

# RE-CO

**Art, New Media,  
Richard Rinehart**

How will our information beyond our life span netize; CDs deteriorate; iMacs. In *Re-co*, Ippolito argues that art illustrates a variety of media, distributed who can choose to endanger work.

New media conservation concerns their mediums, interactive games and oblivion. For professionals, media art from both sides, offering Nam June Paik's three threats to technology, because rapidly changing which may rely for older media access with intellectual copyright and law, however than enemies of preservation. The various and Ippolito propose be preserved and malleable into new formats are obsolet.

## 1 The Lost and the Saved

Jon Ippolito

Jean Cocteau was asked what he would save if his art collection caught fire and he could rescue only one thing. "The fire," Cocteau answered.<sup>1</sup>

### A Mystery Unfolds

Eva Hesse and Sol LeWitt were close friends. Both former painters, they became avant-garde artists who rebelled against the closed structures of their minimalist forebears and found a way to conjure light without paint. Hesse made sculptures from latex poured on cheesecloth; LeWitt drew directly on the wall with a blue crayon. They went to the same openings, visited each other's studios, had the same friends, were written up in the same magazine articles.<sup>2</sup> In their emphasis on process, both were harbingers<sup>3</sup> of the new media art forms spawned by the digital age.<sup>4</sup> Their place in history books on late twentieth-century art is assured.

But one artist's legacy will be known *only* via history books. The other's will live on in dazzling works displayed on the walls of galleries, museums, and private homes for the indefinite future. The reason for these two contrasting legacies—and what it implies for the fate of digital culture—is the subject of this book.

Eva Hesse's installation *Expanded Expansion*, from 1969, was among the first works of "installation art" of the twentieth century, one of a series of luminescent sculptures so beautiful that people cried when they saw them at exhibitions.<sup>5</sup> To make it, Hesse used some of the most experimental artistic processes of her day, in this case latex over cheesecloth stretched between fiberglass poles. *Expanded Expansion*, as the name suggests, was portable and versatile; you could bunch it together like an accordion on a small wall or stretch it twenty-five feet wide for a longer one.

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Figure 1.1

Eva Hesse, *Expanded Expansion*, 1969. Installation view in 1969. Fiberglass, polyester resin, latex, and cheesecloth, 10 feet 2 inches × 25 feet (309.9 × 762 cm) overall. Solomon R. Guggenheim Museum, New York. Gift, Family of Eva Hesse. 75.2138. Photograph by David Heald (1986, New York) © SRGF.

But gradually the resin darkened, the fabric stiffened, and eventually everything began to deteriorate. *Expanded Expansion* is now a wrinkled, rigid skin decomposing in a wooden sarcophagus in the Guggenheim Museum's warehouse. A similar fate awaits most of Hesse's signature sculptures, as these once-limpid vessels of light gradually yellow and darken into brittle shells. Like the molted carapaces of ancient beetles, despite heroic efforts by museum conservators, all that may be left of these remnants of sculptural splendor one day is dust in an archival box.<sup>6</sup>

To today's creators armed with blogs and iPhones, rubber on cheesecloth hardly seems like new media. Unfortunately, as we shall see, the track record for newer media is even worse than for Hesse's disintegrating polymers. Audiotapes demagnetize. CDs delaminate. Internet art links to websites that no longer exist. Film spontaneously combusts in its canister. The



**Figure 1.2**

Sol LeWitt, *Wall Drawing 146. All Two-Part Combinations of Blue Arcs from Corners and Sides and Blue Straight, Not Straight and Broken Lines*, September 1972. Installation view, Villa Menafoglio Litta Panza, Biomo Superiore, Varese, Italy, September 16, 1981. Blue crayon, dimensions variable. Solomon R. Guggenheim Museum, New York. Panza Collection, Gift. 92.4160. Photograph © Giorgio Colombo, Milano.

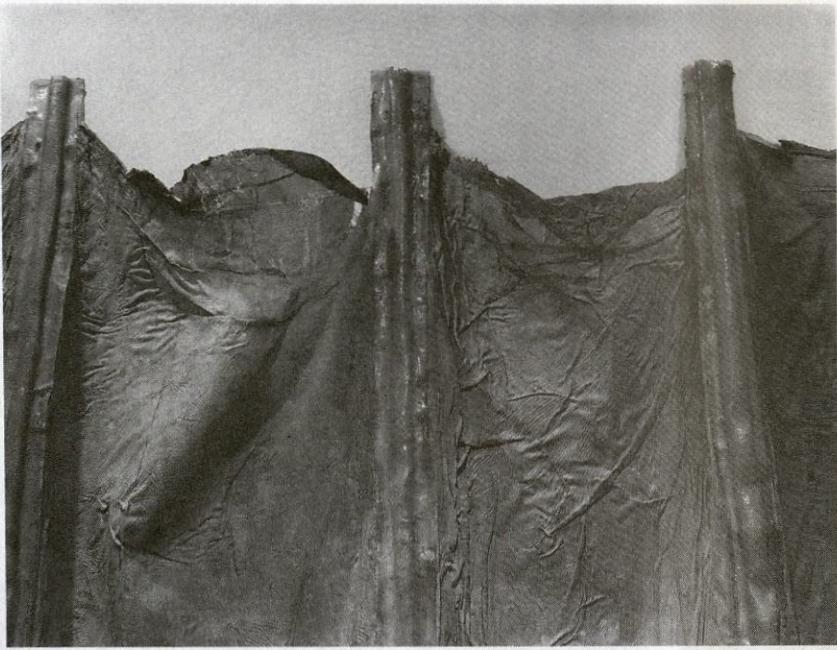
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**Figure 1.3**

Eva Hesse, *Expanded Expansion*, 1969. Detail of installation view in 1987. Fiberglass, polyester resin, latex, and cheesecloth, 10 feet 2 inches × 25 feet (309.9 × 762 cm) overall. Solomon R. Guggenheim Museum, New York. Gift, Family of Eva Hesse. 75.2138. Photograph by David Heald (1986, New York) © SRGF.

secret to cultural longevity lies not in a medium's technological sophistication but in the work's relation to that medium. Which brings us to Sol LeWitt. At first blush, a signature LeWitt work like his 1972 *Wall Drawing 146* would seem to be higher on the endangered species list than Hesse's, since walls get repainted when houses are sold or museums mount new exhibitions.

But LeWitt's drawings are generated by assistants following a predetermined set of instructions in their titles, such as *All Two-Part Combinations of Blue Arcs from Corners and Sides and Blue Straight, Not Straight and Broken Lines*,<sup>7</sup> or *Ten Thousand Lines about 10 Inches Long, Covering the Wall Evenly*.<sup>8</sup> LeWitt was careful to make his instructions as universal as possible, so his drawings could adapt to new spaces as the need arose: big or small walls, alcoves, soffits, electrical sockets. (I once asked LeWitt what would happen if he ever had to install a wall drawing on a wall that wasn't rectangular.

He replied that he had never seen a rectangular wall.<sup>9</sup> As a result, LeWitt wall drawings are routinely created, painted over, and recreated by various qualified assistants the world over, and have been for four decades. There's no sign that his works are going to disappear any time soon—or to be more accurate, they disappear all the time, but always stand at the ready for their next reincarnation.

### The Urgency of the Digital Era

Eva Hesse's *Expanded Expansion* is now terminally ill, lying in a crate in the Guggenheim's warehouse like a patient on life support, while Sol LeWitt's wall drawings are guaranteed to last as long as there are crayon wax and white walls. Paradoxically, the artwork that seemed least permanent at the time it was made has proven to be the true survivor. LeWitt's wall drawings have endured not by being "built to last" but by being variable. For works of this kind, fixity equals death.

In some ways, these two works are beyond the need for a novel preservation paradigm. We are too late to save the Hesse,\* since the artist died without leaving any solution to her work's failing health; and the LeWitt, which is based on repeating a fairly straightforward set of instructions, doesn't really need expert conservators to stay alive. Nevertheless, as the ensuing chapters will make plain, the vulnerabilities of digital media are propelling a vast swath of today's culture toward the same fate as that of *Expanded Expansion*—but at a rate accelerated ten- or a hundredfold. Movies and mp3s, installation art and interactive games—all will be lost unless we uncover the underlying causes of today's cultural destruction before it's too late.

The goal of this book is to gather sufficient evidence to finger those causes and put a halt to—or at least slow—the disappearance of culture due to obsolescence. You'll be guided in this process by my co-investigator, Richard Rinehart (Rick), and me, Jon Ippolito. We will recount our investigation chapter by chapter, interweaving our field notes and making comments in the margins of each other's texts.<sup>†</sup>

\* Rick: Are we? If we rely entirely on the artist's express declarations, we limit the range of works we can preserve. And, lacking specific direction from the artist post mortem, should we assume a default position of letting the work die rather than intervene?

† Rick: Like this!

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To start the investigation, Rick will survey the scene of the crime, looking for clues about where and when these disappearances have happened. In the middle of the book, Rick and I will interrogate a “triple threat” to twenty-first-century creativity in three separate sections—technology, institutions, and law—hoping to unearth the means and motives for contributing to the death of contemporary culture. These profiles will be complicated by the fact that all three suspects can be allies as well as enemies of ephemeral artifacts, making it hard to assess guilt or innocence. For this reason, our goal won’t just be to blame technology, institutions, and law but also to show how these same suspects might be enlisted in the recovery of works that are not yet lost. Finally, in the conclusion, Rick and I will offer twelve ways that society—meaning you, the reader—can reclaim new media culture from oblivion.

### Rescue Techniques

Apart from identifying the culprits responsible for disappearing culture, we’ll also need to resuscitate the victims who haven’t entirely succumbed yet, so there will be something left of this moment in history for the cultural record. Throughout this book, we’ll refer to the following four strategies for rescuing cultural genres and gadgets from extinction.<sup>10</sup>

#### Storage

Storage is the default preservation strategy used by museums, libraries, and archives.<sup>11</sup> Storage captures matter and puts it in a box, on a shelf, under glass, in a climate-controlled vault deep in a mountain. There, stored culture waits in a form of suspended animation, protected from the normal processes of life and death. For as Bruce Sterling notes,<sup>12</sup> it is precisely the things life needs to prosper—sunlight, air, water—that are most damaging to the stuff we store, be it parchment or pigment.

Whereas storage is the longest-term strategy for old media, it is the shortest-term solution for new media.<sup>13</sup> Equipment left in a crate eventually becomes unusable as voltage standards change, cathode ray tubes blow, and floppy disk drives disappear. This is why digital preservationists “refresh” data onto multiple magnetic tapes or redundant hard drives, and digital media companies gloss over the ephemerality of hardware with promises of “infinite storage” in “the cloud.” (Witness Gmail’s boast that with fifteen gigabytes of storage, its users need never delete another email.)<sup>14</sup>

But bits depend on software protocols—drivers, codecs, HTML standards—that go stale even faster than hardware does. By itself, no flavor of storage—regular, redundant, or refreshed—can overcome software obsolescence.

Beyond these variations on storage, new media preservationists can avail themselves of three less well-known but highly flexible strategies: emulation, migration, and reinterpretation.

### Emulation

“Emulation” means not storing digital files on disk or physical artifacts in the warehouse, but creating an audiovisual facsimile of them. Emulated culture looks the same, feels the same, behaves the same as the original, but in a different medium. For analog culture, emulation can be costly in time and money, for it may mean custom-fabricating materials that once were mass-produced, such as light bulbs or candies,<sup>15</sup> and such replicas are rarely useful outside of recreating a particular work.

In digital culture, however, the technique of software emulation—whereby one computer impersonates another—is a powerful preservation tool. An emulator that enables the 1985 game Super Mario Brothers to run on the 2010 operating system Windows 7 can in principle enable Donkey Kong, Hogan’s Alley, and any other Nintendo cartridge game to run on Windows 7. (We’ll look at emulation in depth in chapter 8.)

### Migration

Migration often seems more prosaic than emulation, because a migrated work sticks close to the medium of the original, simply upgrading its technology to the current industry standard. An archivist might migrate a video from U-matic to Dibeta; a programmer might migrate a website from Netscape 4 to Netscape 6. Obsolete hardware can also be updated, as can candies and fluorescent tubes.

That said, migration can alter a work’s look and feel, and the further a work is migrated away from its original medium, the greater the risk of its departing from the spirit of the original. Most consumers wouldn’t think twice of swapping their bulky CRT-based television for a flat-screen TV, but for a video artist such as Gary Hill who plays off the sculptural form of TV monitors, that migration is more of a judgment call.

Though not as common, migration can also happen in space as well as time. An installation that specifies plants familiar to local gallerygoers might use ferns in São Paulo but cactus in Santa Fe.<sup>16</sup>

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### Reinterpretation

Reinterpretation is the most radical of the four preservation strategies, though also the most powerful. A reinterpretation sacrifices basic aspects of the work's appearance in order to retain the original spirit. Rare for the fine arts, reinterpretation is common in dance and theater, although even in the performance arts its use can be controversial. Director Peter Sellars was called an "artistic vandal" for his restaging of Mozart operas in modern settings like New York's Trump Tower;<sup>17</sup> the Samuel Beckett estate is notoriously stringent about performances of *Waiting for Godot* and the like, and will shut down a show that makes minor changes in even a couple of lines.<sup>18</sup>

Reinterpretation for artistic installations or sculptures, meanwhile, replaces obsolete mass-produced items or out-of-date products with their functional or metaphorical equivalent (a telegram handed to a character in a play might be replaced with a text message on a mobile phone), or obeys a set of instructions that varies according to the site, audience, or occasion (the backdrop might depict the skyline of whatever city the play is performed in). Or a work of software art written in one language may be completely rewritten for a different platform, as artist Mark Napier recommended for his online work *net.flag* once its original language, Java, becomes obsolete.<sup>19</sup>

### A Foreshadowing

Before we investigate the disappearance of contemporary culture, it's traditional in detective stories to start with a little foreshadowing. So let's put some of our cards on the table at the outset.

Rick and I reject the notion that a bunch of preservation experts in a room will someday concoct a one-size-fits-all technical fix to rescue culture from oblivion. Instead, we see rescuing new media as a task that is best distributed across a wide swath of cultural producers and consumers, who will choose the most appropriate strategy for each endangered work, one by one.

To make this leap will require questioning some time-honored assumptions about creative culture. Archivists and librarians may have to regard storage as only one weapon in an arsenal of preservation techniques—and not a very long-range weapon at that. If so, then the necessity of periodically reinstalling or remaking a work could make the job of preservation inextricable from the job of presentation, muddling the separate job descriptions of conservators and curators.<sup>20</sup> To confuse matters more,

traditional institutions of cultural preservation are used to shouldering all the burden of safeguarding culture, and aren't sure whether or how to share that role with amateur preservationists. Can institutions learn to share that task with the general public? If so, what implications would this have for control over wall labels, copyright, even history itself?

Perhaps the most challenging shift might be an accelerated evolution in our cultural heritage. In botany, a "heritage rose" is one that hasn't been hybridized, that has remained the same. Yet for heritage to survive the digital era might require every generation to inherit a changed legacy—not just because the previous generation has added a new work to the canon, but because they have updated an original work's medium or even let a new author recreate it. Once dropped into the swift currents of new media, art changes from a singular object to a series of events. As more and more works make this transition, perhaps they will survive best not by being durable, like a stone—for stone worn by swift currents becomes brittle—but by remaining variable, like a stream of water.\*

Rick and I, along with others working in this field,<sup>21</sup> call this paradigm for fluidly creating and recreating works "variable media." The variable media approach encourages creators to define a work in medium-independent terms so that it can be translated into a new medium once its original format is obsolete. This philosophy is not rigid; while it augments storage with less traditional rescue techniques like emulation, migration, and reinterpretation, it nevertheless recognizes that some artworks cannot change without ruining what made them compelling in the first place. That said, while some proportion of today's cultural artifacts must die, there are plenty left that shouldn't have to—if we can identify the agents responsible for sending them to an early grave and find a way to outwit or reform them.

Before we examine the primary suspects for the disappearance of digital culture, Rick will step back in the next chapter to survey the larger scene of the challenges new media pose to social memory.

\* Rick: Save Cocteau's fire by becoming like water. It's elemental!

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## 2 New Media and Social Memory

Richard Rinehart

In the previous chapter, Jon sketched a compelling picture of the current situation regarding art preservation and its challenges. Keeping that immediacy in the back of our minds, let us zoom out for a moment to consider how we got here. This book is intended to operate on three levels. First, we will describe the field of cultural practices and institutions known as “social memory” and the crisis currently confronting this field. Second, social memory provides the context for a case study in preserving new media art specifically. Third, throughout the book, we will present concrete examples and anecdotes from the authors’ experiences that make this case study tangible and tractable.

Many efforts to preserve new art leap right to logistical problem solving. This is understandable given the urgency of the problem, but, in order to make the fundamental shifts necessary to solve the problem, we also need to understand the historical context and ideological assumptions that underlie the discourse and color our solutions. Attending to this context may appear to professional insiders as review, but we feel that it will further the discussion as well as broaden it to include newcomers, students, and professionals in outlying, but relevant, institutions and disciplines. Keeping this broad audience in mind, along with the fact that there are currently very few books on the topic of preserving new media art, this book can serve as an introduction to the field. For the cognoscenti and digerati who have been involved with this topic for years, this book can also serve as a review and a more detailed explication of the authors’ proposed approach to the challenge than our past conference presentations and shorter journal articles have allowed. Recent threads in the professional discussion about preserving new media culture—such as the contemporary approach to digital forensics—are invaluable, and this book’s final chapter concludes with a similar emphasis on the importance of triage and a call to action. However, this chapter and those immediately following offer additional

context and pose relevant questions that may not follow naturally from traditional museum preservation approaches, that are not immediately visible on the horizon of related fields like digital libraries, and that are less likely to arise in the conservator's hectic ER on a daily basis.

So how did we get here? It is useful to think of history as a function or a set of practices, and that's where the idea of social memory can help. Social memory makes history tractable and allows us to see artworks, curators, and preservationists as agents and practitioners of history rather than its passive subjects.

### The Field of Social Memory

Social memory is how and what societies remember—the long-term memory of civilizations. It is how civilizations carry forward their social traditions, commercial arrangements, and political operations from moment to moment, year to year, and (if they are lucky) century to century.\* It allows a civilization to persist beyond the lifetime of one individual or generation. Social memory emerged as a field of study in the 1920s and gained significant momentum in the 1970s, though after all that time there is still no consensus about the boundaries of the discipline. Rather than offer a narrow definition of social memory in their book *Social Memory and History*, Jacob Climo and Maria Cattell and their contributors simply list its various characteristics:

\* Jon: As we'll see in chapter 10, if "civilization" took a clue from indigenous peoples, their social memory might last from millennium to millennium.

Collective or social memories are shaped by social, economic, and political circumstances; by beliefs and values; by opposition and resistance. They involve cultural norms and issues of authenticity, identity, and power. They are implicated in ideologies. Social memories are associated with or belong to particular categories or groups so they can be, and often are, the focus of conflict and contestation. They can be discussed and negotiated, accepted or rejected. Collective memories are expressed in a variety of ways. They create interpretive frameworks that help make experience comprehensible. They are marked by a dialectic between stability or historical continuity and innovations or changes.<sup>1</sup>

This quotation indicates the controversial, dynamic, and ideological nature of social memory and serves as an apropos introduction for our discussion. Social memory scholar Maurice Halbwachs emphasizes its practical aspects, asserting that social memory is not a metaphor but a social reality, transmitted and sustained through the conscious efforts of

institutions and groups.<sup>2</sup> These efforts take many forms. In his book *How Societies Remember*, Paul Connerton goes beyond the familiar textual and literary aspects of social memory to focus on behavior, action, ritual, and ceremony as ways in which social memory is embodied in us all.<sup>3</sup> Historian Thomas Laqueur has written on the relationship between memory and place and the memorial site as a function of social memory.<sup>4</sup>

Social memory can be broken into two large categories: formal and informal. Formal social memory is “canonical” and is often stewarded by institutions such as museums, libraries, and archives (referred to collectively as the “cultural heritage sector”). These types of memory institutions and their distinctive functions will be detailed in our later section on institutions; suffice to say that they comprise society’s organized “cabinets of wonder” or, to use a computer metaphor, they are our collective memory banks, the databases of civilization. Informal social memory, on the other hand, is characterized by folklore and distributed, popular forms of remembering. The comparable computer metaphor is that informal social memory acts like society’s network system, preserving memory by making it a moving target. (Here I must credit Danny Hillis, who invented the world’s fastest computer in which most of the data is not stored on any central hard disk but is kept constantly in transit from one place to another within the system. Author Kevin Kelly dubbed this approach “movage” for moving storage.)<sup>5</sup> The effort to preserve video games from the 1980s (which Jon will detail in chapter 8) is an example of informal social memory that also shows social memory is not always about really old things. Very few formal institutions are devoted to preserving vintage video games (the Stanford University Library’s Stephen M. Cabrinety Collection is a notable exception);<sup>6</sup> however, there are legions of fans, connected across the Internet, who collaborate informally to preserve these games by writing software emulators that allow gamers to run old games on new machines. This communal endeavor reveals one common and telling difference between the ways formal and informal social memory function. Formal social memory often emphasizes preserving a cultural object in its original fixed form as a way of maintaining its historical accuracy and authorial integrity (storage). Informal social memory, on the other hand, often emphasizes updating or recreating the cultural object as a way of keeping it alive (migration, emulation, and reinterpretation). One might say that the formal strategy privileges the form of the object of preservation, while the informal strategy preserves the working function of the object (this is a bit of an oversimplification as we’ll see, but it’s useful to exaggerate the differences in order to see them more clearly). These two broad categories of social

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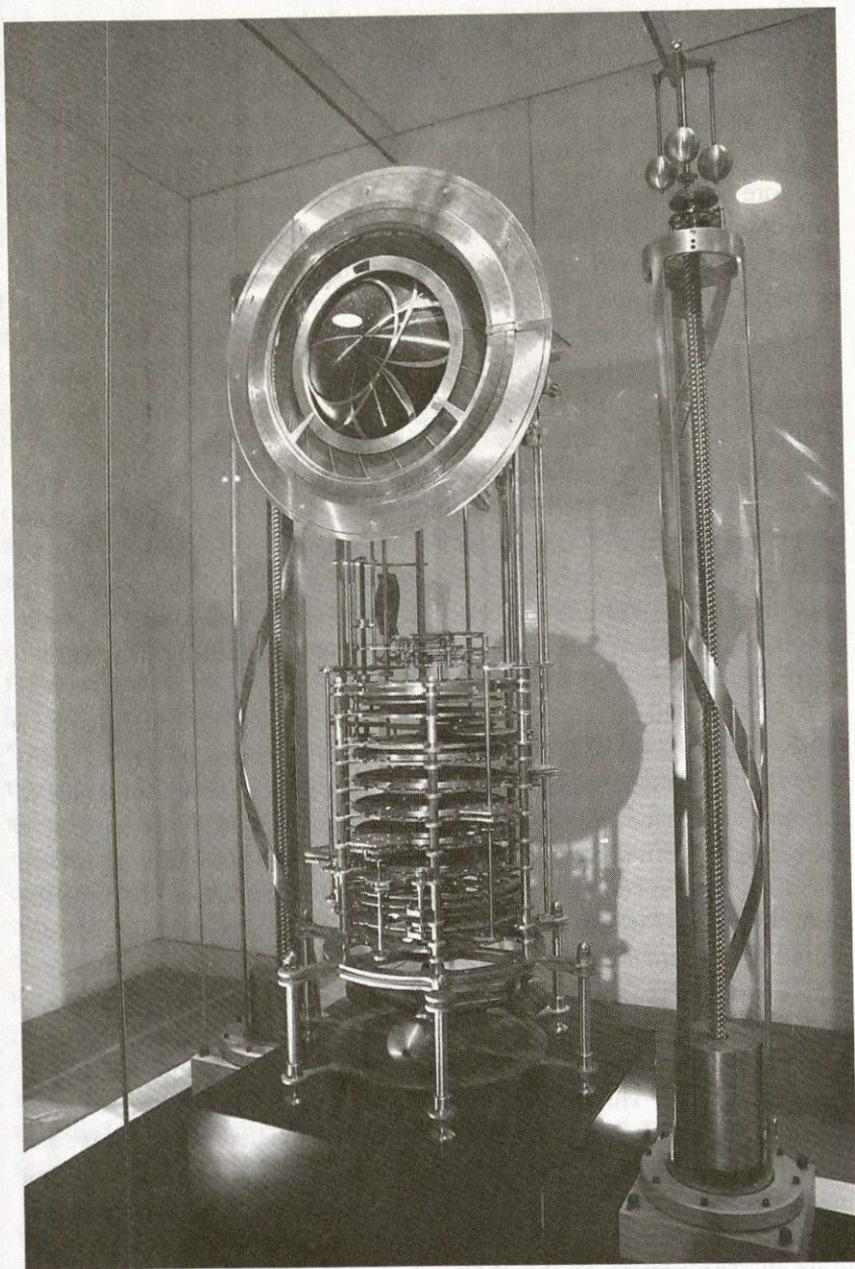
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memory are often implied to be irreconcilable, but they should not be seen as mutually exclusive. When archival studies professor Laura Millar wrote, "Records and archives are devices used in the process of transforming individual memories into collective remembering,"<sup>7</sup> she was hinting at the connective tissue that forms the continuum of formal and informal social memory. Indeed, our greatest preservation challenges, such as those outlined in this book, can be met only by a unified strategy that borrows tactics from both "high" and "low" culture and both formal and informal social memory.

Many assume that social memory focuses exclusively on the past, but it is equally if not more a future-oriented activity. Preservation—the social memory function this book focuses on—is all about considering what a particular object will encounter in the future, how it will need to be used, who will access it, who will care for it, and what extra information will help those future generations do all of this. A conservator needs to be a futurist as much as she needs to be a historian. But how can one accomplish both? What models exist? Collectively, archaeology and paleontology museums represent millions of years of Earth's history, while those museums emphasizing human history—anthropology, history, and art museums—cover about ten thousand years of culture. We have about ten thousand years of previous highly organized human activity upon which to base our thinking about how culture changes over time, may change in the future, and how social memory may serve that future. Ten thousand years is not an arbitrary amount of time; rather, it seems to be a magic number in this context. The Long Now Foundation in San Francisco is a nonprofit organization advocating that businesses and individuals take responsibility and plan for the long-term future of the environment, technology, and culture. In *The Clock of the Long Now*, founder Stewart Brand describes the origin of the organization: "Peter Schwartz suggested 10,000 years as the appropriate time envelope for the project; 10,000 years ago was the end of the Ice Age and beginning of agriculture and civilization; we should develop an equal perspective into the future."<sup>8</sup> Elsewhere, journalist Gary Kliewer wrote in an article for *The Futurist*, "How could you label Pandora's box so that no one would mess with it for 10,000 years? The U.S. Department of Energy recently asked a panel of experts to design a marking system that would warn people against digging into the Waste Isolation Pilot Plan in southeastern New Mexico, where radioactive materials from U.S. nuclear defense operations will be permanently entombed. The markers need to last as long as the danger and this waste will pose a threat to human health for 300 generations."<sup>9</sup> Social memory and



**Figure 2.1**

Danny Hillis, *Clock of the Long Now*, 1999, on view at the Science Museum, London.

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preservation practices extend far into the past, but just as far into the future—and so our strategies must reflect this long-range bilateral vision.

### The Challenge of New Media

As more and more of our culture is created, transacted, experienced, and stored in bits and bytes without ever existing outside a computer, this digital culture cannot help but have a significant impact on the practice of social memory. New media impact social memory in two broad ways; they change the *object* of social memory and the *means* of social memory. That is to say, the cultural objects that serve as vessels and triggers for social memory—artworks, literary texts, census records, movies, political campaigns—are themselves becoming digital. Certainly not every cultural object is digital, and never will be, but an increasing percentage of each category is now born digital. Similarly, the tools and means by which we practice social memory—documentation, records, storage, communications, object management systems—are also increasingly digital, and unlike cultural objects, they are digital to a much greater degree, to the point that very soon they will be primarily if not exclusively digital.<sup>10</sup>

It is sometimes comforting to imagine that a brilliant scientist in a hilltop lab somewhere or some authoritative government agency must have this all under control, but in truth, no one yet knows quite how to conduct all the necessary social memory functions in a society that is increasingly “born digital.” The U.S. military doesn’t have the big answer, nor does the Vatican, Interpol, the U.N., MI6, Freemasons, IBM, or the cultural heritage sector. But they all bump into each other at relevant professional conferences as they diligently work on their respective portions of the big puzzle. In recognition of the reality and scale of the problem, the U.S. Congress allocated \$99 million to the Library of Congress in 2000, creating the National Digital Information Infrastructure and Preservation Program.<sup>11</sup> This project is not nearly complete, but it serves as an important research hub and clearinghouse for related projects. Yet the challenge of new media to social memory is not purely an issue of technology. It is not a “tech” question best left to computer geeks, academics, and preservation specialists to answer behind closed doors; it is relevant to us all. The answers to the challenge of new media are more likely to arise from a confluence of related research from across varied fields and disciplines rather than as an edict from one source on high. As Paul Conerton notes,

It is surely the case that control of a society's memory largely conditions the hierarchy of power; so that, for example, the storage of present-day information technologies, and hence the organization of collective memory through the use of data-processing machines, is not merely a technical matter but one directly bearing on legitimization, the question of the control and ownership of information being a crucial political issue.<sup>12</sup>

This passage was published in 1989; how much more relevant it is today.

When a system of representation breaks down, it provides a picture of the system itself rather than its purported subject. When your TV breaks down, you no longer see your favorite shows and characters; instead, you see the infrastructure of TV itself, represented by white snow or a blue screen. When a system fails, whether it is a technology or a system of ideas, it goes from transparent to opaque and offers us a rare opportunity to consider the system explicitly. Presenting a broken system of representation or presenting media stripped of all content and narrative are common tactics of contemporary artists wishing to draw attention to the underlying system. For example, Marcel Broodthaers developed such a project in the late 1960s called *Musée d'Art Moderne, Département des Aigles* (Museum of Modern Art, Department of Eagles). In one temporary manifestation of this project, Broodthaers drew the foundation of a museum in the sand on the beach of Le Coq, Belgium. He wore a hard hat labeled "Museum" and he placed signs around the "museum" saying "Touching the objects is absolutely forbidden." Broodthaers was offering the viewer a portrait of the museum as a system stripped down to its bare essentials—a sand castle of avant-gardism vainly attempting to protect its only real content, the cultural status quo. Analogously, social memory is a system of representation that is currently being broken down by the challenge of new media. This challenge is taking the form of a series of crises including that of preservation. While we are scrambling to address these urgent problems, we should not forget that this challenge also allows us an opportunity to reexamine and revisit social memory as a system and to ask, What is important for us all to remember? What is OK to forget? Whom do these collective memories serve? And who are the ones who remember?

### The Case of New Media Art

Our investigation focuses on collecting and preserving new media art as a case study in new media's broader challenge to social memory. Using a case study as a lens for close investigation and choosing new media art as that

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**Figure 2.2**

Marcel Broodthaers, museum in the sand, 1969, Le Coq, Belgium.

case study should prove productive for several reasons. Preserving new media art is not an abstract dilemma but a real-world problem that offers numerous examples of specific artworks, real institutions, and current debates between artists, collectors and museums. This grounding in reality allows us to apply theories and ideas of social memory to preserving artworks and allows the real practice of preservation to, in turn, inform and refine those theories. Collecting and preserving new media art is of interest to many of us in its own right, as it is ripe with implications for art theory and practice.\* The preservation of new media art may inform the problem of preservation in other fields, from government records to the music industry to video games, and will, in turn, be informed by those related efforts. Additionally, this case study is fertile because it brings social memory into the tangible realms of cultural heritage institutions, the computer industry and technology,

\* Jon: Also, unlike scientific or administrative data, art depends on its medium's look and feel, which become the acid test for translation strategies like migration, emulation, and reinterpretation.

law and intellectual property, and public social practices (as Jon and I will detail in the following chapters). Lastly, our case study may bring together strategies of formal and informal social memory in ways as yet unseen.

Now let us clarify our object of study. It is debatable whether “new media art” was ever truly separate as a set of artistic practices or communities, and in recent years it has been, for better and worse, further subsumed into the discourse of contemporary art.<sup>13</sup> Artists and curators now talk of “post-Internet” art (art that may or may not make use of new media, but is “media-aware” and addresses the conditions of being networked).<sup>14</sup> When Jon and I reference new media art here, we are not indicating a separate “genre” of art. Rather, in the context of preservation, it is useful to refer to the medium-specific aspects of artworks. Digital forms of new media art (i.e., software art, multimedia interactive art, Internet art, and robotic art) throw the preservation challenges into high relief and make them a useful focus for our discussion. In practice it turns out that many of the challenges in preserving digital art are the same as for preserving other nontraditional art forms such as earth art, performance art, installation art, conceptual art, and more. This means that the solutions for preserving one of these forms seem likely to inform the preservation of the others. In addition, the challenges that digital media bring to social memory may have precedents from the predigital era. Those precedents may help us answer the digital challenge and, in turn, this new challenge may highlight or inspire answers that help us to address the older problems. So we will not limit our discussion to narrowly defined terms. We’ll use the inclusive term “new media art,” which has digital art at its center and other nontraditional art forms at its blurry edges.

When discussing artworks that specifically use digital media, it is helpful to distinguish between digital art and digitized art. “Digital art” refers to artworks that are born digital; they are created and experienced using digital media (they might not rely exclusively on digital media, but they incorporate them in ways that are essential and inextricable). Examples of this form include software art, multimedia interactive art, Internet art, and robotic art, all of which are addressed in our investigation. “Digitized art” refers to artworks created in traditional media, such as oil paintings or bronze sculptures, that have been photographed or otherwise documented in digital form. A website of images of artworks, such as ArtStor, would constitute a collection of digitized art. While the development, use, and preservation of digitized art are certainly important, they are somewhat outside the primary focus of our investigation. Additionally, the preservation of images, records, and other documentation in general has been

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widely addressed elsewhere, so there is less of a need or opportunity to make an original contribution to that work here. So our investigation focuses on digital rather than digitized art—actual works rather than records or images of works.

Works of digital and Internet art, performance, installation, conceptual, and other new media art represent some of the most compelling and significant artistic creations of our time. These works constitute a history of

\* Jon: Are creative websites and apps really “alternative” art, given their popularity among mainstream audiences? Or do the obstacles you identify to their absorption by museums encourage the art world to brand them as alternative?

alternative artistic practice,\* but they also present significant obstacles to accurate documentation, access, and preservation. These art forms have confounded traditional museological approaches to documentation and preservation because they are ephemeral, documentary, technical, and manifold in nature and because their media formats are variable and

become obsolete rapidly. It is not feasible for the arts community to keep the original equipment and software in working order over the centuries, and the computer industry has no incentive to continue producing old parts or to keep all new equipment backward-compatible indefinitely. Besides, preserving media art as an “original” physical object may be counterproductive and inappropriate, as discussed in later chapters. Owing to a lack of preservation and documentation methods, and thus access, such artworks often are not used in research and instruction; they become invisible to history. If we don’t design strategies for preservation, many of these vital works—and possibly whole categories, such as early Internet art—will be lost to future generations.<sup>15</sup> In many cases, these art forms were created to contradict and bypass the traditional art world’s values and resulting practices. They have been successful to the point of becoming victims of their own volatile intent, but their radical critique makes them more important to history, not less.

So what exactly are the challenges in preserving new media artworks? How many ways are there to die? Let’s take a moment to preview some of the challenges that will be detailed in later chapters.

### Version and Variability

In the late 1990s after Pixar had released the first completely computer-generated film, *Toy Story*, they called around to a few film archives seeking

advice on how to preserve the film. They were given expert advice about cold storage and how to avoid "vinegar syndrome," but it quickly became apparent that Pixar was not primarily interested in preserving the film print itself as an object; rather, they were interested in preserving the movie as a set of computer files. One can easily see the logic in this. After all, a print of the film would be fixed for all time; when released again, it could be shown only as the original was shown: the same sequence of shots, same camera points of view, etc. But isn't this how film preservation is supposed to work? The closer to its original state in which a film is preserved, the more valuable it is, right? In the traditional film preservation paradigm, an original camera negative or internegative print is considered the "original" film, the "master" version, the Holy Grail from which all copies derived, including reedited versions. Pixar had, however, reached a turning point in "film" preservation. For Pixar, the computer files were more valuable than the film print because, from the computer files, one could generate a delicious variety of versions of the movie that could then be printed on film—but that could not be generated from a print of the film. Computer-generated imagery (CGI) is usually rendered in the computer as a 3D object. That means that the original release of *Toy Story* was just one of many possible derivatives from the original source material. The variables included the camera's points of view; speed and direction of the characters' movements; colors, opacity, textures, and placement of objects; and the sequence of shots. And, unlike with traditional film, it was possible to go back and change *any* of these variables after the fact, creating a new version of the movie. Pixar could potentially release a new version of *Toy Story* in which every scene is rendered from the eye level of an ant or seen through the eyes of the lead character, Woody. It's certainly possible to edit traditional film, but not nearly to this extent. The value of the "asset" *Toy Story* goes up in direct relation to the number of possible variations, derivatives, or products Pixar can get out of it, from video games to the director's (or ant's) cut. Variability increases value.

The *Toy Story* example is interesting because it inverts a key component of media preservation, the relationship between the "master" or original version and derivative copies. With *Toy Story*, the film was not the master version of the movie; instead, the film was one of many possible derivatives of the computer files. The master version of any analog media artifact, from film to video to photograph, is usually defined as the version that is closest to the point of creation or capture, and it is the version that contains the most accurate detail and highest information fidelity.<sup>16</sup> Analog media are different from digital media in that copying the master version creates a

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derivative that contains less accurate information with each generation of copy. If one copies a 30mm film print and then copies that copy (etc.) enough times, one is left with a visual gray goo, no matter how visually articulate the original film was. With digital media, such as the computer files used to generate *Toy Story*, copying does not result in a loss of quality. So digital media suggest that perhaps the most valuable version of a cultural artifact is not necessarily the most "accurate" but the most fecund, the version capable of reproducing the greatest variety of offspring. With new media, instead of "master" copies we should think of "mother" copies. Mother copies not only result in greater commercial value but also offer the greatest chance of preservation, like a species that is able to mutate within a generation and thus survive sudden environmental changes. In practice, this means that when museums acquire works of software art, they should acquire not only the application program or "viewing copy" of the work but also the source code from which new versions of the program can be generated for new environments. When they acquire interactive games developed using the computer program Flash, they should collect both the fixed-run-time version of the game file (the filename ending in .swf) and the editable source file (ending in .fla). And when they collect video artworks, they should collect not just the locked-down DVD format that will play only as long as the DVD standard and players persist, but the raw video files from which they can generate backup DVDs and, indeed, new formats when DVD becomes obsolete. Security in media preservation comes not from fixity but from variability and mutation, and with digital media works we no longer have to make a choice between indexical (historical) accuracy and use-friendly fecundity. These notions of variability in new media art will be further developed in chapters 4 and 11.

### **Is the Music inside the Guitar? The Album? The Radio?**

It might seem obvious that new media themselves are the problem and thus the challenge is a technical one. When museums first began to collect new media artworks, they often resorted to what they knew best: collecting physical objects. In the context of "computer art" that often meant obtaining the computer hardware related to a work of art and storing it in the vault as a way of preserving the artwork. But it quickly became apparent that this was a problematic approach to new media art. For instance, which computer was one supposed to collect? The desktop computer from the artist's home that they used to begin the artwork in question? The laptop they used on the plane to complete the project? The server at the museum

used to present the digital art in the galleries for the first time? There really was no natural "original" physical artifact. This approach was also impractical. Computers are hardly infallible machines and they quickly obsolesce. Computers in a vault will break down, and even after a relatively short time period—say thirty years—the museum will be unable to obtain a replacement computer of the same make and model. They will also be unable to obtain replacements parts, and they will certainly not be able to fabricate new parts (in the way they can sometimes do for artworks in traditional media that use essentially medieval technologies). Is it even appropriate to make the one-to-one equation that the computer is the artwork? Is the artwork defined by the brushed aluminum box? Probably not. Rather, the "original" computer is but one way to render said artwork, and certainly not the only way. Technology's role in the preservation of new media art will be further investigated in the following three chapters devoted to the topic.

### Performing the Art

New media art is as performative and variable as it is visual or artifactual. That is, new media art can be seen to be as much a performing art like music or theater as it is a visual art like painting or sculpture—though it is often visual arts institutions like museums that are struggling to preserve it. By way of example, we can turn to a series of artworks by Felix Gonzalez-Torres colloquially referred to as "candy spills." These works are not digital, but they fit within our broad definition of new media art, and as mentioned earlier, they share qualities with digital art that may inform the preservation of both. A candy spill generally takes the form of the weight of a human body in pounds of individually wrapped candy, such as Bazooka bubble gum or licorice rods, carpeting the floor or piled against a wall or in a corner. Visitors to the gallery or museum where such a work is shown are invited to take a candy and eat it. This simple situation reveals and subverts many cultural constraints of the art world status quo. First, it has visitors eating, sometimes noisily, in the museum's galleries, bringing with that act a renewed sense of one's body, one's animal needs, and the mundane acts of reality normally external to the lab- or church-like environment of the museum. Secondly, it has visitors touching, in fact destroying, one of the artworks instead of standing respectfully behind the velvet rope. It also toys with the standard timeframe of art exhibitions that last a few months, since this work could be eaten and disappear in the first few days of an exhibition. And, of course, it pokes fun at the artwork as commodity,

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since this work was itself composed of a cheap, commercially available commodity, and yet it was difficult to sell as an artwork because it could disappear overnight.

The first impulse of traditional museological preservation might be to gather together the “original” candies into airtight containers. When exhibited in the future, the candies would be placed behind a velvet rope with a wall label explaining that, historically, these candies could be taken and eaten; this would no longer be allowed, though, as taking the candies would destroy the historical integrity of the original artifact because the original candies might no longer be manufactured. However, artist Gonzalez-Torres foresaw that possibility and requested that exhibitors display only candy that could be consumed. The candy spill series serves as an illustrative example because the preservation solution seems so obvious. Of course, the artwork exists in the interaction between artist, institution, and audience/consumer more than in the original “object” or specific brand of candy used. Trapping these works in airtight jars behind velvet rope would not preserve them; it would transform them into mere collections of junk food.<sup>17</sup> Jars of original candy or “authentic” computers in the museum basement may be inappropriate preservation solutions for new media art. These artworks need to be “performed” as much as “viewed,” and preserving them means preserving the behaviors of the artwork as much as, if not more than, the original artifacts. Consequently, museums must become expert at something new; they must bring the same rigor to documenting and preserving actions and performances that they now bring to preserving materials and artifacts. The idea of new media art as a set of performed possibilities will be explored in chapters 8 and 10.

### New Media Art Has No Master

A somewhat smaller problem confronting preservation is that new media art has no universally recognized “masters,” “masterworks,” or “movements.” There are artists who have been exhibited more than others, but there is no Rembrandt of media art, no *Mona Lisa*, and no impressionism—at least not that most would agree upon. While many rebel against reductive taxonomies, such canons often provide the easy handholds with which the uninitiated may obtain entry to a new and mysterious art form. More practically, such canons also provide a rallying point for preservation. When a museum or the cultural heritage field in general can point to the deteriorating Sistine Chapel ceiling, threadbare Old Glory, or the loss of the film masters of *Gone with the Wind*, they may galvanize support for

much-needed preservation efforts. The relative newness and lack of fixed points of reference for new media art are two more nails in the coffin of artworks that require preservation intervention on a much shorter time-frame than fresco, flax, or even film. Chapters 5, 9, and 13 will identify rallying points and suggest communal actions on behalf of new media art.

### Social Remembering

Social memory requires people to care—it requires investment, commitment, even passion. It is not a set of neutral and mechanistic functions on autopilot, but a set of ensconced values and attendant practices carried out by people. It has become commonplace for artists and theorists to critique art exhibition practices because exhibition and scholarship are seen as the two institutional arenas in which art is constantly redefined.<sup>18</sup> Preservation, receiving a fraction of critical attention by contrast, is implicitly outside the realm of intellectual intervention and of the art discourse of curators, art historians, and theorists. It seems to exist in a land where chemists and other technicians carry out their objective science, unaffected by the agendas of the art world. But ideologies are every bit as much at play in preservation, and their impact here is, arguably, much more direct and permanent. We cannot effectively improve or expand the preservation paradigm without engaging the broader conceptual and logistical infrastructure. The good news is that we currently have a chance—an imperative—to improve both.

I mentioned earlier that the challenge of new media to social memory is not purely a question of technology, but that doesn't mean that technology is off the hook. The middle part of this book examines three likely causes for the pervasive obsolescence of today's media culture—technology, institutions, and law—starting with technology next.