

# Antiquarian Answers: Book Restoration as a Resource for Design

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## ABSTRACT

As technologies age, they experience wear and degradation, sometimes resulting in loss of functionality. In response, parts are replaced and software is updated. Yet *restoration*—the process of returning something to a previous condition, often regardless of its instrumental value—is a relatively rare practice with computational technologies. The aim of this paper is to enrich HCI design practices by considering the material qualities of restoration. We consider what makes a technology worth restoring and what constitutes the process of restoration by examining data collected from a three-month apprenticeship-based qualitative study of bookbinding. Building on relevant literatures, we offer antiquarian books—long-established information technologies—as a lens onto the ways values are enacted through material engagements. We conclude with a discussion of restoration’s role in HCI.

## Author Keywords

Handwork, skill, material, tool, handcraft, books, binding.

## ACM Classification Keywords

K.4.0 Computers and Society: general.

## General Terms

Design, Human Factors.

## INTRODUCTION

From the rotary phone to the Walkman, technologies regularly undergo cycles of obsolescence. Given the recent proliferation of broken, outdated or discarded devices, HCI has examined ways of supporting repair practices, both through sustainable design [3] and Do-It-Yourself (DIY) processes of customization and reuse [11]. Yet, in this research on remaking, issues of obsolescence remain. What might it mean to restore old operating systems and software to their original condition, instead of, for example, simply upgrading them? Might there be value in how technologies wear, rather than how effectively they perform? How might HCI foster more *longstanding* relationships with digital technologies as they have developed with some traditional media—such as manuscripts, photographs or books?

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This work begins addressing these questions by examining appropriation and repair from a somewhat different angle: as enacted in the provenance of materials and their historical and social value. Drawing on social science literature [6,7,8,9,10], we examine *restoration*—the process of returning something to a previous condition—and consider how the material interactions may have some bearing on HCI. We focus on book restoration (for illustrative purposes) as a complex activity involving remaking longstanding, often quite intimate, media. For example, in restoring a family bible, the owner may want to preserve evocative traces of the book’s past (creases on the spine, handwriting on the margins) while enabling the book to be read and handled by future generations. It is in the negotiation of a book’s history and possibilities of its use—the careful balance of *authenticity* with *longevity*—that we find a sustainable design practice of an unusual sort, one that sheds some light on how digital technology might evolve over time. The aim of this paper is, then, to enrich HCI design practices by considering how the social and material qualities of restoration affect the life cycles of personal media.

## METHOD

The first author visited seven bookbinding workshops—four in the UK and three in the US—and conducted semi-structured interviews with 13 key participants: five professional binders, five hobbyist binders, and three customers. Informed by previous HCI research on handwork [11], interview questions were designed to elicit reflections on binding practices (e.g. *What does it mean to use historical methods?*) and personal books (e.g. *What makes this object worth restoring?*). One of the UK workshops became a primary research site where the first author learned fine binding and book restoration over three months for an average of three days per week. This autoethnographic approach was informed by previous HCI research exploring naval tactical command and control systems [2] and anthropological work by Coy [4] that found apprenticeship provides valuable insights into technical and social behavior. During this period, the restoration work was documented through handwritten jottings, video and photos. The first author also collected bits of bound and unbound material and restored one personal book. Interviews and fieldwork observations were transcribed and reviewed by the authors—both meeting weekly to discuss the material and draw out relevant themes. These themes were subsequently developed and

organized alongside comparisons to analytic work from cultural studies scholars (such as anthropologist Tim Ingold's [7] description of "processional" tool use).

### WHAT IS RESTORATION?

Restoration, as we experienced it, entailed a set of productive activities that transformed an existing information technology into something evocative of its former self. Asking Adam, a restoration binder, how he would describe his practice, he responded:

*You know how these books can survive even when they're neglected for hundreds of years? I mean, it's an amazing—historically—it's an amazing technology. Isn't it really? As a way of passing on information. You know, a book can be so durable that leather can fall off, the spine can fall off, the headbands can go, the first two pages can get torn. But as long as those corners are on strong and those boards are good, and it doesn't get damp, you know? That can knock around even for a couple of hundred years just like that, can't it? It's great.*

This response illustrates how our participants appreciated the ways in which a book is made to last through its reconstruction. An awareness to durability is demonstrated in the language used ("square," "evenly coated," "flat"), binding activities, and aesthetic produced. In the workshop, books were observed passing through several stages of production, including *manual activities*, such as folding paper, *tooling activities*, such as sawing and sewing, *mechanical activities*, such as chopping (on the guillotine) and typesetting (on a blocking machine), and even *digital activities*, such as creating labels (using a laptop and printer). Each stage of restoration was readjusted based on several interwoven factors, such as the *age* of the book. For a 16<sup>th</sup> century manuscript with an elaborate but deteriorating gold leaf title, a binder might keep the remaining gold leaf or overlay additional gold leaf by hand. Whereas for a compilation of 19<sup>th</sup> century machine-bound books whose labels had fallen off, a binder might digitally design the label on a PC, print out several copies, and paste one on each book. A book's original binding informed the approach to rebinding. Other influential factors included: *cost* of the materials and labor, *time and effort* available to the binder or customer, *physical condition* of the book (deteriorating spine, pages falling out) and existing materials (brittleness of the paper, grain of the leather), *style of binding* (cloth case, half-leather, sew-on chords, and so on), and—most importantly—the binder and customer's ideas of *authenticity*.

### Making Authenticity

*I asked Kate if she ever sawed into the spine of a book. She gasped. I thought something had gone terribly wrong, but she was reacting to my question. "No, we don't ever saw books." She explained that sawing the books was meant for putting cords in the books to keep the books flat, but that sawing is no longer necessary because flat tapes are now available. She let me feel the tapes, which were a distinctly modern material—flexible and strong. She would never do anything to harm the books if she didn't have to, she said.*

This fieldnote excerpt reveals the particular relationship Kate, a binder, has to her customers and to the books she rebinds. She is responding to a 19<sup>th</sup> century practice of sawing grooves into the spine of books for recessing cords in sewing, the subsequent stage of binding. While to one binder certain coated pages could not be bound without sawing, to another binder sawing books at the head (top) and tail (bottom) of the spine mitigated damage to the book while sewing. Kate disagreed with both claims. For her, restoration should be "reversible." Having recently finished a set of catalogues for a customer who requested case-bindings (hardbound books), Kate and her co-workers proudly showed off their finished work: structurally supportive but removable dust jackets. To Kate, the jacket solved the customer's problem (increasing the book's longevity) while "respecting" the book (retaining its authenticity).

In working out how to balance authenticity and longevity we thus find contradictory ideas of appropriateness in restoration practice. Offering an informative parallel, anthropologist Christina Krebs [8] describes how some museum artifacts are understood not as artifacts behind glass cases, but through their interactions in the social world. Some Native Americans, for instance, felt conserving objects "*arrests the life cycle of the object*" [8]:93. Anthropologist Suzanne Küchler [9] has similarly shown how the process of destroying wooden sculptures—allowing them to rot and release an odor ("musung") [9]:633—allows those artifacts to continue to live on in Melanesian society. They are given a longer life not through their tangible features, but through their shifting materiality and the performance of that materiality in everyday life. These perspectives suggest that prolonging the life of an object by keeping it behind a case embodies just one concept of authenticity.

Kate's "reversible" restoration work—much like keeping a cultural artifact behind a case—might be seen as one construction of authenticity. While Kate's sense of authenticity does not, in itself, constitute an intervention, her production of the catalogues without case-bindings altered her customers' relationships to the catalogues and book. Her physically reversible work, thus, produced an *irreversible intervention*. This paradox in practice reveals a shared understanding of authenticity: one remade through binding.

### PRODUCING A WELL-RESTORED BOOK

*"When you close the book it should have a sense of weight about it. And that's the way it should be [...] So I made the decision that I'd like to see—about to the longevity of it, as you know—in my collection of books. If it had been for a customer than I would go along with what the customer wants."*

Throughout the binding process, binders sought to increase the longevity of the book. The language of "following what the customer wants" was frequently invoked when choices were justified after binding. However, in practice, things became part of a dialogue between the binder and materials, mediated by the binder's tools and her manual use of them.

*“It shouldn't fall apart on the first reading. It shouldn't fall apart on the hundredth reading. It should look as good as it did the first time it was picked up. And most books now, obviously fail. [...] You walk into a bookshop and you couldn't preserve them if even if you wanted to. If you actually read them you'd destroy them on the first reading. And even the really big prestigious books - cloth covered, and hard boards, case bindings - they fall to pieces. You know, it's sad.”*

Such attitudes toward restoration have remained a contentious issue within the fields of Art History and Architecture over the last two centuries. Condemning restoration practices of the 19<sup>th</sup> century, notable Arts and Crafts scholar William Morris voiced legitimate concerns about the replacement of Medieval buildings with what he considered “feeble and lifeless forgery” [10]. His imagery of “stripping [from] a building of some of its most interesting material features” suggest some artifacts should not evolve with modernity but, instead, be protected from it through conservation. Yet, how might a building be protected from decay and degradation without help from modern hands? Such a view gives particular significance to the past while ignoring the inevitability of material and cultural change.

### Choosing What to Restore

In our observations, reasons for restoration varied widely, from pragmatic goals (a book was unreadable in its current state) to emotive motivations (a book no longer felt as it once did). Pages of books and handprints on covers triggered memories of particular settings from childhood (reading behind a grandmother's rocking chair) or celebratory moments (graduation). One customer brought in a dictionary whose pages were beginning to unhinge from its spine, rendering the book unusable. As a child, the customer used the dictionary to solve crossword puzzles with his grandfather. Getting another copy cost only a few pounds, but the restoration would cost sixty. For the binders, such work meant balancing two distinct goals: preserving the physical qualities of the book that make it an evocative sentimental object (*preserving uniqueness*) and replacing materials that give the book a longer life in use (*increasing longevity*). Peter, a restoration binder, described this process simply:

*There's a point at which you have to make a decision. Am I going to have that repaired before the damage gets any worse? And that's the decision you have to make. As a collector you can't always conserve things just by leaving them alone in a box or a safe or an archive because sooner or later they are going to deteriorate. After all, the sewing on most ancient books—15, 16, 1700s—they would've been sewing them with silk or cotton. You know, not like modern sewing threads. So, therefore, it's going to rot. Paper might be okay, but sewing will rot. Fall apart. You then have a book that's going to cost a great deal to repair. Better to have it done beforehand, stop the problem, and get the book back together.*

This depiction of the decision of whether or not to restore a book rings true in abstract terms, but belies the nuances of the book's presence and use in a person's daily life.

*“I remember when this [book] was falling apart and I started tossing [it] around. [...] I could have replaced it with another*

*book. This book had already been with me for about 20 years so I thought well, you know, it's difficult to find.”*

This excerpt from an interview with Varnaz, a customer who had a music book repaired three years ago, highlights the difficulties of justifying restoration. While, notionally, his book was easy to find (Varnaz could have bought another copy online), in actuality it was difficult—indeed, impossible—to find again. As Varnaz played music from this book since childhood, it embodied multiple layers of his past. The particular mottling on the last five pages of the book indicated where Varnaz had spent the majority of his time: Bach's *III Concerto*, his favorite piece. The book's distinctive smell, which he called “sweet” as he breathed it in deeply, reminded him of the many years of learning to play piano through which the book had endured. The library label on the inside of the front cover revealed the book's origins: a school library, from which Varnaz stole the book when he was 13. These material traces created continuity with his past. Moving closer, the book revealed another layer of its history: a careful re-backing (replacement of the spine) by Sean, a restoration binder, three years ago. Varnaz's book illustrates the materially embedded nature of memory and personal history.

### Creating Age

*“My ideal is, if I bind a row of books, they look like that [points to restored 17<sup>th</sup> century book]. And you think: are they old, are they new? [...] So if you have new materials that resist being eroded by time, then you could have something that would last almost indefinitely at certain levels.”*

As we have seen, what it takes for a book to be worth restoring, and which aspects of the book one wants to restore, were carefully worked out in practice. However, how to perform the restoration was an equal part of this negotiation. Does restoring a 400-year-old book with a deteriorating spine entail re-binding the book as it would have been originally bound? Does it mean re-binding the book so that it *appears* in its original condition? Or does it mean creating a jacket and slipcase so that the book remains untouched? A previously restored book raises further questions. How these questions are answered in the process of binding is indicative of a well-restored book.

*While working on a 19<sup>th</sup> century leather-bound book, we needed to replace the “red rot,” the deteriorated leather that turns red over time. What was the original color? Peter saw green. Sean saw dark brown; and I saw black. The book was eventually covered in Nigerian goatskin, stained dark brown, and “sprinkled” with black paint (a 17<sup>th</sup> century technique for creating the “look of age”).*

These negotiations are reminiscent of how STS scholar Charles Goodwin described chemists' classification of color categories—working out what it means for something to be “jet black” [6]. Choosing how to make a book look old involved not only finding the appropriate balance between preserving what exists and extending the longevity of the book, but also *attending to the material elements of the book that exposed some seeable quality of its past*—grain,

color and stain. If parts of a book were deteriorating, in need of repair or readjustment, some original materials might have been replaced while others might remain untouched. In this remaking of historical techniques ideas of age are enacted.

## DISCUSSION AND CONCLUSIONS

Throughout our study, restoration bookbinding reveals itself as a set of complex and contested practices. Durability of the book and respect for the book's history are two central concerns, continually balanced through human-material interactions. In restoration work, books, as technologies, become agents of recovery—of fading techniques, of cultural traditions, and of intimate interactions. Using the practice of book restoration as a lens onto interaction design, we offer two central concerns aimed at sensitizing HCI design to issues of restoration.

**Materiality of Authenticity.** We found that it was materials that shaped the perception and performance of authenticity. Meaningful traces were left on artifacts, naturally shaping them over time. This arguably contrasts with many of our experiences with computational technology. During this field study, the first author exchanged her mobile phone for a newer model, even though it was not falling apart. Similarly, she had her laptop repaired when the screen unhinged, but did not care (or hope) to get the same laptop back; her hard drive was the thing of “material value.” In addition to focusing on recycling, reuse, and repair [3], HCI might attend to the *making of authenticity* as a materially and situationally specific event. We argue that in valuing some materials over others, binders do not distinguish between form and function, content and container, or even digital bits and tangible atoms. Rather, they are attending to *how a technology's materiality enables certain constructions of authenticity*. It is through our continued interactions with material, and the impressions we leave on it, that deeper attachments evolve. How might we look at the interactional qualities of hardware (a mobile phone), software (tools for digital content generation) or digital content (images, videos or type), as a binder attends to those of paper, such as its grain, color, or thickness? Just as someone might cherish a leather-bound camera (<http://emuu.net/camera-leather>), might they also treasure a particular laptop, graphics card or digital photo if traces of use were left on it over time? By enabling continuous, multidimensional gestures among and within our technological practices, perhaps we can foster more historically and materially meaningful interactions.

**Designing for Longevity.** Following from research in cultural anthropology [7,8,9], we found that the longevity of an artifact was not only made through materials, but also through its integration in social practice. Here we stress the nuanced social configurations that enabled continued celebrations of ritual, not through static technologies but through (inter-)actions surrounding and remaking those technologies. As we consider the memory practices that carry us into the future [4], it becomes important to think

about how we might design for and with the things that remain. Might we want to revisit an Apple IIe graphics program differently from a digital photograph of a deceased parent? Might different experiences of game play result from using an original game console rather than an emulator? Alongside online digital archives, such as the Wayback Machine [12], perhaps we can enable varying forms of interaction: ways of looking back through familiar mechanisms (rebound books, emulators) and novel reinventions (a 16<sup>th</sup> century book retrofitted as an e-reader, a relative's teleostereograph machine as a functioning input device). Our observations suggest such things should be seen as part of a process of actively constituting our connections to the past.

Looking forward, we offer this work as a different way of thinking about design in HCI—one sensitive to the ideas of longevity, authenticity and ways of the hand. What it is that makes a technology functional and evocative is invariably woven into how the technology wears and becomes remade over time. Our hope is that by describing how materials play into these processes of restoration, we inspire the design of more meaningful and enduring technologies in HCI.

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