

# ANSELM KIEFER AT THE GUGGENHEIM MUSEUM BILBAO: TOWARDS A NEW METHODOLOGY FOR THE PREVENTIVE CONSERVATION OF CONTEMPORARY ARTWORKS

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## ABSTRACT

The versatile nature, shape and scale of the galleries and exhibition spaces at the Guggenheim Museum Bilbao have led to a redefinition of museological and museographic models, affecting spheres of action such as management systems, preventive conservation and acquisitions policies. The incorporation into the permanent collection of 11 works by the German artist Anselm Kiefer posed a number of challenges concerning their storage, crating, handling, transport, display and conservation. The sheer range of problems generated by these works required an integrated study prior to devising a general action plan. This paper discusses the analysis undertaken in the study, the search for solutions, and the measures taken to ensure appropriate conservation and exhibition of these works.

## INTRODUCTION

The Guggenheim Museum Bilbao (hereafter, GMB) was inaugurated in 1997 as the result of an agreement between a number of Basque institutions looking to build a museum of contemporary art that would revitalize post-industrial Bilbao, culturally and economically, and the New York-based Solomon R. Guggenheim Foundation. Frank O. Gehry's spectacular design provided the project with the architectural kudos needed to ensure the international recognition of artistic excellence to which the project aspired.

A superb synthesis of the essential features of previous projects by Gehry, this monumental 'sculpture' of curving surfaces and volumes in titanium, stone and glass indicates an unbounded imagination as regards form and a determination to take the expressive capacity of materials to the limit. The museum is a dazzling combination of cubed blocks in limestone, organic forms overlaid with titanium, and steel and glass curtain walls set in relation to a central atrium. Around the atrium are organized 10,000 square metres of exhibition space distributed over 19 galleries on three levels, interconnected by a system of catwalks, titanium and glass lifts, and stairways.

An important feature of the GMB is the versatility of its galleries and exhibition spaces. Classic orthogonal-shaped galleries with wooden floors alternate with concrete-floored spaces of unusual proportions and forms, which generate a remarkable range and variety of possibilities for both spatial idiom and exhibition projects. Areas assigned to other uses, such as the atrium, hall or passageways, are alternatives regularly used for displaying artworks. The splendid location of the building and its successful integration into the surrounding urban environment also facilitate the installation and exhibition of artworks in the museum's exterior perimeter (Plate 6).

The versatile nature of the galleries at the GMB provides exceptional museological and museographic potential, and quite palpably influences the profile of the collection. At the same time, the unusual shape of some of the exhibition spaces is a decisive factor in the conservation of the artworks. The walls, flooring, ceiling, spans and lucarnes of many galleries often have unconventional features that make the exhibition of certain artworks a challenge from a museological point of view. Much thought has to be given to handling procedures (for example, the planning of crating and storage, and the analysis of movement routes), installation (carrying out structural reinforcement, designing special anchorage systems), exhibition (installing passive protection systems, defining appropriate maintenance routines) and the conservation of the artworks (establishing and

controlling the most suitable temperature, relative humidity and lighting parameters).

Given the unusual nature of the building and the wide variety of artworks in the GMB collection, there was a clear need for a methodology that would ensure appropriate conservation. Besides interdepartmental communication, the resulting working method is based on a multidisciplinary approach, on centralized documentation, and on systematic procedures for handling, crating, transport, storage, installation, exhibition, preventive conservation and restoration. In the first phase of development the possibilities and limitations of each artwork were exhaustively analysed. With specific problems identified, we then took a global view, evaluating the artworks from different professional standpoints and defining criteria for action that could be applied successfully to the whole collection. The works by Anselm Kiefer provide a good example of how the methodology works in practice.

## THE WORKS

In 1997, the Guggenheim Museum Bilbao acquired a set of works by the German artist Anselm Kiefer. These 11 works, dating from between 1980 and 1996, form part of the GMB permanent collection. They are particularly noteworthy for their scale, variety, and the freedom with which materials and media are employed [1, 2].

Huge collages like *Tournesols* (435 × 349 cm), *Wege der Weltweisheit: Die Hermannsschlacht* (490 × 612 cm) and *Untitled (Der Rhein)* (240 × 352 cm) were executed using woodblock paper on fabric, shellac, acrylic, oil and emulsion. *Das Sonnenschiff* (330 × 560 cm), *Zweistromland* (416 × 710 cm), *Die Berühmten Orden der Nacht* (510 × 500 cm) and *Nur mit Wind, mit Zeit und mit Klang* (470 × 940 cm) are large-format paintings with a heavy painted layer of acrylic emulsion, ash, lead, sunflowers (plus seeds), ceramics, wire and dry asparagus. Three books, entitled *Bilderstreit* (58 × 43.5 × 8 cm), *Gilgamesh und Endiku im Zedernwald* (57 × 43 × 15 cm) and *Für Robert Fludd* (103.5 × 81 × 16 cm), are executed with black-and-white photographic paper on cardboard, oil, acrylic, shellac and seeds. Finally, the sculpture *Berenice* (120 × 390 × 320 cm) consists of lead, glass, photographs, animal hair and leaves.

The sheer size of the works and the fragility of the materials and media used, combined with the design of the access, storage, corridors and exhibition spaces, generated a process of analysis and reflection which led to changes in internal procedures. A number of features were assessed, including internal movement routes for artworks, exhibition and storage requirements, handling procedures, preventive conservation measures, and the parameters for evaluating loan applications.

## HANDLING AND TRANSPORT

Any handling and/or transport procedure involves risk to artworks. Specific reports on a wide range of hypothetical situations have enabled us to extrapolate and develop guidelines and basic procedures applicable to the collection as a whole.

For works like *Berenice*, which has a lead structure with malleable, damage-prone areas, good crate design is essential [3]. Handling the various pieces that make up the work requires the



use of straps and a forklift, so that each piece can be lifted from the point that gives the best distribution of the load and which also facilitates the correct handling and assembly of the parts involved [4]. Placed horizontally inside the crate, each part remains in that position throughout transport.

Large-scale works and works involving extremely delicate materials and media, such as *Das Sonnenschiff*, *Zweistromland*, *Die Berühmten Orden der Nacht* and *Nur mit Wind, mit Zeit und mit Klang*, also require indirect handling. This is achieved by the use of aluminium frames with metal dollies which means that the works can be moved around in a vertical position. These structures provide the rigidity and consistent performance needed for large formats, heavy weights and fragile materials so as to minimize deformation or vibration during transport.

Some works incorporate three-dimensional surface elements which require particular care in handling. In *Nur mit Wind, mit Zeit und mit Klang*, two pieces of ceramic held in place by wire to make a sort of pendulum are protected with Volara polyethylene foam and held away from the surface of the painting to prevent deterioration through abrasion during transport. Three-dimensional objects such as sunflowers, dried asparagus and a model aircraft make the handling and moving of *Das Sonnenschiff* extremely difficult. The materials are so fragile that the aircraft and the sunflowers have to be de-mounted; both components require special packing for any movement.

Owing to the way they were originally made, large-scale works such as *Zweistromland*, *Das Sonnenschiff*, *Die Berühmten Orden der Nacht* and *Nur mit Wind, mit Zeit und mit Klang* can be separated into a number of different panels. In the case of *Zweistromland*, however, even when taken apart, the resulting panels (208 × 710 cm) are too long to fit in the service lift, making it extraordinarily difficult to move the work to another floor. After detailed assessment of the different routes available and their feasibility, it was decided to move the panels through the museum atrium. As well as a specific handling plan, a lifting system had to be designed, consisting of a series of wheels and pulleys that facilitated vertical and horizontal displacement of the suspended load (Plate 7).

The books, *Bilderstreit*, *Gilgamesh und Endiku im Zedernwald* and *Für Robert Fludd*, are kept horizontal while on display and during handling and moving. This requires the use of a trolley with a horizontal lift platform.

Preparing a set of exhaustive, individualized handling and transport procedures also enabled us to draw a complete map of the museographic potential of each work in relation to our exhibition space.

The assessment of loan applications for these works requires us to identify the specific risks involved in handling and transporting each object. One fundamental criterion is to specify those works that should not be loaned under any circumstances [5]. For the remainder, the decision is based on careful analysis of the conservation report and the report on the facilities at the institution applying for the loan.

## INSTALLATION AND EXHIBITION

Although the specific shape and size of a gallery may sometimes pose certain museographic limitations, the GMB galleries are sufficiently versatile to have virtually unlimited exhibition potential, which encourages a fluid dialogue between the artwork and its immediate environment.

For the GMB Inaugural Exhibition in 1997, Anselm Kiefer collaborated in the selection and siting of his works in Gallery 209 (Plate 8). To install *Nur mit Wind, mit Zeit und mit Klang* in the location chosen by the artist, the inclination of one of the gallery walls had to be slightly reduced. Installing this work, which weighs around 2500 kg, and other extremely heavy works,

such as *Die Berühmten Orden der Nacht*, which exceed the maximum values permitted for point-loads, required careful planning to avoid structural problems. A number of installation options were analysed before it was decided that the best solution was to transmit the weight vertically to the floor to avoid overloading the wall. Weight transmission is accomplished by using metal frames screwed to the original wooden frame (Plate 9). To prevent movement, metal plates enabling the work to be fixed to the wall were also installed. The legs of the support structure are hidden behind a plasterboard plinth in keeping with the design of the gallery. The curve of the wall helps to camouflage the legs behind the plinth and the installation system, and facilitates access to the back of the work.

The installation of *Das Sonnenschiff* also required technical load reports and structural reinforcement of the gallery walls. Part of the work consists of a lead aircraft, weighing some 600 kg, which is located perpendicular to the canvas. The aircraft is anchored to the gallery wall by means of a metal strip. As the aircraft exceeded the maximum permitted point-load, this strip was welded to the main structure of the building (Plate 10). Other extremely fragile three-dimensional elements of the work, such as the dried asparagus and sunflowers, also require very careful handling during installation.

The books *Bilderstreit*, *Gilgamesh und Endiku im Zedernwald* and *Für Robert Fludd* are displayed in special showcases designed by the artist. A bookrest was designed to allow adjustments in the height of the book depending on the page displayed. A plan was also drawn up from the viewpoint of preventive conservation, detailing the sequence of pages to be displayed. Originally hermetically sealed, the showcases had to be modified very slightly to provide air-conditioning and internal ventilation through slots. This improvement also helps to conserve biodegradable materials such as seeds, cardboard and photographs.

## CRATING AND STORAGE

The characteristics of each work (dimensions, weight, media and materials) establish the type of crate needed for storage and/or transport, and whether this may in fact represent an additional risk to the artwork. Handling can be made more difficult if the crate adds excessively to the original weight and size of the object.

For *Bilderstreit*, *Gilgamesh und Endiku im Zedernwald* and *Für Robert Fludd*, a double-box crate was designed. The folding inner box is made of acid-free board and lined on the inside with Volara. For the extremely heavy work *Für Robert Fludd*, the base is reinforced with a polypropylene and polyethylene support to prevent structural deformation. The outer box is used exclusively for external transport; when these works are put into storage or moved within the museum, only the inner box is used, thereby avoiding excessive handling and facilitating ventilation of the work and access for regular inspection. For *Berenice*, the original design has been adapted to ensure that the crate can be used for storage, shipping, handling and installation. As a result, the work can be installed directly from the box, which again reduces handling.

The complexity of the media and materials used in the execution of *Das Sonnenschiff* make packing and storage particularly difficult. The material load and the extreme fragility of the sunflowers and dry asparagus mean that much thought should be given to the question of whether this work should be handled at all. Traditional packing methods for this kind of artwork would almost certainly prove detrimental. Very heavy, large-scale artworks with fragile, heterogeneous media and materials, such as *Das Sonnenschiff*, *Zweistromland*, *Die Berühmten Orden der Nacht*, *Nur mit Wind, mit Zeit und mit Klang*, *Tournesols* and *Wege der Weltweisheit: Die Hermanns-*



*schlacht* require a broader view when searching for options to standardize packing and storage. The risks involved in handling, crating, transporting and storing these works make it highly desirable to minimize the frequency of such procedures.

When the most recent exhibition of Kiefer's works finished, at the end of 2000, a global solution was sought to minimize the problems arising from handling, transport and installation. After detailed analysis and planning, it was decided to create a storage area in the gallery itself to house the works temporarily. Guided by the size of the new storage area and the degree of risk of deterioration to each work as a result of handling, movement and condition, *Das Sonnenschiff*, *Die Berühmten Orden der Nacht*, *Nur mit Wind, mit Zeit und mit Klang*, *Tournesols* and *Wege der Weltweisheit: Die Hermannsschlacht* were selected. Reinforced pine and Masonite panelling was used to build a wall with the same height and shape as the gallery wall. This structure supports a sheet of plasterboard exactly like the original wall, so that other works can be installed in Gallery 209 in the future (Plate 11). While the wall was being built, all necessary preventive measures were taken to conserve and protect the works.

The design of the new wall facilitates appropriate air-conditioning in storage space and gallery alike, and access for staff performing regular inspections. Despite being considered a temporary measure, the storage space is fully equipped with preventive conservation and security measures. The atmospheric conditions are  $20 \pm 1^\circ\text{C}$ ,  $50 \pm 5\%$  RH in winter and  $21 \pm 1^\circ\text{C}$ ,  $50 \pm 5\%$  RH in summer. An anti-dust and fireproof barrier (Trevira CS) provides protection while ensuring that the artworks are properly ventilated. The skylight in the gallery has been covered with an opaque screen and artificial light (halogen) is UV-filtered. Security measures include a dry sprinkler fire-suppression system, sensors to detect any movement, a door-opening signal and a 'restricted access' sign. The new space is also included in the museum storage maintenance routine. This alternative storage space has some undeniable advantages; in particular, it eliminates complex and costly handling procedures (de-installation, packing and transit) that can present serious additional risk to the artworks.

#### CONSERVATION TREATMENTS

Conservation of Kiefer's works is clearly and directly affected by the heterogeneity and fragility of the materials, the freedom with which the artist uses different media, formats and sizes, and the complex handling procedures required for installation and transport. Together, these considerations multiply the inherent risk of deterioration: painting materials and/or three-dimensional elements can be lost, organic matter can decompose or come under biological attack, the supports can be deformed, some of the materials may be incompatible with one another, or the fragile components may get broken [6, 7].

Conserving these works requires careful planning based on solid criteria and detailed knowledge of the works and their components as well as respect for the spirit and intentions of the artist. Given the remarkable variety of media and materials used and the kinds of damage or deterioration possible, it is necessary to keep a broad, flexible view of conservation based essentially on preventive methods [8].

A wide range of problems is posed by the variety of materials used in a single work. The sunflowers, dry asparagus and seeds used in works such as *Das Sonnenschiff*, *Berenice* and *Für Robert Fludd* can be degraded by the action of microorganisms, which means that insects are likely to appear [9]. When *Das Sonnenschiff* arrived at the museum, specialists found two insect species that consume dead vegetable matter and products deriving from such matter, in the sunflowers and the asparagus: the spider beetle (*Ptinus fur*) and the bread beetle (*Stegobium*

*paniceum*). The work was immediately isolated using plastic sheeting; an insecticide was sprayed on the floor and walls within this enclosed space, and nebulized insecticide was subsequently applied to the work itself. Although the treatment eliminated the spider beetle larvae and adults, the bread beetle proved resistant and different treatments were used to eradicate this species. To avoid excessive handling, the sunflowers were treated within their individual storage boxes. The open boxes were hermetically sealed in plastic bags and treated with an inert gas (argon). The asparagus was treated with insecticide (Fustol), and a consolidant (2% Plexisol P550) was injected into the orifices for ingress and egress. After using pheromone traps for several months, together with a weekly visual inspection by a pest control firm, no further insect attack or infestation has been detected. Sticky bait-traps are now being used as a preventive measure.

A pest inspection protocol has been devised for works where the risk of biological decay or degradation is high. Predetermined plans can be used to detect biological attacks and specify the procedure to be followed depending on the species involved. Regular checks on individual artworks also help to prevent the possible spread of biological attacks. The enormous range of possible deterioration these works can suffer, such as deformation of the support, biological attack, decomposition of organic matter and loss of material, is currently being studied in more detail.

#### CONCLUSIONS

By focusing on the works of Anselm Kiefer at the Guggenheim Museum Bilbao, this report highlights the need for new methodologies designed to address contemporary art conservation and restoration processes and procedures in an integrated manner. The technical characteristics of current artistic practices, and the undeniable influence of the new museography on key issues such as scale, would seem to suggest the need for new, strongly structured, methodological tools. These facilitate the study and analysis of specific cases, the definition of procedural strategies and the thorough planning of any action required. Working processes need to be documented and subsequent analysis at project debriefing meetings is required to establish continuous improvement. It is also clear that artwork handling and transport procedures are decisive risk factors and vitally important areas for continuing research into preventive conservation.

The multidisciplinary nature of this type of approach needs to be stressed, as does the essential role of the conservator-restorer as both catalyst and organizer of work teams and as the person with the overall expertise needed to define the criteria which govern any action to be taken.

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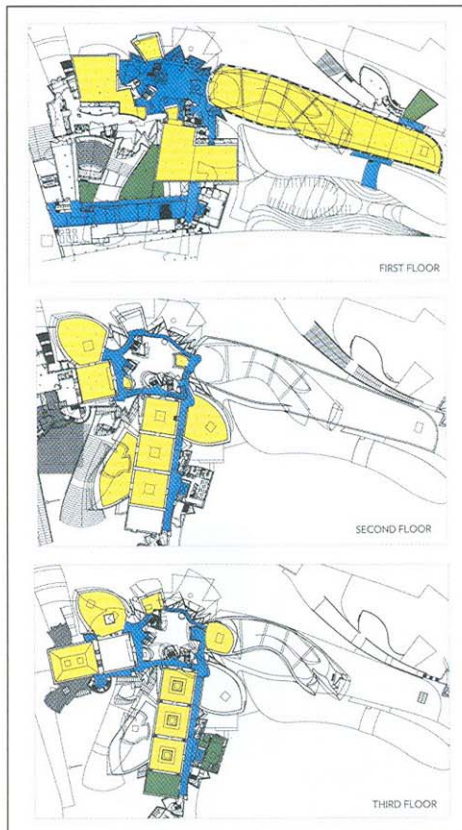


PLATE 6  
Ground plans of the three floors of the Guggenheim Museum Bilbao (p. 21). Exhibition areas are shown in yellow, access points and art transit zones in blue and storage areas in green.



PLATE 9  
Back view showing metal frame of *Nur mit Wind, mit Zeit und mit Klang* during de-installation (p. 22).

PLATE 11  
Ground plan of Gallery 209, with works by Anselm Kiefer shown in red and the wall built to create storage space in green (p. 23).

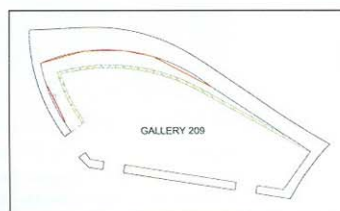


PLATE 7  
A rig on the third-floor catwalk was used to lift Anselm Kiefer's *Zweistromland* to the second floor (p. 22).



PLATE 8  
Works by Anselm Kiefer in Gallery 209 during the inaugural exhibition at the museum (p. 22).

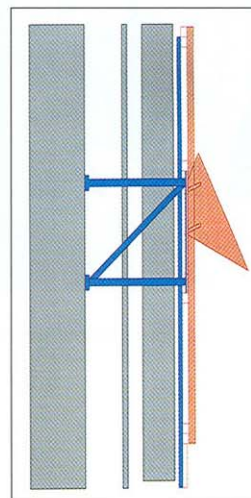


PLATE 10  
Transverse section of the anchorage system for the three-dimensional metal component (an aircraft) of *Das Sonnenschiff* (p. 22). The artwork is shown in red, the metal components anchoring it to the main structure of the building are shown in blue, and the gallery wall and the pillar of the main structure are grey.