systems are built up from two different types of components: one form rules the interaction between system and users, the other contains knowledge and infers new knowledge.

As to the clients of the system, we also distinguish two types: providers and retrievers of knowledge. To provide knowledge, the expert and the knowledge engineer cooperate. The latter will gain knowledge from the expert in order to store it in the system as standard knowledge about the domain of expertise. The user who wants to gain access to this expertise can consult the system by starting a dialogue that rules the flow of information – putting questions to the system, receiving answers in return, and vice versa.

Depending on the kind of knowledge available within a special application, there are many options for the representation and structuring of knowledge-systems to infer that they are derived from known facts. For well-known and fixed rules, the best form of representation is the if-then rule, which may be weighted by probability factors. For example: “If the entire value of a work of art, including its cultural, historical, or local significance, is weighted by x, then the conservational expenditure should not exceed x.” New knowledge then is inferred by linking the rules, starting with the known facts or the contingent facts necessary for the consultation expressed as variables of the rules.

If knowledge exists in the form of example strategies, then it might be preferable to organise it by drawing upon case-based reasoning. Case-based reasoning makes it possible to reuse earlier solutions to related problems and so constitutes an effective means of capturing corporate expertise. It is also possible, and sometimes preferable, to use hybrid systems. I presume there is a lot of simple implied knowledge that can be packed into rules. The interesting new knowledge that will be the outcome of the project might typically be of a case-based type.

The system RESTART will make use of proven state-of-the-art case-based reasoning (CBR) technology, a commercial version, as a starting point for the development of the software. It will build a framework for the intelligent use of cases of decision making within conservation and the structural knowledge relating to the restoration and conservation of modern art – including database knowledge. By building intelligent transaction management and navigational indicators into the client system, it will optimise the use of current CBR technology and develop its own tools for transaction and navigation through the knowledge space.

***IJsbrand Hummelen* PROCEEDINGS**

1. An own network or a connection to existing channels?

Through the Internet, many of the participants were familiar with Web sites, discussion groups and mailing lists relating to conservation and restoration. The first subject that arose was therefore the question of the extent to which a network for the conservation of modern art would differ from existing opportunities for the exchange of information. Furthermore, it was pointed out that working with existing information and discussion lists could save an awful lot of work. Collaboration with the Conservation on Line (COoL) at Stanford University in the United States was particularly recommended.

A number of participants were of the opinion that the entire network could be incorporated into COoL – the questions and answers in the field of modern art could thus be easily included in COoL’s DistList (‘a moderated digest’, a discussion group in the field of conservation). After all, no more databases are required since they already exist in the form of compilations of questions and answers. Furthermore, COoL is easy to use and is free. Other databases, such as the CHIN (Canadian Heritage Information Network) literature database, have to be paid for their information.

2. Classified information and limited access

With regard to the setting up of a databank, attention was drawn to a number of problems that specifically relate to the conservation of modern art:

- Many artists are prepared to disclose technical information about materials and their working methods to be used in the conservation of their work, but they often do not want this information to be made public.
- Museums are not prepared to disclose all the information they have for the purpose of preserving works in their collections; the same goes for owners, curators and conservators.

For professionals to be able to freely exchange information that is relevant to the conservation of modern art, a (partially) closed network is clearly required. This immediately creates the problem of authorising access to the network. Who may have access and who not, and under what conditions?

As a general point of departure, it was accepted that it is better to begin with a small number of participants and expand at a later date. This would be more practical than the other way round. The Netherlands Institute for Cultural Heritage (ICN) is prepared to act as 'host' to the initial start-up phase. The Getty Information Institute and ICOM (International Council of Museums) were suggested as possible future 'hosts'.

3. The use of existing databases

What information should the network contain? There is a lot of information about artists' working methods and use of materials, as there is about the preservation and conservation of modern art. How can this be made accessible through a network in a short space of time? Participants in the discussion suggested that, firstly, a database of addresses is needed, with links to the information that can be found there. The guidelines talked about by Britta Schinzel are very important in this respect, but we all need to use a standard language. As far as the terminology is concerned, the network would have to use the AAT (Art and Architecture Thesaurus); however, one will have to be compiled that deals more extensively with modern art.

An important aim of the network should be to gain access to other databases by way of 'links'. The question then arises as to whether it will not be necessary to enable these databases to communicate with each other, and how far conversions will then be possible and necessary.

4. A knowledge-based system

A knowledge-based system, a dynamic device which gives different answers depending on the interaction of the users, would be more advanced. It has an explanation component telling you from which items it deduces its answers. A knowledge-based system is more complicated than a database, more dynamic and more interactive. The information providers are professionals; their knowledge is converted to the system by knowledge engineers.

The system requires two levels: a knowledge structure and integrated into this, when it has been built up, the knowledge itself. The extent to which the database and the knowledge-based system are developed independently of each other still needs to be researched. Britta Schinzel and her subject group could develop the structure; a feasibility study is required for this. The knowledge itself could possibly be temporarily stored in databases and already be made available through the Web site.

5. Conclusion

Communication and improved access to information are essential for the maintenance of high standards in the preservation of modern and contemporary art. Important areas for the exchange of information are:

- Artists' methods, techniques, materials and their meaning;
- Conservation/restoration methodologies, techniques and materials;
- Artists' materials, compositions, branch names, manufacturers, alterations;
- Treatment reports.

For the exchange of information an electronic network (Web site) has to be established.

Propositions for the short term:

- A moderated discussion group should be set up on the Web site;
- Expertise and email addresses of all participants in the symposium should be collected and made accessible on the Web site;
- Guidelines should be drawn up for discussion;
- A collection of bookmarks/links and postal addresses has to be made available.

In the long term:

- A thesaurus of terms of modern and contemporary art has to be built as part of the Art and Architecture Thesaurus (AAT);
- The feasibility of a knowledge-based system for supporting conservation decisions in modern and contemporary art should be studied;
- Virtual conferences should be organised on special themes so as to obtain knowledge for the system.

Registration and reinstallation of installations

Temporary installations and environments have become very important media in contemporary art, but their reinstallation is problematic precisely because they are meant to be temporary. Should they be reinstalled when the context of time has disappeared, for instance, or should they be represented by documentation? And how far can conservation treatment go?

Introductions

- Cecilia Illa Malvehy, conservator at the Fundació La Caixa in Barcelona, presented some case studies as examples of the approach and treatment of installations by Katherina Fritch and Pedro Mora.
- Carol Stringari, conservator at the Solomon Guggenheim Museum in New York, stressed the topic of documentation (see her lecture on page 272).
- Roland Groenenboom, curator at the Witte de With Centre for Contemporary Art in Rotterdam, discussed the temporality of works by Beuys, Thek and Tuerlinckx as examples of the centre's response to the conventional conservation approach of museums.

Main themes of discussion

- To reinstall or to represent temporary installations?
- Either way: the essential role of documentation
- Artists versus conservators
- Measures to take

Chairperson: Riet de Leeuw, policy advisor in the Cultural Heritage Directorate, Ministry of Education, Culture and Science, the Netherlands

Minutes: Ariadne Urlus, cooperator at the Witte de With Centre for Contemporary Art, Rotterdam

Cecilia Illa Malvehy CASE STUDIES IN THE CONSERVATION OF CONTEMPORARY INSTALLATIONS

The institution I work for, the Fundació La Caixa, is a collector of contemporary art works. Since we do not have any permanent exhibition space, the aim of my institution is to organise several temporary exhibitions throughout the year, showing the collection all around Spain and sometimes abroad. We also frequently loan to other institutions. The collection includes Spanish and international artists.

With some installations, mainly composed of varied mixed media, the most imaginative interventions in preventive conservation are necessary. These art works have often not been designed by the artist to resist all the manipulation and movement involved in temporary exhibitions. To avoid their premature degradation a specific intervention is needed, sometimes even re-designing the structure of the work itself, or else it should not be shown at all. Since the latter choice is mostly impossible, the aim of my job is to find a simple and practical solution to retard premature degradation as much as possible.

To illustrate this, I will present some case studies. It is a matter of searching for a better way to mount the different pieces, and if necessary to 'consolidate' the materials in order to make them more resistant, without affecting a work's exterior appearance.

The first case concerns *Support with virgins* (1987-89) by Katherina Fritch, 270 cm high and 82 cm in diameter. This work is composed of nine thin, round aluminium plates, each with 32 monochrome painted plaster sculptures – empty plaster moulds of the same virgin. The virgins were glued to the aluminium surface with



Top Katherina Fritsch, *Support with virgins* (1987-89), 270 cm high and 82 cm in diameter. Photo: J.B. Rodde
 Middle After travelling, several virgins arrived broken.
 Below The restoration of a virgin.
 Photos: Cecilia Illa Malvey

silicone adhesive. The aluminium plates with the moulds are superimposed forming a single column.

Despite the good packing when travelling, the inevitable vibration of the crate and the lack of flexibility of the plaster have caused damages. Several virgins arrived detached because the bond between the plaster and the aluminium was too weak. Other virgins arrived broken because the bond between the two surfaces was too strong, stronger than the empty mould plaster itself.

Since it was not sure that a glue strong and flexible enough to substitute the silicone could be found in a short time, I decided on a new system to avoid further risks:

1. All the plaster virgins were detached from the aluminium plates, which was easy to do;
2. The damaged virgins were restored by gluing (Imedio), filling the small losses (Modoetuc) and colour retouching (acrylic colour);
3. The aluminium plates were cleaned of the remnants of the silicone adhesive;
4. The figure's exact position on the aluminium plates was drawn by marking a central point;
5. Metal screws of 10 cm length were glued on the mentioned central points (Araldit Standard);
6. In the bases of the plaster virgins a central hole was drilled matching the metal screw, with the purpose of keeping the virgins in their upright position when mounted.

All the installation pieces are now packed individually and travel safely. The packing volume of the crates is smaller, and it is easier to handle light and small pieces than big and heavy ones. The whole is mounted only when it is to be exhibited.

The second case is that of Pedro Mora's *Sueño no 17* ('I was here before') from 1993, which measures 3200 x 44 cm. This installation is composed of three straight and two curved rolls of dried grass – the same type used for greens – and thirty-two brass bars. Each roll consists of several similar portions that have been glued with natural rubber (latex). When exhibited, the long grass carpet covers the entire room floor, including the stairs. It can be adapted to different exhibition rooms. To secure the pieces to the floor, the brass bars are used in the same way as for laying woollen carpets.

The dried grass rolls are very fragile and the dead roots are too weak. A natural decomposition process is going on, every manipulation increases the loss of earth and grass leaves. Due to incorrect handling, the last public exhibition of this work caused several cuts and holes in three of the five pieces.

These have to be restored. We started with a consolidation that only affects the reverse of the grass carpet. Since the natural rubber used by the artist to glue the pieces seems to work very well (good adherence and high flexibility), it was advisable to use it. Adding a thin and porous textile might also help. The application of those materials to small areas could be a good test for a general treatment.

1. With the pieces upside down, we 'restored' all the cuts and holes, gluing them with natural rubber and reinforcing these areas with thin cotton patch.
2. To obtain small areas of grass to fill a couple of holes, we cut a small piece located in the outer part of piece no. 5 which was very much damaged; the same natural rubber was used.

After consulting the artist we decided to consolidate the whole reverse of the grass carpet with the same natural rubber, diluted with water (50%) to increase the penetration into the earth. This consolidation retards the loss of earth and reduces the risk of damage during manipulation. To repair the visible loss of grass on the anverse we re-used the falling leaves, gluing them with the diluted latex. A general consolidation of the anverse is in a study phase.



Roland Groenenboom INSTALLATIONS AND INTERPRETATIONS

In 1993 in the Kunsthaus, Zürich, Harald Szeemann organised a retrospective exhibition of the work of Joseph Beuys who died in 1986. The exhibition was conceived as a “comprehensive homage to Joseph Beuys” and concentrated on the artist’s “compelling sculptural productions”.¹ The exhibition presented the artist primarily as a sculptor.

The art critic Camiel van Winkel wrote at the time: “This exhibition placed a one-sided emphasis on the constructive aspects of Beuys’s artistic practice. An image was conjured up for visitors of a controlled and restrained oeuvre, an almost systematically arranged, comprehensive body of finished works... Evidently ways of representing the deconstructive and reconstructive components within the museum context were not sought. With much respect – too much respect – for the artistic aura of the often materially worthless objects, the works were isolated from each other, with some being placed in vitrines. Nowhere, not for a moment, is the finished-unfinished made unfinished again.”² For Van Winkel, Beuys was first and foremost a performer and to present the remains of his actions as independent sculptures was pointless and wrong.

The controversy surrounding Beuys clearly illustrates the extreme polarisation of the debate about re-exhibiting temporary and/or site-specific installations like those made in the sixties and seventies by artists such as Beuys. On the one hand there is the opinion that (parts of) these installations can be shown elsewhere, independently of their original contexts. Szeemann concentrated on the finished objects which resulted from Beuys’s actions: he did not hesitate to finish what in his opinion were incomplete works ‘in the spirit of the artist’ wherever this was necessary to make them presentable as sculptures. On the other hand, there is the opinion that installations are the material remnants of an act that has no meaning without the determining intervention of the artist. Van Winkel argued in favour of a presentation which focused on the incomplete and allowed the public to reconstruct the original impulse in their minds.³

The example of Beuys shows how two visions of the work of one artist can be diametrically opposed to one another. This example touches on the core of the problem related to re-exhibiting temporary installations, particularly if the artist is deceased.

The basis for every presentation is an interpretation by the exhibition-maker.

Top Pedro Mora, *Sueño no 17* (1993), 3200 x 44 cm.
Photo: Fundació La Caixa

Right, above The natural decomposition process in *Sueño no 17* and a hole in one of the pieces.

Right, below The restoration of *Sueño no 17*:
gluing the broken grass with natural rubber and
reinforcing it with a piece of thin cotton patch.
Photos: Cecilia Illa Malvey

This point of departure makes the establishment of generally applicable rules exceptionally problematic.

In 1995, Witte de With Centre for Contemporary Art in Rotterdam organised a retrospective exhibition of work by the American artist Paul Thek (1933-1988).⁴ The exhibition was preceded by thorough research into the meaning and intentions of Thek's work.

Paul Thek was one of the pioneers of temporary installation. Between 1969 and 1974 he made a series of environments in various museums in collaboration with a group of artist friends, the Artist's Co-op.⁵ The environments were built up from an enormous range of materials including sand, scrap wood, chicken wire, painted newspapers, utility objects, flowers and stuffed animals. Many of the materials and constructions in the environments were very ephemeral. Theatrical lighting and tapes with music and sounds from nature intensified the experience for the visitor. The public was invited to make a ritualistic passage through the enormous environments.

Thek called these environments 'processions', referring to both the working process in which they were produced and the ritual character of the process. How could Thek's environments be represented in the exhibition? His working methods confronted us with a variety of problems concerning content and technique. The environments were not so much finished art works as stills from a working process that was necessarily stopped because the exhibition had to be opened to the public. The 'unfinished' was as important as the 'finished'. Some components travelled on to other locations where they were given a new purpose. Only *Dwarf Parade Table* (1969) and *Fishman in Excelsis Table* (1970) were preserved. Could we show these 'parts' as works?



Paul Thek and the Artist's Co-op, *Dwarf Parade Table* (1969) in the exhibition 'The Procession/The Artist's Co-op', Stedelijk Museum, Amsterdam, 1969. Photo: Stedelijk Museum, Amsterdam

Paul Thek and the Artist's Co-op, *Dwarf Parade Table* (1969) in the environment *Pyramid/A Work in Progress*, Moderna Museet Stockholm, 1971-72.

Besides the environments, Thek left behind an extensive oeuvre of autonomous works such as paintings, sculptures and drawings on newspaper. The exhibition at Witte de With largely consisted of a selection of these pieces. However, the environments could not be left out of a retrospective representation of Thek's work. It became apparent that attempts to reconstruct these environments were doomed to failure. A very free interpretation of the photographs and eye-witness accounts – all that remained of the environments – would only lead to confusion about the status of what was being shown. Instead of attempting to reconstruct the environments, we decided to present documentation: photographs, a video programme showing the environments, and texts in which they were described. This documentation replaced the original temporary and site-specific works.

The publication that accompanied the exhibition seemed to be the best means of documenting these extensive environments in word and image and making them 'accessible' to the public. *Dwarf Parade Table* and *Fishman in Excelsis Table* were shown in the exhibition.

The presentation of *Dwarf Parade Table* was based on the way the Artist's Co-op presented it at the Stedelijk Museum Amsterdam in 1969. The table – mainly made in Thek's studio – was installed in one of the galleries, with newspapers spread along the walls, on the floor. In this form, *Dwarf Parade Table* could be considered as an independent work. Only later, Thek used it as a part of larger environments. Furthermore, all the essential materials – apart from the newspapers and a few empty champagne bottles and pieces of crockery – were still present.

The presentation of *Dwarf Parade Table* in Witte de With received mixed reactions from the press. Besides the appreciation for the restraint shown with respect to reconstructions, a few people expressed objections to "champagne bottles with bar codes on newspapers dating from 1995 surfacing in a context that celebrated the 1960s".⁶ However, more important for us than using original objects and news-

papers from 1969, was the question why the artist had used them in the first place. Thek indicated the passage of time by adding newspapers to the work every day; a newspaper is news on the day it is published – and the next day it becomes old paper. Newspapers from 1969 would have had an enormous nostalgia value and would have distracted attention away from Thek's intentions.

The problems associated with re-exhibiting temporary art works is gaining in importance now that a new generation of artists is occupied with a process-related practice. One of these, the Belgian artist Joëlle Tuerlinckx, had a solo exhibition – entitled 'à partir de PAS D'HISTOIRE, PAS D'HISTOIRE une exposition de Joëlle Tuerlinckx' – in Witte de With in 1994. Using balls of paper, confetti, plastic, plasticine, string and tape, Tuerlinckx makes fragile arrangements in response to the exhibi



tion space. Tuerlinckx's working methods are characterised by a continuous search for form without it ever taking on a fixed composition. She describes this process of adding and subtracting as follows: "I never stop starting (or I never start stopping)".⁷

In the future, the process-based practice of artists like Tuerlinckx will present conservators with the difficulty or sometimes impossibility of showing works in their original material form again, as is the case with Beuys and Thek. Should we then search for ways of preserving this work for the future?

Tuerlinckx herself offered a solution to the problem. She documents her experiments in series of photographs.⁸ This documentation replaces the work which no longer exists once the exhibition is over. Beuys had a similar solution. When he sold his piece *Strassenbahnhaltestelle* to the Kröller-Müller Museum after showing it at the Venice Biennale in 1976, he surprised the buyers by placing the components on the ground alongside one another, rather than installing the work as it had been in Venice. When the museum remarked that this could not possibly be the work they had purchased, Beuys answered that the work had now been "discarded".⁹

The exhibiting, purchasing and conservation of art are still approached too much from the perspective of the traditional notion of the art work as an object. The question of how ephemeral and temporary works should be dealt with is difficult to answer from within this traditional framework. The actions of Beuys, the environments of Thek and the processes of Tuerlinckx can all be interpreted as a reaction to the museum. Their ways of working can be read as alternatives to this 'mausoleum' atmosphere, where forced attempts are made to 'embalm' art works in their original state and preserve them for eternity. When, in 1976, Thek found himself obliged to cease collaborating with the Artist's Co-op on the environments, he held the object-oriented attitude of the museums responsible:

"It seems silly to have to throw away efforts like *Ark*, *Pyramid-Easter* just because the museum system can't find a way to accept it. (...) Can't you educate

Paul Thek and the Artist's Co-op, *Dwarf Parade Table* (1969) in the exhibition 'Paul Thek – The Wonderful World that Almost Was', Witte de With, Rotterdam, 1995. Photo: Bob Goedewaagen

Joëlle Tuerlinckx, *PAS D'HISTOIRE, PAS D'HISTOIRE* (detail), Witte de With, Rotterdam, 1994-95. Photo: Bob Goedewaagen

your museum friends (...) of the IMPORTANCE of the shows? For them AND for us! Can't you educate them so that they will become willing to spend some thousands of dollars for a show that does NOT remain, that is NOT purchasable, that CANNOT be resold? That is the POINT of shows like *Ark*, *Pyramid-Easter*. And now it all has to stop, because no one bothered to find a way to support it. What a pity. And we're back where we started, looking at OBJETS D'ART."¹⁰

By ignoring the temporal aspects in the work of artists like Beuys, Thek and Tuerlinckx, we are denying their meaning, a meaning that Thek argued strongly for in the above-mentioned reaction. The fixing of these processes denies the temporality chosen by these artists. Memory and absence are concepts that art historians and conservators should respect and accept more readily. This is precisely what is important in the alternative practices of artists like Beuys, Thek and Tuerlinckx.

***Ariadne Urlus* PROCEEDINGS**

1. To reinstall or to represent temporary installations?

The history of installation art is for the most part still uncharted, although installations and environments have become a very important medium in contemporary art. In their introductions, the speakers used their actual reinstallations of works by Paul Thek, Mario Merz and Juan Muñoz as examples, and described the difficulty in decision making on this subject. The discussion that followed also revealed divergent positions in the way certain problems are addressed in relation to the different fields of expertise of the participants.

Many installations involve ephemeral materials and are meant to be temporary or site specific, and insufficient information regarding the installation – on both a material and conceptual level – makes it difficult to reinstall them. It became clear that on every level problems come with the very broad and complex field of installations and environments. In attempts to reinstall, every case should be judged individually.

Maintaining a work in its most original or best possible (material) condition is sometimes contradictory to the initial concept and wishes of the artist. Reinstalling installations that once were meant to be temporary, that were made for a specific site, made of ephemeral materials, or that only exist as plans or drawings, raises the question whether one should reinstall at all. It could mean having to 're-make' the work, or parts of it. In the retrospective exhibition 'Paul Thek – The Wonderful World that Almost Was' (Witte de With, Rotterdam, 1995-97), Roland Groenenboom replaced Thek's complex environments with documentation instead of attempting to reconstruct them. The documentation consisted of glass cases with original photographs and documents related to the environments, as well as photographic blow-ups of all major environments. Furthermore, filmed material on the environments as well as interviews with the artist on the subject were included in a video programme. The exhibition was accompanied by a monographic publication which documented and highlighted the environments in text and image.

Groenenboom stated that reinstalling – if both materially and conceptually justified – should imply giving the right impression of what the work was originally about. In Thek's case the importance of the work lies, according to Groenenboom, in the chosen temporality and not in the 'remains'.

Groenenboom showed different approaches towards reinstalling Thek's environments through examples of interpretations by various curators and conservators. He tried to stress the importance of not only taking the physical or material status of a particular work into account, but especially the concomitant meaning of the work and the artist's concept, ideas and conditions. In Thek's case, the environments were often about temporality, cooperation and site specificity and almost resembled performances. Groenenboom argued that in these cases one has

to dare let go of the material 'leftovers' and not think of these objects as the original art work.

This is also often applicable for works by a younger generation of artists. It means understanding for the decision not to reinstall at all. In some cases (like Thek's), the intensity, intention and meaning of the original works are being represented more precisely through documentation (original photos, documents, film/video programmes and so on) than an attempted reinstallation. The documentation provides a second life for the piece and is not meant for the purpose of reinstallation, but serves as a recollection of the work.

Not all participants easily accepted Groenenboom's views. It became clear that most conservators regard the (remains of) original parts and the original materials of the installation as the main point of departure in thinking about and performing a reinstallation. Therefore, the replacing of parts of the work or the materiality of the work in general became a major topic.

From the point of view of a conservator, it would be almost blasphemous to "let the material go"; keeping the original material in the best possible condition, which is the most original (in appearance) condition, has priority. One conservator stated that if you let go of the material and replace this with documentation, you are not exhibiting works by for example Thek, but an interpretation of his work instead. According to the same conservator, documentation is always an interpretation. The idea that with every reinstallation the work changes over time by these sorts of replacements or other interventions, could mean that a situation arises in which interpretation upon interpretation becomes the reality. Thus, in this view, the original (material) work should be the point of departure for reinstallation.

Conclusion: the ideas about reinstallations differed greatly between curators and conservators. However, the feeling that both parties should join forces in these cases was very much present.

2. Either way: the essential role of documentation

Carol Stringari's introduction stressed the topic of proper information. Everybody agreed upon the need for documentation and recording of all possible aspects of the work, since this could provide the tools for reinstalling installations in a way that does justice to its original intentions. In case the original work cannot be reinstalled, the documentation can be shown and studied – if the museum feels this is a correct approach.

Anyway, documentation of the first time a work is installed is very important. It can help to avoid misinterpretations. In the future, documenting and recording should not only involve the work itself, but also the initial concept and the attitudes, ideas and decision-making processes of the artist while installing the work – in short: the creative process. Documenting the creative process, however, is problematic in itself – on this the participants agreed. Attitudes are not that easily recorded and are always momentarily and thus subject to change.

Many museums buy fragile installations without really knowing what it takes to look after (the concept and content of) the work in the long run. Stringari stressed the importance of taking into account as much as possible the consequences of buying these sorts of installations on all levels within the organisation, such as: what are the artist's intentions, are there ephemeral materials involved, is the work meant to be site-specific and so on. Often the responsible curator exclusively owns the information. Better communication, the sharing of information and knowledge between professionals of the different departments of an institute, would help a lot in decision making on installations and reinstallations. This sharing should go even further and transgress institutions. Therefore, information should be made accessible and intelligible.

In the discussion that followed, all agreed on the need for available and intelligible information, preferably through a worldwide network.

3. Artists versus conservators

Cecilia Illa Malvehy highlighted some cases through which it became clear that there should be a balance between conservator and artist in taking decisions on reinstalling or conserving an installation. She agreed with Stringari that directors should be aware of specific problems that arise with purchasing installations, such as the costs involved in storage and preservation, transport and reconstruction.

In the case of La Caixa, most of the artists of whom work is purchased are still alive. That does not automatically mean that they are consulted when an intervention is regarded as necessary. Illa Malvehy stated that when a conservation treatment does not affect the appearance of an installation, it is not always necessary to consult the artist. This statement provoked some critical comments and questions concerning the role of the artist and the responsibility (and freedom) of the conservator. Most of the participants stressed the need and importance to make use of the artist being available for consultation. No matter how thorough research methods may be, a majority felt that the artist plays a very important role in the reinstallation or conservation of the work.

Some participants, however, highlighted the dangers involved by giving too much space to the wishes and ideas of the artist. One might find that the artist has changed his mind about certain aspects of the work over the years, in which case his advice will cause change instead of preservation of the original features of the work.

4. Measures to take

The seminar made it clear that there is no general theory or policy to apply to the reinstallation of installations. Each case should be judged individually, with its own set of rules depending on the intentions of the artist, the materials used, etcetera.

Stringari mentioned the possibility of using (a section of) catalogues as a source of information about important topics in this respect – a detailed and correct listing of materials for instance. Illa Malvehy suggested that everybody should videotape all (re-)installations as well as the actual installation, in order to have a well documented archive in the future. Collaboration of institutions worldwide and the distribution of information through, for instance, the Internet, should result in a sort of databank that can be of use for decision making on reinstalling installations.

This solution was welcomed by everybody, although also everybody was aware of the enormous efforts and resources this would require. The information should be translated into one intelligible code or language or format; all visual information should be digitized and distributed or made accessible and available in some form.

Another condition for a better understanding in decision making on installations is education. There should be a shift in curricula at art schools and universities. This should involve ensuring that future curators, conservators, art historians and registrars are acquainted with notions such as temporality, fragility, working in process, site specificity and actions – very important notions for the right understanding of contemporary art and for decision making on installation art.

Concerning the representation of installations, everybody agreed on the need to overcome rigid categories – curator, conservator, registrar – in decision making by joining forces. One should also strive for a balance in the relation between conservator and artist, in reinstallation and/or conservation.

Conservation problems of contemporary photography

While artists experimenting with photography often disregard technical rules, the photographic industry tends to manufacture products of increasingly inferior quality. As a result, photography has become a very vulnerable medium prone to rapid deterioration.

Introductions

- Mogens S. Koch, lecturer at Det Kongelige Danske Kunstakademi/Konservator-skolen in Copenhagen, explained the technical conservation problems of photographic art and suggested general solutions.
- Hans de Herder, director of the National Photographic Conservation Studios in Rotterdam, analysed possible ways of conserving Sigmar Polke's *Sao Paulo 1975*.

Main themes of discussion

- Increasing the life span of photographic art
- Artists' versus owners' rights
- The role of museums
- Special training required

Chairperson: Matti Boom, curator of photography at the Rijksmuseum Printroom in Amsterdam

Minutes: Susan Breen, conservator at the Kollektief Restauratie Atelier in Amsterdam

Mogens S. Koch PHOTOGRAPHS IN MODERN ART: A CONSERVATOR'S NIGHTMARE

Is it possible to preserve modern art that uses photography when the photographic materials are in a state of deterioration? Or should we simply document these artefacts as they deteriorate, and display reproductions for future generations?

Artists either use photography as they would a notebook – as a more informal part of their praxis – or, as has been the case over the last forty to fifty years, as a means of artistic expression in itself in the form of photographs, coloured media on photographs, or collage.

From its very inception, photography has attracted 'alchemists'. The desire to achieve technical perfection in recording reality as accurately as possible contributed to the relative stability of early photographic artefacts. Even during the 1950s, when artists began to use photography as an element in collage, technical perfection was still respected.

In the early 1970s, however, a new trend appeared in which artists began to treat photography as a means of expression in itself. In apparent defiance of what had gone before, they played down technical perfection or disregarded it altogether. Instead they worked with solarization, created discoloration by mixing chemicals, manipulated photographic paper prior to exposing it, or experimented with other techniques. These artists didn't care to be bound to external limitations, preferring to have total control over their work. The last thing they wanted was to be distracted in the middle of the creative process by having to think about technical aspects such as correct processing, quality materials or perfect mounts. On the contrary, these artists wanted to test the boundaries of their media.

One of the reasons museums purchase contemporary works is to enable future generations to study what we regard as 'modern art', in the same way we study J.M.W. Turner or Vincent van Gogh. This objective is important to bear in mind because materials that are not used in the proper way may not last: when artists

experiment with their materials, no great degree of permanence can be expected. Many artists may lose all their work and have no physical oeuvre to leave behind when they die.

Unfortunately for conservators, this development coincides with a general tendency in industry to manufacture increasingly inferior products – in terms of stability and permanence – unless special attention to quality and manufacture is called for. Among the many materials used by artists today, photography is one of the most vulnerable with regard to both processing conditions and the surrounding environment.

THE PRESERVATION OF PHOTOGRAPHIC MATERIALS *If photographs are to have any degree of permanence, the processing of prints must be done according to a specific set of rules. A summary of Mogens S. Koch's technical explanation of these rules follows here.*

The support of all photographic material contains a light-sensitive layer consisting of gelatine and a light-sensitive silver halide salt. This is developed until the exposed silver salt has been reduced to elemental silver; further development is then stopped by altering the pH value. The next step is fixing, to ensure that the non-exposed silver salt is removed. After that, the photographic material is rinsed to remove residual chemicals.

To enhance the permanence of the image, the image silver can be toned with sulphide or selenium. Through this process, the photograph will become relatively inert and far less susceptible to deterioration processes. There are two basic kinds of support:

1. Traditional fibre-based paper, consisting of four chemical layers – alpha cellulose, barium sulphate, an emulsion of gelatine with a silver halide (commonly silver bromide) and a protective layer of hardened gelatine.

This paper is relatively inert and less susceptible to deterioration caused by environmental factors.

2. Resin-coated paper:

- The modern black/white paper, consisting of five layers – polyethylene, alpha cellulose, polyethylene combined with titanium oxide, the emulsion (similar to that of fibre-based paper, but containing 40 per cent less imaging material) and hardened gelatine.

This paper is generally less inert and is highly reactive to environmental factors, especially if it has not been toned after processing.

- Colour paper, consisting of seven layers – polyethylene, alpha cellulose, polyethylene combined with titanium oxide, then three layers of emulsion (during processing, the organic dyes of yellow, magenta and cyan are formed according to a subtractive system), again covered with hardened gelatine.

Because this paper is generally less inert – at best stable in darkness but not in light – colour photographs will almost always fade in time.

Furthermore, paper consists of a cellulose fibre which can degrade when exposed to oxygen, acidic environments, air pollution and formaldehyde. Chemicals from developing and fixing processes can also degrade it.

The image-forming element is usually metallic silver, though other metals have been applied as well. Modern colour or chromogenic black/white film techniques are based on organic dyes, which have a tendency to fade when exposed to heat, moisture and light, and even darkness. Silver images, on the other hand, degrade when the elemental silver oxidizes to form reactive silver ions: these are prone to migrate from the image layer in all directions and form a blue metallic sheen on the surface ('silver mirror'). Contributing to this degradation are adhesives in enclosure seams (sulphur) or print mountings (thiourea), ageing cardboard and containers (peroxides), car exhaust gasses (nitrogen and sulphur oxides), electrostatic copy

machines (ozone), fingerprints (organic lipids, sodium chloride), newsprint (ground wood fibres, hydrogen sulphide), oil-based paints (peroxides) and residual processing chemicals (thiosulphate and its compounds). Moreover, silver has a great affinity to hydrogen sulphide so that black silver sulphide is easily formed – manifested by a coat of yellowish to reddish brown ‘fog’ which subsequently turns black.

The image-forming substances are suspended in a binder, commonly gelatine, which also ensures adhesion to the support. Gelatine tends to absorb moisture and swell; alkalis, acids and air pollution can break it down; and since they are excellent nutrition for harmful bacteria, photographic materials should never be stored in warm, humid surroundings.

Standards for storing photographic materials are provided by ANSI, ISO and national standards organisations. These give the temperatures and humidity parameters for optimal storage conditions.

As for the print materials of newer technologies such as thermal wax transfer, thermal dye transfer (‘dye sublimation’), ink jet and electrophotographic colour, the rates of degradation and the potential for physical problems resulting from low temperature and/or low relative humidity storage are currently unknown.

Treatment is possible in the conservation of photographs. There is a wide range of options varying from simple surface cleaning and consolidation to chemical restoration methods which convert the discoloured image silver back into elemental silver. With objects that are composed out of a variety of materials, the options for treatment are often limited to stabilizing additional layers or improving the mounts.

In the case of collages, it may be possible to separate the individual layers and treat each component as an object in its own right. The collage may then be reassembled and remounted, and a poor mount replaced. Here, the options are not unlike those for the treatment of graphic art. However, methods widely used in treating paint on canvas cannot necessarily be applied to coloured media on photographs without causing irreversible damage. In any case, the methods of treatment are open to debate and the options depend on the artist’s methods and artistic mode of expression.

In general, it should be stressed that the conservation/restoration of modern objects cannot be regarded as a routine matter, but requires a collaborative effort from the curator, the artist (if alive) and the conservator in discussions about the aims and methods of treatment. This may lead to the conclusion that the object either cannot or should not be restored.

Another problem is the law: are we even allowed to intervene? In EU countries, an artist retains the right to intellectual property as long as he/she lives, and the heirs until fifty years after the artist’s death (though longer in France, see Annemarie Beunen on page 222). What can be done if an artist is opposed to conservation or restoration treatment being carried out on his or her art work and we want it to be displayed once the copyright term has elapsed?

As a preventive measure, collection management policy should include a density monitoring of selected areas on photographic objects. Monitoring should be done on a regular basis, so that changes can be detected before serious damage occurs. When and if changes are detected, measures should be taken to limit the amount of time such objects are exhibited.

In any case, the museum should compile full documentation on each object at the moment of acquisition as well as ongoing reports of any changes – even if these cannot immediately be countered with dependable conservation/restoration methods.

***Hans de Herder* EXPERIMENTAL PHOTOGRAPHY: POLKE AND HIS INGREDIENTS**

At a meeting at the Kröller-Müller Museum in the Netherlands early 1996, the Acquisition Advisory Board was contemplating the purchase of Sigmar Polke's set of ten photographs entitled *Sao Paulo 1975* when one member raised the question of the work's life expectancy. The curator telephoned the National Photographic Conservation Studios in Rotterdam and requested an examination of those works in question.

The Silesian-born artist Sigmar Polke (1941), who received the Erasmus Award in 1994, works with painting and photography as well as other media and mixtures. His main fascination is with colour, both in its original and traditional function and the changes that take place over time. For a correct interpretation of Polke's photography, his working methods had to be studied. A search through the literature revealed that in 1995, the Los Angeles Museum of Contemporary Art had published the book *Sigmar Polke Photoworks: When Pictures Vanish*, which comprises not only a catalogue of these works but also a description of how Polke uses the photographic laboratory to make them. I quote:

"In 1968, the year after he left the Kunstakademie, Polke published a portfolio of 14 photographs....Few of Polke's early prints survived, perhaps because he was so immersed in the delight of his self-conducted tour through the vagaries of photographic seeing that he scarcely thought about keeping track of his lessons and mistakes, or about finalising any individual episode as a picture to present to the world. He was hard at play. Sometimes it was enough just to get the idea down, get the image 'in the box'; printing the negative was not always required. Other times it was enough to see the picture come up in the bath. The routine follow-through – the fixing, washing and drying necessary for permanent, unchanging images – would kill the ferment in the brain. It went against the grain to stop the heady progress of discovery to worry about the finish."

In the late sixties and seventies, art schools were certainly not places where one learned about techniques and crafts. Teachers encouraged their students to visualise their ideas as directly as possible, and Polke was one of them. He didn't bother about the technique of developing, he learned by trial and error. As with most of his colleagues, his interest was triggered by the joy of experimenting in the darkroom: double exposures, moving the camera with the shutter open, printing several frames on top of each other, all this gave new and exciting results.

The next logical step was to experiment with the chemicals, dripping these on the paper, using exhausted fixer, switching the light on, applying developer with a brush directly to the paper. Every darkroom technician's nightmare became the fascinating world of the magic of photography. The darkroom became a laboratory with the alchemist in charge.

Experimenting with photographic materials is not new. Particularly in the early days, almost every photographer put his name to a new process. El Lissitzky, Moholy Nagy and Man Ray are well-known examples, the latter giving his name to the Rayograph. Polke contributed his invention – the Polkegraph – to this well-established list. He compiled a handbook of extremely toxic recipes in which mixtures of fixer and developer and a touch of vinegar (commonly known as stop bath) produced highly individual objects.

Polke taught himself to master photography in a wholly unorthodox way: instead of controlling the chemical process, he learned how to liberate the chemicals so that their reactions became explicit and expressive components of his pictures. He courted accident and wedded the birth to the life of the photograph.

After visiting New York in 1973, Polke started to use larger photographic paper, projecting onto what he called 'technical paper' – Agfa P90, which has an extremely thin layer of silver chloride and gelatine on an equally thin layer of baryte, revealing the paper structure while the fibres remain invisible. He would use the bathtub at home as a tray. By folding the prints, he was able to submerge the work in the chemicals; the resulting air bubbles, paper folds and uneven spreading of chemicals were left to create unique images.

After a trip to Afghanistan, in 1974, he refined his techniques mixing chemicals and folding the paper. During his visit to Sao Paulo in 1975, he laid the basis for the set of photographs the Kröller-Müller Museum was to worry about twenty years on. In June last year the photographs were analysed at the Dutch National Photographic Conservation Studios. It appears that the prints are made up of several layers which all seem to interact with each other.

- The top layer appears to be a polyurethane lacquer. This 'varnish' has yellowed, a process that will shortly become irreversible due to cross-linking: chemical bridges forming within its structure will prevent solvents from penetrating the varnish. Ultimately, the varnish can not be removed.



- Some of the prints have a second top layer containing what appears to be retouching (though not in a matching colour) and patches of paper. Presumably, these are repairs. The photographic paper is very thin and when wet extremely fragile, so it may have been torn during the developing process – although it is not known who applied the patches and retouching.
- The grey-toned layers are created from materials that may actively seek a change within the layers themselves and/or interfere with those directly next to them. This may result in new, chemically unstable substances affecting surrounding layers through processes such as hydrolysis, cross-linking and silver reduction or oxidation.
- The primary support is a layer of P90 'technical' paper, a half-tone product sensitized with silver chloride. Polke undoubtedly immersed this since it contains the chemicals for developing and fixing, and knowing the way he works one may expect that not all the chemicals have been washed out. A few of the images are so dark that Polke himself commented that he had forgotten they were in the bathtub.

- The photographic P90 paper contains just three layers: baryte, silver chloride and a gelatine binder, as mentioned earlier. The image-forming layer is not visible even when magnified thirty times. The base material is excellent, a fine quality cotton paper that would pass the Photographic Activity test instantly.
- Finally, this multilayered object is mounted on a fabric support stretched on a wooden frame. The components of the adhesive have not yet been identified, but may influence the paper if there is high acidity or additives. The fabric, with its dual colour, seems to be a mix of hemp or linen and cotton; although it appears stable, older fabrics can eventually become acidic and the components for hydrolysis are present. The acids in the wood may be – to a minor extent – prevented from migrating by the wood dye. To separate the fabric from the wooden frame, a conservator recently added cardboard. This is of museum quality, acid free and probably buffered.

Knowing these facts, the question remains: what is the life expectancy of Polke's *Sao Paulo 1975*? Can these beautiful images be preserved? The mixture of materials precludes the possible optimal storage conditions for each component: the graphic paper should be stored at three degrees centigrade and a relative humidity of about thirty-three per cent. This, however, would not be good for the fabric and the wooden frame since both require a higher relative humidity. The polyurethane 'varnish', on the other hand, could crack when stored at too low a temperature. Nevertheless, the arguments for cold storage are simple: energy is the main external cause of degradation processes such as hydrolysis, and lowering the temperature removes the energy.

The life span of this art work is impossible to predict. Under stable, cold conditions it will last longer than if stored in a painting depot environment. Only regular densitometric readings can provide evidence of changes in the images. Their decline may be announced by silver oxidation, silver reduction and a darkening of the image until it is completely blacked out. The artist's alchemical way of working means that no conservator will be able to prevent this.

***Susan Breen* PROCEEDINGS**

1. Increasing the life span of photographic art

Is it possible to preserve modern photographic art in a state of deterioration? This was the opening question. The final answer seemed to be 'yes' – not implying that the objects should be conserved and restored, but rather that optimal care must be taken in their storage, handling and display.

Throughout the seminar, the emphasis was placed on preventive rather than interventional conservation practices. By following the storage parameters laid down by the photographic industry, owners will undoubtedly increase the life expectancy of their objects. However, for artefacts that are made of a variety of materials, the question of storage is much more problematic and optimal conditions may be impossible to maintain.

In any case, precautions should be taken to detect changes in the object and avoid serious damage if possible. To this end regular assessments of each object should be carried out: maintaining thorough documentation and taking regular densitometric readings from selected areas on the photograph.

For works that are deemed too vulnerable for display, the alternative of using high quality reproductions was suggested. This option, however, was unanimously rejected and thought only feasible for archival usage (if consistent with copyright laws).

Conservators' question: what is the point of keeping an object in ideal storage conditions and prolonging its life span if it can never be displayed? Suggestion:

limit the display time of a vulnerable work to one month every three years – this would still prolong its life considerably.

2. Artists' versus owners' rights

If artists do not follow the photographic industry's instructions, they have to accept that their works will degrade. In many cases they may even cultivate this, with the processes of degradation becoming part of the art work. This inevitably presents further problems for conservators: how can they know whether a degradation is intentional or due to poor technique?

In such cases, correspondence with the artist is of the utmost importance. Although it is highly unlikely that artists will change their methods of expression to make the life of conservators and curators easier, it was hoped that by working together with them artists could clarify what levels of preventive or even intervention conservation (if any) they would find acceptable in the future.

The questions surrounding the artist's intention and possible treatments of the work by the conservator inevitably lead to legal problems. For museums, the preservation of artefacts is of the utmost concern. In some instances, however, even basic preventive measures such as optimising storage conditions may conflict with the artist's opinion and rights (see Annemarie Beunen on page 222).

It was concluded that, when proposing conservation treatments, the artist should be consulted and/or the copyright laws considered.

It was also suggested that when purchasing an object, the buyer could ask the artist for the right to stabilise it (making it very clear that the work would be stabilised and not restored). If artists were to sign written agreements to this effect, some of the conservators' problems might be solved.

3. The role of museums

The problem of limited permanence led to one of the main questions: should museums of modern art invest in photographic work that is known to be in an active state of decay? The general opinion was that this should not influence their decisions; as long as they understand and can accept the problems of instability at the time of acquisition, they have a duty to collect and display these works. It was generally agreed that before purchasing a photographic work the buyer should be made fully aware of its inherent problems and possible life span.

The limited life expectancy, however, questions the whole role and function of the modern museum. In the past, institutions collected and stored art for the enjoyment and education of present and future generations. Because much of today's modern art, especially photography, will not last long enough for future generations to enjoy, the prime directives of museums may need to be reassessed.

4. Special training required

As substantiated by the delegates' professions – scientists, students, curators, photography conservators and a majority of paper conservators – institutions often expect their paper conservators to treat photographic art works. It was stressed that photography conservation is such a separate entity, with a multitude of specific conservation problems, that it should warrant its own training schools and specialists.

Moreover, the fact that photography was not named in the first symposium mailing and the participants had to demand their own workshop, the question of whether photography is taken seriously as a valid means of artistic expression obviously still remains.

Plastics: identification, degradation and conservation

The plastics used in art works are hard to identify, especially when degraded. Rather than interventive treatment, preventive conservation is called for. To assist conservators, standardised lists describing both the various types of plastics made by industry and the stages of degradation are to be developed, as well as boxes of samples for reference. For the exhibition and storage of plastic objects, detailed guidelines are needed.

Introductions

- Thea van Oosten, conservation scientist at the Netherlands Institute for Cultural Heritage, Amsterdam, elaborated on the characteristics of various plastics used in art works and indicated ways to conserve these. See her article 'Here today, gone tomorrow' on page 158.
- Brenda Keneghan, conservation scientist at the Victoria and Albert Museum in London, reported on the museum's survey of eight thousand plastic objects and described some deterioration phenomena of the polymeric materials giving most cause for concern: natural rubber, cellulose nitrate, cellulose acetate and PVC, but foremost polyurethane foam. Some conservation approaches were presented.

Main themes of discussion

- Methods to identify polymers
- A terminology describing stages of degradation
- Experiments in conservation

Chairperson: Pieter van Broekhuizen, head of consultancy and research at the Centre for Chemistry, Occupational Health and Environment of the University of Amsterdam

Minutes: Karin Coopmann, at the time project cooperator with the Foundation for the Conservation of Modern Art, Amsterdam

***Brenda Keneghan* PLASTICS RESEARCH IN THE VICTORIA AND ALBERT MUSEUM**

As a major part of the strategy for the conservation of objects made from polymeric materials, the Victoria and Albert Museum undertook a survey of plastic objects within its various collections. To date, approximately eight thousand objects have been identified as plastic or part plastic. Although the majority of these objects seem to be in a stable condition, the greatest problem being surface dirt and minor abrasions, there are serious problems with specific materials. These problems recur regardless of what form the object takes. The polymeric materials giving most cause for concern are: natural rubber, early semi-synthetics such as cellulose nitrate and cellulose acetate, polyvinyl chloride (PVC), and polyurethanes.

Natural rubber is found in such objects as cushioning, costume and flexible toys. Degradation due to oxidation has caused loss of flexibility and mechanical integrity; many of the objects have become dry and brittle.

Cellulose nitrate and cellulose acetate, which are semi-synthetic polymers, were the first materials to be made specifically to imitate natural polymers such as amber, ivory and tortoiseshell. They are, therefore, found in a large number of collections such as furniture, jewellery, textiles, ceramics and so on. They were produced by the chemical modification of the natural polymer cellulose. Both of these materials are inherently unstable and degrade with the subsequent formation of acidic vapours. These vapours may be autocatalytic, thus speeding up the degradation process. They may also cause the disintegration of neighbouring objects.

Polyvinyl chloride (PVC) is one of the most adaptable of the purely synthetic polymers. More than any other polymer it has benefited from the use of additives, especially plasticisers, which have enabled it to be produced with various degrees of flexibility. Loss of plasticiser and darkening in colour are two common indications of PVC deterioration.

Degrading *polyurethane foam* has been identified as the most serious conservation problem in the Victoria and Albert Museum's collections of objects made from plastic. It is such a widespread phenomenon that it was decided to undertake a systematic investigation. The aim was to elucidate the chemical processes involved, to see if there are any practical solutions available.

The major applications of polyurethane foams are furniture cushioning, textiles, carpets, packaging, insulation, toys and sporting goods. Among museum collections they feature predominantly as cushioning, textiles and toys – for example the children's storybook character *Larry the Lamb*.

This object is one of a set of thirty-three polyurethane foam puppets now in the Victoria and Albert's collections that were the stars of the television series *Larry the Lamb in Toytown*, broadcast in the early 1970s. Several of the puppets are on display in their own case. When the case is opened there is a pungent odour. More figures are in storage and any handling produces detachment of the exterior foam as a powder.

The air in the case has been analysed by GC/MS and oxidation has been confirmed as the cause of this severe deterioration of the polyurethane.¹ This type of degradation has also been encountered in cushions, toys and other objects made from expanded polyurethane.

While conducting a condition survey of the twentieth-century Furniture Collection at the Victoria and Albert Museum, my colleague Roger Griffith discovered that the most problematic objects in the collection were made from the synthetic polymers polyurethane and PVC.² Polyurethane was introduced to furniture production during the middle to last quarter of the 1960s. It is found in foams and as a synthetic 'faux' leather used in the upholstery of seated furniture.

PVC was also used in the manufacture of fake leather furniture covering. The 1960s were a time of experimentation in furniture design and materials, and the developing synthetic polymers were welcomed. The *Blow* chair in 1967 was the first piece of inflatable living room furniture to be successfully mass-produced. It utilised the properties of lightness and transparency inherent in PVC. The philosophy behind *Blow* was that its quality of transparency and transience contrasted with traditional values of solidity and permanence of furniture up until this period. As the photograph shows, however, the PVC has lost some of its transparency and yellowed considerably. Also, though not visible, much of its flexibility has been lost due to the migration of plasticiser.

Due to the inherent instability of the polymers involved, the conservation of objects made from synthetic materials cannot be approached in the same manner as that of traditional materials such as ceramic or glass. The conservation options currently under consideration are:

- interventive conservation methods using clear synthetic coatings,
- preventive conservation methods based on oxygen scavengers,
- improved storage.

Larry the Lamb, degraded polyurethane foam puppet. Photo: Victoria and Albert Museum

Blow (1967), PVC armchair. Photo: Victoria and Albert Museum

Interventive conservation methods using clear polyurethane coatings

As there are over thirty foam puppets in the collection discussed above, all in a serious state of degradation, it was agreed that one could be used for testing. All these figures will degrade further, so it was decided to try out some experimental

techniques. The possibility of using a clear, flexible polyurethane coating compatible with the object is being investigated. Problems have arisen, however, with the method of application of this coating. Application by use of an aerosol resulted in further damage to the test piece, as the aerosol pressure detached even more foam from the object. Application using a brush resulted in indentations in the test piece. The third method, which has not yet been investigated, is commercial vapour deposition. Its success, however, also depends on the object being stable enough to withstand an applied vacuum.

Preventive conservation methods using oxygen scavengers

This option is based on the use of oxygen scavengers to remove the oxygen from the environments of the objects, thus eliminating the possibility of oxidation. This is achieved by enclosing the object in a specific membrane and flushing with nitrogen. The scavenger is then placed within this deoxygenated environment and the membrane sealed. This is an expensive option in terms of time, space and money, which has not been further investigated.

Improved storage and documentation

In the case of objects made from modern synthetic materials, storage and documentation are extremely important. Proper storage to retard the degradation and the establishment of concise and detailed documentation are avenues worth exploring. Two types of storage systems have been designed by Roger Griffith regarding twentieth-century furniture. These are 'low-tech' options investigating covering the object with various protective sheets, and 'high-tech' options again using oxygen scavengers.

The documentation should include: photography; detailed drawings of construction, either from the manufacturer or maker; product description and material lists; results of scientific analysis when necessary; as well as storage and display recommendations.

From this brief discussion it is clear that objects made from synthetic polymers will continue to degrade unless steps, either interventive or preventive, are taken. In choosing the method of conservation, however, several points must be taken into account. These include danger to object as well as the reversibility of treatment and cost. Lack of knowledge regarding future danger to the object from treatments is one of the main reasons why preventive conservation options are increasingly being pursued. The consideration of reversibility of treatment is often not applicable to polymeric materials, as irreversible chemical reactions may occur. The possibility of treatments reacting with substrate cannot be ignored. In order for this to be averted, the chemistry and degradation mechanisms of each individual polymer must be fully understood. Unambiguous identification and full understanding of the chemistry of individual polymeric materials is essential for the development of both preventive and interventive conservation methods.

***Karin Coopmann* PROCEEDINGS**

1. Methods to identify polymers

The questions most often asked by owners of plastic art objects are: "What kind of plastic was used?" and "How long will it last?" For conservators it is often very difficult, if not impossible, to answer these questions. To start with, an identification table for plastics would be very useful, as well as a thesaurus of chemical and trade names, to help conservators out. It is always very important to know which plastic one is dealing with, both for the exhibition, storage and treatment of a degraded object.

The main problem is that identification of the material takes place when the plastic is already degraded, while deteriorated material differs from the original. So an identification table is needed for new as well as degraded plastics. The possibility of constructing such a table is still being studied.

Most plastics contain one or more additives. Every now and then, the polymer industry changes the formulation of these additives, so the composition of certain types of plastic can change in the course of time. Meanwhile, the trade name often stays the same. Therefore information from the polymer industry about the composition of the polymers is needed; the production year of the plastic must also be known. As a solution, a database containing trade names combined with production years and additives used may be put together.

In this way the problem is becoming more and more complex. First there was only the identification of the main component, now there are also the different additives. The conservators in the discussion thought it was useful to know all about the composition and degradation of polymers, but believed that this was simply not feasible. What they needed to know was how to conserve a plastic art object. They wanted specific information about the plastics used only if it matters for the conservation treatment of the object. Therefore they would like to have a list of very vulnerable plastics and plastics that might be dangerous for other objects in the collection. Although we are not yet as familiar with plastics as we are for example with wood or metals, we can learn a lot about how the object was made, from which material, and in what state it is by simply looking very carefully at the object and taking into consideration its date, smell, weight and so on. Combining their knowledge on objects and materials with an identification table, conservators can then take care of preventive conservation such as storage and labelling the material correctly. When an object is more seriously damaged and more specific information about the material is needed, it can be analysed by a conservation scientist in consultation with the conservator.

Conservation scientists felt it was always important to know exactly the type of polymer involved, whereas conservators thought that in some cases a general description of the material is sufficient. Both conservators and conservation scientists, however, felt the need for a general training in the identification of polymers. Generally, workshops are preferred over courses – for example a one day workshop each year.

The conservators would also like to have a box with samples of plastics, to compare them to unknown plastics in the museum. It might be a good idea to have people from different countries make an inventory of their kind of sample boxes.

2. A terminology describing stages of degradation

The slides of severely degraded polyurethane-foam puppets in the Bethnal Green Museum of Childhood, as shown by Brenda Keneghan, did not lead to significant conclusions on the causes of this degradation. The exhibition circumstances of the objects were different and so was the extent of degradation. Pigments can also influence the degradation of a plastic object; some metals in pigments act as a catalyst for degradation reactions. This was however recognised by the polymer industry and they have changed various pigments because of it. There is a lot of literature to be found on the subject. Besides, some conclusion on the influence of pigments can be drawn from the examination of one of the pilot objects in the Conservation of Modern Art project, *Still Life of Watermelons* by Piero Gilardi. The leaves in this object are all of the same thickness, but their colours differ: some are brown, others are green. The brown leaves are only slightly painted whereas the green leaves, which are more degraded, have been totally soaked in paint. So pigment can accelerate the degradation.

Of all the polymers, polyurethane foam gives most cause for concern because

the degradation process affects the whole object. With foam objects one can actually count the years by the depth of their degradation. This degradation is not like a patina protecting the object from further deterioration. Polyvinyl chloride and natural rubber may also cause serious trouble, but with these and other polymers the degradation takes place more on the surface.

To describe the extent of degradation is not an easy matter: do we all mean the same thing, for instance, with the words 'crack' or 'scratch'? A thesaurus of terms to describe various states of degradation is needed. About three years ago forty-five members of the Historical Plastic Research Scientists group began a network among conservation scientists to find out from people working in museums what problems they have with plastic objects, and in what areas they have specialised. This group of scientists is now linked to the Modern Materials Working Group of ICOM. The group also composed a list of terms to describe amounts of degradation in plastic art objects. It is however very difficult to standardise such a list and to translate it into other languages and hit on the exact meaning of the words. If such a list were to be made, it has to be communicated to and from between conservators and scientists. An appropriate atlas exists with terms to describe the deterioration of paper and this could be used as an example.

3. Experiments in conservation

There is not yet much experience with the restoration of plastic art objects. Of course there are conservators who have tried certain methods, but the results of these experiments are not commonly known. Because the earlier mentioned puppets in the Bethnal Green Museum of Childhood were literally falling apart, the museum felt that active conservation was needed, or else the objects would be lost. Brenda Keneghan used one of the thirty foam puppets for testing, investigating the possibility of using a clear, flexible polyurethane coating (Dunlop). The results of this experiment are not yet known. Many of her colleagues were against this method of impregnation, because of its irreversibility and the colour change of the object's surface.

There is also little experience with the preventive conservation of plastic art objects. Together with the British Museum, the Victoria and Albert is researching a method using oxygen scavengers. After totally sealing the object in a special barrier plastic with a low oxygen permeability and adding oxygen absorbers (Ageless®), the oxygen is removed. An oxygen detector is used to measure the amount of oxygen present. Sealing creates a microclimate, but the damage this will do to the object will be limited. Throughout the operation, the relative humidity and the temperature must be taken into account; a relative humidity that is good for one material may be damaging to others. Besides it is unthinkable – and unnecessary – to store and exhibit all art objects made of plastic in an oxygen-free environment.

The conservation of polyurethane foam, plasticised polyvinyl chloride and natural rubber presents more problems than that of other plastics, the life span of which is comparable to that of paper and wood. With the right temperature, relative humidity and light intensity, during both exhibition and storage, the life-expectancy of these plastics is not so bad at all. Creating the right conditions during exhibition is not always easy – a curator will never exhibit an object by Marcel Broodthaers in the dark – but in storage it is feasible. A museum policy for different types of plastic would be very helpful. As some plastic objects need extra precaution, this policy should consist of guidelines for storage and recommendations for exhibition.

As a future project, the foundation of an international working group was suggested to set up a programme for the training of conservators of modern art and others involved in art objects made of or with plastic(s). This programme could then be distributed among members in several countries, who can use it to set up

their own training courses on the identification, degradation and conservation of polymers. This programme should include:

- An identification table especially designed for use by non-chemists.
- A list of trade names combined with production years and additives used. Many of these lists are available from the polymer industry, but this information should be made available to conservators.
- A list of terms to describe the degradation of the art object in different languages.
- A box with samples of all kinds of plastics, which can be used as reference materials.
- Guidelines for the exhibition and storage of plastic objects of art. Storage guidelines should include the labelling of the material.

It was also considered very useful to have a list drawn up by conservators describing their failures (and successes) in restoring works of art made from or with plastics.

The conservation of monochrome paintings

Monochrome paintings are extremely vulnerable. Unlike other paintings, the slightest disturbance of the surface seriously alters the viewer's experience of the object. Since the possibilities of restoration and conservation are limited, the importance of preventive action needs to be stressed.

Introductions

- Louise Wijnberg, conservator at the Stedelijk Museum, Amsterdam, focused on the special qualities of monochrome paintings and the delicate boundaries that separate acceptable damage from unacceptable damage.
- Liesbeth Abraham, conservator at the Foundation Kollektief Restauratie Atelier, Amsterdam, concentrated on the fragility of monochromes and their vulnerability to accidents. She argued for budgeting for prevention rather than conservation because conservation treatment is almost impossible.

Main themes of discussion

- Ethical limits to conservation
- Treatment and prevention
- The need for research and exchange of knowledge

Chairperson: Jörgen Wadum, conservator and head of the conservation department at the Mauritshuis, The Hague

Minutes: Marie Louise Sauerberg, conservator at the Foundation Kollektief Restauratie Atelier, Amsterdam

Louise Wijnberg PROBLEMS OF PERFECTION

Why should we discuss monochrome paintings in particular and how do we define them? Strictly speaking, a monochrome painting consists of an abstract plane in one colour. The purest form is seen in Ad Reinhardt's *Black Paintings* and Robert Ryman's *White Paintings*. Monochrome colour planes with variations in the contours are found in the work of Ellsworth Kelly, Alan Charlton and Imi Knoebel, but Piero Manzoni, Jan Schoonhoven and Yves Klein also concentrate on monochrome works, with texture and materials playing an important role.

Carrying this concept further, we arrive at the possibility of juxtaposing monochrome panels as can be seen in works by Brice Marden and Jan Dibbets, who combine various colour planes in one painting. There are more examples: beginning with Kazimir Malevich and Piet Mondrian and ending with Frank Stella, Jo Baer, Brice Marden, Mark Rothko – the lines between their use of colour planes shifting from clear demarcation to an overflowing of colours.

The monochrome colour plane is not always confined to certain parameters, as we see in the *Farbtafeln* by Sigmar Polke. In the work of Alan Uglow, Robert Mangold, Ben Akkerman and Agnes Martin subtle beams, lines and grids run across the paintings. A final variety is that of the unpainted canvas functioning as a monochrome 'fond' and 'anti-form', found in the work of Morris Louis and Kenneth Noland.

Studying these works, we zigzag through the movements in twentieth-century art: Suprematism, Abstract Expressionism, Minimalism, Colourfield painting etcetera. The concept of monochrome planes continues to inspire artists, as could be seen in the recent exhibition of Imi Knoebel's work at the Stedelijk Museum, in late 1996. In fact the Stedelijk Museum collection contains many examples of monochrome works.

The particular problems of conserving monochromes are related to the aes-

thetic perfection the artists set out to achieve and the intense monochromeness perceived by the eye, which fascinates and overwhelms us. Many works are matt and not – or barely – varnished, so they have no sealed, smooth surface. As a result, every anomaly or unevenness is easily perceived and begins leading a life of its own. The surface no longer forms a visual unity. This is caused by a change in the incidence of light on the surface and its reflection. One notes that very often mixtures of pigments are used for a monochrome colour plane rather than one type of pigment.

Some artists are more interested in material perfection than others. This finds expression in a careful and lengthy working process with special emphasis on the quality of the materials used, the method of application and the finished result. Ben Akkerman, for example, applies one layer after another, attaining a very personal surface effect – his material handwriting. Brice Marden reaches his goals through a specific choice of materials – a mixture of hot oil paint and wax – applied amongst other things with a spatula. This piling up of successive layers of colour is not visible on the front surface, but plays an important role because it is visible at the sides and becomes noticeable when the top layer becomes damaged.

The precision with which an art work is made is not a decisive factor for the restorer, nor for the level on which the problem is to be tackled. It is no exaggeration to say that restoration of a monochrome, uniform, matt layer of paint is among the greatest challenges in art restoration, no matter how it was originally made. An additional factor is the eye's sensitivity to certain colours, such as blue, and the phenomenon of metamerism that occurs.

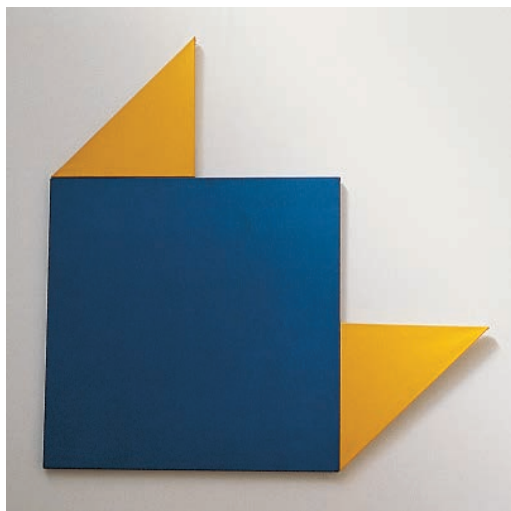
The aim of restoration is to return the work as closely as possible to its original form, using the authentic material and the artist's intentions as guidelines. Damages or anomalies in art works may have technical causes, or be the result of negligence or careless action. Anomalies, for instance, appear in the shape of:

- craquelure (Barnett Newman) resulting from the natural ageing and drying of the binding medium;
- uneven brilliance (Kazimir Malevich and Imi Knoebel), shiny or matt patches which are much harder to deal with here than in varnished paintings;
- irregular or entire discolouration of a layer of paint (Ellsworth Kelly);
- (irregular) discoloration of the canvas and the sizing (Kenneth Noland, Morris Louis, Rob van Koningsbruggen).

Such problems will undoubtedly occur and for material/technical reasons will sometimes have to be accepted as unsolvable. This requires an adaptation of ideas from the past that are no longer applicable – such as wanting to return the work to its original visual state by retouching craquelure or overpainting parts of the surface, and a desire to restore and preserve the work's fresh, original state at all cost. The artist's opinion in such matters is very important.

Apart from natural ageing, which is already apparent in much modern art, there are often cases of damage caused by third parties: careless handling, from ignorance or lack of interest for the often large art works, but also from vandalism – as happened with Barnett Newman's *Who's Afraid of Red, Yellow and Blue II*, Sigmar Polke's *Farbtafeln* (the minium part) and Kazimir Malevich's *White Cross*. As a result of the flaws incurred, the artist's original intentions are damaged or annulled.

Hence conservators and curators encounter certain boundaries and come to the limitations of their abilities. It is important to realise that certain problems can no longer be solved and that the present state of works, whether still fit for exhibition or not, should sometimes be accepted. The artificial upkeep of the desired state of an art work, a romantic notion from the last century, will have to be abandoned. We shall have to form a freer, more ethical attitude towards the conservation of modern works of art.



Jan Dibbets, *Halve kubus* (1966). Collection and photo: Stedelijk Museum, Amsterdam

***Liesbeth Abraham* TREATMENT IS ALMOST IMPOSSIBLE**

The conservation and restoration of monochromes defiantly confronts us with the technical and ethical limitations of our profession. Monochromes are fragile and easily damaged. The fact that they are often large and almost never framed makes handling complicated and risky. They are also seldom varnished, which means that dust, fingerprints, splashes and scratches lie directly on the paint layer or on the unpainted canvas. This is true for most modern art works, but with monochromes the problems are even more complex. The surfaces of these paintings are very vulnerable and one can almost say 'the surface is the message'.

The artist's concept is easily disturbed by scratches etcetera. The artist deliberately chooses either a powdery, matt or highly finished, a rough or a glossy surface. He/she works carefully with a variety of painting techniques and materials, modifying these where necessary to achieve a certain result. In front of a colourfield painting, for example, we are overwhelmed by the large plane of intense colour which, especially from nearby, can give a sense of spaciousness. It does not seem clear where the colour plane begins and where it ends. Fingerprints and scratches, however, will immediately destroy this illusion. They are spotted at once, since there is no other distraction made by lines or changing colour contrast. The viewer is directly aware of the paint layer, the two-dimensional surface and the edges of the painting. Thus the concept is disturbed. As Donald Judd supposedly said: "Detail is the enemy." He finds a uniform tarnish acceptable, but not fingerprints or splashes. Carl Andre, thinking of fingerprints, said: "My worst enemy is the fat on man's hands." He does not, however, mind scratches caused by people walking on his floor pieces.

I was recently at a museum of modern art where all the monochromes exhibited were damaged. Very few of the disfigurements were actually caused by natural ageing. The most common cause was made by scratches. It was striking how many visitors were touching the art objects, and there were hardly any guards. Although this did create an open informal atmosphere, the way the paintings were hung in the small rooms was perhaps too enticing.

In light of this, and considering the artist's intentions, it is clear what the conservator should try to achieve: to return the work as closely as possible to its original form – to regain this perfect surface. But here we are faced with a dilemma. It is often impossible to fully remove fingerprints without damaging the paint layer by changing the gloss, for instance. Discolorations cannot be treated, scratches and other damages can rarely be retouched.

Moreover, the ethical directives of the conservator's profession sometimes clash with the artist's or owner's wishes. The artist's ideas about the conservation of his/her own work can only partly provide guidance. Artists often change their mind: as they grow older they may want to carefully preserve works from their youth that were initially not meant to survive. Manzoni, for example, wanted his works to be overpainted so that they would stay white and crisp. His personal 'handwriting' was not important to him, but he did want the Dutch artist Jan Schoonhoven – an artist from the same school – to do this for him because he was a kindred spirit. Schoonhoven himself has his works overpainted by another artist of the school, Henk Peeters. In the past most museums in the Netherlands respected this, but nowadays only a few accept this way of 'restoring'. The relief is slowly lost and as one private owner put it: "It's nice to see the work mature. One should be able to see that it's from the past, and after all it is a resolved issue."

On the other hand Alan Charlton when confronted with a damaged, grey-colour work of his was certainly not against overpainting. He would not let anyone else do this for him, however, and insisted on overpainting the work himself. He

also refused to give the formula for the exact shade of grey, or send some paint to enable a restorer to retouch the work.

An artist may want perfection, but can we allow the material authenticity to be compromised? For some artists their personal handwriting is of no importance as their work is carried out by assistants, but will we be satisfied with a replica or an overpainted work of art? We want to be able to see that a Manzoni was made in the 1960s, although this may be contradictory to the artist's intention. Manzoni made an achrome – a work giving images of light virtually free of extraneous colours – especially for an exhibition in the Stedelijk Museum and threw it away after the show because the gesture had been made. Still, it is the museum's task to conserve these temporary gestures. As Henk Peeters said at the opening of a Manzoni exhibition: "At the time it was an illustration of what we were trying to accomplish outside the painterly. Now they have become paintings in the traditional sense."

In this particular case the private owner does not mind seeing the work as a thing of the past; it is the artist who wants to keep his ideas, from which he has developed, alive.

Due to natural ageing it is virtually impossible to maintain the perfection of the surface. Once it is lost, it is almost impossible to restore. Paintings change from the moment they leave the artist's studio. I would like to emphasise not only the acceptance of ageing and damages, but especially the prevention of such. There should be a prevention budget instead of a conservation budget for monochromes. Prevention should begin as soon as, or even before, the work of art enters the collection.

An important aspect of prevention is to educate museum staff on handling and presentation. Aside from normal guidelines, maybe we should have information sheets on the specific materials of each painting and its related problems.

Transport-frames are important as they offer protection for unframed paintings during handling, transport and storage. The frames are sometimes made by transport companies or museum staff, but in several cases have been delivered by artists who were aware of the vulnerability of their work. The frames can be very simple, but need improvement. Taking the painting out of the frame and hanging it on the wall is often complicated, difficult and extremely risky. It would be much better if we could simply click the frame away from the painting after safely hanging it on the wall. We could cooperate with industrial designers, who are much more used to thinking up such solutions.

Handle bars on the reverse of paintings are another important and simple conservation measure. Simple strips of strong woven canvas screwed to the stretcher bars can be sufficient. But they need to be on all four bars and carefully placed, as it is not always possible to move a painting in an upright position.

The possibilities of treatment are very often limited. One artist asked our advice because of a temperature problem in his studio which had caused the growth of mould. On many of his more or less monochrome paintings the mould had created stains on the bare, unprimed canvas. It was impossible to remove them completely: bleaching would damage the canvas. In cooperation with the artist we found a compromise between removal and retouching.

A large green Colourfield painting by Lawrence Weiner entered the studio with tidemarks from what we thought was water damage. On closer examination it became clear that the tidemarks had been caused by the artist's spray gun coming too close to the surface, so that instead of a vapour the liquid hit the canvas. This kind of damage cannot be treated.

Painting techniques can make treatment complicated; so can the materials

used. This was the case with a painting by Brice Marden consisting of heavy wax layers on canvas: folds in the canvas caused paint loss. The artist wanted the work to be overpainted, the owner wanted it to be restored. It was very difficult to fix the pieces of paint, which the owner had carefully kept, back into place. Anything touching the surface caused a change of gloss. We also had to add a stretcher lining to support the original canvas, which was hardly offering enough support for the thick and heavy paint layer.

During intervention, it is often necessary to experiment with new materials in order to achieve a certain gloss or transparency. Doing so, however, one is working directly on the original painting. Difficulties are also encountered in retouching something such as metamerism – the undesirable tendency of two coloured surfaces appearing alike when under one kind of light, to differ from each other when viewed under another (Mayer) – and problems of light sources. In natural light the same retouching on a monochrome can look wonderful in the morning and horribly wrong in the afternoon; an artificial light source can be a solution. On a monochrome surface there is nothing to focus on, which makes retouching physically tiring. The conservator ends up staring and seeing splashes on his own lenses: the glare of the surface interferes with visual acuity.

The ethical possibilities for an artist can differ from those for a restorer. On visiting a museum, artist Daan van Golden noticed that one of his monochrome paintings, consisting of two squares, had scratches and dents. He came back with some paint and covered the damages with small exactly square retouches. When asked for an explanation, he was clearly surprised by our ignorance: “It is after all a composition in squares.” As a restorer one would of course never do such a thing.

The treatment of monochromes is not only technically difficult, it is the decision making that is also extremely complex: taking into account the wishes of the artist and the owner or the museum as well as the cultural context and the ethical guidelines of the conservator’s profession. To come to a well-considered decision, access to all the necessary information is needed. Internet and other forms of communication can play an important role. The need for research should also be emphasised: research on the ageing of modern artists’ materials, on conservation materials and new techniques.

***Marie Louise Sauerberg* PROCEEDINGS**

1. Ethical limits to conservation

The traditional notion that the aim of restoration is to return the object as far as possible to the artist’s intention has fundamental limitations as an absolute guiding principle for restoration treatments. Today, this view is almost universally accepted. To the modern conservator and curator, the recovery of the original condition and the artist’s original intention are considered to be unattainable ideals. Modern art ages from the moment it leaves the artist’s studio – and so did old master paintings.

Nevertheless, the artist’s intention remains an important guiding principle. For modern art this statement carries additional weight, due to the proximity in time of the objects. Having known the works of art from the time of their creation, and having seen them in their so-called perfect condition, gives us a strong emotional bond to them. Therefore, being the first generation to see them decaying, damaged or even vandalised can be difficult. The options for treatment are significantly different for contemporaries of an art work and for those who view it in an historical context.

In the course of time, an art work loses its virginity and the environment in

which it was created. How to perceive the work then becomes a question of expectations and, furthermore, of how these expectations change with time – particularly when it comes to aspects of authenticity. Do we expect authentic experience or authentic material? In one hundred years, the perception of a well preserved Barnett Newman is likely to be quite different from today's.

It is a fact that a number of monochromes have been restored by complete repainting. This includes the early Russian constructivist works, repainted even at an early stage, not to mention the more recent case of Barnett Newman. Perhaps this reflects a more widespread practice than might previously have been assumed. Undeniably it is a very efficient and cheap way of restoring monochromes, but within current ethics of conservation this approach is regarded as completely unacceptable.

It was generally agreed that so-called ethical guidelines are more properly considered as guiding principles. They can not be applied prescriptively, especially in relation to modern art. Each painting requires an individual balance. Our framework for establishing this balance varies with time and with the cultural context. Factors such as whether the artist is still alive or not, his/her expressed opinion about the ageing and preservation of the work, the owner's views, even financial implications will all have a bearing.

The materials used by many contemporary artists are another inherent problem: they lack permanence, or may even have been selected with impermanence in mind. They will fade, change colour etcetera. Although the surface may still be in perfect condition, the colour balance may have changed considerably, making the painting completely different from its original appearance. Again, the general opinion was that these kind of inherent alterations are more acceptable than other kinds of damage. The Rothko mural from Harvard was raised as an example of dramatic change due to materials used.

The issue of acceptance of visual signs of ageing is central to the preservation of modern art. Though opinions about its features vary, the participants agreed that a general layer of dirt is easier to accept than local damage, as it is visually less disturbing. A uniform layer of patina seems to conform with a romantic idea of decay, which has its roots in the nineteenth century. Probably this is the reason why collectors and viewers find some kinds of ageing more preferable, even likeable, than others which might equally be a result of natural ageing, but are not as perfectly formed. Defining the acceptance limits of damage, of when a work of art is no longer fit for display, is a complicated issue with many facets. Essentially, this brings up the issue of modern art having a limited life.

2. Treatment and prevention

The possibilities for treatment are influenced and limited by our actual technical capability. In contrast to old master paintings, for which treatment techniques and methodologies are quite well established and more or less validated, in cases of art only a couple of decades old conservators may not have the conservation techniques at their disposal to achieve what they want. This is typified by the attitude: "It cannot be done, or at least not with today's technical capabilities."

Some participants, however, were optimistic about the conservator's capabilities and pleaded that it was only a matter of more extensive research in applied as well as basic science. Various disciplines were mentioned, as was the use of simulated paintings and damages. Crucial is that the practical conservator clearly formulates requests on the methods and techniques demanded. The importance of conservators identifying and expressing their needs and constraints was recognised.

For monochromes, the loss of uniformity is at the very apex of acceptable damage. Preventive conservation, therefore, becomes of vital importance. A large

amount of damage on monochromes is mechanical, namely caused during handling and display. There is still a great deal to be learned about the care of paintings, especially for modern and contemporary art. Modern artists want their works shown as often as possible. To a large extent the actual handling does not happen within museums or institutions. This creates a potential danger, as the fragility of contemporary art is often not recognised and consequently objects may be handled more casually. Preventive measures in exhibitions, on the other hand, risk conflict with the artist's intention and thus compromise the perception of the monochrome. In practice it is usually a challenge, if not impossible, to respect both interests simultaneously.

During the discussion it became clear that there is a body of knowledge on handling modern art. Various people dealing with it have developed small but clever ideas to improve safety, but not much has been published. Interest in communicating this knowledge was widely expressed.

Another area of great interest was on treatments that either are no longer considered appropriate or simply went wrong, treatments that so far were considered taboos. If it were possible to collect the probable large amount of knowledge on the subject, it would surely be of great interest and use to the conservation field.

3. The need for research and exchange of knowledge

The participants identified a number of priorities: studies in preventive conservation; research on materials and methods for retouching and cleaning (for example stain removal in very porous surfaces without touching the painting) as well as physical repair materials and equipment. Collaboration with technical specialists was recommended in the fields of medicine, biology and industrial engineering to see whether some of their research results are applicable to conservation.

Throughout the seminar the need and willingness to exchange knowledge as well as ideas proved a key factor. It was suggested to utilise already existing bodies within conservation and if appropriate to widen their activities in order to meet needs. It was fervently hoped that the discussion on the conservation of monochrome paintings would find the right arena in future so that this difficult topic could be continued.

The conservation of kinetic art

The essential property of kinetic art, motion, is often poorly documented and difficult to reconstruct. For maintenance and restoration, technical understanding and interdisciplinary cooperation are needed.

Introductions

- Artur Ketnath, conservator at the Neues Museum Weserburg in Bremen, argued for a thorough examination of the mechanisms in kinetic objects, the involvement of various specialists in their installation and restoration, and the formulation of set of preventive measures.
- Kees Aben, conservator at the Stedelijk Museum of Amsterdam, focused on improving the conservation and restoration of Jean Tinguely's machines.

Main themes of discussion

- Prevention of wear and tear during exhibition
- Prevention of damage from packing
- Documenting sound and motion
- Principles for restoration

Chairperson: Agnes Gräfin Ballestrem, deputy director and head of Research and Consultancy at the Netherlands Institute for Cultural Heritage, Amsterdam

Minutes: Irene Glanzer, conservator at the Foundation Kollektief Restauratie Atelier Amsterdam

Artur Ketnath HOW TO CONSERVE MOTION

In addition to the three dimensions possessed by any object, kinetic objects have a fourth: motion. This poses a very special problem for their restoration. Motion, of course, does not remain in the object but vanishes when the mechanical system is switched off or defective. Improper handling or rashly performed restoration work may alter or distort the sequence of motions – it can be slowed down or accelerated, the time intervals can be changed. As a rule, such objects are documented through photographs. The sequence of their motions is rarely recorded.

Yet, the human capacity for recalling motion is always subjective, characterised by moods and feelings. One person may remember a motion as “resembling a steam engine”, whereas another person might describe the same motion in the same object as being “as gentle as a heart beat”. It is not enough to simply document such objects in photographs and writing, which is common museum practice. A photograph does not show any motion and a written description of movement is always based on subjective feelings.

As a basic prerequisite for later, authentic restoration it is imperative that the sequence of movements in kinetic objects be carefully stored on film or video and the time sequence documented.

In the case of a damaged object for which there is no documentation of the sequence of movements, it is necessary to conduct examinations and extensive research in order to be able to reconstruct it as far as possible. Surveys into the motion sequence of an object conducted among relatives, previous owners, or the artists themselves, have produced a variety of opinions in the past. However, they are indispensable within the overall context of such an examination.

In any case, the entire structure, design and the mechanism's mode of operation has to be examined very closely. An analysis is required to determine which parts are secondary and what transmission ratios enable what speeds. Is the motor original, does it match the type of materials that the object's creator normally

used? Is the movement of the motor correctly transmitted to the mechanical elements? Do the drive belts run on the drive wheels with the correct length, in the right order and in the correct direction? Are counterweights balanced correctly and is their weight correct? Are the axles in their original position, has the adjustment of various motion transmitting elements altered? Has the entire chassis changed or become deformed?

These are questions that cannot be conclusively answered individually. One has no other option but to refer to the rest of the artist's work, taking the time to study the objects, analyse the mechanisms, examine the technical methods used, note the types of materials used by the artist, and at the same time consider the progressive development of the work and material-development aspects as well.

From these fragmentary observations it may be possible to reconstruct the missing motion. This remains an arduous and uncertain business. Detecting the sources of the faults may pose great problems because they are frequently imperceptible. They may be concealed within mechanical components that are not accessible and are difficult to inspect. It may be possible to detect such sources



from an overview of the way the entire mechanical system functions, but this requires a certain understanding of technical processes that cannot be learned directly. A sound technical training is required.

A tiny, even banal defect in one of the mechanical elements may disrupt the entire sequence of movements. Such a small defect can destroy whole sections of the mechanism. For this reason, and in order to avoid further damage, it is often impossible to put the mechanism into motion. Moreover, elimination of one defect may trigger further faults. The machine has become accustomed to the defect, as an ill person gets used to his chronic disease. Once the recovery process starts, additional symptoms suddenly appear that can only occur as a result of the healing of the original disorder.

Faults in the sequence of motions are not necessarily caused by later defects, however. The objects may have left the artist's workshop in a faulty condition right from the beginning. To assert whether this is the case, much time has to be spent on a precise analysis of the sequence of motions and the functions of the mechanical system. Then, a very difficult question rises: how legitimate is it to repair such a fault and reinstall the motions as originally designed?

Front of G. von Graevenitz, *Kinetisches Objekt* (1963), white cross slats on white background; and the reverse showing the mechanism. Collection and photo: Estate G.v.Graevenitz, Amsterdam

It is virtually impossible to solve these questions alone. Specialists have to be called in and should be involved in all preliminary investigations, since experience has shown that they can often provide valuable ideas. It may be necessary to have a precision mechanic or watchmaker in the team, electricians for the various electronic installations, metal conservators or goldsmiths to restore moving components made of thin metal sheet or foil for example, and painting conservators to restore surfaces which, as far as the degree of difficulty is concerned, may be comparable to restoring a monochrome, unvarnished picture.

Installing the object and setting it into motion, as well as any repairs at the installation site, should only be carried out by people who are genuinely familiar with the objects. There are ample examples of restoration work which has been performed by people who lack the necessary knowledge about the object and has resulted in permanent damage.

Finding spare parts to restore objects is another aspect that requires a great deal of time and patience. Again and again one is confronted with the absence of entire mechanical components that perhaps have broken off at some stage and carelessly been mislaid – or damaged to such an extent that they are no longer repairable and have to be completely replaced. It then becomes apparent that the materials are no longer in production and cannot be found in local retail shops. Usually these materials are produced for industry or the crafts trade and were modified by the artist for his or her specific application. It may be difficult in some cases to identify the original purpose in order to find a suitable manufacturer.

So the conservator has to become a collector. A collection of various screws, metal spirals, rubber bands, plastic washers and discs, and so on – the list is endless – can save a great deal of time and make it possible to carry out a repair with the suitable materials. Contact with the artist or the artist's family may uncover suitable left-over materials. Rummaging in relevant retail stores while travelling, for example, can also be a way of finding long sought-after materials.

If a material cannot be procured at all, it has to be reconstructed in some way. Suitably skilled technicians must be found for this purpose, which is not always easy in our industrialised world. If the original material is also missing, a great deal of imagination has to go into such a reconstruction. For five small pieces of paper missing from an object by Gerhard von Graevenitz, for example, so-called 'coloured paper' was needed that had been common in notebooks in any stationery shop thirty to forty years ago. Such simple coloured paper is no longer available; paper today shines and shimmers and does not have the 'post-war' touch of the paper used in the object. It was not easy to hit the mark regarding the type of material, the shade, the surface finish and the traces of the past.

This example demonstrates that it is not enough simply to meet the well-known demand for replacement motors. It is important to think about which of these industrial products should be immediately procured for a 'spare parts store' to avoid difficult and expensive reconstruction at a later date.

A spare parts store of 'original' parts takes on even greater importance in light of the demand that restoration should also tackle the non-visible parts of the mechanisms so as to retain the work's original state as far as possible. This means that the restoration of faulty, 'old-fashioned' technology should not be limited to the application of improved modern technology.

One problem that may arise in this context, however, is that components may be missing or have become unusable through wear and tear. Acquiring replacements for such components after forty or fifty years often proves to be a difficult task.

Due to these problems, it would be useful to limit the running times of kinetic objects to an absolute minimum, analogous to reducing the time watercolours are exposed to light, for example. The less a mechanical system moves, the less the wear and tear there will be on the components.

An additional point is that of the qualified maintenance of such objects. The objects need to be cleaned and oiled at certain intervals. Bare metal parts that are prone to rust must be treated with gun oil; signs of wear must be found and analysed, because these may point to possible sources of faults in the mechanism that have not yet led to a visible defect and which, in most cases, can be easily eliminated at this stage.

Another preventive measure is to keep the objects in a balanced climate. Kinetic objects of the 1960s and 1970s are often made of low-quality, extremely hygroscopic materials. Roof battens, pressboard, hardboard and plywood as well as other materials may have been used for their chassis. If the climatic conditions change, these materials warp. This can disrupt the entire operation of the mechanism and may lead to destruction of sensitive mechanical parts. Keeping such objects in a balanced climate is therefore just as important as it would be for medieval wooden panels.

It would also be desirable to avoid shipping objects made of these or similar materials. In reality, however, objects have to be transported sometimes. This places great demands on appropriate packaging. Simply making use of a climatic box is not sufficient in many cases. Provisions to protect moving parts of the object from impact, tipping and similar influences during transportation have to be considered in advance. Thought must be given to supporting or locking these parts. Mechanical components may have to be dismantled prior to transportation and be shipped separately.

Kees Aben JEAN TINGUELY'S MACHINES IN THE STEDELIJK MUSEUM

After showing a short video film with detailed images of Jean Tinguely's moving sculptures in the Stedelijk Museum, Kees Aben explained their situation. Here follows an extract:

Jean Tinguely's moving sculptures are featured here because they represent the ethical problems in the conservation and restoration of kinetic art in a broad sense. Between 1961 and 1974, thirteen of these sculptures were acquired by the Stedelijk Museum, Amsterdam. They can be divided into four categories: wall, table, floor and water sculptures.

The wall and table machines are fragile constructions made of breakable materials; their movements are delicate and elegant. The water and floor sculptures, made from heavy scrap material, are monumental, masculine and strong in their movements. As a result of the technique and materials used, however, they are no less vulnerable than the wall and table objects.

Tinguely constructed his sculptures from waste material and their movements are driven by electric motors. Since the machines are displayed as moving objects, wear on the motor and the actively moving parts is the main cause of their malfunctioning.

Initially, this did not worry the artist. As he stated at the time: "It is a machine and the worn out parts may easily be replaced." But from 1963, Tinguely's working method started changing: the machines became more sturdy and were painted black, which had both a conservatory and an aesthetic effect.

In the past, maintenance of the machines was mostly carried out by the Stedelijk Museum's technical staff. These technicians, however, did not operate under the responsibility of the conservation and restoration department. This resulted in restoration being carried out on Tinguely's works without the conservator being consulted and without proper documentation.

Kinetic sculptures, like other works of art, have to be approached aesthetically. The original materials used by the artist must be respected. The same goes for the original design, the original sound and the original movement. Tinguely's machines must therefore be documented in writing, (motion) image and sound, and conservation and restoration work must be carried out by and under the supervision of conservators.

In future, the restoration of Tinguely's sculptures will have to be carried out in accordance with a restoration plan which will be drawn up in consultation with other institutions collecting Tinguely's work.

Meanwhile, the life span of Jean Tinguely's moving sculptures can be lengthened by operating the machines only periodically. Video-images of the sculptures in motion can be shown when the objects themselves are being exhibited motionless.

The topic of Jean Tinguely's moving sculptures is extensively dealt with in the chapter on 'Gismo', page 23, and by Andres Pardey, page 259.

Irene Glanzer PROCEEDINGS

1. Prevention of wear and tear during exhibition

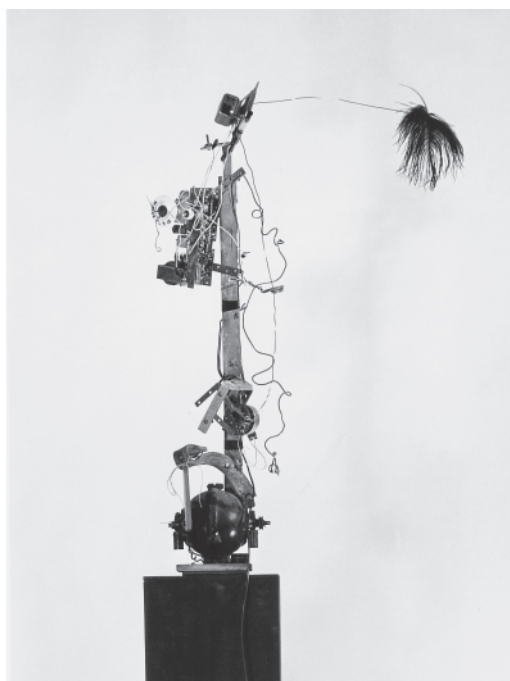
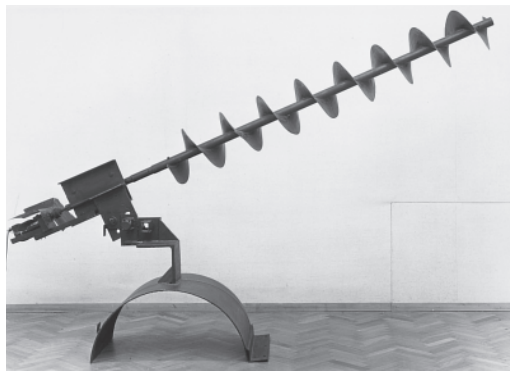
The importance of rediscovering and maintaining the movement and sound as integral parts of an object was stressed. Linked to that is the dilemma that the object in full motion (with its full meaning) will wear out sooner or even self-destruct. The suggestion to exhibit and lend 'dummies' to prevent this was not seen as a satisfying solution by the majority of the participants. Clearly, either the object has to work perfectly or it has to stay still.

However, stress on the object should be limited even if it is working perfectly. One option was to exhibit the stationary object and show a video of the object in motion alongside it. Another idea was to allow the object to run only for a short period each day (see Andres Pardey), following to a time schedule for each object in a collection, so that visitors will always be able to see one sculpture functioning.

The idea of a control button by which visitors could switch the machines on and off gave rise to the concern that the object might be used as a sort of toy and be damaged. An example was given of a sculpture with two hanging devices of painted metal and an electromagnetic coil: when there is no electric current they hang apart, but when the coil is powered the devices are attracted to it. Paint came off each time this happened. The solution was to change the hanging of the metal devices, and therefore the magnetic influence, to the extent that they would touch only occasionally.

2. Prevention of damage from packing

Many kinetic sculptures cannot be transported to exhibitions or even be moved within the museum. Adequate packing and storage seems to be a problem with the objects, most of which are extremely delicate. For example, if one part of the mechanism in complex machines like Tinguely's become bent, even by as little as half a millimetre, it can lead to the object's destruction once the machine is set in motion again. Therefore the packing has to be highly accurate. Sometimes, even a precisely constructed storage box cannot solve the problem, because the dimen-



Floor sculpture: Jean Tinguely, *Spirale IV* (1969).
Photo: Stedelijk Museum, Amsterdam

Table sculpture: Jean Tinguely, *Radio Mobile* (1962).
Photo: Stedelijk Museum, Amsterdam

sions and shapes of the objects vary according to the moment they stop moving. It was agreed that when a kinetic object is packed and stored or loaned out for an exhibition, a conservator who is really familiar with the object should always be involved. The object has to be thoroughly documented in advance.

3. Documenting sound and motion

To fully record the motion and sound of these objects, the need for documentation on video and audio tapes – apart from drawings and texts – was stressed. The conservators in the discussion group, who have worked with kinetic art, emphasised that neither material nor time should be restricted in this respect. Again, they pointed out how difficult it is to retrace the original movement, speed and sound after the object has been standing still for a while. The documentation tapes should always record the complete running cycle of the object, to ensure that the original movement is maintained.

The need for professional recordings was emphasised in order to be able to work out the various aspects of the object's movements – its overall motion and the details of the mechanism in the correct sequence.

4. Principles for restoration

The provocative question arose as to whether one should simply accept the object as static once the movement is lost. The majority in the discussion group preferred using some functional parts that are not original to losing all the movement, which again was considered as important, if not more important than the material object. Tinguely was mentioned as an artist who definitely wanted his machines to move. He constantly took care of his objects, replacing worn out components with parts from his own collection of found objects.

Before restoring an object as complex and individual as a kinetic sculpture, the conservator should be broadly informed about the artist's oeuvre. Generally speaking, kinetic objects should be restored in accordance with conservation ethics and the different techniques for conserving various materials. Pieces serving the mechanism should either be repaired or replaced if they are no longer functioning or have become dangerous (motors, cables, conveyor belts). In practice however, exchanging a motor, for instance, can be more difficult than repairing it, because it is not always possible to find a motor with exactly the same speed as the original.

Should exchanged parts be marked as such for the visitors? Opinion was divided among the discussion panel. While one conservator tries to integrate replacements as aesthetically as possible, another uses these to contrast them with the original in a very distinct way. It was also suggested that the visitor should be informed about the object's history – the dates it was made, acquired and last repaired – though without mentioning precisely how and what has been repaired or exchanged. All conservators and institutions adequately store the exchanged parts in their depots.

Another issue broached during the discussion was the involvement of the artist. Artists should be involved in the research into the originality and conservation of their work. However, the fact remains that they often change their approach to their own work over time. It was agreed that, sometimes, a conservator in a museum of modern art has to ignore the artist's wishes, since in the past, repairs performed by artists have not always proved successful. As Lynda Zycherman, conservator at the Museum of Modern Art in New York, pointed out: "... conservators and curators are trained to hold the object at the date that was decided on. That may be the date of manufacture, it may be the date of acquisition or maybe the date of last reworking." Conservators were encouraged to make decisions, because this is what they are trained and paid to do.

The material durability of art works and museums' purchasing policies

Museums of modern art are responsible for the preservation of their collections, but with highly perishable non-traditional works this task is almost impossible to fulfil. Should they refrain, then, from purchasing such works? A solution is to require a conservator's report with every new acquisition and to make budget reservations for future conservation.

Introduction

- Frederik Leen, curator at the Koninklijke Musea voor Schone Kunsten in Brussels, Belgium, expressed his opinion that a museum should refrain from buying works of art that do not respond to the criteria of reasonable material stability – meaning that the object's materials resist accelerated decay and can be restored or, following the artist's written instructions, be replaced. He seriously questioned the development of the museum of contemporary art, a late twentieth-century invention that in his view is a contradiction in terms.

Main themes of discussion

- Preparing for conservation problems
- Structural investments in conservation
- The dangers of a travelling curator
- The responsibility for acquisitions
- Conclusions

Chairperson: Frans Grijzenhout, head of training at the Netherlands Institute for Cultural Heritage, Amsterdam

Minutes: Arjen Kok, art historian and scientific assistant at the Netherlands Institute for Cultural Heritage, Amsterdam

Frederik Leen SHOULD MUSEUMS COLLECT EPHEMERAL ART?

This symposium announces itself by way of a rhetorical question: *Modern Art: Who Cares?* Rhetorical that is, since I am reluctant to understand the question as a serious inquiry into the degree of personal commitment of the hypothetical reader of the flyer or attendant of the symposium in this matter. There is more of a reproach in the title's unmistakably moralistic tone.

The problem we are going to discuss is whether a museum should collect art objects with little or no material endurance. This problem is directly linked with the issues of the work's objective authenticity, and with the question of how a museum can collect contemporary art when much of this art is/was directed against the museum.

Should we really care about and take care of modern and contemporary art? Why should the conservation of contemporary art matter to us? Why should we care about art that – apart from the artists and the small group of their supporters – no one really takes an interest in or even resolutely rejects? Why collect art for museums when the artist doesn't care whether the work's physical stability is guaranteed? Some artists even try to produce art that cannot be preserved beyond its initial public exposure.

First I want to make some remarks about the curator's personal relationship with or affection for the collection. Frankly, I don't think that a curator should care about all the (contemporary) art he has to take care of. I don't have to like the work of Kiefer to be able to keep it efficiently following current standards and exigencies. One of the basic tasks of the curator (French: le conservateur) is to supervise

the conservation of the collection. For maintenance he calls upon the conservator (French: le restaurateur) to protect the objects from deteriorating. All this should happen following fairly objective procedures and choices.

However, following a fairly recent and fashionable model the curator's profession is often understood as a – mostly travelling – exhibition maker. This model yields to a greater importance of the strictly personal in choices. It allows for a class of favourite art works that enjoys the curator's special personal attention and commitment. It goes without saying that this is not a very favourable point of departure for objective choices in the preservation of a permanent collection.

Nevertheless, a basic condition for taking care of a museum's collection and for the preservation of the collection's items, i.e. works of art, is their material consistency and endurance. A museum should not collect objects that for the simple reason of their material nature do not belong in a collection of objects with a minimum life span of a few hundred years. Similarly, curators should not be confronted with a task that they cannot reasonably fulfil. Extreme example: it is not possible to conserve a fire longer than it is burning.

I therefore believe that a (public) museum's acquisition policy should exclude all works of art that do not respond to the criterion of reasonable material stability. Reasonable material stability means that the object's materials resist accelerated decay and can be restored or, following the artist's written instructions, replaced. There are three reasons for adopting this policy:

1. Collecting objects of which the material has a short endurance, is beyond stabilisation and subject to an irreversible degradation process, is in contradiction with the museum's primary task to preserve the works in its collection.
2. For purely economic reasons, it is irresponsible to invest public money in the preservation of cultural objects that cannot be preserved.
3. Artists know about the museum's primary responsibility to preserve the objects in its collection from deterioration. If an ephemeral work is not accompanied by the artist's certified description of the work, including instructions for its re-realisation/reinstallation or restoration, it can be assumed that it shouldn't be preserved, at least not in its present material form. (Compare the related problem of site-specific works that were not realised in a museum, e.g. Michael Asher's installation at the Museum of Contemporary Art in Chicago.)

My proposition has a polemical purpose. When I discussed it with colleagues, they immediately came up with all kinds of contemporary art that would become 'not collectable'. So I asked them how they would explain to their successors that they collected numerous objects which after twenty years proved unsuited for public exposure. Indeed most of the art they mentioned was vulnerable and physically unstable. But it was not beyond preservation or restoration. On the other hand, the traditional museum might be completely unsuited for this recent art.

True, the exclusion of materially unstable art objects from acquisition priorities might entail a radical ostracism of art production that flourishes with the aesthetic peculiarities of perishable materials. Of course, this doesn't change the fact that the ephemeral character of a work prevents it from continuing to exist in whatever other context. The museum cannot save/preserve something the nature of which is to draw its 'raison d'être' from its decay.

A special problem arises with works of art that depend upon mechanical, electrical or electronic devices. When the aesthetic quality of the work depends upon a device that is susceptible to material deficiency of standard commodities, it seems to be of great interest to inquire about the availability of spare parts. In some cases, the work might be quickly beyond restoration. If the artist didn't foresee or even prescribe solutions for reparations beyond the physical integrity of the initial

object (e.g. replacement of older technology by a newer version), the work becomes its own debris.

Artists have used new materials the resistance of which to physical degeneration had not been sufficiently assessed throughout the century. These materials include plastics, which (still) have the reputation of being indestructible although they actually deteriorate rather quickly – losing their colour, surface appearance and consistency.

There is of course the issue of video, Polaroid and Cibachrome. Here, the notion of the 'original object' becomes difficult to maintain, although the whole idea of conservation is based upon this idea. Restoration and preservation concern the physical endurance of an original object. From the moment that the objective physical originality of the art object is of no more immediate concern, they become superfluous. In that case, all our attention should go towards reproduction techniques.

The changing notion of the material aspect of the art work in the twentieth century culminated in the disappearance of its physical presence. In the case of installations, the work is closely linked to the architectural conditions of its (first) exhibition. In most cases, these works cannot be collected. They only survive as a reconstruction and through archival material. Installations offer an interesting model for all works of art that do not guarantee physical subsistence, since they can be documented (photographs, film, drawing, digital 3D reconstruction, etcetera) and preserved in archives in the form of descriptions.

Arjen Kok PROCEEDINGS

1. Preparing for conservation problems

In the USA, for instance at the Metropolitan Museum of Art in New York, both conservators and curators are consulted when works of art are proposed for acquisition. The works can be compared and evaluated not only on aesthetic grounds but also for their physical qualities. Other museums have their conservator draw up a report on the condition of the work. The opinion of a conservator is not always decisive, but disregarding his or her negative advice can cost the museum a lot of money. The San Francisco Museum of Modern Art established that the conservation of a work of art may cost many times more than its original price. This caused a change in the museum's acquisition policy: now, conservators have a right of veto.

The National Gallery of Victoria in Melbourne, Australia has chosen a different approach to the problem. When a work is bought from an artist, the contract includes a clause stating that the museum has the right to return the object to the artist when the condition has changed dramatically and as a consequence the market value has decreased. Some participants in the seminar were a little shocked by this solution.

But in general, everyone agreed, museums do not really take the possible conservation problems into consideration when buying a work of art. A museum purchases a work of art when it can afford it; the expected lifetime of the object is of little or no importance. In a way, risks are even unavoidable. When museums want works by certain artists in their collection, they have to accept the conservation problems that come with these works. All they can hope for is that the progress in conservation techniques will advance rapidly enough to cope with the problems when they arise. Recent developments give reason for optimism, said one of the participants, and problems that now seem impossible to solve may well be dealt with in the future.

2. Structural investments in conservation

Another solution to cope with future conservation problems is the creation of a conservation budget when the object is acquired. Works of art are given up not only because there is no solution available (yet), but also because restoration costs are too high. A museum should use part of its budget to make annual reservations for future conservation costs.

There is little information available about this aspect of collection management. Conservators and collection managers should work together on an international level to collect and process data on the basis of which predictions can be made about future conservation costs. Without this information, the advice to make a reservation lacks conviction.

In some cases, a conservator may be able to predict which parts will deteriorate faster than the rest and anticipate by buying spare parts at the time of the acquisition. Frederik Leen referred to the installation by Nam June Paik in the collection of the Brussels Museum of Fine Arts, in which small portable television sets play an important role – not just because of the meaning and content of the work, but also because of aesthetic qualities. The monitors cannot be replaced by a model of a later date without affecting the aesthetic integrity of the work. One knows that the television sets will last only a limited number of years, so it may be advisable to buy one or two extra sets while the model is still available – although this is not really a solution, because in storage the equipment will also deteriorate.

3. The dangers of a travelling curator

The market, galleries and art dealers expect artists to use stable materials that have a proven durability. When someone pays a high price for a work of art, it seems natural that one expects it to last a long time. But museums have more obligations than just collecting works of art for posterity, and thus seem to be the last place left for an artist to work with the materials of his choice. In the past twenty or thirty years, museums assumed a role in the development of art by giving artists the opportunity to create works 'in situ', such as installations. Giving up that responsibility with the argument that the conservation of these works is becoming a problem in some cases seems too easy now.

In a way, museums have stimulated the use of unorthodox and new materials by inviting travelling curators to organise exhibitions. The travelling curator is less interested in the work when the show is over and certainly carries no responsibility for its future conservation. His interest is to put up an impressive and exciting exhibition and he will make his choices accordingly, without feeling the burden of having to keep the work preserved after the show.

According to Frederik Leen, the lecture by Jean-Christophe Ammann illustrated how this, perhaps unconsciously, has influenced the way we think about collecting and preserving art and about the nature of a work of art. Ammann talked about a mural by Lothar Baumgarten which he had bought for the museum. He had hoped that Baumgarten would allow a professional letter painter to carry out the work, but Baumgarten was not satisfied by a version that had been made and decided that he had to do the mural himself. To Ammann this meant that he couldn't whitewash the mural and let it be repainted again at a later date. The idea of erasing and repainting a mural stems from modern exhibition practice. It seems unlikely that Ammann would want to do the same with a Siennese fresco.

4. The responsibility for acquisitions

The person who decides on the acquisition of a work of art is still the curator, with or without consulting the conservator. Most of the participants agreed that it is the task of the curator to make the proposal for an acquisition, since he has the specific knowledge of developments in art and is responsible for building the best possible collection. It does not seem reasonable to ask the conservator to share this

responsibility as far as the aesthetic or art-historical qualities of a work are concerned. However, building the best possible collection also means buying works that can be preserved for future generations; the conservator is the expert in that field.

5. Conclusions

1. When museums purchase an art work, the conservator's knowledge is not commonly and fully used. The acquisition proposal of a curator should always be accompanied by a conservator's report containing information on the conservation problems to be expected and the possible conservation costs.
2. The future conservation costs of a newly purchased work of art are hard to predict. In order to develop a method of prediction, conservators and collection managers should gather and process data on an international level.

Accidental and wilful damage to contemporary art

Modern art, often quite vulnerable already, seems to attract accidental damage and vandalism. Ignorance and misunderstanding on the part of the public may be a basic cause, or egalitarian ideas clashing with the elevated aura of 'temples of art'. With vandalism, however, the psychological condition of the perpetrator is also involved. While educational and technical measures are being developed to protect the art works from damage, a systematic investigation of the various motives for art vandalism is as yet to start.

Introduction

- Géraldine Guillaume, conservator at the Centre Georges Pompidou in Paris, discussed the fact that a common cause of accidental and wilful damage to objects of contemporary art is the general public's level of art education. The following abstract is a substitute for her full text, which, unfortunately, did not arrive on time before this book was published (after the symposium, the seminar's chairman Joachim Goppelt wrote a special contribution).

Accidental damage often occurs on the basis of ignorance and misunderstanding. Wilful destruction is more rooted in a personal state of mind. Ms Guillaume pointed out that the term 'vandalism' should be defined more clearly and that the motives behind these aggressive acts are not yet sufficiently understood – often even being ignored as such. She suggested such possible approaches to vandalism as educating the public and taking protective measures. To conclude, she showed slides of some results of accidental damage and vandalism in the Centre Georges Pompidou.

Main themes of discussion

- Motives for art vandalism largely unknown
- Protection from damage: the educational approach
- Protection from damage: technical measures and museum guards
- Conclusions

Chairperson: Joachim Goppelt, free-lance conservator, Vienna

Minutes: Ruth Hoppe, conservator at the Foundation Kollektief Restauratie Atelier, Amsterdam

***Joachim O. Goppelt* INCENTIVES TO DESTROY ART**

The destruction of art through acts of vandalism – that is through the sheer urge to destroy – has been known to Western culture since ancient times. Herostratus's destruction of the Temple of Artemis in Ephesus through arson in 356 BC, the iconoclasm of the Reformation and the destruction of symbols of the 'ancien régime' during the French Revolution are just a few examples of this phenomenon. The motives behind these examples are also well known: Herostratus's craving for notoriety, the religious zeal that gave rise to iconoclasm and the political background of the French Revolution.

Any consideration of art vandalism in the present century must first address the question whether the significance accorded by our society to art can actually act as an incentive for inquisitive but untutored visitors to attack either the museum as an institution or the art it contains. Originally, one of the objectives of the French Revolution was to make the collections of the aristocracy accessible to the masses in museums. But this idea was modified in the twentieth century to the extent, as Bas Heijne pointed out, that museums have become 'sacred places or temples' in

which art works are presented as ‘autonomous and inviolable works’.¹ Here, the context of presentation only accentuates the divide between the art work and the viewer. This distance, arising from the ‘inviolability’ of the art work, undoubtedly hampers or even hinders the untutored viewer from approaching and understanding the work in question.

A further aspect in this context is the transformation of themes and content in art during the twentieth century. Particularly intellectual themes like ‘l’art pour l’art’ or the ready-mades that Marcel Duchamp presented to the public from 1916 onwards might prompt an emotional reaction from some museum and exhibition visitors that can be highly prejudicial, to say the very least. Even though Marcel Duchamp did not see his ready-mades as being particularly provocative, individual viewers might still perceive them as such – particularly when this art is presented at arm’s length, as it were, to the interested but incognizant visitor in the ‘sacred’ place of the museum.²

On closer inspection of the possible motives for vandalising art, the question presents itself whether the provocative content of the art work itself might be one of the decisive factors. According to Peter Moritz Pickshaus’s findings, present-day research is generally too insufficient to arrive at any definitive conclusion on the motivations of individual perpetrators.³ Less serious damage is often discovered at a stage when an investigation of the motives is no longer feasible. But also in more drastic cases of damage, often resulting in the complete destruction of the works in question, generally only superficial investigations of the possible motives behind the act were carried out. The authorities seem to treat these events as taboo.

This, perhaps, is one reason why we only really hear of the most spectacular cases. Do the institutions involved regard any investigation into these events as negative publicity? Is their silence a sign of impotence and concomitant ignorance, or is it merely a suitable punishment for Herostratus and his ilk by refusing the perpetrator the satisfaction he craves? One effect of this taboo is that the ensuing investigations often end prematurely with the perpetrator being designated ‘demented’ or a ‘psychopath’.

According to the few relevant studies available, especially those by Pickshaus who investigated a number of spectacular cases and spoke with their perpetrators, the following factors and motives (amongst others) can act as an incentive to destroy art:

- a craving for the artistic action, precipitated by the artistic concept of the work;
- the aura of the art work, evoking the viewer’s individual reaction of either enthusiasm and elation or fear and menace;
- the heroic deed characterised by a craving for fame, public interest and recognition (Herostratus);
- a general aggressiveness that could be directed towards the museum as an institution or towards the symbolic value of the art work – the perpetrator’s personal and social conditions may trigger off a feeling that the world is dominated by social injustice.

In none of the cases studied was one sole factor decisive for the outcome. Generally, the motivation behind the deed was multifaceted. For example, the attack on Barnett Newman’s *Who’s afraid of Red, Yellow and Blue IV* in the Neue Nationalgalerie in Berlin, on 13 April 1982, clearly shows just how complex the factors leading to such an act can be. The verdict of the first investigation, which was carried out immediately afterwards, was that it was a form of artistic action – the perpetrator had constructed an ‘environment’ in front of the devastated picture. But this was soon proven to be superficial and false.

Upon further examination, even the second motive proved to be fundamentally flawed. This was based on a premature interpretation of the perpetrator's statements and the supposition that, having had a predilection for politically nationalistic ideas, he had performed a heroic deed by destroying the work of a Jewish painter. According to later reports, the perpetrator had never had anything to do with right-wing groups and had never come into contact with any of their literature.

Studies based on conversations between the perpetrator and a female psychologist, and later with Pickshauss himself, produced a different picture: a whole complex of factors had played a role in the deed, amongst which the culprit's general social situation was significantly important. He was of humble origin and the only child in his family to successfully attend grammar school, but had later failed to fulfil both his own and his family's expectations by dropping out of medical school. Apart from this, he also suffered from clinical depression. Art had no significance for him. This, however, was changed by reports in the 'yellow press' about the purchase of Barnett Newman's picture *Who's afraid of Red, Yellow and Blue IV* and its price tag of 2.7 million German marks.

He saw the picture for the first time about two months before the deed. At the time, according to his own statements, the picture had this effect on him: "When I was practically standing in the middle, directly in front of the barrier, I had somehow a very strange feeling. I felt something really shake me up and down. That was only for a moment. And then it was over... When I saw the picture in question for the first time, I felt somehow afraid of it. For a few moments I was overcome by feelings of downright fear."⁴

The culprit stated that he had no money and felt very lonely at the time of the crime. All the same, his mood was euphoric and he felt full of enterprise. On the day of the attack, he entered the museum wearing a labourer's overalls and equipped with diverse personal items in colours related to those of *Who's afraid of Red, Yellow and Blue IV*. Although the museum was closed on that day, he was able to enter unhindered through the staff entrance because of his overalls. From his first visit, he was already familiar with the layout of the rooms and proceeded unhindered to the painting. He spread the items he had brought with him in front of it and damaged the painting in various places with a barrier post.

It was only after he had left the museum that a guard discovered the deed. In panic, he removed those items the culprit had left in front of the picture. As a result it was no longer possible to interpret the 'environment' and a not insignificant factor in the motivation for the deed could no longer be pieced together.

This example shows that various factors can bring a perpetrator to commit such a deed – his own personal circumstances and the casual perusal of a press report about the purchase of a picture in a tabloid newspaper that was instrumental in forging a connection to the picture in the first place. There were also coincidences such as the lack of money at the time of the crime, the absence of his close friends on that day and, not least, his psychic condition.

The question is whether knowledge of the facts that led to this destructive act can contribute to preventing such attacks cannot be adequately answered until we know more similar cases. Moreover, any interpretation of the interrelationship of individual factors must always remain hypothetical to some extent.

In the case of the act described above, at least one thing can be claimed with certainty: the deed could have been hindered on that day by adequate security measures. Whether the same security measures could have hindered the deed on a day when the museum was open to the public is of course another matter. Hence the question whether our present-day security measures are adequate in

preventing such acts remains unanswered. As yet, effective measures against vandalism such as covering pictures with a protective layer of armoured glass – the only real guarantee against an attack – also mean tampering with the aura of an art work.

Art is and remains violable and hence vulnerable, especially when its only justification is the communication between art work and viewer, as Marcel Duchamp once put it: “And that forces me to say that a work is made complete by those who view it or read it, or enable it to survive through their acclaim or even their condemnation.”⁵

Ruth Hoppe PROCEEDINGS

1. Motives for art vandalism largely unknown

The issue proved to be quite complex. Comments in the seminar group ranged from practical suggestions to more philosophical observations on human nature. It was generally agreed that a distinction has to be made between accidental damage caused by curiosity or carelessness, and a conscious act with the aim to harm or destroy an object of art. As far as the latter is concerned, it was felt that the literature on this subject does not give a satisfactory explanation of the perpetrator's motivation. It was pointed out that the aggressiveness involved in acts of vandalism is part of the human condition; also, lack of respect was regarded as a general feature of our time. People are trying to bring art down to their level of understanding by touching the objects, covering them with graffiti, and so on.

The participants mentioned possible sources of accidental damage (steps) and criticised some alarm systems that have the undesirable side effect of scaring off visitors – although, on the other hand, putting up a barrier could encourage the visitor to decrease the distance between the object and himself.

2. Protection from damage: the educational approach

A possible way of preventing wilful damage to works of art is to give people a means to express their feelings in a non-aggressive way, e.g. in comment books or cards, or in the form of interactive communication systems. Both methods are already successfully applied in museums in the USA and Canada. Enabling the visitors to give their opinion can become a valuable source of information on why and in what way the public react to the art on display.

A frequently mentioned approach to solving the problems of both vandalism and accidental damage was education. Making modern art understandable for the public was regarded as one of the main obligations of museums, but also people handling the objects should be better instructed in order to avoid damage. In the educational function of a museum or gallery, the exhibition policy can play a major role. Exhibitions have become much more commercialised over the last few years, creating a new form of cultural tourism. As a consequence, they tend to attract large crowds that appear to be more interested in the entertainment of art than in its deeper implications. These visitors are often not prepared for – or are ignorant of – the art forms on exhibition, which can lead to a certain lack of respect that may manifest itself in conscious or unconscious damage to the objects on display.

In Britain, 'touch' exhibitions are becoming increasingly popular. These are considered a good way of educating the public by not only providing information, but also giving the visitors the opportunity to satisfy their curiosity and their desire for physical contact with the objects. More simple educational means are text boards (with information regarding both the art work and the potentially harmful consequences of touching it), audio tours, video installations and so on. However, this concept might clash with the ideas of some curators or artists who consider any form of explanation as inappropriate.

3. Protection from damage: technical measures and guards

The participants named various protection systems used in museums and galleries all over the world, ranging from simple mechanical means like glazing and display cases, steps and barriers, to more complex electronic systems such as video cameras, infrared curtains and alarm systems. Often, one or several of these systems are used in combination with guards in order to ensure greater security, and to conform with the recommendation of the respective ICOM working group. A single system is insufficient. Another major drawback of security systems is that they are often designed to prevent theft rather than wilful or accidental damage.

It was agreed that museum guards have an essential function in the protection of art ('no guard – no art') because they can establish a personal contact with the public. Careful selection and regular training of the staff – e.g. instructions on the handling of modern art objects, pointing out possible sources of danger during exhibitions, and giving information that could be helpful in dealing with the public – can be crucial in minimising accidental damage and preventing attacks.

4. Conclusions

1. There is quite a range of possible solutions for reducing accidental damage, but it seems that at present little can be done to protect modern art against aggressive acts of 'real' vandalism without first learning more about the attacker's motivation. More in-depth research involving art historians, psychologists and sociologists should be encouraged.
2. Better training of staff and education of the public (starting at school age) is essential for creating a positive attitude towards modern art.
3. There is also a need for cheap, mobile, more effective protection systems that can be easily installed. These could be developed in a working group consisting, for instance, of technicians, conservators, and safety experts from insurance companies.

Documentation and registration of artists' materials and techniques

How to acquire correct data on materials and techniques used in the creation of a contemporary art work? Interviewing the artist is one way. To this purpose, traditional methods of inquiry are now being refined at the Restaurierungszentrum, Düsseldorf and the Tate Gallery, London for instance. But the manufacturers of synthetic materials should not be forgotten: in contemporary art a large variety of these materials is used, while their chemical composition often remains unclear. The relevant data can be made available, combined and disseminated through media such as the Internet; meanwhile a standardised terminology has to be developed.

Introductions

- Cornelia Weyer and Gunnar Heydenreich, director and conservator, respectively, of the Restaurierungszentrum Düsseldorf, presented a survey of questionnaire projects in Germany and Switzerland, culminating in their new approach.
- Pieter Keune, director of the Foundation for Artists' Materials, Amsterdam, stressed that the data on materials in contemporary art are not always reliable. He pleaded concerted action by manufacturers, retailers, artists, conservators, and art schools to standardise the most urgent information supply. His lecture is on page 154.

Main themes of discussion

- Interviewing the artist
- Uncertainty on material compositions
- Standardised registration and split-level accessibility
- Conclusions

Chairperson: Agnes W. Brokerhof, conservation scientist at the Netherlands Institute for Cultural Heritage, Amsterdam

Minutes: Marja Peek, coordinator at the Information Centre of the Netherlands Institute for Cultural Heritage, Amsterdam

Cornelia Weyer & Gunnar Heydenreich FROM QUESTIONNAIRES TO A CHECKLIST FOR DIALOGUES

The first person known to have systematically questioned artists about their techniques was Büttner Pfänner zu Thal. This was at the beginning of our century.¹ His initiative was not very successful: only three out of 200 artists returned his questionnaire.²

More than half a century later, in the seventies and eighties, several questionnaire projects aimed at a survey of the actual making of art were launched in Germany and Switzerland. The data gathered on these occasions are kept at various locations.³ Erich Gantzert-Castrillo, the initiator of the Wiesbaden project published the full set of returned questionnaires. Heinz Althöfer and Hiltrud Schinzel at the Restaurierungszentrum in Düsseldorf extracted material from their project and made use of it in a broad study on the conservation of modern art. Emil Bosshard of the Schweizerisches Institut für Kunstwissenschaft in Zürich, Wilhelm Stebler of the Atelier de Conservation et Restauration in Fribourg, and Ivo Mohrmann at the Hochschule für Bildende Künste Dresden evaluated and published the results of their projects.⁴ The following remarks focus on the experience gained at Düsseldorf and Dresden, as these projects are closely related to each other and serve as a starting point for a new initiative by the authors.

Between 1978 and 1981, conservators of the Restaurierungszentrum in Düsseldorf surveyed 442 individual objects. The information gained was stored on a computer in 1982/1983. The data still exist but have not been converted. Althöfer published a list of the artists concerned and the results in *Restaurierung moderner Kunst* (pp. 137-145). Here, we find information on the occurrence of certain characteristics like damage in correlation to style, material, optical appearance and so on.

For a consultation of artists, undertaken in the period from 1979 to 1983, thirty-nine questionnaires of relevant content were collected. Most of these were completed by the artists themselves and refer to specific art works from the collection of the Kunstmuseum Düsseldorf. The questions concern supports, grounds, techniques and coatings. Further we find notes on maintenance and possible substitutes for broken parts. Some papers contain questions like: "With conservation of modern art, the following problem seems of special importance to me:" or: "Would you eventually cooperate to solve the problem?" Although Althöfer and Schinzel were well aware of the importance of the 'iconology', the possible meaning of materials and techniques, no comments were asked on this subject.

Additionally, two strategies of investigation and documentation were developed: video documentation showing artists at work (five are stored at the Restaurierungszentrum) and numerous models made with the aim of "documenting the relationship between style, material, technique and specific vulnerability". Today, the Restaurierungszentrum plans to incorporate the names of the artists and the objects investigated into their actual database system.

The transcription of the complete stock of questionnaires does not seem manageable to us in the near future. In our opinion, the data from the Düsseldorf project vary in their practical value. The investigation of individual objects suffers from the serious disadvantage that there is no indication whether the information documented is the result of mere observation of the object's surface, an interpretation of X-ray analyses or chemical/physical analysis, or whether it was provided by the artist. On the other hand, the questionnaires filled in by artists, the video documentation and the models seem relevant. In future research as well as conservation contexts, they should be taken into consideration.

In Dresden, two surveys were accomplished by conservation students at the Hochschule für Bildende Künste – the first one in 1988 by Ivo Mohrmann, the second in 1990 by Katrin Meyerhuber. They reflect the historical moment of transition from the German Democratic Republic to a reunited Germany, with its important changes in society, economy and the arts. This might become even more obvious in the future.

Having been inspired by the Düsseldorf project, the investigators at Dresden looked for new ways. In 1988, Mohrmann distributed forty-seven copies of a questionnaire; Meyerhuber, in 1990, added two hundred more of a slightly revised version. The response was some forty sets of data in total.

These questionnaires focused on traditional art works, paintings and graphic works and requested information on materials and techniques from a practical viewpoint. The iconology of material is not mentioned – perhaps because this was considered less important in the traditional practice of art. But the authors were very much interested in the artists' opinion on changes caused in their works by ageing; in this, the Dresden surveys resemble the two Swiss projects of Bosshard and Stebler.

The artists were questioned on their individual attitude towards conservation and their interest to take part in it. The questions were posed in a way which seemed to concede the artist a certain right of interference in conservation/restoration. Wilhelm Stebler, however, explicitly warns not to misinterpret the

value of the artist's opinion for individual conservation tasks: it is not more than a first step in concept finding.⁵

A second questionnaire was prepared by Ivo Mohrmann, though not used in the context given, which is suitable to comment on a specific art work. It was meant to accompany objects on their way through time; in case of need for conservation, the information gathered was expected to help with the conservation plan. As the Düsseldorf project suggested, additional video documentation was also planned.

The value of questionnaires is in their simultaneous view on a certain number of oeuvres and in the details they provide on specific objects. In other words: they allow us to become aware of general developments and individual characteristics. Re-evaluating the material gathered by the surveys of our predecessors, we found that only some consultations with artists were accomplished in such a way that we can use the results at some future times and places. The question arose whether the records do really contain what we and later users may look for.

As a result of what we learnt from past questionnaire projects and from our own experience, we made a checklist that can be consulted when preparing an interview with an artist. The list can also be used in other surveys to guarantee a reliable standard of comparison:

Checklist for interviewing an artist

- Information on materials (names, compositions, manufacturers, suppliers)
- Techniques employed, collaboration with assistants/other workshops/companies
- Meaning of materials and techniques, reasons for their choice
- Samples of materials, the artist's documentation of materials and techniques (primary, secondary), other places where documents on the materials or techniques are preserved
- Opinions or recommendations for installation, display, maintenance, storage and transport
- Opinions or recommendations concerning preventive conservation treatments (e.g. glazing)
- The extent to which changes in the work's appearance (as a result of ageing or damage) are intended/accepted, experience with ageing/damage, dependence of the work's meaning on the state of preservation
- Opinions on interventions, the state at which an intervention should be considered, the extent to which intervention is intended/accepted, experience with conservation/restoration:
 - aesthetic considerations
 - authenticity (which parts do not necessarily have to be original in view of the work's meaning)
 - historicity
 - functionality (in relation to the work's meaning, acceptance of exchange of parts to keep the functionality)
 - preservation of value (economic aspects)
- Earlier collaboration with conservators
- Interest in publishing this information

Note the time and context of the interview!

Specify questions to a single work/a group of works/a period of time!

In spring 1997 the Restaurierungszentrum drew up two questionnaires on documentation and registration of contemporary artists' materials and techniques. The aim was to make an inventory of the quantity and quality of existing information in German-speaking countries, as well as the accessibility to that information. One

questionnaire was sent to 36 museums, restoration studios and art academies, while another was sent to manufacturers. The conclusions were:

- There is a need for information on materials and techniques of contemporary art.
- There is a strong interest in the exchange of data, but on computerisation of delicate information serious reservations exist.
- Access for a broad public is not in the interest of most owners or conservators, but almost everyone questioned thought a network open to professionals was a good idea.
- Most manufacturers keep information on raw materials for a maximum of 10 years only, although formulas are kept for a longer time.
- Most manufacturers offer their cooperation, and limited access to information, when approached with a special request – two manufacturers were willing to share data for conservation purposes.

Presently, the Restaurierungszentrum supports the Akademie der Bildende Künste Düsseldorf in its questionnaire given to artists teaching at the academy. In comparison to the projects presented above, the inquiry has certain special characteristics. While considering the various aspects indicated by the checklist, the interviewers aim at a dialogue rather than completing a questionnaire or strictly asking questions. They prefer concise foreknowledge as this can be gained by being in contact with the staff of the academy's workshop or by evaluating conservation documents on the artist's oeuvre. They also appeal to the artists' own interest in the authenticity of their work. All these efforts are meant to improve the documentation of information.

***Marja Peek & Agnes W. Brokerhof* PROCEEDINGS**

1. Interviewing the artist

After having established the need to document information on contemporary artists' materials and techniques, the participants discussed the question of how to meet this need.

The Tate Gallery has chosen to interview the artists. Originally the museum used a general questionnaire, but later discovered that this did not provide the required information – so it was tailored to the art work in question. Preferably, the artist is invited to the museum to answer questions in front of the art work. When interviewed by two persons from different disciplines, the questions supplement each other and more aspects of the same work are covered.

The Tate Gallery has constructed a database purely for conservation purposes (free text with headings). In practice it proves to be difficult to structure the huge amount of information generated during each interview and enter it into the database. Once a database has been constructed, questions remain on how to make the data available and to whom. So far, the Tate Gallery database is only accessible at the conservation department, but the museum is planning to put its entire collection onto the Internet for public access. The accompanying texts will also cover techniques and condition of the art works.

Another question that arose with respect to collecting information was when to collect it. Experience shows that the moment of purchase is probably the best moment for extracting information from the artist, if still alive, but much information will have to be gathered in retrospect. The National Gallery in Washington keeps files of its correspondence with artists. These files are closed, but they become available to the public after 30 or 40 years – depending on how this is prescribed. If someone, for some reason, does not want her or his information on file to be revealed, the situation is handled with great care.

The participants agreed that during the interviews it is very important to create an atmosphere of confidence in order to obtain as much information as possible about the use of materials and techniques, the artist's knowledge on the materials and the circumstances under which the art work was created. A good relationship also stimulates the artist to give permission to make the information available to a larger public.

2. Uncertainty on material compositions

The second issue was that of the reliability of information. Artists will often provide brand names of the materials they used without knowing the exact composition. The group agreed that brand names are rather incomplete as far as material information is concerned. Compositions change while the brand name remains the same. Sometimes artists simply remember the wrong names or give details about compositions without actually knowing them.

So, more detailed information about the materials has to be collected from the manufacturers. Even when one has a good relationship with them, however, they are not always willing to share their knowledge because of commercial interests – and one will have to respect this. Although brand names are better than no information at all, the precise composition of the materials often needs to be verified by chemical analysis. For this reason the Tate Gallery also collects references of materials used by artists. To think that one can know the chemical composition of all materials used is an illusion, but in case of conservation problems one can at least go back to the reference.

This issue raised the matter of whether or not the artist needs to have a certain level of knowledge about composition, properties and interactions of materials. More material science should be taught at art schools and academies. Fortunately, artists are more and more aware of the special properties and durability of materials and are often quite concerned about the choice of the proper materials. However, it was felt that artists should not be restricted in their creativity with materials for the sake of the durability of the final product.

3. Standardised registration and split-level accessibility

The third issue raised was that of standardising the information to be registered and making it accessible. In order to facilitate the exchange and share of data collected by different interviewers, they should all aim for at least the same minimum level of information. This requires a minimum set of questions always to be answered – which can only be composed after defining the aims of the data collection and of the users. It also requires a common terminology. This is a topic for further research and development, in cooperation with specialists in information retrieval.

As for making the information about materials and techniques accessible, the Internet seems to be a logical and efficient means. But using the net has two disadvantages: not all sources want public access to their information and, as was pointed out, it is hardly possible to standardise all the information and put it on the Internet. Besides, a huge amount of information is already available through various networks. Therefore it would be better to start by finding out what information is available and where. This is where the Internet may play an important role: it could be the medium where people find general information on available files or databases (metadata). As a next step, conservation professionals should supply missing information and look for ways to make this detailed information available to colleagues all around the world. In this way information could be accessed on two levels, using all available sources at the first level, yet allowing restrictions at the second.

4. Conclusions

— Interviews with artists are a valuable source of information on materials and

techniques used to create an art work. The right moment to do an interview is when the art work is being purchased.

- To ensure collection of useful information we need to define what information is required and for whom. To enable an efficient exchange of information, a checklist for interviews and a common terminology have to be developed.
- The interviews should be conducted by two people, preferably with different backgrounds. They should establish a good relationship with the artist in order to obtain correct information and permission to spread the information among conservation professionals.
- Access to information on materials and techniques should be on two levels: general access to information through existing sources, and restricted access to detailed information within these sources.
- Artists, conservators and curators should become more aware of the properties and interactions of materials and techniques in order to supply the right information and interpret information correctly.

Working with artists in order to preserve original intent

In the conservation of modern and contemporary art, the artist's opinion should be used as a guide – but in the end it is the custodian of the work who makes the final decision. If the aim is to remain as true as possible to the artist's intent, a continuous dialogue between artists, conservators, art historians and conservation scientists is required.

Introductions

- Carol Mancusi-Ungaro, conservator of The Menil Collection in Houston, Texas, pleaded the forging of a consensus on acceptable ageing for post-1945 art. This should be based on knowledge of the artist's intent, preferably to be gained through interviews – or dialogues – with the artist that are less restrictive than the traditional questionnaire.
- Shelley Sturman, head of Object Conservation at the National Gallery of Art in Washington, discussed the treatment of numerous works by contemporary artists, especially Anselm Kiefer, Scott Burton, Martin Puryear, and George Segal, to exemplify how each contemporary artist has a unique approach to materials, techniques and conservation problems. Her point: the partnership of conservator and artist can ensure that the art work is treated or allowed to age over its lifetime as the maker intended.
- Erich Gantzert-Castrillo, conservator at the Frankfurt Museum für Moderne Kunst, focused on the organisation of his archive of artists' materials. The text is included in his lecture on page 284.

Discussion

Of all the seminars at the symposium *Modern Art: Who Cares?*, this turned out to be the most popular and the first one that was fully booked. In order to meet this huge interest, the discussion was held in two separate groups – although both started from the same statements and questions.

Because of the seminar's subject, both groups benefited from the presence of an artist. Henk Peeters, whose work 59-18 was one of the pilot objects in the project Conservation of Modern Art, took part in Group I (which was also joined by Carol Mancusi-Ungaro and Erich Gantzert-Castrillo). The artist Voebe de Gruyter participated in Group II (which was joined by Shelley Sturman).

Main themes Group I

- How to interview the artist
- The conservator's obligation: to the artist or to the work

Chairperson: Marja Bosma, curator at the Centraal Museum Utrecht, the Netherlands

Minutes: Daniela Petovic, project cooperator of the Foundation for the Conservation of Modern Art, Amsterdam

Main themes Group II

- The artist's position in conservation
- The artist's intent versus the conservator's aim
- The artist's intent versus the interests of museums
- Remaining dilemmas

Chairperson: Janwillem Schrofer, director of the Rijksacademie van Beeldende Kunsten, Amsterdam

Minutes: Erma Hermens, free-lance conservator/art historian, Amsterdam

The directive of the Artists' Documentation Program that I launched in 1990 was clear from the outset – to record information from living artists that would assist conservators in future restorative efforts. It was not surprising that a preliminary survey of our professional literature revealed thousands of words written about the mechanics and science of conservation, but few about the appropriate level of our intervention in preserving the visual unity of the work as intended by the artist. Understandably, as a profession we seemed reluctant to tackle the difficult and often ill-defined question of what exactly, in terms of the aesthetic whole, we were attempting to preserve for posterity or what could be allowed to age without serious detriment to the essence of the work of art.

The nature of the questions to be asked was problematic, largely because it was time bound. I thought about Giorgio Vasari who, despite his numerable shortcomings, provided us with a substantial amount of information about Michelangelo and the ceiling of the Sistine Chapel. Reflecting the popular mood, he recorded the unparalleled depiction of forms in space but neglected to comment directly on the one element upon which the 1980s cleaning controversy agonisingly centred: the quality of colour. Vasari's omission is offered as proof, almost four and a half centuries later, that a major restoration has been ill-conceived. Clearly, the issue of the unasked question or a misplaced emphasis and the ensuing dilemma are humbling and continue to remind me of the potential exclusivity of the question.

Acknowledging my own inadvertent preoccupation with contemporary issues, not unlike Michelangelo's chroniclers, I decided to seek information in an interview format that would encourage artists to comment freely within a loosely predetermined order – rather than in the more restrictive questionnaire format favoured by colleagues in other museums. Situated in front of the relevant, problematic works of art, artists were free to discuss what concerned them while the object served to jog their memories. Discussion of the materials of one art work sometimes led to broader disclosures such as an artist's attitude toward the practical ageing properties of each colour as discerned from his/her own experience. Invariably, answers to specific technical questions ultimately provided a sense of the artist's attitude towards his/her materials, towards permanence, and even towards future intervention. To sum up, the less restrictive format of an interview allowed for the conveyance of factual information in addition to providing a sense of the artist's governing thoughts which are difficult to classify but critically relevant.

Just as dialogue broadens the narrow scope of a questionnaire, a filmed interview goes one step further by offering tone to each statement. Since the early 1960s, David Sylvester, the British art historian and critic, has conducted brilliant interviews with artists which often address issues of facture. Perhaps his most famous set of interviews occurred with the painter Francis Bacon. Sylvester published these interviews in a book entitled *The Brutality of Fact: Interviews with Francis Bacon* in 1975, and recently I viewed a film of excerpts from those interviews made by Michael Blackwood Productions. Having read the interviews, I was struck by the difference in my reaction to Bacon after seeing him respond to questions as opposed to reading his answers. I was suddenly reminded not only of the power of editing but also of the characterisation of words, for example, whether something is said in a declarative manner or as an evasion. An unedited film can convey an artist's uncertainty or doubt which the finished printed word, by its very nature, cannot. The tone is important, as it clarifies our perception of the artist's governing thoughts and opinions. For in the end, it is all about judgement – the artist's judgement of what is important for the survival of his work and the conservator's judgement of how that can be best accomplished.

One of the several aspects of this project that continues to interest me is how the tone of artists' concerns today is not dramatically different from what we have known in the past. Artists have traditionally intended that their pictures not change while accepting with varying degrees of awareness the inevitability of ageing. Brice Marden sounds eerily similar to Bonnard, Delacroix, and Degas when he prefers the inevitable changes from ageing to the intervention of another hand on his paintings. Although much is said about the modern artist's estrangement from his/her materials, an artist's exploration of unorthodox materials in pursuit of an artistic end has long been documented. Indeed, experimentation for visual effect is a primary aspect of creativity and, as such, it is not only an artist's prerogative but his/her prescript. In part for this reason, the tone and concerns of modern-day artists often reflect those of their forebears. On reflection, perhaps the practical nature of the creative endeavour and those who embrace it have not significantly changed; rather, their cultural context has.

Criticisms of the contemporary artist's flagrant disregard for the permanence of his art abound. These criticisms merely cloud the underlying issue, which is that we live in a time when there is no professional consensus of acceptable ageing for post-1945 art as there are for other periods of art. We vehemently lament the fading of Rothko's reds, but we accept the craquelure produced by ageing in a Rembrandt and the browning of Filippino Lippi's greens. We look for artistic intent in ethnic cultures in order to determine proper treatment of their artefacts, but we undertake wholesale washings of American abstract unprimed canvases without any notion of how the artist would have regarded the discoloration. In our obvious confusion about what and how to treat abstract art, instead of criticising artists perhaps we should be consulting them about artistic intent and aesthetic facture.

The most sensitive and best of us work with our minds and our hands. We intuitively understand and respect the choices, plaguing insecurities, and flat-out work that intervene between concept and actuality, between invention and creation. In truth, maybe a filmed interview will not provide answers to particular queries. However, it will offer some sense of how an artist regards the fabric of his/her art and that intuition should help clarify the directive of future treatments.

We in the conservation profession are privileged to enter a work of art where only the artist has been. That licence entitles us to a leadership position in forging a consensus of acceptable ageing for post-1945 art. In exercising this responsibility we must look to the artists and gain as much insight as possible. These interviews are a first step toward the fulfilment of our collective professional pursuit which, to my mind, is not a burden to be scorned, as some among us have said, but rather an opportunity to be embraced.

Shelley Sturman NECESSARY DIALOGUE: THE ARTIST AS PARTNER IN CONSERVATION

...the works are games...dynamic...one plays with the pieces creating hundreds of new combinations.... Fingerprints are immaterial...the sculptures are meant to be handled.
Mark di Suvero,
as he removed a Do Not Touch sign placed beside *Rising* (for Walt Whitman)

...numerous materials were investigated before finally deciding on chrome-plated steel...three different contractors were employed for polishing and plating to a mirror-like finish...the simultaneous reflection and absorption of light is critical...fingerprints are not acceptable.
Ellsworth Kelly,
stating in his instructions for the exhibition of *Mirrored Concorde*

For two different artists there are two opposing viewpoints on the treatment of a similar problem. Although the fingerprints on the thin copper-plated aluminium of di Suvero's puzzle piece sculpture have permanently etched its surface, he did not show concern. Kelly's exacting directions resulted in daily maintenance of the chrome-plated surface.

The artist's intention is not always evident; preserving intent presents an enormous challenge to the custodians of the works of art. Ethically, is the responsibility to the artist or to the work of art? Ongoing changes, frequently unanticipated ones by the artist, are especially challenging for the conservator. To what condition should a sculpture be restored? A delicate balance must be attained that both preserves the sculpture and remains true to the artist's desires.

When restoring art works from previous centuries there are few options beyond supposition regarding original intent and condition. By contrast, today we are in the unique position of being able to document the contemporary artist's ideas and wishes for the conservation of his or her work. A number of valuable interactions with contemporary artists have taken place at the National Gallery of Art in anticipation of conservation treatment.¹ By reviewing selected situations that best exemplify the collaboration between artist and conservator, each becomes more experienced at the necessary dialogue – enabling the process to progress more smoothly.

Good communication is essential, but often it is not until artists mature in their careers that they begin to think about the longevity of the art and how it will age. However, this attitude may be changing rapidly, as economic rather than artistic concerns have begun to drive some conservation efforts – for example, funding for a major outdoor conservation project was denied when the grantor believed that the artist should have selected more durable materials for a particular environment. Legal ramifications of Artists' Rights laws in the United States are another driving force behind the need to engage artists in discussions about conservation treatments.²

The partnership nurtured between conservator and artist ensures that the work of art is treated or allowed to age over its lifetime as the maker intended.³ The Tate Gallery in London has recently taken the initiative in this emerging field by asking each living artist to complete a questionnaire on the materials and techniques used to produce a work of art as they acquire it. One question specifically asks for the artist's thoughts about changes in the work.⁴ In a similar vein, the Ralph Mayer Center for Artists' Techniques at the University of Delaware has been producing an artists' techniques data file from many sources including artist interviews, for use during the conservation of an object. Additional questions are asked regarding reactions by artists to alterations in their materials through ageing or conservation.⁵ Both these nascent databases have the potential for becoming invaluable resources for conservators.

Clearly there is not one answer for every artist, just as there is no panacea for conservators facing the dilemmas of preserving contemporary art. Documentation of these exchanges provides the contemporary artist a voice in the future conservation of his or her work; at the same time it equips the conservator with the tools to extend the dialogue. Four case studies of the numerous ones presented during the seminar are reviewed herein, exemplifying how each artist has a unique approach to his or her art work and how within each different circumstance discussions with the artist were important for the successful preservation of the art.

Angel of History (1989) by Anselm Kiefer, formerly called *Poppies and Memories*, is a sculpture composed of numerous pieces of lead soldered together in the shape of a small aeroplane – with several, oversized books of lead weighing down the

wings of the plane. Strands of dried poppy plants are stuffed between the books, and two small windows at the nose of the plane are filled with poppy seeds. The seeds were heavily infested and insects at every stage of egg, larva, crawling and flying were present inside the windows. Of course the situation is not one that is tolerable inside an art museum, as the infestation could easily spread to other works of art.

No one knew how Kiefer would respond to the news. However, when he was consulted and actually viewed the sculpture, the artist did not feel that the insects changed the nature of the work – in fact he appeared pleased with the analogy that part of the work was being consumed from within. Yet, conservator and curator were able to convince him that the infestation was unhealthy for the rest of the collection. The poppy seeds and insects were removed from the windows and fumigated, and care was taken to retain all insect body parts and developmental stages. Sealed packets of Marvelseal 360™ film, metallic side in so that it blended with the lead, were made to contain the poppy seed mixture together with hidden oxygen scavengers.⁶ These sacks were replaced inside the window openings with no visible difference to the sculpture as Kiefer had made it. In this case, a collaborative solution that retained the changed appearance of the art, yet provided a safe environment for the museum, was achieved to the artist's satisfaction.⁷



Compromise rather than collaboration prevailed when working with Scott Burton on a set of his schist seating arrangements, *Rock Settees* (1988). When it was pointed out to Burton that the yellow chalk notations marking the cut lines for the quarry were still present on some sides of the pieces, he wanted them removed. Although the sculptures had been exhibited for years with the chalk marks, and the markings had certainly been useful in explaining the technique of the settees' manufacture to visitors, Burton was displeased. He felt that the marks were about process whereas the sculptures were not.

The chalk marks were dutifully removed once they were photographed and recorded. In this case, preserving the artist's intent meant sacrificing a glimpse of the original manufacturing technique that may have more meaning to future conservators than to the artist. Differences of opinion can become evident when speaking with artists. Then, compromise can be sought that does not alter the integrity of the piece.

When a painted, wooden sculpture by Martin Puryear, *Lever Number Three* (1989), was damaged by a museum visitor, Puryear felt that he was the most appropriate person to treat it. His treatment, which was performed in the object conservation laboratory, was fully documented and he was assisted by conservators. Newly cracked areas were cut out by Puryear and re-carved pieces were inserted, adhered in place, and painted to match the rest of the sculpture.

Anselm Kiefer, *Poppies and Memories*, 1989 (1994.75.1), lead, poppies, glass. In the margin a detail of window with infested poppies, during treatment.
Photos: National Gallery of Art, Washington

By following ethical dictates, most conservators would have chosen a more conservative treatment. Although some conservators have reported that artists have drastically changed an object when given the opportunity to treat it, the repairs made by Puryear were the best solution in this dilemma.⁸ A contract generated between the museum and the artist prevented any radical changes from being made and provided the conservators with a role in the treatment as well as an opportunity to learn how the artist responded to alteration to his art.

The final example is that of the artist George Segal, who has repeatedly sought the advice of conservators in the finishing of his sculptures. On several of his outdoor bronze sculptures, Segal has patinated the works in emulation of natural corrosion and then applied a protective lacquer to retain the desired surface. When examining such works, concern by conservators about what appears to be a corroding surface is unwarranted. Similarly, Segal has applied pigment in synthetic coatings together with corrosion inhibitors to bronzes in order to provide the best protected surface for some of his work.

With this artist the dialogue takes place before damage occurs, as a preventive measure. The example shows how important it is for the conservator to be aware of the artist's intention: otherwise, an originally produced surface could be significantly altered during an unnecessary conservation treatment.

These brief examples provide a small glimpse of the essential and valuable exchanges between artist and conservator that aim to strike the right balance of collaboration and compromise. Modern art, who cares? Conservators do! By working with living artists and posing questions about current and future desires for their creations, conservators can help ensure the best preservation of contemporary art well into the next millennium.

***Daniela Petovic* PROCEEDINGS GROUP I**

1. How to interview the artist

To improve the quality of conservation and restoration of works of art, would it be relevant to collect interviews with artists? Right from the start of the discussion the answer definitely appeared to be a confirmatory one. Interviews with artists serve as valuable documentation for conservation problems in contemporary art and all participants agreed that it is important to conduct them. This does not imply that the artist will always have the last word. At London's Tate Gallery, for example, the artist's advice will not be followed if they consider it to be inappropriate.

Regarding the kind of questions one should ask, it was commented that if they are too specific, somehow it is always the one unasked question that turns out to be of vital importance – as Carol Mancusi-Ungaro mentioned in her introduction. On the other hand, the group agreed that general questions actually do not exist. In the end, the interpretation is a matter of judgement and we indeed do have to make the judgement. Marja Bosma (chairperson), for example, declared: an interview is conducted from a certain art-historical perspective and then this is the perspective from which the information is judged.

Several times the point was made that conservation decisions are always shrouded in apologies, and they should not be. As one participant put it: we have to digest the information to the best of our ability and then trust that we make the right decision and feel comfortable with it.

On the subject of who should conduct the interviews, it was commented that most of the time they are done by the curator, occasionally with a conservator present. It was stressed that they each have different questions to ask, on the

Martin Puryear, *Lever No. 3*, 1989 (1989.71.1), wood.
Photo: National Gallery of Art, Washington

The artist at work in the Object Conservation Laboratory, National Gallery of Art, Washington DC.
Photo: National Gallery of Art, Washington

basis of different forms of documentation. The conclusion was that it seems advisable to conduct the interviews in a rather free form, so as to leave the artists as much space as possible to express their views.

It was not recommended to make the artists' interviews available to a general public since the information they contain is open to abuse – for example, by using it out of context. It should, however, be possible to find ways within conservation circles to share the information we have.

2. The conservator's obligation: to the artist or to the work?

The next question was: what do we actually want to preserve – is our obligation to the work of art or to the artist?

The artist present, Henk Peeters, was asked about his advice to conservators and his answer was quite clear: whenever a museum asks him what to do with a piece that has deteriorated, he advises the museum to throw it away. He hates the strict approach of originality: "It's so religious, it has nothing to do with my work." To Peeters the 'story' in the history of a work is important, not the material reconstruction. However, participants objected that the aspect of visibility cannot be overlooked.

For the project's exhibition at the Museum Boijmans Van Beuningen in Rotterdam, Henk Peeters himself made a reconstruction of his work 59-18. Both the seriously altered original and the exhibition copy were on show. Peeters, when asked whether this copy should be fully respected as an art work, answered that all he had done was to reconstruct an idea conceived a long time ago. Participants remarked that the copy and the original are two different works of art because it is not really possible to remake a piece – in fact, a reconstruction will always be something artificial, an auxiliary rather than a work of art.

Another issue was the difference between repainting a painting and replacing an object, i.e. a part of the work. Repainting is irreversible, whereas the remains of a decayed and replaced object can be saved. If an artist advises an irreversible method, a conservator can decide not to follow this advice.

Of course in the ideal situation, decision making is a matter of cooperation between artist and owner. But as Carol Mancusi-Ungaro said, an art work is also an **historical** object. The artist does not always see that when you repaint a work it becomes **new**. Also when an artist performs a restoration he will often come up with something new so the work's original balance is lost. To this, Henk Peeters added from his own experience as a restorer of Schoonhoven's work: "I used to repaint the Schoonhovens as Schoonhoven himself suggested to do. But now my idea has changed because I realised that if you repaint them again and again they lose their relief."

Eventually, the old controversy was brought up of showing an art work's age versus wanting it to look pristine. In general, there is a clear difference between conservators and artists on this score: conservators accept ageing much easier than artists do. But everyone agreed that the real problems arise after the artist's death; as long as he/she is alive there is always a possibility to come to terms. As a main conclusion it may be stated that the artist's opinion serves as a guide, but in the end it is the owner of an art work who makes the final decision. When the artist suggests an irreversible treatment, for instance, this is a clear point at which to draw the line. In the end, the work of art will always have to remain our primary source of information.

Erma Hermens PROCEEDINGS GROUP II

1. The artist's position in conservation

The discussion started with a statement by the artist Voebe de Gruyter about her

own work: "You like to preserve things, I like them to fade away, to be temporary." She documents the art work, however, but she emphasised that the documentation is not part of the work and should never be considered as such.

When this was discussed, two things became clear. First, that in the case of an art work 'fading away' the artist's intent is not always in keeping with the conservator's aim, which is to preserve the work, and that it may not either be in keeping with the aim of the curator who wants to preserve the work for its documentary value. Secondly, that it is very important to gather as much information as possible directly from the artist (from interviews, their writings and their documentation), or indirectly from curators, art historians, and persons who know or knew the artist.

When artists are asked about the conservation problems arising from the inferior quality or incompatibility of their materials, they often seem not to be interested in the endurance of their work – "Your job is to preserve it, my job is to create it," as Shelley Sturman quoted a painter. Yet there are many artists who express very clear ideas on conservation, whether their works should be preserved at all and if so, how, with what materials, and to what extent. Nevertheless, participants agreed the information provided by the artist himself should be considered critically. Artists may simply not remember the exact materials they used or they might not be consistent in their opinions on the preservation of their works.

In this context, information from scientific research – such as an analysis of materials by the conservator and conservation scientist – as well as art-historical information are at least of equal importance. In contrast to the art of the old masters, where historical documents like treatises on painting techniques and writings by the artist or the artist's contemporaries as well as data from scientific research have to be interpreted with our 'modern' and unavoidably subjective minds, in modern art the artists and/or their contemporaries are often still alive, the documentary evidence is more complete and interpretations can therefore be more certain. The 'facts' obtained from scientific research can not only be compared with direct and indirect information but may, ideally, even be discussed with the artists themselves.

2. The artist's intent versus the conservator's aim

The intention of the art work as described by the artist does not always fit with the conservator's traditional aim, which is to preserve the work including its original materials. Many modern works of art are purely conceptual and can, in principle, be recreated again and again. In some cases the original authorship is emphasised by the wish or demand that only assistants qualified and accepted by the author can 'repeat' the art work; in other cases this is less strictly determined. Here, recreation or conservation is a crucial dilemma. The discussion on this point led to the conclusion that a continuous dialogue between artists, art historians, conservators and conservation scientists seems extremely important if one aims to remain as truthful as possible to the artist's original intentions while optimally conserving modern or contemporary works of art.

3. The artist's intent versus the interests of museums

The role the museum plays in this is delicate and complex. The curator might for example be aware of an artist's original intention to allow an art work to deteriorate, but at the same time might wish to preserve the piece for its documentary value or its value as a commodity. This last argument, although unsympathetic, cannot be neglected today as the budgets of museums are limited and continuous choices based on many criteria have to be made.

In general, one could say that a museum seeks historical continuity and stresses the documentary value of art works. When buying a work, museums should naturally be aware of its vulnerability and thus of the conservation problems that may occur in the (near) future. Some museums even have a clear policy against

obtaining art works that are extremely fragile or are, according to their makers, meant to disintegrate over time. However, participants stated that museums are among other things meant to give documentary information on art, showing its history or presenting new artistic phenomena and developments to the public.

In this view, the permanence of the materials should not be of any importance as a criterion for purchasing art works. Participants felt that if for example degradation is part of a work's meaning a non-purchasing policy based on materialistic arguments is not acceptable. The modern artist chooses his materials not for their stability but for their suitability to express his or her ideas and to create a specific visual image. Often artists are even inspired by certain materials. Therefore their choice should not be influenced by museum policies.

4. Remaining dilemmas

The artist's original intent and expressed wishes concerning the preservation of the art work naturally help the decision-making process, but many dilemmas remain. One of the most relevant dilemmas to consider is the choice between the materialisation and the concept of an art work, between the facts (the physical knowledge) of the materials used and the meaning of these materials, between respect for the artist's original intentions and the owner's mission or interests. We are much more willing to accept changes due to the passage of time in the work of old masters – fading of pigments, darkening of binding media, missing parts – than when modern art is concerned. Naturally with old art we cannot deny the fact that the original context has changed dramatically, introducing a great deal of subjectivity in our judgement and making it impossible to completely respect the artist's intent. In modern and contemporary art not only the artist's intent and the materials can be known, but also the context the work was made in. Interviews with artists can, if interpreted correctly, provide important information which may help to direct us to the right solutions for the many dilemmas we are facing while preserving, purchasing and evaluating modern and contemporary works of art.

The interdisciplinary approach in the project *Conservation of Modern Art*

Short presentations were given on the project's interdisciplinary approach and decision-making model, and on the application to Pino Pascali's complex object *Campi arati e canali d'irrigazione* (Plowed Fields and Irrigation Channels) dated 1967. The ensuing discussion focused on the problem of material versus conceptual authenticity, leading to the conclusion that in general the interdisciplinary, interactive approach offers tools to heighten awareness of these possibly conflicting aspects – although this awareness does not always lead to problem-solving and decision-making.

Introductions

- Rik van Wegen, curator at the Bonnefantenmuseum, Maastricht, explained why an interdisciplinary approach was chosen rather than a multidisciplinary approach. See, apart from the abstract at the start of Discussion below, his article 'The Position of the Curator of Contemporary Art: Between Fetish and Score', page 201.
- Lydia Beerkens, conservator with the Foundation for the Conservation of Modern Art, gave a short presentation on the many-sided conservation research done on Pino Pascali's *Campi arati e canali d'irrigazione* as an example of the interdisciplinary approach. See for more details, apart from the Discussion below, the chapter 'Campi arati e canali d'irrigazione' starting on page 53.

Main themes of discussion

- Interdisciplinary versus multidisciplinary approach
- Material versus conceptual authenticity:
the case of Pino Pascali's *Campi arati e canali d'irrigazione*
- Doubts on restoration
- Greater awareness of a work's authenticity and integrity
- Positions in interactive decision making

Chairperson: Alan Phenix, conservator and coordinating assistant with the MOLART project, Amsterdam

Minutes: Caroline van der Elst, conservator at the Foundation Kollektief Restauratie Atelier, Amsterdam

Caroline van der Elst & Alan Phenix PROCEEDINGS

While in traditional art a restricted range of materials is used for restricted purposes, the large variety of materials in non-traditional contemporary art is often intertwined with an even larger variety of meanings. In the conservation of traditional art, the lecturers asserted that the multidisciplinary approach is more typically applied. In this practical approach to exploring the many sides of a problem it is usually one person – the conservator-restorer – who communicates with the different disciplines and reassembles the findings into an all-embracing solution.

In non-traditional objects of contemporary art, however, each artist gives her/his own special meaning to a material used. This leads to such a complexity of materials and meanings that decision making on the conservation of these objects cannot be undertaken by one single person. There is always a danger of presuppositions, problems of semantics and a simplification of the disciplines involved. In the interdisciplinary approach, conclusions derive from the interaction of the various disciplines involved and decisions are taken on an open-ended basis.

Because the interdisciplinary approach is fairly new to the field, a specific decision-making model (see page 164) for the conservation of non-traditional

contemporary art has been developed for this project. It takes into account the various considerations about an object's authenticity, its aesthetics, historicity and functionality as well as its economic conditions, while considering the artist's opinion as an important factor. The model contains two points for interdisciplinary discussion: one to balance the object's material condition versus its conceptual idea (meaning), focusing on the question whether ageing has changed its meaning to such an extent that intervention must be considered; the other focusing on the question whether and how the conservation options explored will violate the meaning of the object.

In this seminar, Pino Pascali's *Campi arati e canali d'irrigazione* served as an example of the interdisciplinary method discussed.

1. Interdisciplinary versus multidisciplinary approach

The advantages of interdisciplinary versus multidisciplinary research on contemporary art were questioned. First, participants took stock of the working methods of both approaches. It was put forward that in the multidisciplinary approach the investigation is usually carried out via three disciplines: applied science, conservation/restoration research and art history. The conservator-restorer collects the scientific, conservatorial and art historical data and then advises the person responsible for the object – the owner, curator, museum director. This person then takes the decision on conservation and restoration.

In contrast, the interdisciplinary investigation is usually carried out via more than three disciplines. Not only science, conservation and art history are involved, but also for example philosophy. Moreover, the artistic intention and the material's iconology as stated by the artist, his assistant or his widow play an important role in the interdisciplinary discussion. This zigzagging between the disciplines involved is the most complete way of investigating contemporary art.

The participants felt that the decision-making model could also be applicable to traditional art and to many different professions. It was disputed, however, whether the interdisciplinary approach does present any new insights that really differ from the multidisciplinary approach. It seems that in classical art works the meaning or conceptual idea is also important; accordingly, it was put forward that although an old master is dead and only the material remains, one should not neglect his intention or the opinions of his contemporaries when exploring conservation solutions. If a contemporary artist dies before he/she can be questioned, there is also the problem of how to investigate the object. Does the interdisciplinary approach with the help of the decision-making model really support the investigation if certain data are missing?

To most of the participants it seemed that the interdisciplinary approach and the model only helped to define the problems, not give practical solutions. The one thing that it did not do, in the case of Pascali's *Campi arati e canali d'irrigazione*, was to make the decision clear. Overall, the conclusion was that by using this model the interdisciplinary panel left the person responsible for the object alone with the problem of taking a decision; also, the model and the interdisciplinary discussion were regarded as being probably too independent of a museum's organisational structure.

The issue of 'responsibility' for conservation decisions was discussed at length in the seminar. Responsibility does not rest solely with the owner/museum director but is shared by all those involved. In the case of the Pascali, the decision-making process might have come to a more conclusive outcome if the museum's curatorial and management structure had been more closely involved. After a discussion among persons representing many disciplines and leaving no room for a 'wrong' decision, the decision making was thought to be even more difficult. Not being able to make a 'wrong' decision might in many cases mean that consensus and a solution cannot be reached.

These contrasting ideas gave way to collating some principles contained in the new interdisciplinary approach and the benefits of the decision-making model. It was underlined that the existence of meaning in older art, apart from its representation, had not been denied but that the meaning of contemporary art is often different. In contemporary art and in the interdisciplinary discussion, not only the artist's intention as explained by art historians plays a role but in most cases the living artist can also be questioned.

To the participants it was clear that in interdisciplinarity all the disciplines involved should together define the desired structural and conceptual shape of the object. If the disciplines are able to do so, it was thought that the benefits of interdisciplinary investigation for contemporary art were extensive: the interactive method could be most effective in heightening awareness of the wider implications of choices in conservation decision making and maximise the input of knowledge and wisdom into the process.

However, some participants stated that the main point of interdisciplinarity is not maximising the knowledge input but rather the active interaction which would make it possible to define a direction towards a decision: maximising the knowledge input in itself would not lead to actual decision making.

Participants agreed that when comparing the multi- and the interdisciplinary approach, in both cases implicit exclusions have to be made. In an interdisciplinary approach, on the broadest possible basis, losses could be kept to a minimum – although these should be well considered – because it stimulates the consideration, awareness and evaluation of the broader implications of conservation. Given the complex relationship between the material existence of non-traditional objects of contemporary art and their visual and conceptual existence, the interdisciplinary breadth of perspective was thought to be most appropriate. Furthermore, interdisciplinarity would render weight and authority to the decision.

It was asserted that decisions are made in a variety of ways and that the decision-making model leaves room for this. The model serves as a guideline and is only designed for that purpose; whether decisions can be reached, depends on the information and data the disciplines are able to gather.

2. Material authenticity versus conceptual authenticity: the case of Pino Pascali's *Campi arati e canali d'irrigazione*

The complexity of the issue was reflected in the diversity of opinions that came out of the discussion on Pascali's *Campi arati e canali d'irrigazione* (1967). For a better understanding, some chief aspects of the work were considered – especially the metal trays and the blue water they contained. The trays are corroded and leaking now; the recipe for the blue colouring for the water is definitely lost. At the time, Pascali produced other objects containing water. According to specialists he did not care much of which material or how the containers were made, he just wanted something to hold the water. Indeed, he commissioned a blacksmith to produce the trays. Accordingly, the colour of the water must have been more important to Pascali than the material properties of the trays. The artist, however, did not define what shade or chemical composition of blue he used; relevant data could not be found elsewhere.

This made it important to consider what impression Pascali wanted to give – although this would always be a matter of interpretation. The only information at hand was an art-historical interpretation written by art critics at the time. They defined the colour as being a reflection of the blue Italian sky. The interdisciplinary panel had to interpret this historical definition in their turn, and to take into account that the colouring of the work had changed anyway because the trays were corroded. Thus, one option was to fill the trays with water again and mix in a 'colour blue of the sky' – which could be seen as a replication of the conceptual idea. A contrasting option raised was to exhibit the trays without water, disregard-

ing the supposed conceptual meaning of the work; another was to replace the water by a non-corrosive liquid, although the symbolic meaning of the water would then be lost. In either case, the panel would have to make clear which was the most important aspect: the object's conceptual meaning or its material authenticity?

This is also what the discussion concluded in the matter of the trays. It is not really certain whether their function is purely formal, or has a symbolic meaning. It was put forward that the object could be seen as a virtual work: for each exhibition the trays have to be filled anew with water, implying that the object is a perpetual replica. Pascali also displayed it in different arrangements, so essentially the object is a collection of assembled parts. The material and conceptual meaning of the different parts and their diverse arrangements give the object a different reincarnation each time it is displayed.

Other issues such as historical authenticity and determining the operational lifetime of the object were also found to play an important role. The question was how to balance these aspects. Different opinions were expressed on the future of the metal containers, ranging from exhibiting them without water or placing invisible inner trays to making replicas of the original trays.

The first view, to display the trays without any water, went back to the finite artistic lifetime of the work and tended to consign the object to an archaeological role. In this, the artist's contribution is central to every presentation of the object; with his demise, its meaning and status have changed. As a result, only the material remains and so the trays should be exhibited without water. Some participants objected that this would change the object's functional and conceptual aspects, neglecting it as a work of art and only respecting its material authenticity in relation to a conceptual meaning given by the artist which now is lost. Moreover, the artist is not the same as his work of art.

The second option put forward was lining the trays with an invisible inner tray. This view honours the original material together with the original intention of the trays as part of the object; it also respects the idea that the artist used them only as containers without allowing any special reference to their material. Lining would not disturb the conceptual idea of the trays as carriers for the water and yet conserve the original material without restoring it. Reference was made to antiquities in which an archaeological object is respected by not restoring it to its original meaning, which may be lost. Nevertheless it was pointed out that lining would affect the work's appearance and thus create a different general effect; some thought that the basic material of the trays should be respected, that the placing of inner trays was far removed from Pascali's intention.

The third view, interpreting the artist's intention as conceptual, was that replicas could be made of the trays. These were thought to contain sufficient information for a highly accurate replication respecting the interpreted original intention. In this case, the preservation of the work's conceptual authenticity was preferred to that of its material authenticity: to replicate the trays is to respect the conceptual idea of containers for the water. It was suggested that a less vulnerable material could be used so as to extend the life span of the replicas. This issue raised the awareness of new problems stemming from replication of individual parts: a series of replications of decaying components would lead to substantial loss of material authenticity. Reference was made to music from the past. We do not hear the original, we have only interpretations of how it might sound. Thus, in replicating Pascali's trays one could interpret and preserve the idea but not the original – while music at least was written down and Pascali's intention was not.

Some participants were disinclined towards replication and preferred the first two options which respect the original material. It was mentioned that the director of the museum owning this Pascali instinctively resisted substitution of the trays. Using replicas would compromise the work's meaning; also, for every single part of

the object different conservation solutions had been advised (e.g. consolidation of the earth and impregnation of the asbestos). Moreover, the formal meaning of a work changes over time. Participants feared the slippery slope towards complete replication with time, entailing a corresponding loss of material authenticity.

Essentially, the conclusion was that a reconstruction of the trays in order to re-establish their conceptual authenticity could only be based on an interpretation of the remaining material. Participants felt that this was important to realise: every decision relies on an interpretation. To arrive at a justifiable interpretation, the aspects that are certain should be approached in a hierarchical order; the importance of balancing the options is to recognise losses and to communicate these. Replication implies loss because the original material is discarded. Using replicas for display, however, allows for the preservation of the original components and their material information for future generations. (For more details, see the chapter on Pino Pascali's *Campi arati e canali d'irrigazione*, page 53.)

3. Doubts on restoration

The difference between restoring traditional art and contemporary art was also raised. An old art work may have already been restored many times; because of this, and because of its age, the original appearance is lost. The ideas behind the restoration of old masters were questioned, and one might wonder whether the ideas of contemporary artists will be known in 500 years' time. It was stated that knowing the living artist gives one a different slant on the object and its restoration, apart from any conceptual meaning of the object itself. This led to the question of at what point does an object's operational lifetime come to an end; when should the decision be taken either to treat the object purely as material remains, or to keep its conceptual lifetime going?

4. Greater awareness of a work's authenticity and integrity

From the discussions on the relationship of material and meaning in modern works of art and the concept of interdisciplinarity, a general statement emerged: "The notions of integrity and authenticity applied to works of art have several, possibly competing, aspects. A critical opposition liable to occur is that of natural changes in the object (material integrity) acting against its conceptual and/or visual authenticity. It has been proposed that the interdisciplinary approach – in which intermediate questions and answers result from the interaction of varied disciplines – is the most effective means of heightening awareness of the implications of conservation in the context of such a possible opposition of the different aspects of authenticity/integrity."

5. Positions in interactive decision making

To bring the seminar to a close, the discussion moved back to the general issue of interdisciplinarity in the conservation of modern art, including the matter of responsibility for decision making and conservative action. Because the museum's management structure was not involved in the process, the value of the interdisciplinary approach was somewhat undermined. Therefore, it was recommended to involve those responsible early in the decision-making process – as soon as the discussion on 'discrepancy' begins.

Brief attention was given to the respective positions of the conservator, the curator and the museum manager/director in decision making. Although the general feeling was that a flexible definition of responsibilities is to be preferred, it was suggested that the conservator-restorer take the position of advisor or advocate for the object. Attempts were made to establish whether interdisciplinarity leads to a greater consensus in decision making, but these were not conclusive. Whatever, the following characteristics of the interdisciplinary approach were identified as valuable:

- it promotes the interaction of the persons involved,
- it gives weight and authority to decisions,
- it maximises the knowledge input,
- it compensates for the poorly constructed frames of reference that often apply with modern art objects, and
- it provides the broadest possible perspective on the implications of conservation decisions, especially on aspects of integrity that might be lost through the rationalisation of material constraints with artistic meaning (conceptuality).

In the decision-making model, input during the 'consideration' phase was recognised as being crucial to the outcome. It was agreed that this phase is essentially the one at which all the various aspects (material, visual, conceptual, historical) of the work of art are opposed to each other. The solution is inevitably a compromise between meaning and condition.

Legal aspects of conservation

Balancing the different interests of artists, museums and conservators with regard to conservation all too often depends on 'goodwill'. Detailed written contracts are needed, incorporating a code of ethics. The artist's right to be consulted prior to restoration of her/his work is safeguarded by legislation, but the right to repent and a museum's duties towards the artist remain unclear.

Introductions

- Jan Kabel, professor of media law at the University of Amsterdam, addressed the problems of copyright in relation to the conservation of modern art.
- Caroline Forder, lecturer in law at the University of Maastricht, examined the legal aspects of drafting a contract between client and conservator.

Main themes of discussion

- Conformity on contracts
- The artist's right to be consulted
- The artist's right to repent
- A museum's duties towards the artist

Chairperson: Jan Maarten Boll, member of the Netherlands Council of State in The Hague and president of the Rembrandt Society (National Art Protection Fund) in Utrecht, the Netherlands

Minutes: Annemarie Beunen, art historian and lawyer at the University of Leiden

Jan Kabel COPYRIGHT AND CONFLICTING INTERESTS

A work of art is almost always protected by copyright law. In most cases this right is not transferred to others. Also most artists work on a freelance basis. Thus the rights in their work belong to themselves and not to an employer, so one has to take into account the artist's rights or those of his/her heirs. These rights concern the power of the artist to forbid reproduction, adaptation or modification of the work. Where conservation could be the result of these activities, copyright should be considered.

The question, however, is how seriously should these rights be taken? I know of no cases which specifically address problems of professional conservation of modern art. Most cases concern negligence by city councils and other public authorities in the maintenance or exhibition of public statues and other works of art. A frequent problem is the legal status of art 'in situ'. Nevertheless, in theory conflicts may arise out of the fact that copyright is an individual right and may be in conflict with the public interest in the conservation, modification or even the destruction of an art work.

It would be a perfect world if all potential copyright problems were regulated by prior written agreement. This, however, is not the case. The most significant finding of recent research by the American Register of Copyrights (*Waiver of Moral Rights in Visual Art Works: Final Report of the Register of Copyrights* 163, 1 March 1996) was that artists' agreements to sell their works are usually oral.

One has to remember that moral right's protection cannot be waived orally in important cases and sometimes cannot be waived at all. According to the Dutch Copyright Act, for instance, the right of the artist to object to any distortion, mutilation or other derogatory action which could be prejudicial to his/her honour or reputation cannot be waived.

So copyright law could affect problems of conservation. More precisely the rights of the artist include:

1. The right to object to modifications and other derogatory actions (section 6 Berne Convention);
2. The right to repent or, more applicable perhaps in this case, the right to repaint (national case law);
3. The right to be informed and consulted (national case law);
4. The right of publication or exhibition (national case law);
5. Reproduction and adaptation rights (section 9.1 & 12 Berne Convention);
6. Property rights, if the artist is the owner of the work.

There are many questions and problems arising out of the conservation of art works:

1. Is there a legal obligation to restore or to compensate damages caused by external factors?

Yes, if the artist is the owner of the work actions for compensation against the wrongdoer are possible (see, e.g., *Lubner v. City of Los Angeles* [1996] 45 Cal. App. 4th 525). If the artist is not the owner, an action based on moral rights is possible and depends on a positive reply to the following questions:

- Is the damage considered a distortion or mutilation of the work?
- Could other persons be held responsible (gross negligence or intentional damage) for the damages?
- Will the work be presented in its damaged state?
- Could it be defended that the work is an important part of the artist's body of work?
- Does the artist have an artistic reputation to uphold?

2. Does a legal obligation exist to prevent decay?

The law offers no protection against modifications resulting from the passing of time or the inherent nature of the work. The American Visual Artists Rights Act (VARA) states: "The modification of a work of visual art which is the result of the passage of time or the inherent nature of the materials is not a distortion, mutilation or other modification..." (section 17 USC 106A).

VARA offers no protection against modifications resulting from public presentation, except in cases of gross negligence (section 106c). In a Dutch case (*Lenartz v. Sittard* [1990], NJ 1991, 443) a work of art was deemed to be badly constructed and the city of Den Bosch was under no obligation to maintain it. Copyright Law therefore does not oblige a museum to restore work.

3. Claims as a result of restoration

Results which could be considered a distortion, etcetera, could be contested under the circumstances mentioned above. The American VARA (see section 106A) contains an explicit exception: "The modification of a work of visual art which is the result of conservation (...) of the work is not a destruction, distortion, mutilation, or other modification (...) unless the modification is caused by gross negligence."

4. Rights of information and consultation

The rights of information and consultation can be of the utmost importance for artists when decisions on the maintenance of their work are being taken. In VARA (see section 17 USC 113), these rights are only granted in the case of the removal of a work of visual art which is part of a building. The granting of the right of information however is of restricted importance. Supplying information legitimises the removal of the work (see same section). Negligence in failing to inform leads in most cases only to claims for immaterial damages.

5. Right to publish and exhibit works

In principle an artist cannot claim a right to exhibit or publish his work independent of contractual obligations.

6. Copies made for purposes of conservation

In a Dutch case (*Millingen v. Maris* [1989] 'Auteursrecht/AMI' 1989, p. 126-128) it was forbidden to replace a clay statue with a bronze reproduction in order to protect it from vandalism without the artist's prior consent. Generally, the making of copies is the prerogative of the artist and is not possible without his/her consent.

This could of course raise problems in the area of conservation. Thus exceptions to an artist's right to forbid the reproduction of a work must be created when this relates to professional conservation.

7. The artist's right to recall or modify (repaint) the work

Only in exceptional cases, which are usually not relevant to visual art, does the author have the right to modify his own work (scientific work). One could, however, imagine cases in which the artist does not wish to have a restored work exhibited. An artist's right to withdraw his work from publicity depends on positive replies to the aforementioned questions (see Question 1 above).

8. Right to prevent destruction or claim for damages if the work has been destroyed

In general the artist does not have a right to prevent total destruction of his work. However there could be exceptional cases depending on positive replies to the aforementioned questions (see Question 1 above: distortion, responsibility, presentation, oeuvre, reputation). The American VARA (17 USC 106A) states that the artist has the right to prevent any destruction of work of a recognised stature (section 17 USC 106A).

As we are now well aware, many conflicts between commissioners of works, conservators and holders of rights (heirs included) are possible. The Barnett Newman case illustrated on the one hand the public interest in restoring the material work *Who's Afraid of Red, Yellow and Blue III* and on the other the right of the heir to accept the restoration of the conceptual work by Daniel Goldreyer. Sometimes the artist wishes to let his work deteriorate, whereas the owner wishes to preserve it. In other cases the artist wishes to have his/her work restored, whereas the owner has to choose between restoration expenses or spending scarce resources on other works of art. As we also now know, copying for reasons of conservation could be considered an infringement of reproduction rights. Balancing the different interests should, in my opinion, lead to:

1. Conservation not being considered actionable mutilation, destruction etcetera;
2. No exception for destruction of a work – in cases of destruction all relevant circumstances (distortion, responsibility, presentation, oeuvre, reputation) should be taken into consideration;
3. Restricting reproduction rights for purposes of preservation and security.

Caroline Forder THE NECESSARY DETAILS OF A WRITTEN CONSERVATION CONTRACT

The need for a written contract between clients commissioning the conservation/restoration work and the art conservator is an obvious one. It is extremely important that the respective rights and obligations for both parties are laid down in a written agreement. A well-drafted contract is essential for the protection of the person(s) commissioning the work as well as the conservator, who can safeguard him/herself against unjustified claims. Moreover the contract can protect the work of art from being subjected to inappropriate procedures.

I have the distinct idea that in practice this rarely happens, and that many agreements for the restoration of art works are made orally and based upon mutual trust. This is very worrying. Whilst it is true that certain terms will be

implied as a matter of law, such terms are general and do not relate specifically to the special characteristics of conservation contracts.¹ Thus it is hard to understand why both parties are content to allow vital aspects of such sensitive and difficult work to be determined by general law.

There is extra need for a contract when a job, or part of a job, is delegated from one conservator to another. Conservation work is so specialised that this delegation is not at all infrequent and it probably takes place without thought for the legal consequences, thus creating legal traps for the two art conservators concerned.

Suppose Anne has a contract with Claude to restore a work of art and it is necessary to delegate part of the work to Ben. If Ben makes a mistake, who is liable? Under general Dutch law (article 6:76 Civil Code), if there is no contract Anne remains fully liable to Claude who commissioned the conservation. This may or may not be what was intended. Anne may find it unsatisfactory to be liable for the actions of someone else. Moreover, Ben, who is not party to the conservation contract with Claude, has no way of excluding or limiting his liability to Claude. The solution in such cases is to draw up a contract between Anne and Ben, to distribute liability between them, or for the second conservator to conclude a new contract with Claude.

A proper contract should anticipate problems and provide for them. It should take account of the fact that the conservator is a highly skilled professional frequently required to carry out an extremely difficult job. In most cases it is impossible to specify a certain result as it is unsure what the conservator will find until the work is examined.

The contract should therefore express the reliance which is placed upon the conservator's skill and expertise. The two parties to the contract are not on an equal footing, professionally speaking. The way the contract is handled depends upon the skill and knowledge of the conservator. The person(s) commissioning the work will generally not possess equivalent skills and knowledge and in this sense it will always be difficult to control and supervise what the conservator is doing.

Regarding this inequality of expertise a conservation contract has much in common with one between a patient and surgeon. Several of these points are illustrated by the contract between Daniel Goldreyer and the Amsterdam Stedelijk Museum for restoring Barnett Newman's *Who's Afraid of Red, Yellow and Blue III*?. The law fortunately will do its best to make sense of even a quite vague agreement. Clause 5 of the Stedelijk-Goldreyer contract provided: "The conservator will utilise his best efforts to restore the damaged painting back to its best possible condition."

Even without any more specific provision this will be understood in most legal systems as obliging the conservator to act reasonably and fairly, and to base decisions on just and fair considerations. The correctness of the decisions taken and the adequacy of the grounds upon which they are taken will always be open, however, to examination in a court of law.

It is much better to be more specific about what is expected of the conservator, detailing the techniques, methods and materials which are to be used. While the Amsterdam Stedelijk-Goldreyer contract specified at length how certain parts of the job were to be done (Clause 6, for example, detailed how the back and canvas of the work should be repaired), there was only one sentence about repair to the paintwork and no mention of the techniques and materials to be used or the extent of the job. It is neither in the interests of the person(s) commissioning the job nor the art conservator to give the conservator 'carte blanche' concerning methods and techniques.

Conservators often do not know what they will come up against until work begins, or the materials and methods originally envisaged may turn out to be less

suitable than appeared at the outset. Such considerations heighten the importance of a conservator's obligation to supply information and to consult with the person(s) commissioning the conservation work.

A duty to inform consists of two requirements relevant to the person commissioning the work. The first requirement, which also involves a time-factor, is that the conservator has a duty to keep the client informed of his/her activities in carrying out the work. This enables the client to react, and, where necessary, issue new instructions. If a conservator discovers a previously undetected scratch on an object, it is important that the conservator contacts the client *before* treating it. If this is done afterwards the client has been deprived of the opportunity of participating in the decision as to how it is to be treated.

The second, less time-related, requirement is that the client should be supplied with documentation about what needs to be done and why. In specifying the obligations of the art conservator to supply the client with information it is important that these two requirements are not confused.

Not all problems can be removed by drafting contractual terms. Just as important is for the client to insist on high professional standards, and so is improved professional training of art conservators and restorers.

This has been a point of concern for the European Union.² The professional standards expected of an art conservator are at issue in a case which has recently been brought to the European Commission in Brussels. This concerns an art conservator who trained in one country and then sought to have her qualifications recognised in another. When that country refused to recognise the qualification and required her to pass extra tests, she claimed this wrongfully interfered with her freedom of movement within the EC.³ Not much more is known about the case as yet, but it will be worth looking out for it in a couple of years.

A requisite professional standard can be specified in the contract by incorporating a code of ethics.⁴ No such code was incorporated into the Amsterdam Stedelijk-Goldreyer contract. A code of ethics can be incorporated into a contract in one of a number of ways:

1. *Express incorporation.* This lesson has already been learnt by the Amsterdam municipal authority. On 24 May 1994 the municipal authority resolved (clause II, 3a) that all restoration contracts drawn up by museums falling under its authority should expressly incorporate one or more conservation codes.
2. *Implicit incorporation.* Even when a code of ethics is not expressly referred to, it may form part of the contract if the conservator is a member of a professional body and he/she is bound by that body to conform to the standards of a specified code of ethics. Even if it is not mentioned in the contract, the person(s) commissioning the restoration must know that the conservator is a member of such an organisation.
3. *Relevance as generally accepted professional standards.* If a code of ethics has been neither expressly nor implicitly incorporated into the contract, its terms may nevertheless be relevant because these indicate standards which are accepted by the profession as reasonable and fair (Dutch Civil Code article 6: 248(1), for example, allows a court to refer to such generally accepted standards). However, I do advocate the express inclusion of a code of ethics, since then incorporation is certain.

There are a number of typical clauses which appear in codes of ethics, such as the principle of reversibility, the principle of minimal intervention in the condition of an object, and obligations to inform and report to clients. These provide a valuable contractual basis for both parties. Two aspects, however, of codes of ethics need pointing out: the risks attendant upon exclusion clauses and the lack of attention for the position of the artist.

While it is rare for an art conservator and client to conclude a written contract

for restoration work, it is more common for a conservator to hand the client a sheet of paper outlining, usually in small print, the 'general conditions' to which the contract is subject. The point here is that the professional organisation supplies the conservator with a means of limiting his or her liability.

It can happen that these restrictive conditions are in breach of the law and therefore void or voidable at the option of the client. Such conditions are subject to the special scrutiny of the law provided by consumer protection. It is worth noting that while a private individual is defined as a 'consumer' and so protected under these provisions, a small museum may also enjoy such protection. A large museum, although not protected directly by the provisions because it does not qualify as a consumer, may nevertheless enjoy a sort of indirect protection. This is because the provisions, by their very character and in line with the policy in statutory provisions mentioned below, are dealt with by the courts more strictly than other types of contractual clauses.

Furthermore these provisions claw back the agreements made in the code of ethics. For example the 1994 general conditions of the Dutch art conservators' association VeRes provide that "specified completion dates are always approximate and a delivery date will never be a fatal date" (section VII, 7.1). Take note: "always" and "never". Whatever fixed date the parties might agree to, the date for completion is, according to the general conditions, **never** 'fixed'. This means that the conservator – if he/she fails to meet the deadline for completion – is not in default and thus is not in breach of contract, so that the person commissioning the work cannot, for this reason, avoid the contract and demand damages. This is a 'grey' condition (regulated in book 6 article 237(e) of the Dutch Civil Code) because it means that the conservator will only be allowed to rely upon the condition if able to show that reliance upon the condition is not unreasonably onerous for the other party.

Another problem arises with a sentence from the same VeRes conditions (in section VI, 6.2) which states: "In the event of unforeseen circumstances making it necessary to raise the price within the three month period, the person commissioning the work has the right to avoid the contract." Leaving aside the fact that this provision may scare off many a client and thus seems ill advised – in any case the conservator should surely be considered capable of anticipating events within a three-month period – it is evident that when drafting this condition account was taken of the Dutch Civil Code. An article provides that in consumer transactions a condition will be unreasonably onerous which "gives the person relying upon the condition the power to raise the price after the contract has been concluded, unless the other party is given the power to avoid the contract in that event".

The problem lies in the period after the three months have elapsed. The 1994 VeRes general conditions state: "After this period has elapsed a change in circumstances will entitle a proportionate payment." For right to a "proportionate payment", read "increasing the contract price". And, what is more, the client commissioning the work does not have the power to avoid the contract. This condition is unreasonably onerous when tested according to the open clause (book 6 article 233(a)) of the Dutch Civil Code. The German courts have repeatedly held such conditions to be unreasonably onerous since the client commissioning the work is thereby disabled from estimating the risks within the contract. Put bluntly, the client is simply unable to find out what the contract will cost him.

The moral rights of the artist, the right to safeguard the artistic integrity of the work, clearly have a much more important role to play in relation to modern art than to older forms of art.⁵ The modern artist is still around to explain what his/her ideas were when the work was made and to make suggestions for restoration.

In relation to Daniel Goldreyer's restoration of Barnett Newman's work for the Amsterdam Stedelijk Museum, the Dutch writer Han Israels argued in a national

newspaper (*NRC Handelsblad*, 8 February 1997) that Goldreyer had simply interpreted exactly what Barnett Newman wanted to convey to the world. According to this view *Who's Afraid of Red, Yellow and Blue III* was a huge practical joke intended to show up the foolishness and pretentiousness of the modern art world. Goldreyer's restoration was a restoration in exactly the same spirit, equally cocking a snook at the art world.

Here a claim is being made for the right of the conservator to give effect to the moral rights of the artist. I do not think it was satisfactorily proved that such was Barnett Newman's real intention. But supposing it had been, and supposing a code of ethics had been incorporated. It seems that most codes of ethics do not make any provision for a situation like this, which would allow the conservator to have regard to the rights of the artist in the artistic integrity of the object.

What the 1992 VeRes code of ethics provides for (under the heading Respect for the Integrity of the Object) is that "all professional actions of a conservator are to be guided by unswerving respect for the aesthetic and historical value and physical integrity of the object". Compare this with 1989 Canadian Code of Ethics which, under the heading Responsibility to the Originator, states: "The conservator shall endeavour to understand the intention of the originator in creating or using cultural property, and take this into consideration in the conservation of the cultural property."

To my knowledge such a clause is not to be found in any other code of ethics. It would seem that as far as modern art is concerned, other codes of ethics need to be modified in order to allow the conservator to take the moral claims to the integrity of the object into account along with other aspects.

Sometimes the artist wants irreversible treatment, or a treatment which is much more than a minimal intervention. Take for example a chair made by Irene Fortuyn and bought by the Amsterdam Stedelijk Museum. Over the years the chair's silk cover had become faded and torn. Fortuyn wished to replace the silk with a piece of the remainder she still had in her possession, whereas the museum conservator was anxious to repair the old silk. Eventually the restoration was done as Irene Fortuyn envisaged. Thus in such cases an explicit provision is necessary because of the tension that can arise between the moral rights of the artist and, for example, the requirement of reversibility or minimal intervention.

***Annemarie Beunen* PROCEEDINGS**

1. Conformity on contracts

Specific restoration contracts between clients and conservators are needed because the terms are too specialised to fall under general contract law. As for the incorporation of a code of ethics into such contracts, conservators agreed that the omission of the artist's role in various codes probably had to do with the fact that these codes are more concerned with traditional works of art. It was also agreed that codes of ethics need to be modified to incorporate the role of the artist.

2. The artist's right to be consulted

The question was raised whether a conservator is allowed to make changes to a work without the owner's consent. Jan Kabel and Caroline Forder, the two main speakers, said this is only possible in calamitous situations where changes need to be made as a last resort.

On the other hand, does an artist have the right to disapprove of restoration carried out to his work? That would depend on such circumstances as whether the work is deemed modified or mutilated (an artist cannot object to minor modifications), whether the restoration damaged the artist's reputation or whether it con-

cerns an important work of art. These questions could be avoided by abolishing the possibility of artists to invoke their moral rights when it comes to conservation – a situation which already exists in American copyright law.

The duty to inform or consult the artist is not a statutory obligation but is based on case law. An exception to this is in the United States where works of art integrated with or attached to a building may not be removed without informing the artist in advance (VARA 113[d][2]). There was a recent Dutch lawsuit (1993) concerning the State University of Groningen which had building plans implying the destruction of a mural painting. The court decided that the destruction would infringe the artist's moral rights and reproached the University with not having fulfilled its duty to consult him.

It is unclear whether the artist's opinion has to be followed when carrying out restoration work (see 3). For example, Elsworth Kelly's paintings in the Stedelijk Museum needed restoring because they were dirty and marked with fingerprints. Kelly said that if the restoration was unsuccessful he would paint over the works. While the museum director agreed to this, the conservator argued that Kelly's work as a document of its time would then be lost. Fortunately, the artist approved of the result of the restoration.

3. The artist's right to repent

Does an artist's moral right to repent imply the right, for instance, to repaint a work owned by a museum? What are the legal implications? Forster argued that it is not a legal matter but governed by a code of ethics. The Dutch Copyright Act states that changes to a work should be reasonable. For instance, during an exhibition of Massimo Campigli's works at the Stedelijk Museum in 1950 the artist repainted a work from 1930 on loan to the museum by a private owner. The owner blamed the museum for inattention and had the repainting removed by the museum's restorers. The matter, however, is unclear: the right to repent probably does not imply a right to repaint.

4. A museum's duties towards the artist

While a museum's responsibilities follow from the ICOM (International Council of Museums) Code of ethics, these do not go so far as to imply a duty to exhibit works of art and to maintain them. Whereas the duties of a museum towards a work of art are written down, the museum's duties towards the artist are not.

A balance should always be found between public interest and the interests of the artist. The interests of the latter should not go too far: an artist may not misuse his rights. The Dutch Copyright Act provides that he can only object to modification of his work if the objections are reasonable. In practice, judges hold the same for distortion, mutilation or other derogatory action to a work of art.

Whether an artist may protest against discoloring or ageing of the material he used depends on the cause of the damage. Protest is reasonable where careless handling causes damage, but not when it is due to age. In the United States an artist cannot invoke his moral rights against a modification of the work "which is a result of the passage of time or of the inherent use of the materials" (VARA 106A[c][1]).

In the United States artists cannot object to the way their work is exhibited, including the lighting and positioning, whereas in certain European countries they can invoke their moral rights. It remains unclear whether artists may exercise their moral rights to recall work, for instance if it has been modified by a restoration. And if the work is not restored, is the museum allowed to show it in its damaged state or would this prejudice the artist's reputation?

The conclusion is that too little is known about the legal aspects of art restoration, so jurisprudence is necessary. An alternative would be to develop international legislation on conservation and restoration. It was also suggested that art disputes be settled by an ICOM arbitration committee.

Tatja Scholte ARTISTS' FORUM ON COOPERATION IN CONSERVATION

*Tatja Scholte was final editor of the magazine kM,
Artists' Materials.*

In the round-table discussion on the subject of cooperation between artists, curators and conservators in the conservation of modern art, these were the participants: Suchan Kinoshita, Michelangelo Pistoletto, Carel Visser (*artists*); Marianne Brouwer and Piet de Jonge (*curators* of, respectively, the Kröller-Müller Museum and the Museum Boijmans Van Beuningen); Christian Scheidemann, free-lance *conservator* in Hamburg.

Piet de Jonge, who chaired the discussion and asked the main questions, introduced them.



Suchan Kinoshita moved from Japan to Germany in 1980 to study music in Cologne. She joined a theatre group there and later moved to Maastricht in the south of the Netherlands to study fine art at the Jan van Eyck Akademie. In 1992 she won the Prix de Rome in the category Art & Public Space. Her work leaves viewers to rediscover observation and their relationships with the world. Part of her artistic output remains firmly rooted in the theatre and her installations often require the viewer's active participation. (For further details, see last section of *New Registration Models suited to Modern and Contemporary Art* by Christiane Berndes on page 173.)

Michelangelo Pistoletto gave a major impetus to the Arte Povera movement with his *Oggetti in meno* (Minus Objects), which he has produced since 1965. In the early sixties, Pistoletto – who assisted his father in his restoration studio and started out as a painter – replaced the canvas with reflecting, polished steel on which he attached wafer-thin photographs (of life-size people) by means of gluing or silk-screening. The past, in the form of an earlier moment captured in the photograph, engages in a brief relationship with the present in the form of the mirror image of the viewers and what surrounds them. In *Venere degli stacci* (Venus of the Rags, 1967-82) this reflective situation is achieved through various means: the goddess Venus has turned her back on us and is facing a colourful heap of rags; the social reality of sweat and poverty and the harshness of the heap of rags contrasts with the classical ideal of female beauty. Since 1980, Pistoletto has not only used marble but also polyurethane for his casts of classical sculptures. These works are always fragmented 'heapings' of heterogeneous elements, which form contrasting relationships (standing up and lying down, the masculine and the feminine, the polished and the raw).

Carel Visser started making sculptures of human and animal figures at the end of the 1940s. From 1954 onwards he mainly welded abstract, dramatic constructions

The Forum, from left to right: moderator Piet de Jonge (with back to camera), Michelangelo Pistoletto, Christian Scheidemann, Marianne Brouwer, Suchan Kinoshita, Carel Visser. Photo: Royal Tropical Institute, Amsterdam

using iron plates, beams and bars, which were often placed without a pedestal; he also constructed forms from such materials as leather, hoop iron and sheet iron. After 1954, Visser devoted himself to drawings and the making of woodcuts. Later, from 1974 onwards, he was intensely involved in making collages using commonplace and transitory materials such as advertisements, feathers and shells. Since 1980, Visser has employed a great diversity of materials like sheepskins, goat's horns, heaps of sand, carpets, glass plates, olive-oil cans and fibres. Placed in relatively symmetrical heaps, they are transformed into images expressing a movement of feeling sometimes obvious, sometimes amusing and sometimes very graceful.

Marianne Brouwer, has been closely connected with all the working groups of the Conservation of Modern Art project. As curator at the Kröller-Müller Museum she organised, for example, 'Heart of Darkness' – an exhibition with very vulnerable objects.

Christian Scheidemann is a conservator of contemporary art in Hamburg, Germany, who especially favours a direct contact with artists and has had many conversations with them.

We have been talking quite extensively about the conservation problems caused by artists. I'm very interested in specific ideas concerning the handling of your objects. Suchan, do you have any specific suggestions concerning the materials you use in your work? Or do you see these problems as an integral part of it?

Kinoshita: "I cannot answer your question in general because it depends on the work. But I don't think it is a problem for me. You say we cause problems. I would say: please don't solve them. It is not our intention to create problems but to make a piece of work. Even when there is a problem with its reconstruction or reinstallation, I don't see this as a big problem. For me a new reconstruction of the work expresses the same content in different words. Some of my pieces are difficult to reconstruct, that is to say, with all the objects put in the right place and at the right distance from each other. It doesn't make sense to make a very detailed plan of all the different elements; in my view it's a challenge to think about the work in another way.

If I rebuild a piece myself, the result is always unexpected and I like to be surprised by the work. When I'm not there, the curator should think in the same direction. My suggestion is that the one who builds up the installation really should do this with some sort of personal engagement towards the work. If this is the case, the right solutions for putting it up will easily be found.

Concerning the second part of your question, I don't think these problems have anything to do with the central theme of the work. Yet, it is an interesting aspect of making an installation because, confronted with these problems, artists as well as curators have to think about them and to give form to what they think."

Michelangelo Pistoletto, you have been making works of art for a very long time. In your works you used many materials which caused a lot of problems to preserve them. Some of these problems were very specific ones. Could you give us some examples, for instance, related to the minimal objects that are now being presented at Documenta X in Kassel?

Pistoletto: "You'd better ask the conservators to talk about these specific problems. For me, the antithesis between fragile material and strong material lies at the basis of my work. For example, the *Venus of the Rags* has this quality of joining together two opposite ideas: the durability and hardness of the marble, represented in the goddess Venus coming from the past, and this marble Venus supporting the rags – materials that are very vulnerable. The vulnerability of the material indicates some-

thing like the end of a process. These two extremes are part of my work. Also in the Mirror Paintings, I put two opposites together. One is symbolised by the figure, which I fixed on the mirror glass. This figure comes from the past. If you take a picture, you immediately hold the memory of the subject. This memory is placed on the surface of something that is dying every day – each moment dies to make way for another moment. The figures who pass the work in the exhibition space and who are reflected in the mirror behind this figure, which is there forever, which is memory – they represent the idea of dying and becoming alive at other moments.

So, time is part of the work. Time as past, present and future. I think the conservation of an art work is a desire to keep the present, to freeze it in a certain way. In the Mirror Paintings you see how this is impossible. The present is something that is always moving, something between the absolutely static and absolutely dynamic.

With the Mirror Paintings, it is also important to realise how they have to be placed in relation to the floor. I have seen so many installations in museums hanging on the wall like windows because traditionally, in modern art as well, it is considered correct to hang paintings on the wall. In the old museum exhibition spaces there used to be a pedestal to enable the art work to be hung behind it at window height. The meaning of the Mirror Paintings is that they change the concept of the window into the concept of the door. The way you hang them completely transforms the meaning of my work.

Talking about the materials, the mirrors are made of a very delicate material. I'll give you an example of one of my works made with six mirrors. These mirrors are facing each other on the inside of a cube. One day, one of my students who wanted to be a sculptor said: "I'm very sad, because this work is so very delicate it will break." I said: "Okay, now I want to make a performance." I destroyed the cube with the mirrors and built another alongside it. Then I said to this student: "You see, the concept is stronger and more durable than the material."

The idea of using polyurethane came from the necessity of making something in a very quick way, which used to take a lot of time in the past. I wanted to go back to the essence of sculpting and carving. So, I started to carve in polyurethane. This very quick way of carving is close to the memory. I do it immediately, even if it is a very large piece, in the same way you make a sketch. But then, at the same moment, the problem of the conservation of the piece crops up. Maybe we should keep this kind of work in the cellar, a place where there is no sun coming in, where the material can exist in a better way. When I did the same pieces in marble, I tried to imitate the polyurethane, but these marble pieces I could put outside."

Carel Visser, you have been using many different materials in your sculptures and combined a lot of unusual, non-traditional materials. Could you tell us something about your experiences?

Visser: "The choice of using different materials has a lot to do with the process of making sculptures. Before making the sculpture, I see it in my mind. It is not that I start with the egg of an ostrich and go on with different materials. I don't try, I just follow the object I have seen in my mind – in all its details."

Brouwer: "One copy of the *Venus of the Rags* is owned by the Kröller-Müller Museum. I remember piling up the rags was always a little bit strange. Our technicians like to do a tidy job, but in this case the rags have to be draped in a kind of rough way. You have to throw them up in the air almost with your eyes closed. If you tidy up the rags, you get a completely different statue. Another, even more dramatic example, is a work by Eva Hesse called *Accretion*. It is made of polyester rolls. In the beginning, the museum used to install it in these in rigid lines because the general idea about Minimal Art was you had to do these kind of rigid things. Then I found in Lucy Lippard's book about Eva Hesse the installation at the Fisch-

bach Gallery which she had performed herself. It was a completely different installation, more lively. It had a rhythm, with all these protrusions. From that moment on I always installed *Accretion* like this. In a way, as a curator you try to become the artist. But if you don't know exactly what the real meaning of the work is, you are in the position to ruin an installation.

Suchan, if I were to install your work, would I become part of your process of making the work? Do I finish the work in a certain sense if you were not there to install it yourself?"

Kinoshita: "Probably you would create the work. Once I made a work, *Staubstelle* (Dust Stop), with dust and a table. It was impossible to tell where everything should be put. This installation is a kind of *neerslag* (sediment), like something that has settled. A settlement of things and thoughts. When I sold *Staubstelle*, the people who bought it wanted to keep it. I asked myself: what do I give? If I were to fix everything, it would be built up in a totally wrong way. In this instance, I worked with a score. In music it is quite normal to give the musicians a score, a framework towards which the interpreter has a certain freedom. Well, it's not exactly freedom, it is more a certain foundation for thoughts in which the interpreter can find freedom. Using such a score could be a solution, but on the other hand I'm not very pleased with it yet. I feel it is still too much attached to the material things. I think the person who is rebuilding the work should take a lot of responsibility. Otherwise it becomes boring if one is trying to make things exactly in the same way as the artist has done."

Christian, would you be able to remake a work if you had a score? Musicians go to music schools and actors go to an acting school, but restorers, conservators, art historians, and curators are not educated in how to remake or give an interpretation of a work of art.

Scheidemann: "In general, restorers are not trained nor are they authorised to remake any work of art. There has always been a lot of confusion to the proposition of our profession. Actually, we do not feel too satisfied about the term 'restorer'. We would rather be seen as conservators, preservation scientists, or as a kind of 'fleet in being' for works of art.

Someone in the audience asked whether museum curators should refuse to acquire a work of art made of unstable and poor materials. I understand pretty well how artists feel inspired by the material itself and therefore it is a ridiculous approach to question why artists use poor materials. In our day, artists do not select materials for art works according to their durability. On the contrary, some works deal with the physical change and disintegration of the material, as is the case with Dieter Roth and Joseph Beuys. On the other hand, I realise that some artists are kind of bound to fail by the characteristics of the material. Today, only a few artists have the intention to create a true and everlasting masterpiece made out of the best materials. Jeff Koons is one of the few artists who wants to create a masterpiece in the way seventeenth- and eighteenth-century artists did, but even he often fails with the material.

I would like to remind you of the remark Shelley Sturman made in her lecture this morning. She talked about Frank Stella's huge magnesium etching which was purchased by the National Gallery in Washington. It showed white blossom emerging from the metal after only one year, changing the colour rapidly. When Stella was asked if it was a mistake or rather his intention to have the blossom, he said it was part of the work but if conservators could find a way to remove it, they should please, please do so.

The consequence, if he had not accepted the blossom, was that the work would have been sent back to his studio and he would have had to deal with the problem

himself. This shows how quickly an artist can change his opinion on the condition of an art work if it turns out to be too delicate, or too time-consuming and costly, to keep it in good shape. Some artists would easily agree with a different opinion, like Jan Schoonhoven who, as I mentioned in my lecture, said his paintings should be overpainted every three years, but if you don't want this 'it could also look beautiful'."

Although he couldn't be here today, we did ask some questions to Carl Andre. Christian Scheidemann was so kind as to have a long conversation with him. In this conversation, the five most important things for handling an art work were defined as "gloves, gloves, gloves, gloves and gloves". Carl Andre said: "No art work, especially my work, should ever be handled without gloves." The properties of each material must be properly understood if works of art are to be preserved. As an example, he mentioned a collector who once placed a magnesium floor piece on a concrete slab; when he returned from his holidays, the magnesium had been reduced to white powder.

Carl Andre defined his work as being about the properties of matter and the experiences of those properties. Unfortunately we live in a culture which is increasingly 'matter blind' and oblivious to the material world around us. I think that is a wonderful statement and would like Marianne Brouwer to comment on it.

Brouwer: "This afternoon I was thinking about the words we are using during this symposium. The way we are talking about the art objects includes a kind of hidden or non-explicit semantics, or maybe even an ideology about what an art work should be. We, the conservators and curators, are running behind the artists because we are not making the work. The radicality of each generation is an answer to preceding generations and provides answers to what the art work should be in our time. All this has an enormous impact on the meaning of the material: which materials will be used for what purpose and in which relations, and whether materials are being used at all. I think, for instance, that Carl Andre has upset the entire idea of what was generally accepted as being Minimal Art by being one of the most romantic sculptors in the world. One of his beautiful statements, which is quite recent, is that all sculpture is funerary, that each sculpture marks the passing away of a human being. I find this completely in contrast to what is said about Minimal Art in general. Times have changed and the necessity of reacting against Abstract Expressionism – as was the state of art at the beginning of the Minimal Art movement – has passed away. There are no restrictions at all anymore and sculptors can express everything they want to say without being afraid of being interpreted in the wrong way. Correct me if I'm wrong, but I think this change has also occurred in the materials being used in modern sculpture."

Scheidemann: "Very often I feel that artists want to prolong the present time for ever and intend to place their work in an ahistorical position. They want to avoid or stop any traces of ageing, be it cracks, patina, dust or fingerprints, for all times – which I think is unrealistic. What a conservator potentially can do is to slow down the traces of ageing by reducing bad environmental influences and by keeping unprofessional staff away from the objects.

In contemporary art especially we should be able to read from the traces of time the age of an art object and be able to consider the time span between its creation many years ago and today. In the Stedelijk Museum here in Amsterdam we can see a neon sculpture by Bruce Nauman, *My Name As Though It Were Written on the Surface of the Moon*. It is dated 1968. In fact, the neon itself looks pretty new and, as we know, it is an exhibition copy. In this case I would have loved to read on the label '1968/94' or something like that. If we exhibit copies in museums, we should label them as such.

I would like to ask a question of the artists to highlight the main issue here at stake. From which point onwards do you disown a work of yours? Has it ever happened to you that the condition of an installation was so bad that too many parts had to be replaced, to the extent that you had say: this is not my work any more?"

Pistoletto: "I have never said that. But I was very closed to it, as I said before, when a Mirror Painting was exhibited in the wrong way by hanging it like a window. Because this changes the meaning of the work essentially. Let me give you another example. I once visited an exhibition of my work after the opening had taken place. The *Venus of the Rags* was in it and I hadn't installed the work myself. Someone had put the rags on the wall and placed the Venus two metres in front of them – you can imagine how it looked, as if the Venus was keeping up the rags; it was absolutely horrible. I don't understand why people make these mistakes, why they don't ask. Don't they want to know the meaning of the work? For me, each time I reinstall an installation it is like a new creation. Again and again, I put new energy into it. The installation itself is an act of creativity. This is why we really have to be very close, the artist and the curator and the director and the conservator. We have to be very sensitive and understand each other.

With restorations of my work, I don't have much experience in general because it doesn't happen that often. But as you know, Christian, in Hamburg we had to solve the problem with the mercury lamp in the work *Lampada a mercurio* together. We were looking for the same type of lamp, but the system no longer existed. There sure are also some problems with the mirrors. I used two kinds of mirrors. One is the simple glass mirror, which you can replace if one is broken and they can be cleaned very easily. But the steel mirror is rather dangerous to transport. Everything you do on that surface you will see afterwards. It is very dangerous to turn or move this work. Because of its own weight, for instance the corner might break off if you turn it. Carriers often don't realise that you shouldn't turn these mirrors just like that, but if you do move them, you have to pick them up and put them down again, et cetera. They don't know the system. Sometimes I try to write it down. I have had a lot of problems with carriers."

What about installations containing a lot of objects, like Suchan's? Have you ever thought about the possibility that one or two objects could break or be stolen? What should be done in that case?

Kinoshita: "Which work do you mean? One of my works consists of oil glasses. These can be handled by the public and have to be turned. Of course they are fragile. If they break, they have to be replaced. Also you can't repeat the time mechanism because this always depends on the little hole and the volume and weight of the content. So if you replace it, it will always be another clock for sure. But in my view, the clocks have to be replaced if they are damaged or broken.

A lot of problems occur while handling the objects. For instance, during my communication with the Bonnefantenmuseum in Maastricht, I soon found out that there had been a lot of miscommunication and this results in a lot of damage and things being broken. Sometimes I think that people believe that I make so many little things, it doesn't matter much if one little thing breaks. I know this sounds like a cliché, but people should handle them with care so they won't break. I don't make things to be broken and there are a lot of ways to prevent this from happening.

If you say 'gloves, gloves, gloves, gloves', it is not only the material, it is also the way you relate to the piece. It all starts much earlier. If the people think about the piece, they'll know the material because they know the piece. Gloves can also be an excuse: we are very careful. But it is not enough to be careful in a physical sense, this is also about carefulness in the mind. The way the work lives, how it can

be shown in a good way, without being too careful or too nonchalant. I come back to the point: it depends on the 'engagement' of the curator or the museum director. And the more you know the material or the artist you are dealing with, the better of course.

I cannot make a general statement about material, such as what will happen if something is broken. In each case there has to be a specific solution. I like the idea of giving more responsibility to the curators and the people who deal with art works. In fact, they already have this responsibility but they just don't show it too clearly. With a piece that is impossible to reconstruct, I would like to have someone who would give his interpretation to it. While showing the piece, the interpreter would also be part of the show. So you would know who had done it."

Scheidemann: "I would like to raise one more question, raised earlier in this symposium: how would you react if the museum were to ask you to accept a ten-year guarantee for your art work?"

Pistoletto: "I would never do that. I would like to have it back after ten years."

Tatja Scholte MUSEUM DIRECTORS' FORUM

*Tatja Scholte was final editor of the magazine kM,
Artists' Materials.*

Moderator and questioner

Jacqueline Burckhardt, editor of *Parkett* magazine

Participants

Jean-Christophe Ammann, Museum für Moderne Kunst, Frankfurt

Jaroslav Aňdel, National Gallery, Prague

Maria de Corral, Fundacio La Caixa, Barcelona

David Elliott, Moderna Museet, Stockholm

Rudy Fuchs, Stedelijk Museum, Amsterdam



If you want to acquire a work of art, do you usually consult your conservators? And how much do potential problems of conservation influence your decision to buy the work?

Ammann: “I don’t remember ever having consulted our conservator, Erich Gantzert-Castrillo. Taking decisions on buying works of art is a very complicated matter. I would always like to have the possibility to show the work. But sometimes one acquires a work of art just because it is an important piece, in spite of the fact that exhibiting it is very complex. In that case you probably show it once.

At a certain moment I was thinking about purchasing the films of Dieter Roth presented at the Biennale in Venice, in the Swiss pavilion. It was an amazing presentation. I thought about it, but decided not to do it because putting it up was too complicated. Also the material, the 8-mm film and all these camera’s... If you have a lot of sophisticated technical material, you have to be sure it is always functioning. If you are poor, it really hurts to know that a lot of money always goes into the maintenance of the technical material. So, on a second level, I can imagine that sometimes your question will come up.”

Elliott: “It is our job to respond to what artists do. I’m quite new in the field, since I’ve been director of the museum in Stockholm only for a few months, but I certainly would ask my conservator’s opinion about the work – as I would ask other people in the museum. On the other hand, if these potential problems are part of the material aspects which give the value to the art work and it is a piece you really want to purchase, I think you should acquire it anyway. Even if its auto-destruction is part of it. One should have the courage to make the purchase and then reflect on the future status of the work. If it is meant to destroy itself, this process of auto-destruction will be displayed in the museum. What is left of it at

The Directors' Forum, from left to right: Jaroslav Aňdel, Maria de Corral, Rudy Fuchs, David Elliott, Jean-Christophe Ammann, and moderator Jacqueline Burckhardt. Photo: Fotopersbureau Dijkstra BV

the end will show some traces which are either displayable or not displayable, but they would be there in the museum in one way or another.

The fact that a work is too complicated to exhibit shouldn't put you off. What matters is whether the work is significant for the collection. If this is the case, you should show it. What I mean is, if you can't show it, who could? Who could provide such a protected space as a museum can?

Talking about film and video, this is really a problem. If you buy an 8-mm film, you can show it ten, twenty times and then it is shot to hell. You have lost the piece. So you should be able to get some kind of archival copy from the artist or the distributor to make display copies from. There isn't a general policy yet, but a number of museums are thinking about the best ways to deal with this problem."

Fuchs: "I'm quite sure I never asked. I wasn't used to it in the Van Abbemuseum in Eindhoven, as I had no resident conservator there. Since then I have been working with extremely good conservators, who of course point out certain things. However, it is a different kind of decision making. The conservator is not responsible for the collection as a whole. But having said that, conservators play an extremely important part in maintaining the collection because they are the ones who keep the works alive as long as possible.

I'm stressing this since I'm accepting the fact that works of art die, like people do. Certain works may live on for ever – for instance a marble statue – but even then, no material is everlasting. Moreover, the nature of modern art differs a great deal from the nature of classical art, especially in terms of the finished product. In contemporary art all the research done by the artist is carried out in public. Museums and collectors buy these products. A classical artist like Giotto, when preparing a fresco, made all kinds of small models, drawings and tests of colour which were never sold. Nowadays we buy all these things as well and call them 'works in progress'. This means collections become enormous reservoirs of objects of a very different nature, giving rise to a dialectic within the collection."

De Corral: "To tell the truth I never asked a conservator for his opinion. I didn't even do that during the period I was working in the Reine Sophia, where they had an enormous restoration department. I'm always looking for artists and works of art which should be represented in the collection. And when I find a work, I don't care if it is going to 'die' or if it is going to stay around for centuries.

Right now, a work in our collection made by the Venezuelan artist José Antonio Díez is installed at one of the galleries in Barcelona. The piece consists of three television sets and a bar where some skateboards are hanging on the wall made of fried, crusty pig skins. The video describes metaphorically the three stages, birth, life and death, of these peculiar skateboards. Despite all the protection afforded the piece by the artist, we have no doubt that in the near future the pig skin will shrink, rot and disintegrate. I have no objection at all to frying another set of pig skins and replacing the damaged ones."

Añdel: "I haven't had much opportunity to ask a conservator for his advice until now. First of all, I'm quite a new person to this position. In the second place, the economic situation of our museum is very poor right now. During the last year I've been able to buy only one work, by Frantisek Kupka, which of course had some sort of traditional reason. In this case I did ask for a conservator's expertise, because it was a usual work. I asked for a technical analysis."

Do the staff of your museum work with a decision-making model for the conservation and restoration of art works in your collection? Something like a checklist for written, visual and/or acoustic documentation, recording all possible information on the materials used, fabrication techniques, the artist's intentions and how to display

the work in an exhibition? Or a checklist reminding you that you should collect pieces for replacement?

Ammann: “A while ago we were invited by the Whitney Museum, so we were installing some pieces from our collection. Suddenly I couldn’t remember how to install *Silver Threads* by Cecilia Edefalk. Erich Gantzert, or maybe one of his people, put his laptop on the floor and typed in questions, such as what should be the distances between the paintings, the order of the sequences, et cetera. This small think tank Erich had created in his computer provided us with all the answers.”

Elliott: “Our conservator has been developing a model within his department which is now being integrated into the general catalogue information of the museum.”

Fuchs: “We are making a start with the development of such a model.”

De Corral: “We are trying to gather as much information as we can. Like how a piece should be installed. If it is a work of a living artist, he or she always comes to install the piece for the first time and will be asked how to maintain it. Of course we take photographs, videos and films the first time we install it. All the peculiarities of the work are written on the records.”

Añdel: “Well, we are starting, but again I have to clarify something about our position. The Centre of Modern and Contemporary Art is part of the National Gallery in Prague and has only recently opened – in December 1995. We are just starting with acquisition policies for contemporary art, which means in a way we are in a good position to implement some of the policies of other museums and learn from meetings such as this one.”

In museums of contemporary art, sometimes new acquisitions are immediately put in storage. These works may be bought at a moment when they are still cheap and one tries to gamble a bit on the artist. As with French wine, one waits until the value increases and then shows the work. But in the meantime these works may have suffered, maybe the material started to decay. In that case people never have had the chance to see the works fresh from the artist’s hands, in their best condition. Has such a thing ever happened to you?

Ammann: “The answer is very simple. Whatever we buy, we show it immediately because we like the work so much. If sometimes art works have a little nap in storage, you can be sure this is not ‘ein Donner-Riesenschlaf’. The work will be returning soon. Some art works cause a problem, like the drawings of Miriam Cahn. For these very, very delicate drawings we’ll have to find a solution, although they probably will, as Rudy said, sometimes just disappear. Until then we’ll find ways of showing them.”

Elliott: “Obviously it isn’t possible to show everything in the Stockholm collection all at the same time. So we keep the works as well as possible in the new storage rooms. Of course aspects of art works change regardless of good conditions, according to the way they have been made, and sometimes they deteriorate. We can’t do anything about that. But then again, sometimes it’s part of the work. I don’t really see it as a problem.”

Fuchs: “I think your question is about the nature of collecting. Basically one should only buy what one can show. But this is not generally approved of in the world of contemporary art, and even better, we shouldn’t forget that classical museums,

like the Stedelijk Museum, didn't have storage rooms. In earlier times, if an art work had been bought some other work had to be removed from the museum.

In the 20th century the nature of an art work has changed, as has the idea of collection management. Museums are disturbed by the mounting of exhibitions. The Stedelijk Museum is in a very bad shape because the museum has been developed into an exhibition machine. The collection will only be shown at times when there is enough space left over. Elisabeth Bracht and her colleagues are often working on art works which have to go to exhibitions somewhere else. There is a relation between the demand of exhibiting the works and this enormous fight against decay."

De Corral: "At the moment we don't have enough space to show all the works of the collection. We have five storage departments in Barcelona and show the collection at different locations all over Spain. We can never show the work as soon as we buy it. Maybe within two months, depending on the theme of the exhibition we are making. But usually we show the works quite often."

Añdel: "Our problem is of a different nature. We inherited a huge collection of works which were not being kept in very good condition. In some cases they were really horribly decaying. The facilities we now have, like air-conditioned storage rooms, are very good. However, the real problem is this inheritance of around 13,000 paintings, some of which are really in very bad shape."

If an art work in your museum suddenly needs a huge amount of time and money to maintain and restore it, out of all proportion to its actual significance, do you let this piece simply deteriorate while documenting it in the best possible way? Or do you, in special cases, let your conservators make an effort to save it for as long as possible?

Ammann: "When you are poor, 20 or 30 thousand Deutsche Marks is a lot of money. If you have an acquisition budget of a million Marks, then maybe you can think about spending a hundred thousand Marks to restore the piece. For example, we needed six video projectors for a Nam June Paik. They would cost us between 40 and 50 thousand Deutsche Marks. For two years I didn't have the possibility to show the work because I didn't have the money. Then Sony offered their help by sponsoring the video projector, so we could show one candle from Nam June Paik again.

The question is, how far should you go. It's a very delicate question: at what moment do you think the work has to die?"

Elliott: "It's a nice metaphor we are getting into. In such a situation I don't think I would put the work on the life support machine with four doctors and ten nurses running after it all the time. I would freeze it and wake it up twenty years later and then see what it is like. But if it is meant to die, I might just let it slip away quietly."

Fuchs: "First of all, we should take care that things don't get destroyed. A lot of things can be done. But again it's also a matter of changing the entire museum structure – the desire of man to see novelties – which is fairly impossible. For the rest I suppose it depends on the kind of damage. Certain things have to be done whatever the costs.

In Amsterdam we have quite some experience of this 20th-century phenomenon, the monochrome surface. I'm not only talking about the Barnett Newman, but also about a little scratch on a Donald Judd sculpture. What I'm now going to say is completely unethical... a scratch on a Van Gogh might be hardly visible to the naked eye, but certain surfaces have to be unblemished like Japanese women. Hap-

pily we were able to turn the Donald Judd object around, so one can't see the scratch. But anyway, it has to be repaired someday."

De Corral: "I never found myself in such a dilemma. We try to prevent such damage, but if I had to spend so much money, out of proportion in relation to the maintenance of our collection, I probably would let the work die."

Añdel: "This question about value judgement cannot be answered in general terms. You have to consider each case separately. The medical metaphor is an apt one here, because we are also dealing with conflicting values."

Following the strict rules given by your conservators you would perhaps show only the most solid pieces. In a one-person show, for instance, this might give a completely distorted view of the artist's oeuvre. So, isn't it sometimes right to take a risk in order to give the public the most intense encounter with the art work or the oeuvre of an artist?

Ammann: "Sometimes we do take risks. Erich is trying to do the best for the work in the sense of presentation. If he would be very strict, he would probably say no, but he also sometimes lets the need of exhibiting the work prevail."

Elliott: "Every time you move the work around you are taking risks. But the conservator is there to give advice. If, for instance, there is proof that damage has already occurred through regular movement of that kind, I think you cannot take the risk. But if the work is stable and it has acquired a good history, and besides it is a very important show where the artist has to be represented and he particularly needs this work, of course we would take the risk. Again, it is a matter of fine judgement. Every museum has some things that cannot be lent because they are too fragile."

Fuchs: "In general, one should never acquire something and take no risk with it at all. But we have this problem in the Stedelijk Museum. Glass in front of paintings is disliked – by me, by conservators, by the public. About a year ago a painting by Malevich was seriously damaged by an unknown Russian artist. He sprayed a coloured symbol on it using a quite vicious spray. Happily the conservator was able to give first aid within half an hour. Immediately the question arose whether we should put glass in front of our Malevich paintings.

At the very same time there was the coincidence of me calling some of my colleagues to ask for their approval to take the Mondrian paintings out of their glass boxes – paintings I had borrowed from their museums in order to mount an exhibition in Venice. I'd asked them this favour because to my mind there's no point in showing the Mondrians behind glass because then you see a work you actually don't see. These helpless monochrome surfaces which seem to incite people so much should be protected. But that is very expensive. On the other hand, we shouldn't allow people to spray paintings."

De Corral: "I think for us, as curators and museum directors, our main enemies are the conservators. To organise an exhibition is very difficult. You always get the response that the work is too fragile or the painting shouldn't travel. Besides, it is getting more and more difficult to obtain loans. Our policy of lending is that we usually lend if the conditions regarding exhibition space and transport are good."

Añdel: "Taking it to extremes, it is really about life and death. It's a very strange paradox because if you don't show the work and keep it under ideal conditions, it will be preserved but at the same time it is dead. A work of art lives thanks to its spectators. On the other hand, the more you expose the work, the more it suffers."

Are museum directors sometimes forced to make a tough deal when directors of other museums ask for a work on loan, in the sense of "I only give you my fragile Twombly for your show if you give me your huge transparent Polke in return"? Or do museums loan for an exhibition when they have serious financial problems and get well paid for it?

Ammann: "I have nothing to say to that. In the six years our museum exists it has never happened. This is because we are only dealing with contemporary art."

Elliott: "I don't like it, but sometimes it is necessary if you do early classical shows. In order to lend the works, three main criteria have to be matched: the work is able to travel, it is a good show and you want to be associated with it."

Concerning the second part of your question: I certainly wouldn't give a loan because of the money if there would be any risk at all, or if the work wouldn't be able to travel."

Fuchs: "If a fragile work is at stake, I would prefer the conservators of both museums to figure it out because they have a more objective view. If their decision is no, the condition of the work is not good enough to allow it to travel – then I hope I would take that for an answer. In case they say yes, it is possible, I'm certain their decision is the right one."

Concerning your other question, for money, yes. But reluctantly, of course. However, sometimes you're forced. One day we were forced to transfer one million guilders to a certain fund, by order of the city government. I said: okay, we can send paintings to Japan, those which are able to travel more or less, not the fragile ones, but it's your decision – a financial decision. I'm against it and it's my policy to end these practices as soon as possible."

De Corral: "This kind of trading does exist. It is common practice between the big museums. That's why certain exhibitions can only be made by big museums with huge collections. About the money question, there are some – very poor – countries who ask money for lending. Also poor museums sometimes ask you to pay for the restoration or to place a special kind of glass in front of the work. This glass, made in Germany, is extremely expensive but it's really excellent – the only type that doesn't disturb the eye."

Añdel: "The question of loans is a complex one because more and more economy interferes with the issue. And of course it happens quite often that something goes wrong. But again, I think it is a question of balance. We have one of the best collections of late 19th/early 20th-century painting, as well as many wonderful Picassos, and we are approached all the time by museums from all over the world. It is obvious that very often the driving force behind these projects is not scholarship, but money."

Fuchs: "All these rightful, proper questions about damage – they have to be asked, we have to answer them. But they are being asked as if we don't treat the works right. The question I would like to ask is whether one shouldn't stop making exhibitions of classical artists. Let the Picassos stay where they are, and let us make exhibitions of living artists. They serve a vital historical function. I have serious doubts about the cultural significance of showing works made by Picasso, Cezanne or Matisse, compared to an exhibition of a living artist."

Sometimes you talk to a colleague on the phone and he asks you if he can borrow your Newman or Cezanne. If you say no, he reacts like he has a right, as if the art work has a duty to travel in order to entertain people in Turkey, Spain or America."

Many museums of modern and contemporary art mount spectacular shows and sometimes act like 'Kunsthalle'. This means restorers and conservators are constantly accompanying the transportation of art works. Reports and forms for loans have to be dealt with and the works have to be installed. Because of these activities it is often very hard to find enough time to do the main job: the preservation of a collection. How do you solve these problems in your museum?

Añdel: "Our institution is being reorganised now. The National Gallery had a conservation department of about 17 people. That didn't work well and the centralised model didn't work well, so what happens now is that more autonomy has been given to individual departments or collections. Also, each major collection will have a few conservators being associated with this individual department or collection, which seems to be much more effective.

But again, this is related to specific reasons. Labour is relatively cheap in the Czech Republic, although this is changing. We'll have four conservators for our part. Yet, the problem you mention is a relevant one which has to be solved."

De Corral: "We have an extensive exhibition programme, so every time we have to change an exhibition and take care about facility reports, et cetera, the collection suffers. Conservators are much more dedicated to the exhibitions than to the collection. We are trying to compensate for that and strike a balance."

What is your opinion about the function of a museum in the future? How can these very fragile twentieth-century works of art, sometimes made of irreparable or irreplaceable materials, be shown in the next millennium? Will museums become centres of documentation in which decayed art works and events – like installations, performances, actions, happenings – are shown and recorded through the most sophisticated technology and media?

Ammann: "In my opinion the function of a museum is very clear: it is the function of the collective memory. Art works are part of the collective biography. Yes, we have problems with some works. Let's say we have two wonderful works by Jeff Wall, two cibachromes. Maybe the material cibachrome will stay for 30 years, but one of the works is giving up after 10 years. With the help of Jeff Wall we may be able to make a cibachrome copy, but the question is: what are we doing in 30 years when CIBA no longer manufactures cibachrome? Or take the work of Thomas Ruff, who in the eighties put his big portraits directly onto Plexiglas, and then KODAK at some point is no longer doing that. The piece is not on paper, the Plexiglas is scratched, the work is over. This is something, I don't know, it makes me mad in a way."

Elliott: "Of course museums should go on giving an authentic, living experience of art and go on collecting that. But I also think museums will become research centres in different ways. For instance, performance art has to be collected and we should think collectively about how to do this, whether it is through video and film, or otherwise. For instance the Fluxus movement has been incredibly influential and important. But the actual manifestations are quite small and rotting away, they were all made on poor paper. Museums really should do a lot of research. Not all in the same areas, but in the areas they love and in which they are specialised. On the other hand, the real material work of art should remain as well."

Fuchs: "In a way the concern is exaggerated. People are saying the museum is in crisis. But is this true due to the fact that some new media do not fit into the traditional idea of a museum? We shouldn't forget that the majority of art works made today are still paintings or sculpture. I'm absolutely sure this will remain the same

in the future, because essentially art is made in these traditional materials. In fact all new media imitate paintings or sculpture in a way.

The vanishing of things is no problem in itself. Take for instance a Joseph Beuys. These works vanish, but they still remain as a memory. Like we know about the teachings of Socrates nowadays. I don't consider Beuys an artist who has worried himself about his works lasting for ever, but maybe this is because he was a teacher. His works are not works of art in the sense of Rodin's sculptures. They are more like test models, introducing certain ideas which become part of the culture by means of their form. In the end the form disappears, like all Plato's manuscripts are gone, but his teachings are still there. Museums could help in allowing these ideas to survive and become libraries or depositories of ideas. Next to a museum there would still be these very good old-fashioned galleries."

De Corral: "I don't think a work of Joseph Beuys would essentially change if the felt deteriorated and were replaced, because this work is dependent on its concept. Some works of art are only made to be shown once, like many of the installations Ann Hamilton makes for a specific place. She doesn't like to see these installations reproduced. Also, of all the Christo works we only have the photographs, videos and films as the remains.

I think there are many different situations, also concerning techniques like cibachrome. Some techniques are changing a lot. Today, for example, we buy two cameras at the same time because we are sure that within ten days they won't exist anymore. In the future we'll find other ways of showing, in the same way we now use different elements in an exhibition as before."

Añdel: "This vision is about evolution and progress, because technology plays such an important role in it. Of course, museums are preserving the collective memory. The problem is that the character of this memory is changing because of this incredible progress in technology. And how will this change affect the museums? It is not a question of choosing between either traditional art forms like painting and sculpture or the new media. We are talking about diversification, more different kinds of museums and also a redefinition of traditional concepts, which of course will be with us in the future. But we will see traditional works of art in a slightly different way."

Ammann: "The memory isn't changing. Art is always related to the memory of the body. The human being is related to the memory of the body: the genetic one, the biographic one, the remembered one and the collective one. And the source of this memory of the body is related to the present. These two things, the present and the memory of the body, are the source of art. So the technique is changing, but the memory of the body is not changing substantially. You cannot change the existence of the human being for the last one or two hundred years just because of a technological revolution.

I don't agree with Rudy who says these new media are imitating painting or some sort of traditional medium. I think it is something really different. But I agree with him that, because art is so strongly related to the memory of the body, traditional techniques like painting, sculpture, drawing will remain in the next millennium. Those critics who doubt that forgot to ask the artists."

**List of organisations and individuals involved with
THE PROJECT *Conservation of Modern Art***

Foundation for the Conservation of Modern Art

Board

- Evert van Straaten (director Kröller-Müller Museum), chairman
- Koen Limperg (solicitor with De Brauw Blackstone Westbroek), secretary
- Dorothee Cannegieter (director Rijksmuseum Twenthe), treasurer
- Annetje Roorda Boersma-Pappenheim (private conservator), board member
- Carel Visser (artist), board member

Steering committee

- Kees Aben, conservator, Stedelijk Museum, Amsterdam
- Lydia Beerkens, conservator, Conservation of Modern Art project
- Marianne Brouwer, curator, Kröller-Müller Museum
- IJsbrand Hummelen, coordinator Conservation Research, Netherlands Institute for Cultural Heritage
- Piet de Jonge, curator, Museum Boijmans Van Beuningen
- Pieter Keune, director, Foundation for Artists' Materials
- Dionne Sillé, project manager

The project's staff

- Dionne Sillé, project manager
- Lydia Beerkens, conservator
- Kees Aben, conservator (part time, on release from the Stedelijk Museum)
- Marina Raymakers, project assistant
- Margreet Vermeer, trainee
- Karin Coopmann, trainee
- Daniela Petovic, trainee

Institutions represented in the Foundation during the project

- Bonnefantenmuseum, Maastricht
- Museum Boijmans Van Beuningen, Rotterdam
- Centraal Museum Utrecht
- Foundation De Pont, Tilburg
- Foundation for Artists' Materials, Amsterdam
- The Limburg Conservation Institute, Maastricht
- Frans Halsmuseum, Haarlem
- Foundation Kollektief Restauratie Atelier, Amsterdam
- Kröller-Müller Museum, Otterlo
- Rijksmuseum Twente, Enschede
- Stedelijk Museum, Amsterdam
- Stedelijk Museum de Lakenhal, Leiden
- Van Abbemuseum, Eindhoven
- Faculty of Arts and Culture, Maastricht University
- Netherlands Institute for Cultural Heritage, Amsterdam

Theoretical Working Group

- Kees Aben, conservator, Stedelijk Museum
- Liesbeth Abraham, conservator, Foundation Kollektief Restauratie Atelier
- Wilma van Asseldonk, curator, Foundation De Pont
- Lydia Beerkens, conservator, Foundation for the Conservation of Modern Art
- Madeleine Bisschoff, student, The Limburg Conservation Institute
- Marianne Brouwer, curator, Kröller-Müller Museum
- Marja Bosma, curator, Centraal Museum Utrecht
- Jaap Guldemon, curator, Van Abbemuseum
- Claas Hulshoff, conservator, Foundation Kollektief Restauratie Atelier
- IJsbrand Hummelen, coordinator Conservation Research, Netherlands Institute for Cultural Heritage
- Piet de Jonge, curator, Museum Boijmans Van Beuningen
- Pieter Keune, director, Foundation for Artists' Materials
- Luuk van der Loeff, conservator, Kröller-Müller Museum
- Jan Hein Sassen, curator, Stedelijk Museum
- Dionne Sillé, project manager, Foundation for the Conservation of Modern Art
- Inge Smit, student, The Limburg Conservation Institute
- Ferosa Verberne, conservator, Rijksmuseum Twenthe
- Rik van Wegen, curator, Bonnefantenmuseum
- Rob Wolthoorn, curator, Stedelijk Museum de Lakenhal

Practical Working Group

- Kees Aben, conservator, Stedelijk Museum
- Tonny Bakkenist, lecturer, The Limburg Conservation Institute
- Lydia Beerkens, conservator, Foundation for the Conservation of Modern Art

- Christiane Berndes, curator, Van Abbemuseum
- Madeleine Bisschoff, student, The Limburg Conservation Institute
- Marianne Brouwer, curator, Kröller-Müller Museum
- Louis Damen, conservator, Museum Boymans Van Beuningen
- Ella Hendriks, conservator, Frans Halsmuseum
- IJsbrand Hummelen, coordinator Conservation Research, Netherlands Institute for Cultural Heritage
- Pieter Keune, director, Foundation for Artists' Materials
- Birgit Knöpper, free-lance conservator
- Thea van Oosten, conservation scientist, Netherlands Institute for Cultural Heritage
- Wies Raanhuis, free-lance conservator
- Evert Rodrigo, director Collections, Netherlands Institute for Cultural Heritage
- Jan Hein Sassen, curator, Stedelijk Museum
- Dionne Sillé, project manager, Foundation for the Conservation of Modern Art
- Inge Smit, student, The Limburg Conservation Institute
- Bas van Velzen, lecturer, Netherlands Institute for Cultural Heritage
- Ferosa Verberne, conservator, Rijksmuseum Twenthe
- Rik van Wegen, curator, Bonnefantenmuseum

Working Group on The decision-making model

- Wilma van Asseldonk, curator, Foundation De Pont
- Marja Bosma, curator, Centraal Museum Utrecht
- Marianne Brouwer, curator, Kröller-Müller Museum
- IJsbrand Hummelen, coordinator Conservation Research, Netherlands Institute for Cultural Heritage
- Dionne Sillé, project manager, Foundation for the Conservation of Modern Art
- Renée van de Vall, philosopher and lecturer, Faculty of Arts and Culture, Maastricht University
- Rik van Wegen, curator, Bonnefantenmuseum

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- Christiane Berndes, curator, Van Abbemuseum
- Marianne Brouwer, curator, Kröller-Müller Museum
- Claas Hulshoff, conservator, Foundation Kollektief Restauratie Atelier
- IJsbrand Hummelen, coordinator Conservation Research, Netherlands Institute for Cultural Heritage
- Pieter Keune, director, Foundation for Artists' Materials
- Annemiek Ouwerkerk, lecturer of art history, University of Leiden
- Dionne Sillé, project manager, Foundation for the Conservation of Modern Art

Exhibition on the project at Museum Boijmans Van Beuningen, June-September 1997, concept

- Lydia Beerkens, conservator, Foundation for the Conservation of Modern Art
- IJsbrand Hummelen, coordinator Conservation Research, Netherlands Institute for Cultural Heritage
- Piet de Jonge, curator, Museum Boijmans Van Beuningen
- Daniela Petovic, project assistant, Foundation for the Conservation of Modern Art
- Dionne Sillé, project manager, Foundation for the Conservation of Modern Art
- Rik van Wegen, curator, Bonnefantenmuseum

Realisation

- Piet de Jonge, curator, Museum Boijmans Van Beuningen
- Daniela Petovic, project assistant, Foundation for the Conservation of Modern Art

THE SYMPOSIUM *Modern Art: Who Cares?*

The programme has been prepared in cooperation with 13 international museums and research institutes

- Kunst-, Muziek- en Theaterwetenschappen/Research Centre for Conservation and Restoration of Contemporary Art, University of Ghent, Belgium
- Faculty of Conservation and Restoration, Academy of Fine Arts, Warsaw, Poland
- Guggenheim Museum, New York, United States; Venice, Italy; Bilbao, Spain
- Institut für Informatik und Gesellschaft, University of Freiburg, Germany
- Fundació La Caixa, Centre Cultural de Barcelona, Spain
- Musée National d'Art Moderne, Centre Georges Pompidou, Paris, France
- Koninklijke Musea voor Schone Kunsten van België, Brussels, Belgium
- Museum für Moderne Kunst, Frankfurt am Main, Germany
- Museum für Moderne Kunst/Stiftung Ludwig, Vienna, Austria
- Neues Museum Weserburg, Bremen, Germany
- Restaurierungszentrum Düsseldorf, Germany
- Det Kongelige Danske Kunstakademi/Konservatorenskolen, Copenhagen, Denmark
- Tate Gallery, London, United Kingdom

Programme Committee

- IJsbrand Hummelen, coordinator Conservation Research, Netherlands Institute for Cultural Heritage
- Piet de Jonge, curator, Museum Boijmans Van Beuningen

- Pieter Keune, director Foundation for Artists' Materials
- Riet de Leeuw, policy advisor, Cultural Heritage Directorate, Ministry of Education, Culture and Science, the Netherlands
- Thea van Oosten, conservation scientist, Netherlands Institute for Cultural Heritage
- Dionne Sillé, project manager symposium

Organising Committee

- Dionne Sillé, project manager symposium
- Liz Kreijn, coordinator Training, Netherlands Institute for Cultural Heritage
- Fransje Kuyvenhoven, coordinator Communications, Netherlands Institute for Cultural Heritage
- Renée van de Griend, assistant Communications, Netherlands Institute for Cultural Heritage
- Marry de Zwaan, assistant Communications, Netherlands Institute for Cultural Heritage
- Karin Coopmann, part-time project assistant
- Dorine Mobron and Margot Bakker, part-time project assistants, Laboryrie Communicatie

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Henk Peeters 59-18, p. 43-51

Evert Rodrigo & Lydia Beerkens FOR THE BENEFIT OF SCIENCE

1 Henk Peeters, 59-18 (1959), Netherlands Institute for Cultural Heritage inv. no. K 85201. Size (1984) 64.5 x 61.5 cm (including frame). Sheet of softboard 61 x 58.2 cm (around 1 cm thick). Slightly smaller sheet of polyurethane foam, also 1 cm thick.

From 15 September to 21 October 1984, 59-18 was shown in the exhibition 'Work from 1960 by Henk Peeters' in Collection d'Art Gallery, Amsterdam (owner Cora de Vries).

2 In a recent article Peeters stated that in those days he preferred to use cheap, everyday materials available at any chain store, as those bought in more exclusive outlets were too pretentious. Henk Peeters, 'Lang leve Nul', in: *Nul, De werkelijkheid als kunst – De Nederlandse groep Nul 1960-1965 en heden*, written by Renate Damsch-Weihager to accompany exhibitions in Esslingen, Germany, and Apeldoorn, the Netherlands, 1993.

Thea van Oosten THE RESURRECTION OF A CORPUS

* The author would like to thank Caro Ipenburg of Caligan Europe B.V. for her enthusiastic assistance in providing a choice of PUR foams for Henk Peeters. (Caligan Europe B.V., Breda, is a manufacturer of PUR foams in the Netherlands.)

Pino Pascali *Campi arati e canali d'irrigazione*, p. 53-65

Marianne Brouwer THE ELEMENT OF ARTISTRY RECAPTURED

1 Luciano Fabro told me that Pascali could have been saved if help had been called immediately. But it is possible that because he looked rather like a gipsy, no one took any notice and he was left at the roadside to die.

2 C. Christov-Bakargiev, 'Arte Povera 1967-1987', in: *Flash Art*, no. 137, 1987.

Thea van Oosten & Pieter Keune SEARCHING FOR SHADES OF BLUE

1 Peter Hallebeek of the Netherlands Institute for Cultural Heritage performed the X-Ray diffraction and X-Ray fluorescence analyses.

2 Letter from Ms M.G. Castellano, Rome, 13 May 1996.

3 Letter from Ms V. Dematteis, 10 April 1996.

Mario Merz *Città irreale*, p. 67-77

Lydia Beerkens THE PRESERVATION OF A CITY OF LIGHT

1 The description of the technical features of neon tubes was derived from the article 'Replica of Unicum' by Lydia Beerkens, published in *kM*, a Dutch magazine on artists' materials (no. 24, 1997, pp. 16-18).

2 The Leuchtstoffwerke company of Heidelberg, Germany, is able to compare colour-signal measurements with a colour database, enabling the selection of fluorescent powders.

3 Optimum climatic conditions are 13-20°C and a relative humidity of 50-60%, with maximum variations of about 3°C and 3% RH per 24 hours.

Jan Hein Sassen MARIO MERZ AND THE ARCHETYPES OF OUR CULTURE

1 See Bulletin Stedelijk Museum, Amsterdam, February and March 1994.

2 Exhibition catalogue *Op losse schroeven* (Square Pegs in Round Holes), Stedelijk Museum, Amsterdam 1969.

3 Quotations from 'Adaptation d'un entretien (extraits) entre Mario Merz et Harald Szeeman, Civitanova, 30 août 1974', in: *L'art vivant* 53, November 1974, pp. 9-11.

4 Exhibition catalogue *Mario Merz*, Stedelijk Van Abbemuseum, Eindhoven, 20 April - 18 May 1993.

5 Germano Celant, 'Mario Merz – Interview', in: Exhibition catalogue *Mario Merz*, Galleria Civica di Arte Contemporanea, Trento 1995.

Krijn Giezen *Marocco*, p. 93-105

Ingeborg Smit THE TRANSITORY NATURE OF MEMORY

1 *Meubels gefotografeerd door Krijn Giezen* (Furniture Photographed by K.G.), 't Hoogt, Utrecht, 1981 (interview with Piet van Baalen).

2 Giezen probably took this transparency during the 1974 exhibition at the Van Abbemuseum, Eindhoven.

3 The Foundation for the Conservation of Modern Art has a written report of this interview, *Marocco 1972 Krijn Giezen* (1997).

4 J. van den Hooff, 'Een levende muur tussen twee werelden', in: *Het verpakte landschap, geluidswal Albrandswaard*, Centre for the Visual Arts, Rotterdam, 1993.

5 There are similarities here to the earlier-mentioned photographic essay *Reparaties en uitvindingen*.

6 *Beeldhouwerssymposium in de Haarlemmerhout* (Sculpture Symposium), Frans Hals Museum, Haarlem and Practical Agency for Visual Arts Commissions, The Hague, 1984.

7 See note 3.

8 "His work is in the first instance an experiencing of a process that happens over time. He attaches more importance to the ability of a material to change itself than to a definite fixed form," says Mira Kho in 'Beduimelen–wegvagen–aanslibben, an interview with Krijn Giezen', in: *kM* 5, spring 1993, pp. 42-43.

9 See also the chapter on the decision-making model.

Agnes W. Brokerhof KILLING THEM SOFTLY

* The author would like to thank Willem Beekhuizen (National Natural History Museum, Leiden) for the identification of the animals, both dead and alive, in the art work.

- 1 L.A. Zycherman and J.R. Schrock (eds), *A Guide to Museum Pest Control*, Foundation of the AIC and the ASC, Washington DC, 1988.
- 2 C. Dignard, J. Mason and T. Strang, 'Integrated Pest Management', in: *Preventive Conservation in Museums*, handbook to the video series, chapter 5, Université de Québec/Canadian Conservation Institute, Quebec, 1995, pp. 33-42.
- 3 T.J.K. Strang, 'A review of published temperatures for the control of pest insects in museums', in: *Collection Forum* 8 (2), 1992, pp. 41-67.
- 4 Heat treatments are carried out by Thermo Lignum, Landhausstrasse 17, 6900 Heidelberg, Germany; Thermo Lignum UK, Unit 19, Grand Union Centre, West Row, Ladbroke Grove, London W10 5AS, UK.
- 5 See note 3.
- 6 M. Gilbert and A.W. Brokerhof, 'The Control of Insect Pests in Museum Collections: the Effects of Low Temperature on *Stegobium paniceum* (Linnaeus), the Drugstore Beetle', in: *Journal of the American Institute for Conservation* 30, 1991, pp. 197-201.
- 7 A.W. Brokerhof, 'Icy insects – freezing as a means of insect control', in: *AICCM Bulletin* 18 (3&4), 1993, pp. 19-23.
- 8 H.J. Banks and P.C. Annis, 'Comparative Advantages of High CO₂ and Low O₂ Types of Controlled Atmospheres for Grain Storage', in: *Food Preservation by Modified Atmospheres* (M. Calderon and R. Barkai-Golan eds), CRC Press, Boca Raton, Florida, 1990, pp. 93-122.
- 9 S.J. Brand and A. Wudtke, 'Bekämpfung von Textilschädlingen mit Kohlenstoffdioxid', in: *Restauro* 4/97, 1997, pp. 272-276.
- 10 In the Netherlands, CO₂ fumigation is carried out by Rentokil using the Fumigation Bubble.
- 11 See note 8.
- 12 Daniel, S. Maekawa, F.D. Preuser and G. Hanlon, 'Nitrogen Fumigation: a Viable Alternative', in: *ICOM-CC 10th Triennial meeting, Washington DC, 1993*, pp. 863-867.
- 13 K. Elert and S. Maekawa, 'Projekt zur Schädlingsbekämpfung am GCI', in: *Restauro* 4/97, 1997, pp. 260-266.

Woody van Amen *De overwintering op Nova Zembla*, p. 107-113

Madeleine Bisschoff THAW ON NOVA ZEMLYA

- 1 Woody van Amen, *De Overwintering van Willem Barentsz. op Nova Zembla* (Willem Barentsz's Winter on Nova Zemlya) 1968-1969, Centraal Museum Utrecht, inv. no. 16916. The object is made from the following materials: steel, multiplex, stainless steel, perspex, hay, aluminium, neon tubes and transformer, polyester, polyvinylchloride (PVC), electric motor and wiring, light bulb.
- 2 Source: Thea van Oosten, Netherlands Institute for Cultural Heritage, Amsterdam.
- 3 Length of the upper red neon tube: horizontal 65.5 cm, vertical 37 cm. Measurements of upper perspex hay container: 30 cm x 50 cm x 21 cm (hwxwd). The two blue neon tubes are both 50 cm long; the red neon tube underneath is 65,5 x 79 cm. Measurements of imitation fire: 20 cm x 51 cm x 26 cm (hwxwd).
- 4 See: T. B. van Oosten, 'Wie goed bewaart, die hééft wat!', in: *Kunst, stof tot nadenken – Problemen bij het behoud van synthetische materialen*, Central Laboratory (now the Netherlands Institute for Cultural Heritage), Amsterdam 1995, pp. 59-69.

Marja Bosma WOODY VAN AMEN: BETWEEN POP ART AND NEW ROMANTICISM

- 1 G. Bouma, *Van Amen tot Zekveld*, report on fine art in Rotterdam in the 1960s. Stichting Kunstpublikaties, Rotterdam, 1994, pp. 54-59.

Marcel Broodthaers *M.B.*, p 115-125

D.H. van Wegen ON THE WAY TO UNE SECONDE D'ÉTERNITÉ

- 1 'Entretien avec Marcel Broodthaers – Unterhaltung zwischen Jean Michel Vlaeminckx und Marcel Broodthaers', translated from the French by Antje Quast, in: *Marcel Broodthaers: Interviews & Dialogue 1946-1976*, Wilfried Dickhoff (ed.), Kiepenhuer & Witsch, 1990, pp. 23-27, quote on p. 23.
- 2 Exhibition M.U.S.E.E.D'.A.R.T.CAB.I.N.E.T D.E.S. E.S.T.A.M.P.E.S./Département des Aigles (Poèmes industriels. Tirages Limités et Illimités sur plastique), Librairie St. Germain-des-Prés, Paris, 29 October - 19 November 1968.
- 3 'Marcel Broodthaers, La Salle Blanche – l'ensemble des Plaques et l'Entrée de l'Exposition', in: *Journal 22e Bienal Internacional de Sao Paulo*, 1994, states that Broodthaers made thirty-five designs during this period which were developed as positives and negatives, made into plastic reliefs and painted in various colours. Most of the plates are about 85 cm high and 120 cm wide; four plates measure 85 cm x 60 cm and *Les Portes du Musée* is 220 cm x 180 cm.
- 4 *Behind the Museum 1966-1976*, Exhibition catalogue of the former gallery Wide White Space; Brussels, Bonn, Marseille, 1994-1996 (German/English publication), p. 51.
- 5 Interview with Maria Broodthaers-Gilissen for the project Conservation of Modern Art, held on 12 December 1996 in Brussels.
- 6 *Behind the Museum*, see note 4, p. 327 states which works were exhibited in the exhibition 'Marcel Broodthaers' at Le Bailli in Brussels between 25 September and 3 November 1974.
- 7 See note 2.
- 8 Catalogue *Marcel Broodthaers*, Vereniging voor Tentoonstellingen van het Paleis voor Schone Kunsten, Brussels, 27 September - 3 November 1974 (Dutch version translated from the French by Marian Verstraeten).
- 9 See note 5.
- 10 Stefan Germer, 'Das Jahrhundertding, Ansätze zu einer Theorie und Geschichte des Multiples', in: *Das Jahrhundert des Multiple – Von Duchamp bis zur Gegenwart*, second edition, Zdenek Felix et al., Stuttgart, 1995, pp. 63-66.

- 11 See also: Dorothea Zwirner, *Marcel Broodthaers*, in the series 'Kunstwissenschaftliche Bibliothek', Tape 3, Cologne, 1997, p. 93.
- 12 See note 1, p. 26.
- 13 See note 5. According to Maria Gilissen, the man who made the plaques for Broodthaers can tell us nothing more because he has since died.
- 14 See note 8.
- 15 Exhibition catalogue *Marcel Broodthaers Cinéma*, Fundació Antoni Tàpies, Barcelona 17 April-29 June 1997, pp. 126-130.
- 16 See note 8.

Lydia Beerkens WOUNDS FROM THE TIME OF PRODUCTION

- 1 *M.B.* (1970-71), Bonnefantenmuseum, Maastricht. Measurements, according to the registration card dated 1991: (2x) 86 cm x 120.5 cm. Measured in January 1996: black plaque (03511 a) 86.2 cm high x 120.1 cm wide. Thickness of plastic in both plaques (03511 a-b): circa 1 mm. Height of the relief: circa 4.5 mm (measured on the outside).
- 2 Five of the six Broodthaers plaques in the Museum Boijmans Van Beuningen, Rotterdam (excluding the *M.B.* plaque that has no registration number) were examined on 16 January 1996: 1. (B 213) *M.B.*; 2. (B 267) *Académie I*; 3. (B 268) *Académie II*; 4. (B 269) *Académie III*; 5. *Le Drapeau noir*, tirage illimité (on loan). On 31 January 1996, at the Kröller-Müller Museum in Otterlo, two plaques were examined which are recorded in the collection catalogue as follows: 6. (Inv. no. 2223-78 KMS) *Serie 3/7 (La Pipe)*, 1969. Brown polyester plate with an image of a pipe in relief, 84.3 cm x 112 cm. Signed on verso: 'ex. 3,3/7MB 1969', pipe and smoke accentuated in blue felt-tip pen. Provenance: from the artist via Martin and Mia Visser, Bergeyk, 1978; 7. (Inv. no. 2224-78 KMS) *Serie 4/7 (Musée d'Art Moderne)*, 1971. Green plastic plate with text moulded in relief, 84.3 cm x 112 cm. Signed on verso: 'ex.no. 4,4/71 MB 1971', with label: 'Marseille'. Provenance: from the artist via Martin and Mia Visser, Bergeyk, 1978.
- In February 1996, at the Stedelijk Van Abbemuseum in Eindhoven, four relief plaques were examined which are registered in the museum as follows: 8. (Inv. no. 642) *Museum*, 1968-69, plastic; 83 cm x 120 cm.; 9. (Inv. no. 643) *Museum*, 1968-69, 83 cm x 120 cm.; 10. (Inv. no. 664) *Telefoon*, 1968, plastic; 86 cm x 120 cm.; 11. (Inv. No. 645) *Académie II*, 1968.
- Six more plaques were examined at the Provinciaal Museum voor Moderne Kunst in Ostend, Belgium, where they were exhibited in December 1995. These plates, all of roughly the same size, were hung at eye-level alongside one another. There were no text boards, so the words from the plaques have been used here: 12. *Département des Aigles*; 13. *Museum*; 14. *Pipe*; 15. *Pipe*; 16. *Alphabet*; 17. *Alphabet*.
- 3 *M.B.* to be stored under museum conditions for mixed collections: 50% RH and 18°C, with light excluded and avoiding extreme climatic changes (per 24 hours $\pm 3\%$ RH and $\pm 3^\circ\text{C}$). Exhibit under normal museum conditions, namely, not in direct sunlight. Improve method of hanging.

Thea van Oosten & Pieter Keune THE TECHNIQUE OF VACUUM-FORMING

- 1 *Plastics, The principle of vacuum-forming*, Technical Service note G 109, ICI Plastics Division, Welwyn Garden City, Herts, 1968.
- 2 *Wat zijn kunststoffen? Plastics, hun eigenschappen en toepassingen*, Technische Uitgeverij H. Stam N.V., Culemborg, Haarlem, Antwerp, Cologne, 1965.
- 3 H. Domininghaus, *Die Kunststoffe und ihre Eigenschaften*, Verlag des Vereins Deutscher Ingenieure, Düsseldorf, 1988.
- 4 O. Schwarz, *Kunststoffkunde, Aufbau, Eigenschaften, Verarbeitung, Anwendungen der Thermoplaste, Duroplaste und Elastomeren*, Vogel Buchverlag, Würzburg, 1987.
- 5 *Ullmanns Encyklopädie der Technischen Chemie*, Tape 19, 4th edition, Verlag Chemie, Weinheim, 1980.

Piero Manzoni *Achrome*, p. 127-135

Lydia Beerkens A CONTEMPORARY CLEANING CONTROVERSY

- 1 'Piero Manzoni: enige realisaties – enige experimenten – enige projecten', in: Exhibition catalogue *Piero Manzoni*, Van Abbemuseum, Eindhoven, 1969.
- 2 Dimensions of the work itself: 130 cm high x 110 cm wide x 30 cm deep. Dimensions with frame and perspex cover: 157 cm x 134.5 cm x 29 cm.
- 3 Scientific analysis has shown that the fibres are indeed fibreglass. This is a highly stable material, but, owing to the shape (the fibres are 1 μ thick), it is extremely fragile.
- 4 *Preventive conservation*: storage conditions correspond with those for mixed collection storage (50% RH; 18°C), in complete darkness with minimal climatic variations (no more than about 3°C and 3% RH per 24 hours); regular checks in storage for further warping of the polystyrene panel, material degeneration (crumbling), and peeling of the glue.
- Transport conditions*: move the work vertically, in the position it is hung for exhibition.
- Exhibition conditions*: the maximum admissible climate and light conditions are 150 lux and 75 μ Watt/lumen UV – to prevent discoloration of the red flannel.
- These conditions apply to the art work in its present state (i.e. behind perspex) and as it will be in future (possibly behind perspex again). Depending on its type and age, perspex allows incidence of only 10% of UV light.

Piero Gilardi *Still Life of Watermelons*, p. 137-148

Piet de Jonge THE UNEXPECTED LIFE OF A TOTAL LOSS

- 1 The Floriade Foundation donated Gilardi's *Zucche* (1991) to the municipal council of Zoetermeer.
- 2 Jérôme Peignotin in the catalogue *Gilardi*, Ileana Sonnabend Gallery, Paris, January 1967. Gilardi wanted

a high-grade material so that it could withstand fire and deformation. Concerning the paint and technique used, it is stated that Gilardi applied a solution of synthetic pigment with a vinyl-type synthetic resin onto the polyurethane in the same way as painting on a canvas. The glue is intended to form a strong joint and the glued pieces should appear seamless.

3 Contact with Brenda Keneghan was made at the symposium 'From Marble to Chocolate' at the Tate Gallery, London, September 1995. In February 1996 Keneghan carried out consolidation tests on polyurethane (see her introduction for seminar 9, on Plastics).

Thea van Oosten & Pieter Keune CHEMICAL ANALYSIS OF THE MATERIALS USED

1 Brenda Keneghan, 'Trouble in Toyland – Larry the Lamb Falls to Pieces', in: *From Marble to Chocolate – The Conservation of Modern Sculpture*, Tate Gallery Conference, 18-20 September 1995. Jackie Heumann (ed.). London, Archetype Publications Ltd., 1995, appendix.

2 Nancy Kerr and Jane Batcheller, 'Degradation of Polyurethanes in 20th-Century Museum Textiles', in: *Saving the Twentieth Century: The Conservation of Modern Materials*, Proceedings of a Conference 15-20 September 1991, Ottawa. David Grattan (ed.). Ottawa, Canadian Conservation Institute, 1993, pp. 189-206. This article contains a summary of industrial literature on the degradation of polyurethane.

Aleth Lorne EXPERIMENTS IN THE CONSERVATION OF A FOAM OBJECT

*For their support in this part of the project, I would like to thank the members of the Foundation for the Conservation of Modern Art and especially Thea van Oosten of the Netherlands Institute for Cultural Heritage (ICN). I am also indebted to Karin van Nes (conservator of textiles), Louis Damen (conservator at the Museum Boijmans Van Beuningen), Iris Winkelmeyer (student), and to Judith H. Hofenk de Graaff and Wilma G.Th. Roelofs (conservation scientists).

1 Brenda Keneghan, 'Trouble in Toyland – Larry the Lamb falls to pieces', in: *Preprints From Marble to Chocolate: The Conservation of Modern Sculptures*, Tate Gallery, London, 1995. In the Victoria and Albert Museum, she has carried out consolidation tests on a polyurethane foam puppet. The consolidant tested is a polyurethane adhesive. A non-published conservation report written by the private conservator Patricia B. Langen, about *Schaumstoffobjekt* by F. Spindel, has also been consulted.

2 Lascaux 360 HV is a thermoplastic acrylic polymer on the basis of methyl methacrylate and butyl acrylate. Its glass transition temperature is -28°C. After drying, this resin is soluble in acetone, ethanol, toluene and xylene. The good ageing properties of this adhesive were mentioned by M.C. Duffy (1989) and later by J.L. Down et al. (1992). In terms of ageing, this adhesive is mainly remarkable for its stable and nearly neutral pH, as well as for its capacity for not yellowing.

3 This method of consolidation was also proposed by I. Winkelmeyer (see the article by Piet de Jonge), who did a series of tests for the consolidation of polyurethane foam.

4 The Hexcelite® Bandage is a bandage made of a cotton gauze coated with a synthetic plaster. The synthetic plaster is a polyester resin containing some polycaprolactone. The bandage has been investigated in the Netherlands Institute for Cultural Heritage by W.G.Th. Roelofs and J.H. Hofenk de Graaff for the conservation of Jan Cremer's *Nanacht*. Reference of the report: DOC MAP 89/41, object no. 1531.

5 This interesting proposition is from I. Winkelmeyer.

Bibliography:

- P. Brimblecombe, 'Particulate material in air of art galleries', in: *Dirt and Pictures Separated*, United Kingdom Institute for Conservation, London, 1990, pp. 7-10.

- J.L. Down, M.A. MacDonald, J. Tétreault, R.S. Williams, *Adhesive testing at the Canadian Conservation Institute – An evaluation of selected poly(vinyl-acetate) and acrylic adhesives*, Environment and Deterioration research report No. 1603, Canadian Conservation Institute, Ottawa, 1992.

- M.C. Duffy, 'A study of Acrylic Dispersions Used in the Treatment of Paintings', in: *Journal AIC* 28, 1989, pp. 67-77.

- T. van Oosten, 'Materiaalonderzoek aan "Stilleven van Watermeloenen" van de kunstenaar Piero Gilardi', Netherlands Institute for Cultural Heritage, Amsterdam, report 96-094, 1996.

- P. de Jonge, 'The Fruits of a Gilardi – The Conservation of Still Life of Watermelons', in: *Conservation of Modern Art project – Proceedings of the Presentation of the project 12 May 1996*, Foundation for the Conservation of Modern Art, Amsterdam, pp. 33-37.

The models, p. 164-195

THE DECISION-MAKING MODEL

1 This model has been developed by a working group of the Foundation for the Conservation of Modern Art:

Wilma van Asseldonk	curator, Foundation De Pont, Tilburg
Marja Bosma	curator, Centraal Museum Utrecht
Marianne Brouwer	curator, Kröller-Müller Museum, Otterlo
IJsbrand Hummelen	coordinator Conservation Research, Netherlands Institute for Cultural Heritage, Amsterdam
Dionne Sillé	project manager, Foundation for the Conservation of Modern Art, Amsterdam
Renée van de Vall	philosopher and lecturer, Faculty of Arts and Culture, Maastricht University
Rik van Wegen	curator, Bonnefantenmuseum, Maastricht

2 E. van de Wetering, and D.H. van Wegen, 'Roaming the Stairs of the Tower of Babel; efforts to expand the interdisciplinary involvement in the theory of restoration', in: *Preprints for the 8th Triennial Meeting, ICOM Committee for Conservation*, Volume II (Sidney, 1987), pp. 561-565.

NEW MODELS FOR REGISTRATION

1 Both registration models were conceived under the supervision of the working group Registration and Documentation in the Conservation of Modern Art project.

The working group comprised:

Lydia Beerkens	conservator, Foundation for the Conservation of Modern Art, Amsterdam
Christiane Berndes	curator, Van Abbemuseum, Eindhoven
Marianne Brouwer	curator, Kröller-Müller Museum, Otterlo
Claas Hulshoff	conservator, Foundation Kollektief Restauratie Atelier, Amsterdam
IJsbrand Hummelen	coordinator Conservation Research, Netherlands Institute for Cultural Heritage, Amsterdam
Pieter Keune	director, Foundation for Artists' Materials, Amsterdam
Annemiek Ouwerkerk	lecturer of art history, University of Leiden
Dionne Sillé	project manager, Foundation for the Conservation of Modern Art

The models were developed by Lydia Beerkens, then conservator-researcher with the Foundation for the Conservation of Modern Art. She drew up the data registration with Maaike Ramos-van Rossum (from a graduate project at the Reinwardt Academy, Amsterdam). The editor was Romy Buchheim, a graduate of Conservation and Management at the same academy, who also designed the model for data registration linked with other databases (page 179). The English version was checked by Derek Pullen, head of the conservation department at the Tate Gallery, London.

Use has been made of existing models as applied by

- the Museum für Moderne Kunst, Frankfurt (computer network for data and condition registration suited to their own collection);
- the Tate Gallery, London (a limited condition registration model for sculpture);
- the Foundation Kollektief Restauratie Atelier, Amsterdam (condition registration forms for modern painting);
- the Van Abbemuseum, Eindhoven (data registration model suited to their own collection).

Reference publications for information on museum registration:

- Jean Aitchison and Alan Gilchrist, *Thesaurus construction: a practical manual*, second edition, London, Aslib, 1987; 173 pages.
- Caroline Boot, Jan van der Voort, and Boy Wonder, *Handleiding voor de beschrijving van historische voorwerpen: instructies bij de Historisch-Voorwerpkart*, SIMIN, Rotterdam, 1982; 35 pages.
- Jeanne Hogenboom, *Basisregistratie voor collecties, voorwerpen en beeldmateriaal*, IMC Foundation, Rotterdam, 1988, p. 114.
- Jeanne Hogenboom and Jan van de Voort (ed.), *MARDOC - handleiding voor de beschrijving van afbeeldingen*, MARDOC Foundation, Rotterdam, 1982; 65 pages and 261 pages.
- *Spectrum*, the UK museum documentation standard project, compiled and edited by Alice Grant, MDA, Cambridge, 1994. Separate sheets, ISBN 0-905963-92-X.
- J.P. van de Voort, *Woordkontrolle en kollektie-ontsluiting: de thesaurus*, Information Storage and Retrieval: an Improvement for the Accessibility of Documentation Systems?, Symposium report, Stadsparkpaviljoen Groningen, 27 February 1997, InfoManagement, Groningen, 1987, pp. 26-37.
- *The Art and Architecture Thesaurus (AAT)*, use it, lectures for the SIMIN's theme day at the Netherlands Office for Fine Art (RKD) in The Hague, 22 April 1994, compiled by Jan P. Van de Voort, RKD, The Hague, 1994, pp. 43-51.

Ethics and art theory, p. 196-221

Renée van de Vall PAINFUL DECISIONS: PHILOSOPHICAL CONSIDERATIONS ON A DECISION-MAKING MODEL

- 1 Martha C. Nussbaum, *The Fragility of Goodness – Luck and Ethics in Greek Tragedy and Philosophy*, Cambridge, Cambridge University Press, 1989, pp. 32-50.
- 2 M. Nussbaum, 'The Discernment of Perception – An Aristotelian Conception of Private and Public Rationality', in: *Love's Knowledge – Essays on Philosophy and Literature*, New York & Oxford, Oxford University Press, 1990, pp. 54-105.
- 3 Nussbaum's work is part of a recent reappraisal of Aristotle's ethical philosophy often called Neo-Aristotelianism. Other major landmarks in this revival are Alisdair MacIntyre's *After Virtue* and Bernard Williams's *Ethics and the Limits of Philosophy*.
- 4 Nicole Ex calls this the 'ahistorical authenticity' of an art work. N. Ex, *Zo goed als oud – De achterkant van het restaureren*, Amsterdam, Amber, 1993, pp. 115-119.
- 5 E. van de Wetering & D.H. van Wegen, 'Roaming the Stairs of the Tower of Babel – Efforts to Expand Interdisciplinary Involvement in the Theory of Restoration', in: *ICOM Committee for Conservation*, 8th Triennial Meeting, Sydney, Australia 6-11 September 1987. Vol. II, pp. 561-565.
- 6 Albert Jonsen and Stephen Toulmin, *The Abuse of Casuistry – A History of Moral Reasoning*, Berkeley, Los Angeles & London, University of California Press, 1988.
- 7 R. van Gerwen, *Art and Experience – Quaestiones Infinitae*, publication of the Department of Philosophy, University of Utrecht, 1996, p. 182.

D.H. van Wegen BETWEEN FETISH AND SCORE: THE POSITION OF THE CURATOR OF CONTEMPORARY ART

- 1 H. Schinzel, 'Moderne Kunst: Ein Gegenstand der Entsorgung', in: Claire van Damme (ed.), *Conservatie en Restauratie van Moderne en Actuele Kunst – Een interdisciplinair gebeuren*, Snoeck-Ducaju & Son, Ghent, 1992, pp. 59-73 (quote p. 59).
- 2 In *Das Holländische Gruppenporträt* (Vienna 1931), p. 4, Riegl states as his objective "nicht das dem moderne Geschmacke Zusagende auszusuchen, sondern aus ihnen das Kunstwollen herauszulesen, das sie

hervorgebracht und so und nicht anders gestaltet hat” – not to choose what appeals to modern taste, but to extract from it the *Kunstwollen* (complex of conditions) that has led to its particular design.

3 E. van de Wetering & D.H. van Wegen, ‘Roaming the Stairs of the Tower of Babel – Efforts to Expand Interdisciplinary Involvement in the Theory of Restoration’, in: *ICOM Committee for Conservation, 8th Triennial Meeting, Sydney, Australia, 6-11 September 1987*, vol. II, Los Angeles, 1987.

4 R. van de Vall, reading held on 10 September 1997 during the symposium ‘Modern Art: Who Cares?’, Amsterdam.

5 It is true that certain material aspects also play a role in the meaning of traditional art works, such as their execution by a master artist (the signature or symbol) or the hieratic nature of a religious work in its original function. The first is easily distinguishable from the carrier and the medium of the material. This is not the case, however, with the original hieratic nature of certain religious works, though whenever such art becomes museum art, the hieratic role is usually considered of secondary importance.

6 See note 1, p. 60.

7 VeRes code of ethics (Dutch Art Conservators Association) as prescribed on 7 October 1992, p. 3.

8 Interview with Lydia Beerkens and Christiane Berndes on 9 December 1996, see also the chapter on Tony Cragg’s *One Space, Four Places*: “The museum is professional in the preservation, management and presentation of a collection. It is the task of the curator and the conservator to find suitable solutions for conservation problems. The success of this depends on their professionalism.”

9 Interview with Sol LeWitt by Marianne Brouwer, 7 November 1996, unpublished typescript, p. 3.

Riet de Leeuw THE PRECARIOUS RECONSTRUCTION OF INSTALLATIONS

1 Carel Blotkamp, ‘Het IJzeren Venster’, in: *Metropolis M* 7 (1986) 2, pp. 12-17.

2 Camiel van Winkel, ‘Chaque homme est un artiste’, in: *De Witte Raaf* no. 51, September 1995, p. 15.

3 Uwe M. Schneede, *Joseph Beuys – Die Aktionen*, Ostfildern-Ruit bei Stuttgart 1994, p. 8.

4 See note 3, p. 17.

5 Ibid.

6 ‘Remaking Art? – A discussion’, in *Witte de With Cahier* 4, March 1996, p. 144.

Artists’ rights and the museum, p. 222-232

Annemarie Beunen MORAL RIGHTS IN MODERN ART: AN INTERNATIONAL SURVEY

1 See T.A. Schiphof in: *Justitiële Verkenningen* 1 (1997), pp. 54-62; and *Het Amsterdams Beeldenboek: vier eeuwen buitenbeelden (1600-heden)*, Amsterdam 1996 (Amsterdam Arts Council), p. 91.

2 A Dutch court ruled in 2004 that an organ restorer did not enjoy copyright in the parts he added to restore an organ in a Haarlem church: *Van Eeken v. Waalse Kerk Haarlem*, President District Court Haarlem 24 May 2004, *AMI* 2004, p. 229.

3 Adopted by the ICOM Committee for Conservation, Copenhagen, September 1984.

4 *Richard Serra v. U.S. General Services Administration*, 847 F.2d. 1045 (2d Cir. 1988).

5 *Carter v. Helmsley-Spear*, 852 F.Supp. 228 (S.D.N.Y. 1994); 861 F.Supp. 303 (S.D.N.Y. 1994); 71 F.3d. 77 (2d Cir. 1995); 116 S.Ct. 1824 (1996).

6 *Pavia v. 1120 Ave. of the Americas Assocs*, 901 F.Supp. 620 (S.D.N.Y. 1995).

7 M. Nimmer, P. Geller are pessimistic about this in: *International Copyright Law and Practice*, Vol. 2, New York (M. Bender, loose-leaf) 1996, p. USA-125. On the other hand, J. Ginsburg expects improvements in ‘Urheberpersönlichkeitsrechte im Rechtssystem des Common Law’, in: *Gewerblicher Rechtsschutz und Urheberrecht Internationaler Teil* 8/9 (1991), pp. 593-603, particularly p. 598.

8 Reichsgericht 8 June 1912, *Entscheidungen des Reichsgerichts in Zivilsachen* 79, p. 397.

9 For works made on or after 1 June 1991, the moral rights end on the maker’s death. See par. 106A(d)(1) *Visual Artists Rights Act*.

10 See article L. 121-1 French *Code de la Propriété Intellectuelle* 1992; par. 28 and 30 German *Urheberrechtsgesetz* 1965; article 25(2) Dutch Copyright Act.

11 According to Dutch copyright, a maker may renounce his right to object to changes to his work, but not the right to protest against deformation, mutilation, or other derogatory action (article 25(2) Dutch Copyright Act).

12 Court of Appeal Versailles 19 December 1994, *Revue internationale du droit d’auteur* 164 (1995), p. 389.

13 An exception to this general rule, for example, is the Dutch case *Siep van den Berg v. Rijksuniversiteit Groningen*, Court of Appeal Leeuwarden 29 December 1993. See: *Informatierecht/AMI* 1996, p. 13. The artist managed to prevent the destruction of his wall painting which would have disappeared during renovation work.

14 Landgericht München 3 August 1982, *Neue Juristische Wochenschrift* 21 (1983), p. 1205.

15 A.C. Beunen, *Vernietiging van moderne kunst en het ‘droit au respect’*, doctoral thesis, Catholic University Nijmegen, 1993 (unpublished).

16 S. Gerbrandy, *Kort Commentaar op de Auteurswet 1912*, Arnhem, 1988, p. 305. Also see A.A. Quaedvlieg, *Auteur en aantasting, werk en waardigheid*, Zwolle, 1992 (inaugural lecture, Nijmegen), pp. 16-17.

17 See article III of the *Code of Ethics* of the American Institute for Conservation (AIC) and article II of the *Professional Guidelines* of the European Confederation of Conservator-Restorers’ Organizations (E.C.C.O.). The Preamble of the latter describes ‘cultural property’ as “material and cultural heritage to be passed on to forthcoming generations”.

18 Par. 106A(a)(3)(B).

19 See J. Diesselhorst, ‘Das Ende des “amorale” Copyrights? Der Visual Artists Rights Act der USA von 1990’, in: *Gewerblicher Rechtsschutz und Urheberrecht Internationaler Teil* 12 (1992), pp. 902-910, particularly p. 908.

20 Article 16n(2)(2) Dutch Copyright Act.

- 21 Included by the AIC in par. II of the *Code of Ethics* and par. 3 of the *Guidelines for Practice*; and included by E.C.C.O. in the Preamble of its *Code of Ethics*. The responsibility of the conservator towards the artist might perhaps be implicit in paragraph 3.3 of the ICOM-document mentioned in note 3.
- 22 T. Dreier, 'Restoration and Moral Rights of the Artist under Comparative Law', in: *The Restoration of Works of Art*, in: Q. Byrne-Sutton, M.A. Renold, B. Rötheli-Mariotti (eds.): *The Restoration of Works of Art – Legal and Ethical Aspects* (seminar organized in Lausanne on 17 October 1994 by the Art-Law Centre, Geneva), Zürich, 1995 (Studies in Art Law 6), pp. 105-123, particularly p. 113.
- 23 T. Limperg, *Auteursrecht in de hortus der beeldende kunsten*, Culemborg (Phaedon), 1992, p. 34.
- 24 See C. d'Assay, H. Norloff, 'Difficultés éthiques et pratiques soulevées par la restauration de l'art contemporain', in: *The Restoration of Works of Art*, Zürich 1995 (Studies in Art Law 6, Art-Law Centre Geneva), pp. 145-155, particularly pp. 150-152 and A. Beunen, 'Restauratie & Recht', in: *IIC Mededelingenblad* 3 (1995), pp. 11-17.
- 25 *Bijblad Industriële Eigendom* 1994, p. 240 (book discussion of J. Spoor, D. Verkade, *Auteursrecht*, Deventer 1993).
- 26 G. Dworkin, 'Moral Rights in English Law – The Shape of Rights to Come', in: *European Intellectual Property Review* 11 (1986), p. 335.
- 27 See J. Kabel, 'Auteursrechtelijke grenzen aan de vrijheid van de beeldende kunstenaar', in: T. Pronk, G. Schuijt (ed.), *Hoe vrij is de kunst?*, Amsterdam 1992, pp. 68-85, particularly pp. 81-82.
- 28 F. van Isacker, *De morele rechten van de auteur*, Brussels 1961, p. 164 and D. Cohen, 'La restauration et le droit moral de l'artiste selon le droit français', in: *The Restoration of Works of Art*, Zürich 1995 (Studies in Art Law 6, Art-Law Centre Geneva), pp. 125-138, particularly p. 134.
- 29 Court of Appeal Amsterdam 15 November 1978, *Auteursrecht AMR* 1979, p. 32.
- 30 President District Court Maastricht 21 February 1990 and Court of Appeal Den Bosch 17 December 1990, *Nederlandse Jurisprudentie* 1991, no. 443; *Intellectuele Eigendom & Reclamerecht* 1991, p. 63; *Informatierecht/AMI* 1992, p. 33.
- 31 *Roger Munch v. S.A. d'Economie Mixte de Rénovation Urbaine de Mulhouse*, Cour d'Appel Colmar, 30 March 1990 and Cour de Cassation, 1ère chambre civile, 3 December 1991, *Revue internationale du droit d'auteur* 153 (1992), p. 160.
- 32 According to Kabel, deliberate neglect with the intention of damaging the artist's name can be a violation of the artist's moral rights if the work is on public display – but only if it is deliberate. See J. Kabel, 'Auteursrechtelijke grenzen aan de vrijheid van de beeldende kunstenaar', in: T. Pronk, G. Schuijt (ed.), *Hoe vrij is de kunst?*, Amsterdam, 1992, pp. 68-85, particularly p. 80.
- 33 Article 11(1) of the Model Agreement Dutch government/Netherlands Office for Fine Art, included in: H.J.M. Akkermans (ed.), *Handboek Cultuurbeleid*, Den Haag 1989 (VUGA, loose-leaf), I.3.5 Supplement 1.
- 34 Also see T. Dreier, 'Restoration and Moral Rights of the Artist under Comparative Law', in: *The Restoration of Works of Art*, Zürich, 1995 (Studies in Art Law 6, Art-Law Centre Geneva), pp. 105-123, particularly p. 122.
- 35 *Koetsier v. Schiphol*, Court of Appeal Amsterdam 16 June 1977, *Nederlandse Jurisprudentie* 1978, no. 218; *Auteursrecht AMR* 1978, p. 30; *Bijblad Industriële Eigendom* 1978, p. 124.
- 36 *Roussel v. Grenoble*, Tribunal administratif de Grenoble 18 February 1976; *Revue internationale du droit d'auteur* 91 (1977), p. 116.
- 37 Compare Henk Peeters's work 59-18 made of foam rubber (Netherlands Institute for Cultural Heritage), pilot object no. 7 of the Foundation for the Conservation of Modern Art.
- 38 *Van Soest v. de Meerpaal*, President District Court Zwolle 14 April 1989, *Informatierecht/AMI* 1989, p. 100.
- 39 See A. Dietz, 'The Artist's Right of Integrity under Copyright Law – A Comparative Approach', in: *International Review of Industrial Property and Copyright Law* 2 (1994), pp. 177-194 and particularly p. 193.
- 40 *Devens v. Eijdsen*, Court of Appeal Den Bosch 24 February 1993, *Nederlandse Jurisprudentie* 1993, no. 440; *Informatierecht/AMI* 1989, p. 116.
- 41 Also compare a judgment of 2004, ruling that the city council of Groningen had infringed the integrity right of the maker of two ceiling paintings in the city theatre, which were tuned to its surroundings. Twenty years after the paintings were made, the city council changed the colour of the carpets and the walls, which the judge considered derogatory to the ceiling paintings: *Verbeek v. Groningen*, President District Court Groningen 10 September 2004, *AMI* 2004, p. 224.
- 42 President District Court Groningen, 20 October 1993, *Informatierecht/AMI* 1989, p. 114.
- 43 In the Netherlands, the agreed positioning of the work could be enforced in the case *Patrimonium v. Reijers*, Court of Appeal Amsterdam 5 May 1972 and the Dutch Supreme Court, 22 June 1973, *Bouwrecht* 1973, p. 138; *Nederlandse Jurisprudentie* 1974, no. 61 and *Haarlem v. Spronken*, Court of Appeal Den Bosch 17 December 1990, *Nederlandse Jurisprudentie* 1991, no. 444.
- 44 Article 1 under 'bijzondere eisen ten aanzien van het openbaar maken', Model Agreement Dutch government/Netherlands Office for Fine Art (see note 33).
- 45 *Smeets v. Crematorium*, Court of Appeal Arnhem 13 July 1989, *Informatierecht/AMI* 1990, p. 33; *Mirko Krabbé v. AMC*, President District Court Amsterdam 28 October 1993, *Informatierecht/AMI* 1994, p. 103; *Körmeling v. Vlaardingen en bejaarden*, Dutch Supreme Court 20 May 1994, *Informatierecht/AMI* 1995, p. 12.
- 46 Court of Appeal Berlin 8 November 1991 (unpublished). See A. Dietz, 'The Artist's Right of Integrity under Copyright Law – A Comparative Approach', in: *International Review of Industrial Property and Copyright Law* 2 (1994), p. 193.
- 47 *P. Scrive*, Tribunal de Grande Instance Paris 14 May 1974; Cour de Paris 10 July 1975, *Revue Internationale du droit d'auteur* 91 (1977), p. 114 and *Roussel v. Grenoble*, see note 36.
- 48 *Crimi v. Rutgers Presbyterian Church*, 149 Misc. 570, 89 N.Y.S. 2d 813 (New York Supreme Court).
- 49 Also see C. d'Assay, H. Norloff, 'Difficultés éthiques et pratiques soulevées par la restauration de l'art

contemporain', in: *The Restoration of Works of Art*, Zürich, 1995 (Studies in Art Law 6, Art-Law Centre Geneva), p. 150. These French conservators of contemporary art feel it is their duty to ask artists, if they are still alive, to lay down guidelines.

50 See note 33, article 4(1).

51 Conform to Dworkin (note 26) and Kabel (notes 25 and 27). The Dutch lawyer Kabel argues for artists to give up their right of integrity in cases of conservation, as in the United States. Moreover, he propagates limiting the exclusive reproduction right of the artist if, for preservation reasons, it is necessary to make a copy of the work.

52 During the symposium 'Modern Art: Who Cares?', it became apparent that this moral obligation is also felt in the United States. However, the legal position of artists who want to protest is not strong, since the American VARA does not recognise the integrity right in cases of conservation.

Lectures, p. 242-295

Christian Scheidemann MEN AT WORK: THE SIGNIFICANCE OF MATERIAL IN THE COLLABORATION BETWEEN ARTIST AND FABRICATOR IN THE 1960S AND 1970S

* For contributions of primary research I am indebted to Ms. Eva Wein, New York.

1 Susan Hapgood, 'Remaking Art History', in: *Art in America*, July 1990.

2 Marco Livingstone, 'Do it yourself: Notes to Warhol's Techniques', in: *Andy Warhol – Retrospective*, catalogue 1989-1990, Cologne-New York.

3 Andy Warhol and Pat Hackett, *Popism – The Warhol Sixties*, 1980, p. 22.

4 Sol LeWitt, 'Sentences on Conceptual Art', in: *Art-Language*, no. 1, May 1969, p. 11.

5 R. Lowinger and D. Williams, 'Quiet Collaboration...', in: *From Marble to Chocolate – The Conservation of Modern Sculpture*, Tate Gallery, London, 1995.

Elisabeth Bracht THE RESTORATION OF KELLY'S WORKS AT THE STEDELIJK MUSEUM

1 *Ellsworth Kelly: Paintings and Sculptures 1963-1979*, Stedelijk Museum, Amsterdam, 1979.

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- Yves-Alain Bois and Jack Spear, *Spencertown – Recent paintings by Ellsworth Kelly*, Anthony d'Offay, London and Matthew Marks, New York.

- Matthijs de Keijzer and Riet F.S. Karreman, *Onderzoek naar de gelige verkleuring van het witte gedeelte van het schilderij 'Two Panels, Black and White Bar II' uit 1971 van Ellsworth Kelly*, Central Research Laboratory for Objects of Art and Science, Amsterdam.

- Judith Hofenk de Graaff, 'The Constitution of Detergents in Connection with the Cleaning of Ancient Textiles', in: *Studies in Conservation* 13, 1968.

- Matthijs de Keijzer, 'A propos Titanweiss', in: *Restauro* 3. Callwey Verlag, 1989.

Marie Laibinis-Craft AN INVESTIGATION OF FRANK STELLA'S MAGNESIUM RELIEFS

* The information provided by Frank Stella and Pete Dutchess of Swan Engraving Company was invaluable. Their support and cooperation with the National Gallery of Art has been beneficial thus far in designing experiments for possible treatment options and methods of controlling and preventing filiform corrosion on Stella's etched magnesium panels.

I would like to thank Frank Stella and Pete Dutchess for their assistance and the valuable information they provided. I would also like to thank the following people: Lowell H. Frische, Spectrulite Consortium Inc.; James E. Hillis, Dow Chemical Company; Kathrin Scheel, Conservator, New York; Glenn Wharton and John Griswold, Wharton & Griswold Associates Inc., Los Angeles; Janice Carlson, Winterthur Museum; John Twilley and Steve Colton, of the Conservation Center at the Los Angeles County Museum of Art; Barbara Berrie and Susan Quillen Lomax, National Gallery of Art.

I would especially like to thank Shelley Sturman, Head of Objects Conservation at the National Gallery of Art, for her comments, encouragement and support throughout this project. The support of this research by the Getty Grant Program is also gratefully acknowledged.

1 Sidney Guberman, *Frank Stella: An Illustrated Biography*, New York, Rizzoli, 1995, p. 140.

2 Frank Stella commenting on his *Polish Village* Series during a television interview with Charlie Rose on a Thirteen/WNET production, 13 July 1993. Production of Thirteen/WNET in New York in association with Rose Communications, Inc.; quoted in Jacquelynn Baas, *Frank Stella: Moby Dick Deckle Edges*, New York, Tyler Graphics Ltd, 1993, p. 5.

3 See note 1, p. 138.

4 Philip Leider, *Stella Since 1970*, Texas, Fort Worth Art Museum, 1978.

5 See note 1.

6 Ibid., p. 155.

7 Ibid., p. 157.

8 William Rubin, *Frank Stella 1970-1987*, Rhode Island, Franklin Graphics, 1987, p. 154.

9 The magnesium sheet AZ31 is used for photographic grade etching plates. Its alloy composition has not changed since 1974: consisting of 3% aluminium, 1% zinc, 95% magnesium, and trace elements. Personal communication with Lowell H. Frische, Spectrulite Consortium Inc., Findlay, Ohio, 12 December 1996.

10 Personal communication, interview with Pete Dutchess, Swan Engraving Company, Bridgeport, Connecticut, 8 January 1997.

11 See note 8, p. 95.

12 Personal communication, interview with Frank Stella, 23 January 1997.

13 See note 8, p. 101.

14 Ibid., p. 98.

15 See note 12.

16 Ibid.

17 Samples of the clear coating were analysed using Fourier Transform Infrared Spectroscopy by Janice Carlson, senior scientist, at the Winterthur Museum Analytical Laboratory, Winterthur, Delaware. Winterthur Museum Analytical Laboratory report 3600, 12 March 1996. Marie Laibinis, *An Investigation into the Painted Relief 'Long Beach' by Frank Stella*, unpublished research report, 1996.

18 X-ray diffraction of a sample of the corrosion product was performed by John Twilley, senior conservation scientist, by courtesy of the Conservation Center at the Los Angeles County Museum of Art. Marie Laibinis (1996), p. 5.

19 *Long Beach* was treated by the author in 1996 under the supervision of Wharton & Griswold Associates and with the assistance of Steve Colton. Steve Colton first noticed the corrosion on *Long Beach* during the treatment of a damaged panel in 1989. Personal communication with Steve Colton, Los Angeles County Museum of Art Conservation Center, Los Angeles, California, 25 February 1996.

20 Suzanne Quillen Lomax, Analysis report, Scientific Research Department, National Gallery of Art, Washington DC, 21 January 1997.

21 Reliefs in the collection at the Art Institute of Chicago and some in the Robert and Jane Meyerhoff Collection (1945-1995) do have filiform corrosion, whereas *Hockenheim* (1982) at the Philadelphia Museum of Art, for example, shows no sign of it. Personal examination of reliefs at Philadelphia Museum of Art and Meyerhoff Collection exhibit. Personal communication, Bonnie Wisniewski, Conservation Intern, Art Institute of Chicago, 29 July 1996.

22 See note 12.

23 G.M. Hoch, 'A Review of Filiform Corrosion', in: *Conference on Localized Corrosion held in Williamsburg, Virginia, 1971, by the National Association of Corrosion Engineers*, Houston, Texas, National Association of Corrosion Engineers, 1971, p. 130.

24 Catherine Sease, Lyndsie S. Selwyn, Susana Zubiate, David F. Bowers and David R. Atkins, 'Problems with Coated Silver: Whisker Formation and Possible Filiform Corrosion', in: *Studies in Conservation* 42 (1997), p. 4.

25 Robert T. Ruggeri and Theodore R. Beck, 'An Analysis of Mass Transfer in Filiform Corrosion', in: *Corrosion* 39 (November 1983), p. 452.

26 National Association of Corrosion Engineers, *Corrosion Basics*, Houston, Texas, National Association of Corrosion Engineers, 1981.

27 Albert C. Holler, 'Filiform Corrosion: an Evaluation of Vehicles on Metal Substrates', in: *Official Digest* 35 (November 1963), p. 1164.

28 See note 23, p. 141.

29 See note 27.

30 See note 25, p. 463.

31 "The old literature suggested the phase (of the black oxide) was a 'sub-oxide' of magnesium, but attempts internally at Dow to define the character of this phase as a true Mg^{+1} or mixed phase $[Mg^{2+} + Mg^0]$, using modern analytical methods, have failed to identify anything other than MgO ." Personal communication, fax from James E. Hillis, The Dow Chemical Company, Dow/Magnesium TS&D, 3 September 1997.

32 See note 25.

33 W.H. Slabaugh, W. Dejager, S.E. Hoover, and L.L. Hutchinson, 'Filiform Corrosion of Aluminium', in: *Journal of Paint Technology* 44, No. 566 (March 1972), p. 79.

34 G.D. Steele, 'Filiform Corrosion on Architectural Aluminium', in: *Aluminium Industry* 13, No. 1 (1994), p. 5.

35 Ibid., p. 6.

Pip Laurenson THE CONSERVATION AND DOCUMENTATION OF VIDEO ART

1 Mary Baker, 'Lifetime Predictions for Polyurethane-based Recording Media Binders: Determination of the "Shelf-life of Videotape Collections"', in: *Resins Ancient and Modern*, Conference Proceedings, Aberdeen, 13-14 September 1995, pp. 106-110.

2 A good example of this is that the half-inch format CV-2000 produced by Sony in 1965 was only in production for three years before it was superseded by CV-2100. Although the huge investment made in particular formats by television stations and support facilities helps to slow down the rate of change, obsolescence still remains a problem. For example, the popularity of compressed digital formats with the broadcast industry will, perhaps as soon as in the next three years, result in the obsolescence of non-compressed digital video formats such as D1 and D5.

3 Analogue formats are not suitable as archival formats. It may be that digital disc formats in the future will prove a better archival format than digital tape (although the compression employed may not be acceptable), but these should not be confused with analogue VideoDiscs. Also, as computers become more and more powerful it may be possible to store non-compressed digital video on computer hard discs.

4 The first flat liquid-crystal display panel television was launched by Sony in 1997.

5 Bill Viola and his partner the photographer Kira Perov are leading the field in developing ways of insuring the preservation and documentation of Bill Viola's video installations. I am indebted to them for their guidance and expertise.

Carol Stringari INSTALLATIONS AND PROBLEMS OF PRESERVATION

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3 Susan Hapgood, 'Remaking Art History', in: *Art in America*, July 1990, pp. 115-119.

4 Calvin Tompkins, *Duchamp*, Henry Holt and Company, New York, 1996, pp. 332-333.

5 Caroline Tisdall, *Joseph Beuys*, Solomon R. Guggenheim Museum, New York, 1979.

- 6 Conversation with conservator for the Beuys estate, Mr. Otto Hubacek, 1997.
- 7 Craig Adcock, *James Turrell: The Art of Light and Space*, University of California Press, Los Angeles, 1990.
- 8 Germano Celant, *Mario Merz*, Solomon R. Guggenheim Museum, New York, and Electra, Milan, 1989.
- 9 See note 2, where Ippolito proposes a Variable Media Initiative.

Erich Gantzert-Castrillo THE FRANKFURT MUSEUM FÜR MODERNE KUNST AND A PRIVATE ARCHIV:
REGISTRATION SYSTEMS FOR CONTEMPORARY ART

- 1 The Museum für Moderne Kunst in Frankfurt am Main was founded in 1981. Construction started in June 1987 and the building was completed in December 1989. The official opening was on 6 June 1991. See Museum für Moderne Kunst (ed.), *Publications on the Topping-Out Ceremony on July 13, 1988*, No. 1, Frankfurt/Main 1988; and Museum für Moderne Kunst (ed.), *2nd Information Brochure on the Architecture and Collection*, Frankfurt/Main 1989.
- 2 Jean-Christophe Ammann and Christmut Präger, *Schriften zur Sammlung des Museums für Moderne Kunst Frankfurt am Main*, Museum für Moderne Kunst und Sammlung Ströher, Frankfurt/Main 1991.
- 3 See graduate thesis by Simon Dutoit, *Fachterminologische Probleme des Restaurators bei der Dokumentarischen Erfassung von Staffeleigemälden mit EDV*, Restoration Department of the Bern College of Art, 1993.
- 4 Anette Bauer produced the requisite scripts for the program and undertook the necessary clerical work.
- 5 The documentation forms for the paintings were largely designed with those used by the Tate Gallery in mind. The translations from English were provided by Karin Weber, art conservator.
- 6 When compiling our documentation masks, we used an Apple Macintosh Portrait full-page display supported by an Apple Macintosh DuoDock with PowerBook Duo 230.
- 7 Namely Monika Henkel, Sonja Schmid and Michael Bottländer.
- 8 See the exhibition catalogue *Objekte und Bildobjekte – Terminologie zu Bildobjekten der Modernen Kunst* (pages not numbered), Staatsgalerie Stuttgart, 1969; and Erich Gantzert-Castrillo (ed.), *Archiv für Techniken und Arbeitsmaterialien zeitgenössischer Künstler* (with supplement), Wiesbaden 1979, p. 55, as well as the reprint under the same title, Stuttgart 1996.
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Stefan Michalski CONSERVATION LESSONS FROM OTHER TYPES OF MUSEUMS – and a universal database for collection preservation

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- 2 K. Popper, *Objective Knowledge – An Evolutionary Approach*, revised edition, Oxford University Press, 1979, p. 106.
- 3 S. Michalski, 'Sharing Responsibility For Conservation Decisions', in: W.E. Krumbein, P. Brimblecombe, D.E. Cosgrove and S. Staniforth (eds.), *Durability and Change – The Science, Responsibility, and Cost of Sustaining Cultural Heritage*, John Wiley and Sons, Chichester, 1994.
- 4 S. Michalski, 'A Systematic Approach to Preservation: Description and Integration with Other Museum Activities', in: A. Roy and P. Smith (eds.), *Preventive Conservation Practice, Theory, and Research*, International Institute for Conservation of Historic and Artistic Works, London, 1994, pp. 8-11.
- 5 M. Westfield, R.I. Ortega and E.A. Conrad, 'What Made Lucy Rot', in: *Journal of Preservation Technology*, vol. 27, No.3, 1996, pp. 31-36.
- 6 R. Barclay, A. Bergeron and C. Dignard, *Mount-Making for Museum Objects* (in English)/*Supports pour objets de musée: de la conception à la fabrication* (en français), Canadian Conservation Institute, Ottawa, and Centre de conservation du Québec, Québec, 1998.
- 7 C.L. Rose, C.A. Hawks and H.H. Genoways (eds.), *Storage of Natural History Specimens, Volume I: A Preventive Conservation Approach*, Society for the Preservation of Natural History Specimens, Pittsburgh, USA, 1995. Available from Julia Golden, Dept. of Geology, University of Iowa, Iowa City, Iowa, 52242-1379, USA; C.L. Rose and A.R. de Torres, *Storage of Natural History Specimens, Volume II: Ideas and Practical Solutions*, Society for the Preservation of Natural History Specimens, Pittsburgh, USA, 1995.
- 8 See note 3.
- 9 L. Beerkens, 'The Biography of a Machine: Problems with the Conservation of Jean Tinguely's *Gismo*', in: *Conservation of Modern Art project*, Foundation for the Conservation of Modern Art, Amsterdam, 1996, pp. 13-19.
- 10 R.L. Barclay (ed.), *The Care of Historic Musical Instruments*, Canadian Conservation Institute, Ottawa; Museums and Galleries Commission UK; and ICOM International Committee of Musical Instrument Museums and Collections, 1998. Available from CCI, 1030 Innes Rd., Ottawa, K1A 0M5, Canada.
- 11 S. Michalski, *Guidelines for Humidity and Temperature in Canadian Archives*, Canadian Council of Archives, Ottawa, 1998.
- 12 G. Boston (ed.), *Archiving the Audio-Visual Heritage*, Canadian Museum of Civilization, Ottawa, 1990.
- 13 ARSAG, *Environnement et conservation de l'écrit, de l'image et du son*, Association pour la recherche scientifique sur les arts graphiques, Paris, 1994.
- 14 D.W. Grattan (ed.), *Saving the Twentieth Century: The Conservation of Modern Materials*, Canadian Conservation Institute, Ottawa, 1993.
- 15 S. Blank, 'An Introduction to Plastics and Rubbers in Conservation', in: *Studies in Conservation*, vol. 35, 1990, p. 53.
- 16 See note 1.
- 17 See note 3.
- 18 Ibid.
- 19 D. Lowenthal, *The Past is a Foreign Country*, Cambridge University Press, 1985.
- 20 Michael MacLean Ames, *Cannibal Tours and Glass Boxes: The Anthropology of Museums*, UBC Press, Vancouver, 1992.

- 21 S. Pearce (ed.), *Museum Studies in Material Culture*, Leicester University Press, 1989.
- 22 S. Pearce (ed.), *Objects of Knowledge*, Athlone Press, London, 1990.
- 23 S. Pearce, *On Collecting – An Investigation Into Collecting in the European Tradition*, Routledge, London, 1995.
- 24 G. Kavanagh (ed.), *Museum Languages, Objects and Texts*, Leicester University Press, 1991.

Seminars, p. 296-413

Seminar 2 Electronic media: rethinking the conservator's role

Barbara Otterbeck HOW DURABLE IS VIDEO ART

- 1 *How durable is Video Art? Contributions to the Preservation and Restoration of Audiovisual Works of Art*, symposium at the Kunstmuseum Wolfsburg, 25 November 1995 (German/English).

Seminar 3 Ethics and the theory of conservation of contemporary art

Hiltrud Schinzel MIXED MEDIA, MIXED FUNCTIONS, MIXED POSITIONS

- 1 Negative criticism: the Malevich painting *White Cross* was sprayed by the Russian artist Alexander Brener in Amsterdam's Stedelijk Museum on 4 January 1997. Appreciation: in the same year, Franky D.C. who uses nineteenth-century paintings as 'support' for his own creativity was given an exhibition in the Museum of Contemporary Art, Ghent.
- 2 In his lecture at the DRV (Deutscher Restauratoren Verband) meeting in Mainz, 29 March 1995. A shortened version was published in 'Die Restaurierung des Zerfalls', in: *Logik der Sammlung*, Boris Groys, Hanser, 1997, p. 197 ff.
- 3 In *ICOM News*, vol. 50, no. 3 1997, p. 2.

Seminar 4 The conservation of modern art in Eastern Europe

Iwona Szmelter A PHENOMENON OF MODERN ART AND ITS CONSERVATION

- 1 M. Glowinski, *Rytual i demagogia* (Ritual and Demagogy), PWN, Warsaw, 1992.
- 2 I. Szmelter, *Metody i srodki konserwacji rozdarc i ubytkow podobrazia plociennego obrazow* (Methods and Means of Conservation of Tears and Losses in Paintings' Canvas Supports), BMIOZ, Blue series, Zabytkoznawstwo i Konserwatorstwo, vol. LXXXI, Warsaw, 1986, pp. 134-141.
- 3 I. Szmelter, *Problemy dublowania obrazow na podlozu plociennym* (Problems with Relining Paintings on Canvas Support), *Zeszyt Naukowy* no. 1/32/1992, pp. 1-167.
- 4 I. Szmelter, 'Metody dublowania obrazow z uzyciem klejow akrylowych i proba okreslenia formuly optymalnego kleju dublazowego' (Methods of Relining Paintings with Acrylic Adhesives and an Attempt to Formulate an Optimum Relining Adhesive), in: *Naukowe Podstawy Ochrony i Konserwacji Dzieł Sztuki oraz Zabytkow Kultury Materialnej* (Scientific Grounds for Preservation and Conservation of Works of Art and Monuments of Material Culture), Nicolaus Copernicus University, Toruń, 1993, pp. 294-303.
- 5 *Glos konserwatorow*, SKS, Art and Business, Miedzynarodowy Magazyn Rynku Sztuki, no. 9-10, 1992, pp. 294-303.
- 6 I. Szmelter, *Konserwacja i restauracja wspolczesnych dzieł sztuki – refleksje u schyłku XX wieku* (Conservation and Restoration of Contemporary Art Works – Reflections at the Close of the Twentieth Century), paper for the session 'Conservatio Creatio Aeterna Est' on 5 November 1997, National Museum, Warsaw, in press.
- 7 The archive of the Faculty of Conservation and Restoration of Works of Art of the Krakow Academy of Fine Arts contains master theses on the techniques used by contemporary Krakow painters and sculptors; the theses were prepared under the supervision of Professor Wl. Slesiński in the years 1977-1979.
- 8 R.A.C. Coobe, *Examinations of Modern Paintings – Technical Information Received from Artists*, St. inc., no. 2, 1976, pp. 25-33; J.H. Stoner, *A Data-File on Artists' Techniques Cogent to Conservators*, ICOM, Copenhagen, 1984, preprints pp. 844-847.
- 9 A typescript by professor Britta Schnitzel of the University of Freiburg, 1997.

Seminar 7 Registration and reinstallation of installations

Roland Groenenboom INSTALLATIONS AND INTERPRETATIONS

- 1 Information available to the public at the Joseph Beuys exhibition at the Kunsthhaus, Zürich, also at the Reina Sofia, Madrid and Centre Georges Pompidou, Paris, 1993-4.
- 2 Camiel van Winkel, 'Chaque homme est un artiste', in: *De Witte Raaf*, September 1994, p. 15.
- 3 Camiel van Winkel, 'Speleologie van de Vrije Ruimte: over afgelegde beelden en de kinetische impuls', in: *Witte de With – Cahier #1*, Witte de With, Rotterdam and Richter Verlag, Düsseldorf 1993, pp. 10-37.
- 4 After the presentation at Witte de With, the exhibition 'Paul Thek – The Wonderful World that Almost Was' travelled to the Neue Nationalgalerie, Berlin; the Fundació Antoni Tàpies, Barcelona; Kunsthalle Zürich/Museum für Gegenwartskunst, Zürich; MAC, galleries contemporaines des Musées de Marseille.
- 5 The first environment that Thek made with the Artist's Co-op was *The Procession/The Artist's Co-op* in 1969 for the Stedelijk Museum, Amsterdam. Then followed the Moderna Museet in Stockholm (*Pyramid/A Work in Progress*, 1971-2), Documenta 5 in Kassel (*Ark/Pyramid*, 1972) and the Kunstmuseum Lucerne (*Ark, Pyramid- Easter*, 1973).
- 6 Paul Willemsen, 'Kunst van Paul Thek is liturgie', in: *De Standaard*, 8 August 1995.
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- 8 See *Witte de With – Cahier #3*, note 7, pp. 132-148.
- 9 See Camiel van Winkel, note 3, pp. 24-5.
- 10 Letter from Paul Thek to Jean-Christophe Ammann, then director of the Kunstmuseum Lucerne, 17 May 1976.

Seminar 9 Plastics: identification, degradation and conservation

Brenda Keneghan PLASTICS RESEARCH IN THE VICTORIA AND ALBERT MUSEUM

1 N. Blades, Victoria and Albert Museum Science Group Report no. 95-23-NB.

2 R. Griffith, 'Two Pooped-Out Pop Chairs: What is the Future for our Plastic Collections?', in: *V&A Conservation Journal* No.21, 1996, pp. 10-12.

Seminar 13 Accidental and wilful damage to contemporary art

Joachim O. Goppelt INCENTIVES TO DESTROY ART

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2 Dieter Daniels, *Duchamp und die anderen*, DuMont Taschenbuch, DuMont Buchverlag, Cologne, 1992, p. 170.

3 Peter Moritz Pickshaus, *Kunstzerstörer – Fallstudien: Tatmotive und Psychogramme*, Rowolt Taschenbuch Verlag, Reinbeck bei Hamburg, 1988, pp. 17-20.

4 See note 3, p. 74.

5 See note 2, p. 2.

Seminar 14 Documentation and registration of artists' materials and techniques

Cornelia Weyer & Gunnar Heydenreich FROM QUESTIONNAIRES TO A CHECKLIST FOR DIALOGUES

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2 Wilhelm Stebler, 'Technische Auskünfte von Künstlern', in: *Maltechnik Restaura*, 1/85, pp. 19-34 and p. 20.

3 Addresses for archived material:

- Erich Gantzert-Castrillo, Ludwigstraße 64, D-63067 Offenbach

- Restaurierungszentrum der Landeshauptstadt Düsseldorf/ Schenkung Henkel, Ehrenhof 3a (1998-2000: Franklinstraße 41/43), D-40479 Düsseldorf

- Schweizerisches Institut für Kunstwissenschaft, Zollikerstrasse 32, CH-8032 Zürich

- Wilhelm Stebler, Atelier de Conservation et Restauration, Passage du Cardinal 2 D, CH-1700 Fribourg

- Hochschule für Bildende Künste Dresden, Restaurierung, Güntzstraße 34, D-01307 Dresden

4 References:

- Erich Gantzert-Castrillo, Hrsg., *Archiv für Techniken und Arbeitsmaterialien zeitgenössischer Künstler*, Bd. 1, Wiesbaden, 1979.

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5 See Stebler, note 2, p. 21.

Seminar 15 Working with artists in order to preserve original intent

Shelley Sturman NECESSARY DIALOGUE: THE ARTIST AS PARTNER IN CONSERVATION

1 See Pat Kaufman, 'Working with Conservators to Preserve Your Art', in: *Maquette*, (July/August 1995), pp. 18-21.

2 Ann M. Garfinkle, Janet Fries, Daniel Lopez, and Laura Possessky, 'Art Conservation and the Legal Obligation to Preserve Artistic Intent', in: *Journal of the American Institute for Conservation*, vol. 36, no. 2 (1997), pp. 165-179.

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4 For more information about this resource and a copy of the Artists' Questionnaire, contact the Conservation Department, Tate Gallery, Millbank, London SW1P 4RG.

5 Joyce Hill Stoner, 'Ascertaining the Artist's Intent Through Discussion, Documentation and Careful Observation', in: *The International Journal of Museum Management and Curatorship*, no. 4 (1984), pp. 87-92. This information can be accessed through the Archive of American Art at the National Museum of American Art, Smithsonian Institution, Washington DC 20560.

6 Marvelseal 360™ is an aluminiumised polyethylene/nylon film that is water and gas impermeable, manufactured by the Ludlow Corporation, Holyoke, MA 01040, USA.

7 For a description of another successful collaboration involving lead sculpture, see Martha Simpson and Penny Edmonds, 'Collaboration in the Conservation of Jasper Johns' Lead Reliefs', in: *Abstracts of the Twenty-Fourth Annual Meeting, AIC*, (1996), pp. 5-6.

8 See for example Denise Domergue, Rosa Lowinger, and Don Menveg, 'Change the Art or Change the Artist: A Question of Ethics in the Conservation of Contemporary Art', in: *Preprints of the Fifteenth Annual Meeting of the American Institute for Conservation*, 1987, pp. 34-42.

Seminar 17 Legal aspects of conservation

Caroline Forder THE NECESSARY DETAILS OF A WRITTEN CONSERVATION CONTRACT

1 Q. Byrne-Sutton, M.A. Renold, B. Rötheli-Mariotti, *La Restauration des objets d'art: aspects juridiques et éthiques*, Zürich, Schulthess Polygraphischer Verlag, 1995. For Dutch provisions for a contract of commission see the Dutch Civil Code (articles 400-413 of book 6) and C. Forder, G. Rijken, *The Civil Responsibility of Conservators under Dutch Law*, pp. 63-103. For Swiss law see F. Werro, *La Responsabilité civile du restaurateur selon le droit suisse*, pp. 34-62.

2 European Community policy document, *A Fresh Boost for Culture in the European Community*, 1987,

specifying the need to improve training for conservators and restorers. See also Byrne-Sutton, Renold, and Rötheli-Mariotti (note 1), Part Two, pp. 191-270.

³ Case C-234/97, *Teresa Fernández de Bobadilla v Museo Nacional del Prado* (registered with the European Commission 14-18 July 1997).

⁴ P. O'Keefe, 'International Rules and Codes of Conduct', in: Byrne-Sutton, Renold, and Rötheli-Mariotti (note 1), pp. 13-34.

⁵ Q. Byrne-Sutton, 'The Owner of a Work of Visual Art and the Artist: Potential Conflict of Interests', in: N. Palmer and E. McKendrick, *Interest in Goods*, London, 1993, pp. 281-301.

MODERN ART: WHO CARES?

The conservation of contemporary art should not be a static process carried out behind closed doors but dynamic and open to discourse. New media and new materials constantly present issues which traditional conservation methods cannot address and a continual search for new techniques is therefore required. This dynamic research may include interviews with artists; documentation of artists' materials; the recording of image, word or sound of performances, installations, temporary and 'permanent' visual art; scientific research into the identification, composition, ageing and preservation of modern materials.

This volume makes a most important contribution to the ongoing debate by presenting the conservation challenges relating to ten objects of different media and materials (plastics, kinetic objects, monochromes and works of mixed media) of considerable art-historical value. The ten selected studies include the works of Jean Tinguley, Piero Manzoni, Tony Cragg and Mario Merz. In addition to case studies, this volume includes symposium papers by art historians, physicists, philosophers, artists, conservators and critics on topics as varied as: accidental damage; working with artists; packing and transport; installation; identifying plastics; ethics, training, databases etc.

Key articles in this volume offer solutions to basic problems that can then be applied in daily practice ... this extensive and handsome work is a godsend for modern art restorers. **Restauro**

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