

DEVELOPING STRATEGIES FOR THE CONSERVATION OF  
INSTALLATIONS INCORPORATING TIME-BASED MEDIA WITH  
REFERENCE TO GARY HILL'S *BETWEEN CINEMA AND  
A HARD PLACE*

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**ABSTRACT**—Strategies for the conservation of a complex installation by Gary Hill are discussed with special reference to the cathode ray tube monitors and the system that controls the distribution of sound and images. The conservator's role and responsibilities in the care of time-based media artworks are explored, and aspects of this new area of conservation are related to traditional notions of conservation and collections care. This article is a result of TechArchaeology: A Symposium on Installation Art Preservation.

**TITRE**—Stratégies pour la conservation des installations d'art médiatique par une étude de l'oeuvre de Gary Hill intitulée *Between Cinema and a Hard Place* (entre le cinéma et un endroit difficile). **RÉSUMÉ**—Des stratégies pour la conservation d'une installation complexe de Gary Hill sont abordées en traitant tout particulièrement des problèmes posés par les moniteurs de tube cathodique et le système contrôlant la distribution du son et des images. Le rôle et les responsabilités des restaurateurs dans le soin des oeuvres d'art médiatique sont explorés et les aspects de cette nouvelle discipline dans notre profession sont mis en relation avec les notions traditionnelles de conservation et de maintien des collections. Cet article est un résultat de "TechArchéologie: un colloque sur la préservation des installations."

**TITULO**—Desarrollo de estrategias para la conservación de instalaciones que incorporan medios de comunicación que se basan en el tiempo, con referencia al trabajo de Gary Hill: *Between Cinema and a Hard Place* (Entre el cine y un lugar difícil). **RESÚMEN**—Se discuten las estrategias para la conservación de una instalación compleja del artista Gary Hill, con especial referencia a monitores de tubos de rayos catódicos y al sistema que controla la distribución de sonido e imágenes. Se exploran el rol y las responsabilidades del conservador a cargo del cuidado de obras de arte hechas de medios de comunicación en base a tiempo. También se relacionan los aspectos de esta nueva área de la conservación con las nociones tradicionales de conservación y cuidado de

colecciones. Este artículo es el resultado del Simposio sobre Preservación de Instalaciones de Arte "TechArchaeology."

## 1. INTRODUCTION

Over the past eight years Tate has been working to establish standards of care for the conservation of artworks that incorporate film, video, and audio. In this article I shall discuss the strategies we are developing and the approach to the conservation of time-based media with reference to a particularly complex installation, Gary Hill's (b. 1951) *Between Cinema and a Hard Place* (fig. 1). "Time-based media" is a useful term to describe installations that have a duration and therefore have to be experienced in the context of the passing of a period of time.

Fundamental to Tate's approach to the conservation of contemporary art is the notion that the artist's intent should guide our practice. Since most of the artists represented by this part of the collection are living, it is possible to interview them about the details of the installation, their attitudes to changing technology, the parameters of acceptable change, and their views about what aspects of the installation are essential to preserve. This interview is a collaborative exercise that is predicated on the idea that a collector has the responsibility for the conservation of the work.

For much of contemporary art, meaning has shifted away from the unique and precious object, and conservation practice has to reflect this change and to recognize different types of complexity and different types of vulnerability. The artist Bill Viola (b. 1951) explains, "As instruments of time, the materials of video, and by extension the moving image, have as part of their nature this fragility of temporal existence. Images are born, they are created, they exist and, in the flick of a switch they die. Paintings in the halls of the museum in the middle of the night are still there, a form of sleep. But in the room of the video projections, there is nothing. The images are thoroughly non-existent, gone into some other

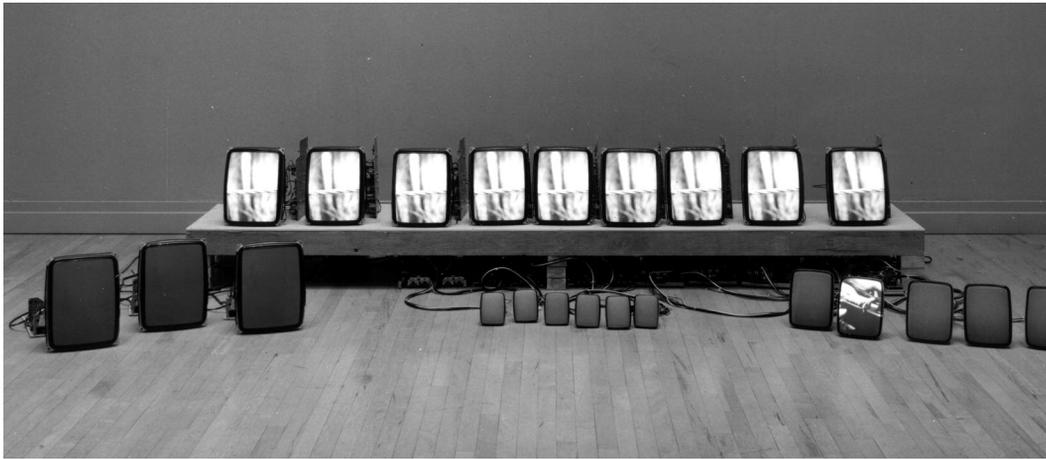


Fig. 1. Gary Hill, *Between Cinema and a Hard Place*, 1991. Time-based media. Dimensions variable. Tate, acc. no. T07020. Photograph by Gill Selby, Photography Department, Tate

dimension” (Viola 1995, 278). Just as a Sol LeWitt (b. 1928) wall drawing, when drawn on the wall, does not consist of the set of instructions and colored pencils, the video installation becomes something other than its component parts when installed. Unlike many objects in our collection, installations incorporating time-based media are often vulnerable to developments in technology and other factors outside their physical nature. In addition, an installation also contains a fragility inherent in any system. For example, the meaning of Gary Hill’s *Between Cinema and a Hard Place* depends on a multifarious array of technologies that are contingent on each other and must work together.

An installation such as *Between Cinema and a Hard Place* is at greater risk than more traditional sculpture of not being installed correctly or not being displayable in the future. Essentially these works do not really exist until they are installed, and each time they are installed they depend heavily on those responsible to manage a complex array of detail and to know how the work is to be shown correctly. Although a painting can be hung badly, there are fewer things that can go wrong with its display or that can be changed simply as part of the process of putting the work on display. Time-based media installations are often dependent on technology that can quickly become obsolete, making it inevitable that elements will have to be changed. How these changes

are managed is essential to the conservation of the artwork.

Reflecting the move in contemporary art away from the material object, the conservator’s role now encompasses a broader notion of preservation and care. Conservation is no longer focused on intervening to repair an art object; it is now concerned with documentation and determining what change is acceptable and managing those changes. To ensure that artworks will be accurately installed in the future, conservators must consider elements of an installation that affect the viewer’s experience. These might require documenting the space, the acoustics, the balance of the different channels of sound, the light levels, and the way viewers enter and leave the installation. These elements are just as important to the conservation of the work as the more tangible or material elements.

Success is the ability to continue to display these works in accordance with the artist’s intent. A conservator also has a responsibility to preserve the historical quality or character of the work both in relation to the history of contemporary art and the development of an artist’s work throughout his or her lifetime. Although the conservation strategies employed may look very different from traditional conservation practice, their rationale has roots in established notions of collections care and management.

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## 2. RECOGNIZING COMPLEXITY AND IDENTIFYING RISK

When thinking about a complex installation, it is useful to break it down into smaller parts, listing all the components from the laser disc players to the less tangible details of the space, without losing sight of how the components connect. Using this list, the conservator can assess the role of each element in realizing the installation as a whole. The conservator can then anticipate the factors most likely to prevent each component from fulfilling its role. The value of some elements might be functional, the value of others might be aesthetic or sculptural, or perhaps a mixture of the two. Essentially this process involves identifying where the dangers or risks lie that might result in not being able to display the work correctly in the future. This assessment should provide a realistic outline for the development of a conservation plan. Conservators prepare conservation plans as a matter of course: if presented with an object made of felt, we are concerned about moths; if presented with steel, we worry about rust. With these installations, conservators need to expand their vocabularies of risk to include mechanical breakdown and obsolescence of parts or whole technologies, or perhaps the lack of documentation to guide light levels or the choice or construction of a space in order to install the work. (For a detailed study of risk assessment in conservation, see Ashley-Smith 1999).

## 3. *BETWEEN CINEMA AND A HARD PLACE*

*Between Cinema and a Hard Place* is a complex installation comprising 23 monitors that have been removed from their casing, exposing the circuit boards and cathode ray tubes and rendering them dangerous and vulnerable sculptural objects. These are arranged in groupings according to size to evoke the clusters of rocks that demarcate farmland. Via a computer-controlled switching device, Hill distributes the images to the monitors according to a defined pattern alongside a spoken text. The images are accompanied by three tracks of audio: on the first track a woman reads an extract from Martin Heidegger's "The Nature of Language" (Heidegger 1971);

on the second track there is an echo of this voice; and on the third track there is a series of abstract sounds that punctuate the piece three times in its eight-minute cycle.

Hill's work focuses on the relationship between the viewer and language and image. Among the devices he uses to explore these ideas are the choice of the text, the relationship between the images and the text, and the rhythm of the spoken word. The time it takes for the text to be spoken defines the duration of the piece. Against this duration Hill explores ideas of time that are possible within the medium of video—for example, feedback, delay, and ideas of "real time." In experiencing the installation, one is aware of the strong rhythm of the words as they are spoken while the images play in different patterns like an accompaniment set against the notes of a melody. The interplay of sound and images is very precisely controlled and choreographed, providing a strong sense of a mathematical structure underpinning the work.

Hill steers us away from the primacy of the image and has said, "If I have a position, it's to question the privileged place that image, and for that matter sight, hold in our consciousness" (quoted in Morgan 2000, 12). He has also said, "Language can be this incredibly forceful material—there's something about it where if you can strip away its history, get to the materiality of it, it can rip into you like claws, whereas images sometimes just slide off the edge of your mind, as if you were looking out a car window" (quoted in Furlong 2000, 196–97). As conservators trained to deal with visual media, it is all too easy to overlook the importance of the audio. If the meaning of the work is to inform our conservation practice, we need to understand the significance of the sculptural elements of the monitors, the time-based elements of the video and audio, and the nature of the space to develop an adequate conservation plan for the work. In many cases discussions will center on what changes are acceptable. Making and documenting these decisions are established features of traditional conservation practice.

### 3.1 MANAGING THE CONSERVATION OF VIDEO

At Tate we have established fairly standard procedures for managing the conservation of the video elements of an installation. When Hill's work was acquired, the Conservation Department transferred the master material onto a noncompressed component digital tape format at a professional video facility. A conservator is always present for the transfer of master material, and in some cases the artist is also present. The conservator's role is to check the authenticity of the master material as a copy of the original and to check that the color, brightness, and audio levels are correct. In addition the conservator documents any specific features of the master material for the conservation record and confirms that there are no queries arising during the transfer that should be discussed with the artist before the new archival master is accepted. The archival master tapes all have color bars and a reference tone for audio at the beginning of the tape, and the color is correct when viewed on a standardly calibrated monitor. At present the most widely supported noncompressed component digital tape format in London is D1. D1 is a professional video format that was introduced in 1986 and complies to the CCIR 601 Digital Video Standard. As a component video format the luminance and the chrominance information are recorded separately. At present D1 is the highest-quality magnetic recording format in use in the video industry, and it allows extensive duplication without loss of quality.

Videotape deteriorates and tape formats change, and it is essential that the master tapes are transferred before there is any loss of information. These archival master tapes are checked regularly and transferred onto new stock and new formats when necessary. We expect transfer to be necessary at least every five years (Laurenson 1999). The Tate's master tapes are played only when being checked or transferred or if they are needed to make new discs for display. In addition to making the archival master tapes, we also make a copy on Betacam SP (a professional analog tape format) and a VHS with time code recorded in picture for reference.

Gary Hill's installation uses laser disc as its display format. The production and management of high-quality archival master tapes make it possible either to make replacement laser discs if the originals are damaged or to convert material to a new display format when laser disc technology becomes obsolete.

At present all video material is stored in a fine art store conditioned to 45% RH and 18°C, although in the future we hope to develop an area with a cooler environment for the storage of video.

### 3.2 THE DISPLAY EQUIPMENT

The Conservation Department also manages the display equipment for works in the Tate Collection. On acquisition of Hill's work, schematics and manuals were acquired and manufacturers were contacted to discuss parts and spares.

The conservator together with the curator is responsible for ensuring that a work is accurately installed. To achieve accuracy, all equipment must be fully operational, set up correctly, and in good condition. As in the case of the monitors in *Between Cinema and a Hard Place*, this process is not necessarily straightforward, and it is important that the conservator understand enough about the technology to make the necessary judgments.

The display equipment in Hill's installation can be placed in two categories. The first contains those pieces of equipment that have become sculptural elements, namely the cathode ray tube monitors. The second category comprises those elements that are not visible and whose value is functional—for instance, the computer control system and laser disc players. In the following section I will use these examples to illustrate how this distinction affects the conservation strategies employed.

### 3.3 THE MONITORS

The 23 cathode ray tube monitors used in this installation have been modified by the artist and are essential to the look and feel of this work. Of the 23, 12 are 13 in. color monitors by Panasonic (model CT1383Y); 5 are 9 in. black-and-white monitors by Sanyo (Model VM4509); and 6 are 5 in. monitors by

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Panasonic (Model WV-5200). These monitors have been taken out of their casing and displayed as exposed tubes and circuit boards. The artist has said that he would not want the cathode ray tube monitors to be replaced by an alternative technology such as liquid crystal display panels or plasma screens, although he would accept the replacement of a deteriorated cathode ray tube with a new tube of the same shape and size.

Cathode ray tubes are today common elements of our domestic televisions and desktop computers, but certainly they will eventually become rare, given the rapid developments in alternative technologies. This is not a unique problem in the conservation of contemporary art. For example, in the 1970s Dan Flavin (1933–1996) made sculptures from standard colors of fluorescent tube, which were easily available at the time. Some of these colors are now no longer made, as manufacturing methods have changed due to the toxic nature of the components.

To exacerbate the problem of obsolescence, the cathode ray tubes also deteriorate with use. As the tube deteriorates, the brightness and color balance of the monitor are affected. The monitors of Hill's installation are set side by side so discrepancies in the color balance of the tubes are acutely visible. As the tubes get older, color-matching them becomes harder. Color is produced in television monitors by mixing the colors of red, green, and blue. Three scanning electron beams hit the phosphor screen at slightly different angles to excite different phosphors to produce red, green, and blue dots. The strength of the beams can be adjusted with potentiometers, altering the color balance in the picture.

The process of color balancing takes many hours and much concentration and needs to be carried out while the monitors are powered up. The close proximity to high-voltage elements makes this a dangerous procedure. In addition to the risk of electric shock, there is also a high risk of the boards shorting out. It may not be necessary for the conservator to carry out this procedure but rather to understand it and ensure that the desired effect is achieved.

The majority of the monitors were made by Panasonic. Panasonic will usually hold spares for specific components for eight years after production

has ceased. Recognizing these threats to the long-term life of the cathode ray tubes, we have obtained spares and schematics to facilitate replacement and repair when necessary. On acquisition of the artwork, a full set of spare monitors was acquired; however, even in the few years between the making of the work and its acquisition by Tate, aspects of the design had subtly changed. To date, individual components in three circuit boards have failed; two were successfully repaired by a commercial company recommended by Panasonic.

Since the monitors deteriorate while being used, we must also be mindful of the amount of time the work can be on display, in the same way as we are with a watercolor or a light-sensitive photograph.

The laser disc players, discs, audio equipment, and computer control system are the functional elements out of view, and the conservation strategy is different from the approach to functional elements that are visible. If the technology fails and these elements become obsolete it would be acceptable to the artist to substitute these components with an entirely new technology but only if their function were the same. This strategy accommodates the problems of obsolescence and enables a work to continue to be shown. However, the complexity of precisely mapping the function of a particular technology should not be underestimated. As conservators, it is appropriate that we should be reluctant to change any element of the original technology and consider it a loss. It might also be argued that precisely reproducing the function is impossible, in the same way that purists argue about the difference between the sound of a CD and a vinyl recording. However, just as it might be necessary to replace old varnish in order to be able to see a painting, it is important to prepare for the replacement of these elements of equipment in order to continue to be able to show the work. As with any intervention, the conservator must justify such a change in accordance with the code of conservation ethics that governs the profession.

Each part of the display equipment is dependent on the others for creating the resulting play of images and sound. If one element is changed—for example, the use of laser disc technology—there is a risk that the whole system could collapse and no longer work

correctly. It is therefore necessary to understand the precise role of each piece of equipment—what it does and how it relates to other pieces and how the system functions as a whole.

### 3.4 THE COMPUTER CONTROL SYSTEM

The system that controls which images are sent to which monitors at what time is made up of the laser disc players and discs, the laptop computer, the time code reader, the synchronizer and the video switcher.

The value of the laser disc players is largely functional, and the risk factors to consider, in this case, are mechanical failure in the short term and the obsolescence of the whole technology in the medium term. The actual object, the laser disc player, is not visible, and its appearance is not significant to the artist's choice of the model or the technology. Rather, it is the ability of the laser disc players to provide a frame-accurate reference in delivery of sound and images that is the basis of their value to the installation.

The display format of the audio and video is the constant angular velocity (CAV) laser disc. These discs rotate at a constant speed, and one revolution of the disc corresponds exactly to one frame, making it possible to accurately reference one frame on the disc. Each disc has three sections of video recorded, each of which is exactly, to the accuracy of one frame, 8 minutes and 15 seconds long. Each section has two audio channels. The audio channels for the section played by player 1 provide the analog time code signal on one channel, which is sent via a standard phono plug to a time code reader, and the spoken text in English on the other. The audio channels for the section played by player 2 provide the echo of the spoken text in English and the spoken text in German. The audio channels for the section played by player 3 provide the echo of the German text and the abstract sounds that punctuate the piece. When installed, it is possible for the text to be spoken in either German or English. A synchronizer built and designed by Dave Jones Design tells each of the discs to start playing a portion of the disc at a particular frame, providing accurately synchronized playback.

The second audio output plays an analog time code signal and is connected to the time code reader. The time code reader converts this analog signal to a digital data stream that goes to the computer. When the computer receives the time code information, it looks it up in the data file; if there is a match, it sends the information to the video switcher. The video switcher treats these as instructions and sends the video to the monitors as instructed. The work is created with three possible streams of video image plus black, and the switcher can show those images in any combination on any of the monitors.

The computer control system is not a mass-market product but was developed by Dave Jones Design (Jones 1996). Using this system, Gary Hill wrote the specific program that runs *Between Cinema and a Hard Place*. With the help of Dave Jones, it has been possible to access the program and to write a description of the data file. The result is akin to a score describing the 3,199 different actions written in the program. The actions or changes determine which section of the laser discs are played at what time, on which monitors, and for how long. Table 1 shows a sample of one row from the documentation for the control program. It tells us what is happening at a particular moment 6 minutes, 37 seconds, and 20 frames into playing the discs.

With the complete document it would be possible, if it became necessary, to use this as a basis for writing a program using a different system, possibly for a different display technology, and map the function of the original. Mapping the function of the elements in this way helps reduce the dependency of the installation on any particular technology or item of equipment. The software designed by Dave Jones, the program written by Gary Hill for this work, and a copy of the DOS operating system are stored on the Tate's main server and also on CD.

Hill says, "*Between Cinema and a Hard Place* plays with the construct of frames as it relates to photography and cinema. Images from single sources are distributed by computer-controlled electronic switching to several monitors. There are certain sections where scenes divide into two scenes, three scenes and so on. With each division all the scenes slow down—half-speed, third-speed, quarter-speed,

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Table 1. Sample from the Documentation for the External Control Program

Time code	Source 2 to Monitor Numbers	Source 3 to Monitor Numbers	Source 4 to Monitor Numbers
00:06:37:20	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15	23	21
00:06:38:20	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15	9	21

etc. It is a kind of telescopic time that makes the viewer aware of the process of seeing—of beholding the world through sight that exists in the folds of time” (Hill 1993, 295).

With the information from the program, it is possible to pinpoint a section Hill gives as an example of the ideas referred to in this passage using a time code reference. There is a section where images that have been recorded in real time are played back on four monitors. Each monitor displays a particular sequence—a trowel digging the soil, the removal of clothes hanging on the back of a chair, etc. When the scene is not being played on any one monitor, there are two frames of black. This has the effect of making the images appear to be slowed down. In the same way as we might be interested in the way a painter employs brush stroke to create the intensity and energy of the image, here we can see how the artist has manipulated the medium of video to create a study of the world, time, and language.

#### 4. CONCLUSIONS

In developing strategies for the care and management for works such as Gary Hill's installation *Between Cinema and a Hard Place*, the conservator has a number of options and tools. It is possible to manage

electronic material so as to avoid loss by transfer onto new stock and new formats: this is a matter of good housekeeping. By understanding the mechanics of these installations and the technology involved, conservators are able to precisely map the function of elements before they fail so they can be accurately transferred onto different technologies as obsolescence looms. It is also necessary to work with industry and specialists outside the field of conservation to develop new skills to preserve and manage new types of objects in our care. We can also document the less tangible details of an installation such as the light levels, the character of the sound, etc.

Developing strategies for the conservation of installations incorporating time-based media is a new area of conservation, and as a profession our understanding and knowledge will deepen with time. All these strategies work together to help to limit the risk of not being able to accurately install these works in the future. Deciding what can be changed and how best to care for any element of an installation will depend on its meaning and role. For both contemporary and traditional objects, such decisions are documented by conservators, and although the focus of the conservator may have moved away from the material object, the approach is still rooted in traditional notions of collections care.

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