

The Mitigation Doom Spiral:

The Why, When, and How of Defending Digital Publications Against Decay

Jasmine Mulliken, PhD
Journals and Digital Program Manager

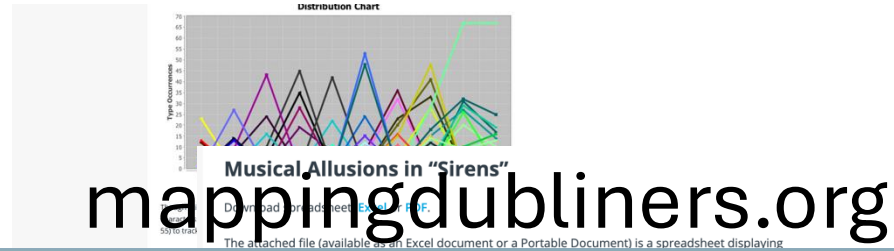


Context

- **Origins: I used to be an author facing an archaic publishing system...**
- Stanford University Press's digital initiative
- Assumptions of longevity



Once upon a time...



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ABOUT C

Digital

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Appendix B: Ex

Appendix C: M

Appendix D: Cl

Appendix E: "S

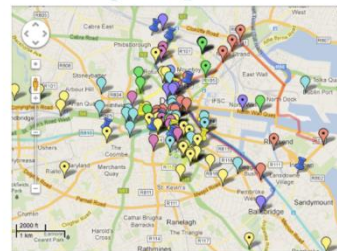
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ABOUT MAPPING DUBLINERS PROJECT PLACES CONTRIBUTE TO THE BLOG Search

The Mapping *Dubliners* Project is a reference tool and critical resource for scholars and students who want to explore the geospatial elements of James Joyce's *Dubliners*. The widely cited blog, linked above, contains individual examinations of the approximately 200 geographic references in the text. They are authored by the project's creator and other Joyce scholars and students. The two map versions, linked below, demarcate each geographic reference in *Dubliners* and every route traveled by the characters therein. The first uses Google Maps and is available online. The second is a downloadable Google Earth file that users can edit. Click below for more information on each.

Google Maps Version



Google Earth Version



earch Lab



Context

- Origins: I used to be an author facing an archaic publishing system...
- **Stanford University Press's digital initiative**
- Assumptions of longevity





Manifold

THE ANDREW W.



STANFORD UNIVERSITY PRESS



UBC Press



MELLON



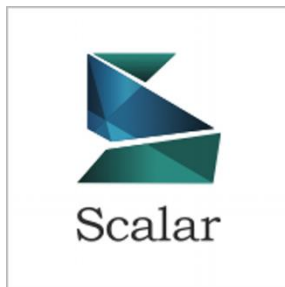
FOUNDATION

RavenSpace

NYUPRESS



UNIVERSITY of WASHINGTON PRESS



LONGLEAF SERVICES



A&AePortal

FILMING REVOLUTION - Fiction

www.filmrevolution.org/theme/87/fictiondocumentary

level: ANCHOR CLUSTER MEDIA

ABOUT | CREDITS | REFERENCES | REFLECTIONS | COMMENTS | CONTACT

https://cid-graves-prod.stanford.edu/read/room-for-the-dead

This brief episode forms the origins of my paper today on grave relocation in contemporary China, insofar as it implanted a series of questions that have not released me from their grip. Why had these graves been moved? Why from one side of the highway to the other? Where else in China were graves being moved? How many and for what reasons? I would later learn that the area in the general vicinity of the Mogao Caves UNESCO World Heritage Site (世界文化遗产敦煌莫高窟 *Shijie Wenhuyichan Dunhuang Mogao窟*) had been the focus of grave relocation as early as 2006, the year prior to my trip. [1] With graves running alongside Foyemiaoan Road (佛爷庙湾路 *Foye miaowanlu*) and elsewhere, municipal planners considered them "aesthetically unpleasant," and unbefitting a globally renowned tourist destination. The municipal government of Dunhuang issued the *Series of Regulations to Preserve the Mogao Caves* (甘肃敦煌莫高窟保护条例 *Gansu Dunhuang Mogaoju baohutiaoli*), upon the basis of which approximately 2000 graves in the area were required to move – some to nearby destinations, into spatially rationalized plots, and some more distantly to newly created cemeteries in the region. With a deadline of April 20, 2006, reimbursements of 500 RMB per grave would be afforded families to cover the cost of exhumation. What is more, local officials reportedly initiated a series of consciousness-raising campaigns, circulating news about the new regulations through music and art performances and sketch comedy (小品 *xiaopin*).

Further investigation has revealed a story that extends far beyond Dunhuang, and into practically every county in contemporary China. In recent decades, the blistering pace of China's economic development and population growth has transformed family graves into sites of acute personal, social, political, and economic contestation. Confronted with some of the world's highest population densities, and eager to bring new land under development, local authorities and entrepreneurs have turned their eyes covetously upon this once hallowed ground. Not unlike its better known counterpart, the "one-child policy," funeral reform (*huzang gaige* 殡葬改革) is a controversial governmental initiative

Documentation Web Archive Stanford Digital Repository

www.enchantingthedesert.com/console/#photo/3

Enchanting the Desert

SEARCH BIBLIOGRAPHY CREDITS FEEDBACK

INTRODUCTION TOPONYMY EXPLORATION SETTLEMENT TOURISM INFRASTRUCTURE

3 "Angel's Gate, Wotan's Throne and Vishnu Temple" (1899)

LANDMARKS PEABODY'S ORIGINAL NARRATION

TRAILS TINT

PHOTO COURTESY OF THE FRIEDRICH LEITNER, SAN MARINO, CA

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WHEN MELODIES GATHER: ORAL ART OF THE MAHRA

Samuel Liebhaber

ENTER

The Mahra people of the southern Arabian Peninsula have no written language but instead possess a rich oral tradition. Samuel Liebhaber takes readers on a tour through their poetry, collected by the author in audio and video recordings over the course of several years.

Based on this material, Liebhaber develops a systematic approach to Mahri poetry that challenges genre-based categorizations. By taking into account all Mahri poetic expressions—the majority of which don't belong to any of the known genres of Arabian poetry—Liebhaber creates a blueprint for understanding how oral poetry is conceived and composed by native *maḥrīyān*. Each poem is embedded in a conceptual framework that highlights formal

Samuel Liebhaber is Associate Professor of Arabic at Middlebury College.

— Flagg Miller, University of California, Davis

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Context

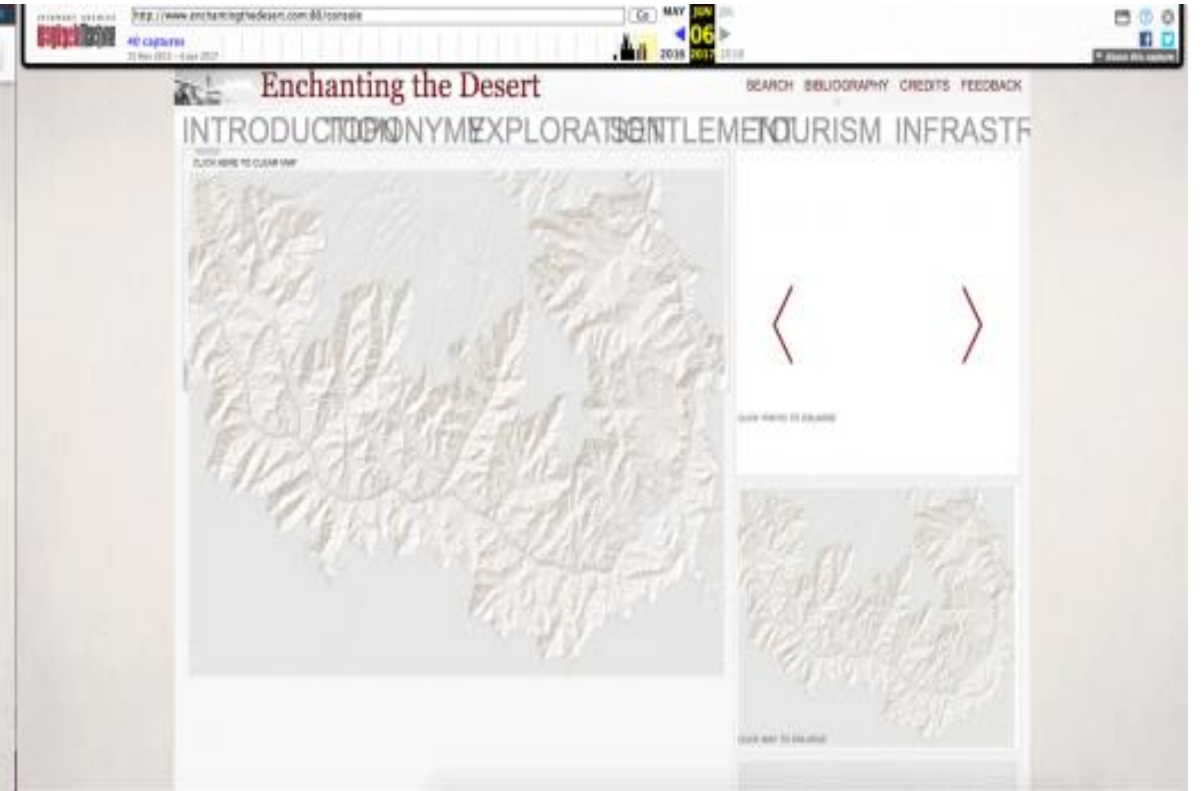
- Origins: I used to be an author facing an archaic publishing system...
- Stanford University Press's digital initiative
- **Assumptions of longevity**



SUP's 1st Digital Publication



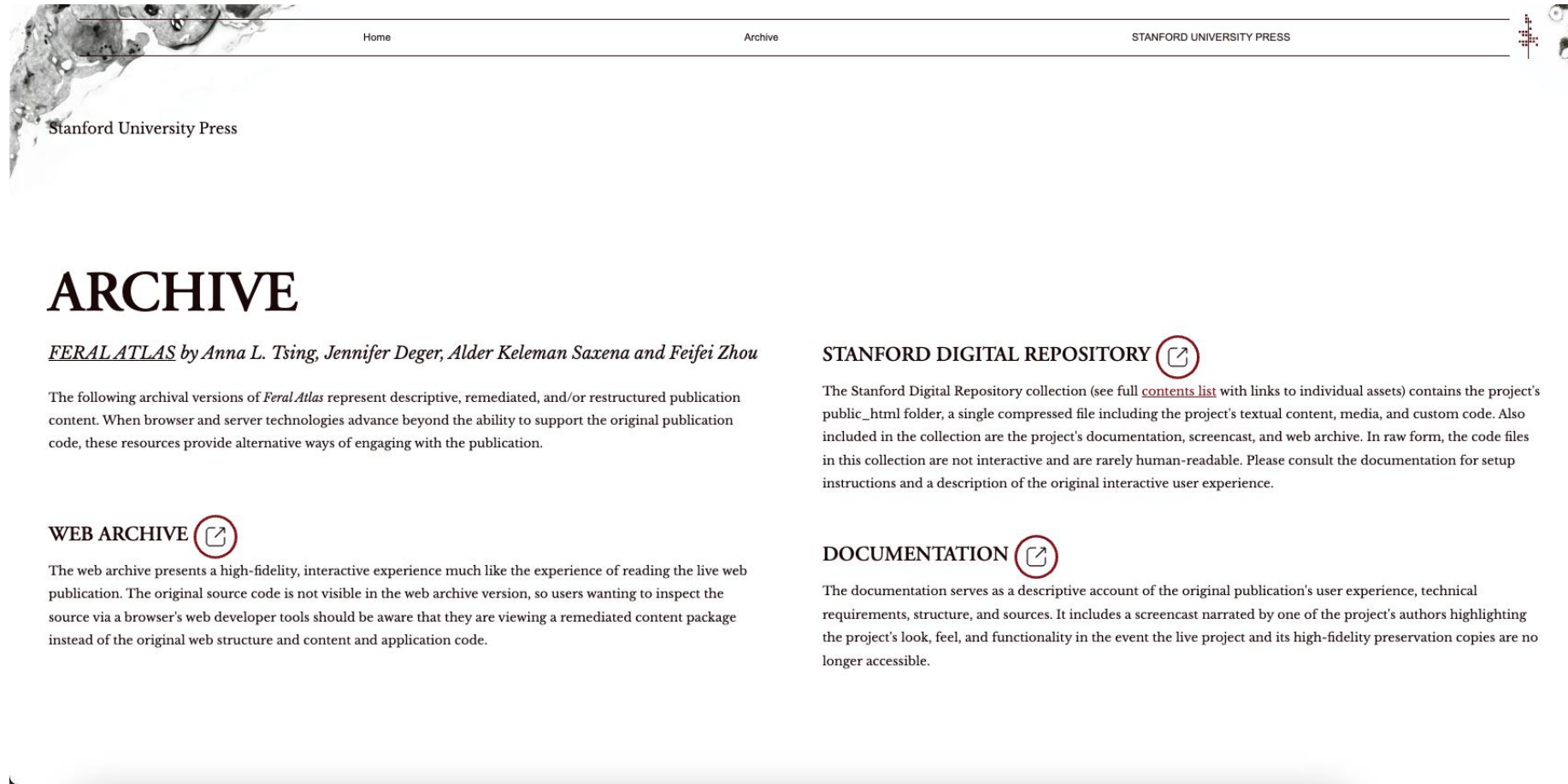
LIVE



WAYBACK WEB ARCHIVE



Approaches



ARCHIVE

FERAL ATLAS by Anna L. Tsing, Jennifer Deger, Alder Keleman Saxena and Feifei Zhou

The following archival versions of *Feral Atlas* represent descriptive, remediated, and/or restructured publication content. When browser and server technologies advance beyond the ability to support the original publication code, these resources provide alternative ways of engaging with the publication.

WEB ARCHIVE

The web archive presents a high-fidelity, interactive experience much like the experience of reading the live web publication. The original source code is not visible in the web archive version, so users wanting to inspect the source via a browser's web developer tools should be aware that they are viewing a remediated content package instead of the original web structure and content and application code.

STANFORD DIGITAL REPOSITORY

The Stanford Digital Repository collection (see full [contents list](#) with links to individual assets) contains the project's public_html folder, a single compressed file including the project's textual content, media, and custom code. Also included in the collection are the project's documentation, screencast, and web archive. In raw form, the code files in this collection are not interactive and are rarely human-readable. Please consult the documentation for setup instructions and a description of the original interactive user experience.

DOCUMENTATION

The documentation serves as a descriptive account of the original publication's user experience, technical requirements, structure, and sources. It includes a screencast narrated by one of the project's authors highlighting the project's look, feel, and functionality in the event the live project and its high-fidelity preservation copies are no longer accessible.



Approaches

- Web Archive
 - High-Fidelity Mirror
 - The crawler and the player matter
 - External dependencies are an issue
 - Links are still an issue
 - Ethics around external content capture
 - Delivery mechanism adds dependency

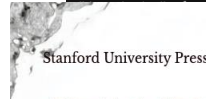
```
1 <!doctype html>
2 <html>
3 <head>
4 <title>EMPTINESS | Archive</title>
5 <script src="https://cdn.jsdelivr.net/npm/replaywebpage@2.4.0/ui.js"></script>
6 <link href="/assets/styles.css" rel="stylesheet"/>
7 <link rel="shortcut icon" href="/assets/favicon.png">
8 <link rel="apple-touch-icon" href="/assets/favicon.png">
9 <meta name="viewport" content="width=device-width, initial-scale=1">
10 </head>
11 <body>
12 <header>
13 <div class="container"><span class="colophon">
14 </span></div>
15 </header>
16 <h1>Web Archive</h1>
17 <p>This site is a web archive, reflecting the state of emptiness.eu as of [DATE], in
18 full with certain exceptions.<sup id="ref-1"><a href="#fn-1">*</a></sup></p>
19 <replay-web-page
20 coll="emp"
21 config='{ "fuzzy": [ "(https://feralatlus.supdigital.org/).*", "$1" ] ],
22 "liveRedirectOnNotFound": false}'
23 replayBase="replay/"
24 deeplink="true"
25 source="empwacz.wacz"
26 liveRedirectOnNotFound="true"
27 url="https://emptiness.eu/"
28 ts="20260121160800">
29 </replay-web-page>
30 <p><a href="#ref-1" title="Return to text">*</a>The following are known discrepancies
31 between the original site and the web archive, none of which affect the primary
content of the site:</p>
<ul>
<li>Originally, a video of a wheatfield appeared in place of the loading error.</li>
<li>Originally, the loading circle icon would disappear after a few seconds. Note
that even though the loading icon appears here, the page is fully loaded and ready to
```



Repository Storage

- Preserves the bits
- Requires documentation for restoring the disaggregated parts
- Requires metadata
- Requires repository infrastructure
- Subject to repository structural limitations
- Excludes external assets

```
{  
  "cocinaVersion": "0.75.0",  
  "type": "https://cocina.sul.stanford.edu/type/public_html.tar",  
  "externalIdentifier": "druid:wy25",  
  "label": "public_html.tar",  
  "version": 4,  
  "access": {  
    "view": "dark",  
    "download": "none",  
    "controlledDigitalLending": "useAndReproductionStatementForReuse",  
    "license": "https://creativecommons.org/licenses/by-nc/4.0/"  
  },  
  "administrative": {  
    "hasAdminPolicy": "druid:wy25"  
  },  
}
```



STANFORD DIGITAL REPOSITORY COLLECTION

FERAL ATLAS by Anna L. Tsing, Jennifer Deger, Alder Keleman Saxena and Feifei Zhou

Contents

Use the following links to access the individual record for each asset, including metadata and a downloadable file. Unlinked objects in this list are under restricted access while the live web publication is available. To inquire about access to specific assets in this collection, please contact digitaltech@www.sup.org.

ARCHIVAL INFORMATION

- Documentation
- Screencast

WEB ARCHIVE

- Web Archive

CODE AND CONTENT PACKAGE

Zippered file containing HTML, CSS, JavaScript, and JSON site files, and all media assets.

- Project Code and Content

Stanford University

Stanford University Libraries

Feedback

 Stanford Digital Repository

Feral Atlas

Abstract/Contents

Abstract

Feral Atlas: The More-Than-Human Anthropocene by Anna L. Tsing, Jennifer Deger, Alder Keleman Saxena, and Feifei Zhou, published by Stanford University Press in 2021, has been accessioned into the Stanford Digital Repository. This page serves as the public-facing cover of that archive. The assets in the archive, project content and media files, remain dark while the publication is available in its live version at <http://feralatlasing.org>. The files will only be made accessible when the live publication is no longer supported by evolving server and browser configurations.

All of the original publication's scholarly textual content is contained in this collection's public_html.tar file, a compressed export from the server where the original publication was hosted. All code, content, and media objects are compressed within this file. A complete record of the original publication is available through the Stanford Digital Repository's metadata database.

Access conditions

Use and Reproduction

Versions

Version 1 Aug 8, 2025 You are viewing this version | [Copy URL](#)

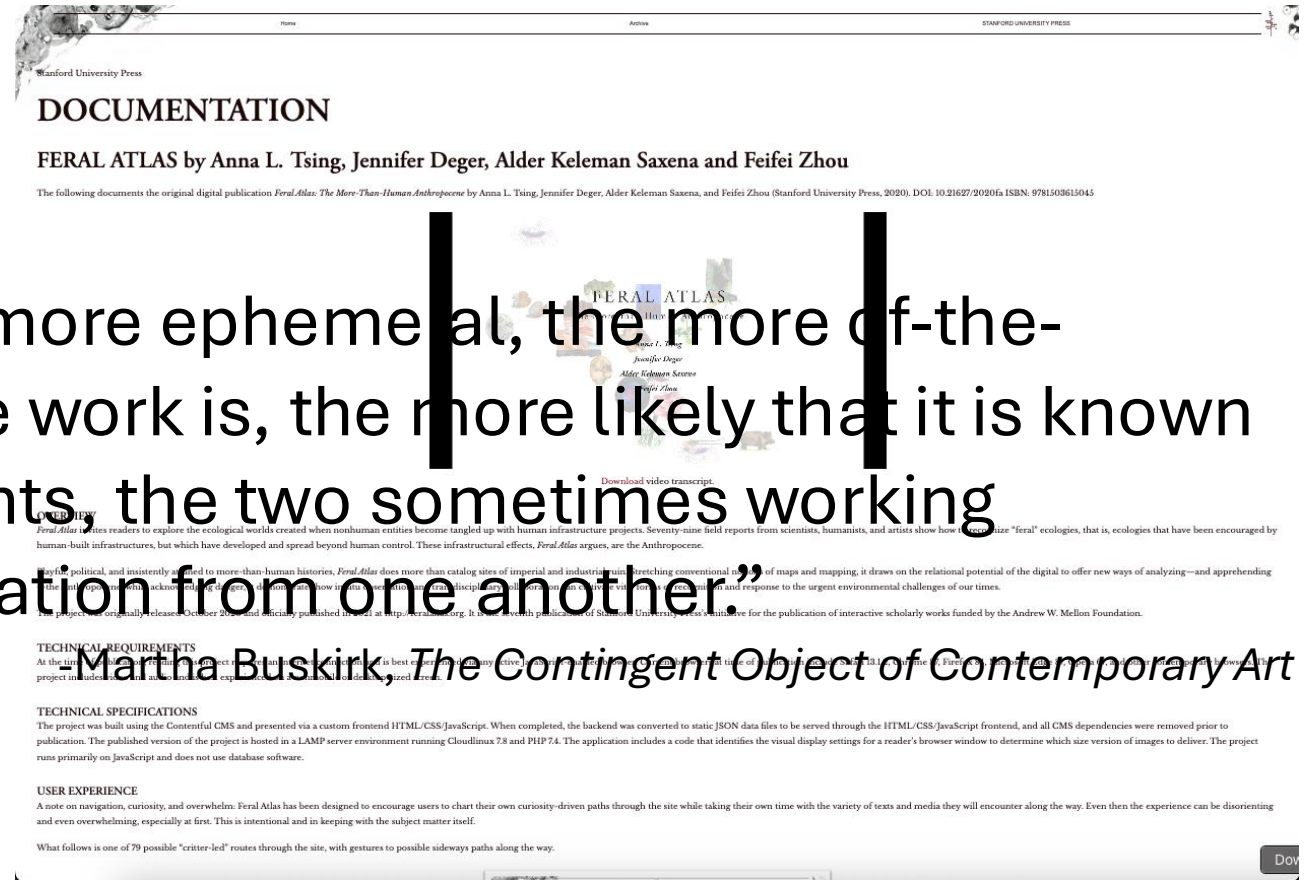
Each version has a distinct URL, but you can use this PURL

[062qk1762](#)



Documentation

- Acknowledges ephemerality
- Descriptive archive
- “The more immediate, the more ephemeral, the more of-the-moment or of-the-place the work is, the more likely that it is known through images and accounts, the two sometimes working together, sometimes in isolation from one another.”
- Requires hosting or repository infrastructure for availability



- To paraphrase Abby Smith Rumsey, **more** is always better when it comes to ensuring a species' or an artwork's longevity. **More** copies, **more** documentation, **more** attention to sustainable design are key in protecting not only our own work but the future of digital scholarship.





Archival Information

Harlem in Disorder, By Stephen Robertson

The following archival versions of *Harlem in Disorder* represent descriptive, remediated, and/or restructured publication content. When browser and server technologies advance beyond the ability to support the original publication code, these resources provide alternative ways of engaging with the publication.

STANFORD DIGITAL REPOSITORY

The Stanford Digital Repository collection (see full [contents list](#) with links to individual assets) contains the project's SQL database export, media, and custom code. Also included in the collection are the project's documentation, screencast, and web archive. In raw form, the code files in this collection are not interactive and are rarely human-readable. Please consult the documentation for setup instructions and a description of the original interactive user experience.

WEB ARCHIVE

The web archive presents a high-fidelity, interactive experience much like the experience of reading the live web publication. The original source code is not visible in the web archive version, so users wanting to inspect the source via a browser's web developer tools should be aware that they are viewing a remediated content package instead of the original web structure and content and application code.

DOCUMENTATION

The documentation serves as a descriptive account of the original publication's user experience, technical requirements, structure, and sources. It includes a screencast video highlighting the project's look, feel, and functionality in the event the live project and its high-fidelity preservation copies are no longer accessible. It also includes instructions on redeploying the publication using the Stanford Digital Repository collection.



Guidelines



Fonts

To ensure readers are able to read your work on any device, that is readable by a variety of devices, because the way content is displayed on screen by the device within the site files or links can be displayed. Although it may seem to be a simple matter, it is important that you ensure the proper display of your content.

WEB SAFE FONT:

The following web safe fonts are the most likely to be read on any device.

Serif: Times, Georgia, Palatino
Sans-serif: Arial, Arial Black, Helvetica, Verdana
Monospaced: Courier New

WEB FONTS

When using web fonts, it is important to ensure that the fonts are hosted on their own servers. Although Google Fonts is a popular option, they will still exist on the internet and a project manager will not look or feel comfortable using them.

GUIDELINES

In all cases, but especially in the case of a first choice or a second or third choice (e.g., Times New Roman family (e.g., serif, sans-serif) first choice as long as it is the first choice in the list).



Images

In addition to meeting the needs of accessibility and archiving requirements, images should be optimized for the web.

FORMAT QUALITY

Recommendations on image format and quality for use in digital projects. In cases where you provide access to digital images, it is assumed you are providing high quality images. However, when an image is not available to readers, it is important to provide a clear and concise description of the image.

Images on the web will be displayed at a size that is appropriate for the device. Larger file sizes take longer to load and may not be displayed at all. To ensure that images are displayed at the appropriate size and proportion and are capable of being displayed at 130 ppi will display better on most devices.

Images should be formatted in a way that is appropriate for the device and the content.

ACCESSIBILITY

All images should include alt text and be accessible to users who are unable to see the image. The alt text should describe the image in a way that is appropriate for the device and the content.

If design-appropriate, include a clear and concise description of the image in the text. The source of the image should be provided in the text.

ARCHIVABILITY

Like all media files, images should be stored in a way that is appropriate for the device and the content. It is important to ensure that images are stored in a way that is appropriate for the device and the content.



Color

When choosing colors for your project, keep in mind the readability and accessibility requirements. The following are some guidelines for color use in digital projects.

COLOR SPACE

To optimize color representation in digital projects, use the appropriate color space for the device and the content.

ACCESSIBILITY

Readers with color vision deficiencies, so avoid relying on color alone to convey information. If color is necessary, use high contrast and provide a clear and concise description of the color in the text.

RESOURCES

Code Beautify's Color Names; shows RGB and hex values for a wide range of colors.



Links

Links form the basis of navigation in digital projects. We recommend the following guidelines for link use in digital projects.

Internal Links

Use relative links rather than absolute links. This practice will ensure that the links will work on any device and in any environment.

For example, use `file.html` instead of `file.html`.

External Links

Ideally, a project will not link to external content or the content of another project. When a link to external content is necessary, it is important to provide a clear and concise description of the link in the text. For instance, link to content pages that reference a bibliography, where a reader can find the full citation information for the project in multiple browsers.

Link Targets

While it is up to each author to determine the consistency and format of links, it is important to provide a clear and concise description of the link in the text. It is important to provide a clear and concise description of the link in the text.

Resources

World Wide Web Consortium



Interoperability

Readers will want to employ a variety of devices to access your project. Consider the operability of your project on mobile devices, you'll need to ensure your project is accessible on a variety of devices. The project works best in a particular environment.

BROWSERS

Whether you realize it or not, your project will be accessed by a variety of browsers. What you use when you test how your project is running? All these specs should appear as recommendations in your CSS code that triggers a warning if your project includes:

OPERATING SYSTEMS

Because your project is web-based, look, feel, or functionality of the operating system you used to develop your project may differ from the way it is displayed on different machines. (See the "Fonts" do Safari rather than Internet Explorer; your project in multiple browsers for all your readers.

MOBILE DEVICES

For a variety of reasons, you may want to ensure that your project is accessible on mobile devices. For instance, many smartphones, which are easily accessible to multiple viewing devices, include responsive meta tags.

Example

```
<meta name="viewport" content="width=device-width, height=device-height, initial-scale=1.0">
```



Digital Language

The highly collaborative and evolving nature of digital projects. The idea of digital projects is to create a shared space for discussion and scholarship. The value of the labor that goes into creating a digital project is often overlooked.

To advocate for the credit of the people who create digital projects, we recommend that you include a list of each contributor in the Home or About page. This list should include the file version of this list.

Projects that use or build on existing models. Just as you should include or link to the models. For like latitude and longitude embedded in the project identified. As with the behind the argument that this work, we value a



Documentation

Current standards in the digital humanities and projects, put emphasis on the importance of development, the people consulted, and the technical information needed for proper citation and development, publication, and preservation. We encourage your project's technical formats, dependencies, somewhere in the project. Alternatively, you may understand that we will attach it to the archive.

What to Document

- Native development environment, including libraries, and languages used;
- Browsers and browser versions in which the project was developed;
- Software and software versions used;
- Datasets queried, consulted, or employed;
- Server specifications and licenses if hosted on a server;
- Reasoning for technological choices;
- Reasoning for design decisions;
- Reasoning for file naming structures;
- Collaboration and consultation;
- Results of tests run

Format

Your project should include a section that is part of the technical specifications for optimal performance of the rationale behind the project's design and might be helpful to consider this section part of the project's documentation. If desired, instructions on navigating the project's design and digital projects become more prominent in the project's documentation. We will continue to update this discussion. However, you may also include it in the archive package as well.



Archivability

Stanford University Press is happy to be publishing your work and, by doing so, working with you to challenge the traditional notions of scholarly writing and publishing. Like you, we realize digital media offers powerful tools and innovative approaches to engaging critical debates in the humanities and social sciences. We recognize that you are challenging conventional formats of scholarship, and we share your vision for innovating and invigorating the academic community by taking scholarly discourse into a medium that offers such creative potential. Because we share with you the belief that these debates and expressive modalities deserve equal treatment in the scholarly record, we have a serious commitment to ensuring the longevity of your work through responsible approaches to sustainability and archiving. Your conscientious authoring and design choices are the first step toward sustaining the long-term fidelity of your work. But because we acknowledge that even the most sustainably designed web interfaces are susceptible to normal decay, we must anticipate the necessity of preserving your project's content so that readers and researchers can access it even after changing web environments begin to disrupt the project's dynamic and interactive features. To that end, we intend to take multiple approaches to archiving your content and preserving documentation of its intended presentation.

Unlike a typical monograph publication, for which the publisher implements the material architecture that contains the content, you, the author, hold the creative responsibility for your project's format, design, and execution. Nevertheless, as your publisher, we share the responsibility of the sustainability of your work and therefore recommend, encourage, and require certain technology and design standards. We have compiled these archiving guidelines, along with the enclosed style sheets to help you make informed decisions on the types of technological considerations that will impact your project's longevity, and its amenability to current web archiving standards and practices.

In addition to your use of these recommendations, it is important you complete the technical questionnaire so we may begin developing the best publishing plan for your project, including its most suitable archiving environment.

Archivability Spectrum

A digital project falls into a spectrum whose endpoints are usefully analogized as object and performance. Whereas a book can be considered an object, with its performative qualities limited to the audience's experience while reading the book, an interactive digital project shares certain qualities of ephemerality that characterize a performance. It only functions as an object insofar as the device displaying the project or facilitating the reader's experience with the material remains intact. Because technology changes so rapidly, these devices and standards are always in flux. Thus, depending on the complexity of the tools and applications needed to deliver the project in a reader's web browser, the project may be more or less susceptible to decay as technology evolves and renders certain tools and applications obsolete or as external data or media change locations. To help you determine where on the spectrum your project falls, and what further safeguards will most likely be required because of its



A couple of lessons we've learned

- Bad, better, best:
 - Embedding content sourced externally
 - If it's worth it, localize it
 - Linking out to resources
- “razor's edge of balance”
- Author's expectations around longevity differ



Maybe you do not understand. You see, turning pages will bring us to the end of this book, and there is a **Monster** at the end of this book.

...but **this** will stop you from turning pages. See? I am tying the pages together so you cannot....



Thanks to

- James Joyce
 - For inspiring the [Mapping Dubliners Project](#)
- Virginia Woolf
 - To the Lighthouse (quote)
- W.B. Yeats
 - The Second Coming (quote)
- Abbey Smith Rumsey
 - When We Are no More (paraphrase)
- Martha Buskirk
 - The Contingent Object of Contemporary Art (quote)
- Walt Disney Productions
 - The Black Hole Read-Along (audio)
- Grover
 - The Monster at the End of this Book (images)

