Bringing Books Online

Greg Albers, The J. Paul Getty Trust, USA

Abstract

In 2009, the Getty Foundation launched the Online Scholarly Catalogue Initiative (OSCI) to convene and fund a cohort of eight participating museums exploring the possibility of publishing scholarly catalogs online. Six years later it was an undeniable success—all eight museums had produced online catalogues, and all eight were planning to publish more. The question for the museums, and for many others in the field watching the initiative's progress, was no longer whether museums should publish scholarly catalogues online, but how best to do so. As reported by OSCI participants directly, and as seen in a number of subsequent user studies, there were three particular challenges many of the first catalogs faced: discoverability, longevity, and objectness. In other words, how the books are found, how they are maintained, and how readers understand their boundaries and status as formal publications. These challenges give us a roadmap to building the next generation of online publications, particularly by focusing on metadata best practices, multiple-format and static-site publishing, plain-text source material, transparent version control, and thoughtful UI. This paper delves into the lessons the community of museum digital publishers has learned so far, and begins to chart a course for the future.

Keywords: digital publishing, online catalogues, open source, plain text, static site generation, collaboration

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The move of books to online platforms started with the digitization of print volumes, the history of which can be traced back to 1971, when Michael Hart, the founder of Project Gutenberg, started digitizing texts and sharing them across a computer network (http://www.gutenbergnews.org/statistics/).

> *All of the original Project Gutenberg Etexts from the 1970's were produced in ALL CAPS, no lower case. The computers we used then didn't have lower case [sic] at all.... The United States Declaration of Independence was the first Etext released by Project Gutenberg, early in 1971. The title was stored in an emailed instruction set which required a tape or diskpack be hand mounted for retrieval. The diskpack was*

> *the size of a large cake in a cake carrier, cost $1500, and contained 5 megabytes, of which this file took 1-2%. (http://www.gutenberg.org/cache/epub/1/pg1.txt)*

Project Gutenberg and other similar digitization efforts that would follow carried on into the early years of the Web. Then, forty years after its humble beginnings, book digitization took a dramatic step forward when Amazon.com started its "Look Inside the Book" program in 2001 (Amazon, 2001). This was followed shortly by "Search Inside the Book" (SITB), which they launched in 2003 with 120,000 fully scanned books. The quantity far surpassed other efforts (Project Gutenberg had just digitized its ten-thousandth volume by that same time), but SITB was a closed system designed by Amazon to help sell print books. While this strategy and the quantity involved helped get the attention of book publishers and get them invested in the idea of digitizing their books, compared to other sources of content being authored, distributed and discovered on the Web, books still lagged far behind.

> *... it's still shockingly difficult to find information buried in books. Even as the Internet has revived hope of a universal library and Google seems to promise an answer to every query, books have remained a dark region in the universe of information. We want books to be as accessible and searchable as the Web. (Wolf, 2003)*

Indeed, engineers at Google appeared to have been thinking much the same thing and, in 2004, announced Google Print, a partnership with book publishers to digitize their books and catalogue them online for search and discovery (https://www.google.com/googlebooks/about/history.html). Two months later, Google announced an affiliated effort, the Library Project (Google, 2004). It too was aimed at digitizing, but it targeted the millions of books in the collections of large academic libraries, many of whom had already been scanning themselves, though of course at a much smaller scale and slower pace than what the Google partnership would enable. Despite a number of significant legal challenges (including those coming from the Association of American Publishers and the Author's Guild in 2006) over the digitization of in-copyright works from library collections, by 2008, Google had scanned more than seven million individual titles.

Between Amazon and Google's parallel efforts, an increasing number of book publishers came to embrace digitization as a means of marketing and selling print books. The benefits were particularly promising for publishers whose books were often too small and specialized to have mass distribution in major retail bookstores, such as academic publishers. Indeed, between university library efforts to scan and digitize their collections, numerous grant-funded projects related to electronic publishing, and university presses' sometimes forced responses to negative market pressures on print production, the

academy was in many ways ahead of the game when it came to digital publishing. The 2007 report *University Publishing in the Digital Age* (Griffiths, 2007), gives a good snapshot of the state of digital transformation in the sector around that time:

> *The first stage of this transformation—the translation of traditional print products into electronic formats—is well underway, led by journal publishers who have developed hybrid print/electronic publishing models. Most readers now prefer to access journal literature online, and as comfort levels grow with scholarship distributed electronically, demand is increasing for other content types to follow the same curve.*

Shortly after this report was released, people's comfort with reading content digitally (especially longform and book-length content) would get another boost, with the e-reader. Though a number of companies had introduced dedicated e-reading devices before—notably the SoftBook and the Rocket eBook Reader in 1998 (MobileRead Wiki), and Sony's Librié in 2004 (Hoffelder, 2014)—it was again Amazon that ultimately drove industry-wide change. This time it started with Amazon CEO Jeff Bezos on the cover of Newsweek magazine, holding his company's first Kindle (Levy, 2007). Amazon's rising dominance in the print book market made the Kindle an immediate factor and jumpstarted e-publishing, despite the ungainliness of its early form. Now, publishers were no longer just using digitized books as promotional tools to aid in the discovery and sales of print volumes, they had an effective way to sell the digital books themselves.

These shifts in the industry in the early 2000s and the explosive growth of the Web set the stage for publishers to think much more deeply and creatively than before about where digital tools and methodologies could lead publishing; and, they offered hope that these futures could actually be achieved. On this topic, the *University Publishing in the Digital Age* (Griffiths, 2007) has said the following:

> *The second stage of the transformation—the creation of new product types enabled by digital technologies—has just begun. New publishing models are emerging in response to demand for real-time dissemination, dynamic material, more collaborative research and authoring environments, and usage of rich media.... Scholarly publishing of the future will need to support content created in new and complex ways, including everything from regularly updated reference material,*

> *multimedia projects, and large interlinked centers that add new works regularly, to resources with user-generated content (the so-called Web 2.0).*

Research and investment

Though the tone of the commentary at the time may seem to have been optimistic about the future, a roughly equal portion was similarly pessimistic. The same shifting paradigms that made digital publishing suddenly possibile also simultaneously threatened the print model publishers were so financially dependent on. There were real and considerable concerns that digital publishing would erode print markets, weaken intellectual property protections, and consume already thin profit margins and development resources. At the same time, other factors and a global recession saw retail bookstores closing, and publishers consolidating or going out of business. If publishers were to pursue digital, it would need to be within the constraints of the market, and this (along with other factors) has inarguably dampened innovation in the commercial publishing sector.

For academic presses though, just as their mission-driven nature helped them embrace open access policies and drive their digitization of print books, the grant funding opportunities open to them have proved key assets in their innovating in the creation and distribution of more forward-thinking and technology-native digital books. The largest single funder in the field thus far has been the Andrew W. Mellon Foundation.

The Mellon's support of digital publishing began in 1989 (the same year Tim Berners-Lee invented the World Wide Web) when they commissioned a study on the economics of research libraries (Cummings, 1992). Published three years later, the report spurred the foundation to invest heavily in the area of "scholarly communication, libraries and technology," and in their 1993 Annual Report (*Report*, 1993), Mellon announced a new initiative, aimed at addressing the following:

> *... the interrelated problems of: escalating library costs, threats to the continuing viability of certain forms of scholarly publishing (especially of monographs in the humanities), the future of archiving, conservation of at-risk materials, and how best to take advantage of the possibilities for improved scholarly communication inherent in new technological developments.*

Mellon made its first "electronic publishing" grant in 1994 to Columbia University for an "Online Books Evaluation Project" ("Columbia University", 1994). By the time the Kindle had launched in 2007, and the idea of digital publishing hit the mainstream, Mellon had already invested $26.7 million in electronic

publishing initiatives across 35 universities and academic associations, and were poised to do more (https://mellon.org/grants/grants-database/). Their 2007 Annual Report included an essay on their scholarly publishing initiatives to date (Waters & Maisel, 2008), and over the next several years they funded projects such as the Online Journal of the Society of Architectural Historians, the University of Virginia's digital imprint Rotunda, and the Alliance for Networking Visual Culture's publishing tool, Scalar.

During this period, they also continued to fund research reports on the field, two of which focused specifically on art and architectural history publishing, which included university presses but also museum publishers. *The State of Scholarly Publishing in the History of Art and Architecture* (McGill, 2006) and *Art History and Its Publication in the Electronic Age* (Ballon & Westerman, 2006) were published by Rice University, and as noted in an article that appeared a few years later in the art libraries journal, *Art Documentation*:

> *... taken together, they provide an important snapshot of the state of scholarly publishing in the field of art history along with insights into art historians' attitudes about electronic publishing.... The most interesting thing about the two studies, however, is the disconnection between the McGill Study's findings and the Ballon and Westermann Study's conclusions and recommendations. (Whalen, 2009)*

On one hand, the McGill study noted little enthusiasm for digital publishing in the art and architecture publishing field and found "no documented experiences of cost savings, improved, if not better, image quality, or faster publication to counterbalance the misgivings." On the other hand, the conclusions of the Ballon and Westermann study were much more optimistic and its primary recommendations centered around expanded electronic publishing initiatives. Among other things, Ballon and Westermann noted the "rise of digital art history," considered "journals as portals of electronic publication," and proposed "extended, networked articles" and "electronic monographs" in an extended section of their report dedicated to electronic publication. This despite what the McGill study might have characterized as "art history scholars and publishers feelings and opinions about electronic publishing that range from ambivalence to deep-seated resistance" (Whalen, 2009). Rather than calling into question the validity of either report, the discrepancies in their findings and outlook only serve to highlight the inherent conflict at the time, where the speed and scope of digital transformation made it seem as though the choice between print and digital was a binary one.

The *Art Documentation* article was written by Maureen Whalen, the Associate General Counsel at the time for the J. Paul Getty Trust, who had witnessed the troubled path of an early digital publishing project at the Getty and had also participated in a two-day forum sponsored by the Getty Research Institute and co-sponsored by the College Art Association ("Art History and the Digital World") (http://www.getty.edu/research/exhibitions_events/events/digital_world/) which featured a panel on digital publishing. Like the Mellon, the Getty has long been interested in the research and publishing practices of scholars. In 1986, a collaborative study was undertaken by the Getty and Brown University to study the research methods of art historians, and to assess the profession's future needs. The final report on the study (Bakewell, Beeman, & Reese, 1988) even offered a section, albeit a short one, titled "The Present Use of Computers." Here the interviewed scholars discussed the pros and cons of word processing, as well as the occasional use of limited and complicated-sounding database programs. The only relevant tools at hand were essentially early versions of Microsoft Word and Excel. More interesting, from our vantage point today, is the section in the report titled "Wish List." In summarizing scholars' overall wishes, the report's authors wrote the following:

> *Electronic catalogues, indexes, and data banks could enhance research if they were more affordable to the user. Free and ready access to the electronic catalogues of major libraries and research institutions was a major concern. Subject indexes to data banks of both verbal and visual materials are particularly desirable.*

Now jump ahead some thirty years to 2009. Following the publication of the McGill and Ballon and Westermann studies, the continued Mellon funding of scholarly publishing, the launch of Amazon's Kindle, the explosive growth of Google Books, and the Getty's own forays into digital art historical inquiry and publishing, the Getty Foundation launched the Online Scholarly Catalogue Initiative, or OSCI (http://www.getty.edu/foundation/initiatives/current/osci/). The initiative would convene and fund a cohort of eight participating museums in exploring the possibility of publishing scholarly collection catalogues (of the kind previously published in large print volumes at great expense) online. The aim was to answer not only whether the idea was technologically feasible, and to potentially provide exemplars to be built upon for future endeavors, but also whether it was professionally desirable. The initiative, ultimately granting just over $4.8 million, would, in effect, test the apparent rift between what the two reports had seen, and what other observers would certainly attest to: the future of art books online.

Six years later OSCI wrapped up, and then in the spring of 2017, the Getty Foundation published its final report on the initiative: *Museum Catalogues in the Digital Age* (2017). All eight museums had successfully produced online catalogues, some had done even more, and most had plans to publish more. They had worked collaboratively through thorny workflow issues, occassional massive technology upgrades, and the usual rigorous scholarly editorial processes, all in a radical new environment. For the OSCI participants, and for many other museums who had been watching their progress all along, the question was no longer if they should publish scholarly catalogues online, it was simply how best to do it. The new perspective gained from OSCI, from the time of those initial reports to the present, hasn't been limited to museum publishing—it can be seen in university presses as well, and the investment in new projects has continued.

Around the time the OSCI participants were wrapping up their projects, and after an 18-month strategic planning process, Mellon announced a renewed commitment to their Scholarly Communications program in 2014, saying it would "aim to develop the sustainable tools, organizations, and networks of scholars and other professionals needed for these purposes." The plan particularly calls out their focus on "A multi-pronged plan to assist the evolution of academic publishing in the Internet age." Looking specifically at "those publishing projects that experiment with new business models that promise to make academic publishing in the humanities more sustainable; those that employ or develop new tools and workflows to enhance authoring, editing, and reading; those that may result in a broad acceptance of high-quality digital-first or digital-only publications for promotion and tenure in the academy" ("Continuity and Change", 2014; see also Straumsheim, 2015, and "Electronic Publishing").

Since the announcement of their 2014 strategic plan, Mellon has awarded $21.7 million to electronic publishing projects, nearly doubling their spending from the prior twenty years. Along with funding the Open Book program in conjunction with the National Endowment for the Humanities (NEH, 2015), this latest round of Mellon funding also targeted a number of platforms that, like Scalar, would give publishers new ways of creating and disseminating digital books, notably including the following:

- Editoria, University of California Press and the California Digital Library (https://editoria.pub/)
- Fulcrum, University of Michigan Library and Press (https://www.fulcrum.org/)
- Vega, West Virginia University, (https://vegapublish.com/)
- Manifold, University of Minnesota Press, (http://manifold.umn.edu/)
- Art and Architecture ePortal, Yale University Press

Meanwhile, digital publications and tools continue to be built and funded at a surprising pace. They are funded not only by the Mellon and the Getty, but by the Kress Foundation, the National Endowment for the Humanities, the Arts and Humanities Research Council, and many more. And of course, the presses and their parent institutions are investing in digital projects directly as well. In its Directory of Digital Publishing Projects, the Association of American University Presses (AAUP) currently lists more than eighty digital publishing projects and initiatives—many spanning dozens of different individual titles—across 35 of its member presses (http://www.aaupnet.org/aaup-members/news-from-the-membership/digital-projects-directory). In museums, in addition to the eight OSCI participants, numerous others have explored digital publishing, including the Museum of Fine Arts Boston, the Guggenheim, the Dallas Museum of Art, and the Museum of Modern Art, along with smaller institutions like the Corning Museum of Glass, the Clyfford Still Museum, and others.

As these projects continue, and new investments are made apace, pauses for reflection and evaluation are also a critical component of the practice that can't be overlooked. This means to judge what has been accomplished, to learn from the effort of others, and to map the path forward in a way that builds off past successes rather than repeating past missteps.

Evaluation

One of the most direct forms of evaluation for publications are post-publication reviews, which have long been a critical part of the publication process, not only in promoting the dissemination of the publication, but in situating it in the larger intellectual and cultural context. Authors, especially in the academy, depend on reviews to add weight to their work and to justify their bids for tenure or promotions. Reviews convey quality and without them, it's hard to expect that a publication will find it's full audience or be fully accepted by those that it does find. From the 2007 *Report of the MLA Task Force on Evaluating Scholarship for Tenure and Promotion* (Modern Language Association, 2007):

> *The book review plays an essential role in humanities scholarship, disseminating information about new works, critically evaluating them, and engaging them in often pointed debate. As such, the best published reviews constitute an important scholarly activity that helps direct, alter, and sustain ongoing conversations in the field.*

Getting reviews, however, has been one of the big challenges for publishers and authors of scholarly online publications from the beginning. The traditional outlets and reviewers that would normally consider print publications, have proven wary of reviewing what perhaps seemed like not much more

than yet-another-website—sites that often felt ephemeral, non-scholarly and totally lacking the packaged authority of a traditionally published print volume. Some specialist review sites have been started to address the issue, but with mixed results. The *Bryn Mawr Classical Review* (http://bmcr.brynmawr.edu/), "the second-oldest electronic journal in the humanities," launched the *Bryn Mawr Electronic Resources Review* (*BMERR*) in 1998 in an effort to promote and sustain reviews of such materials, but the offshoot review struggled to find a community and ceased publication after just two years (MacKay, 2014). More recently, in 2014, the Art Libraries Society of North America started it's *Multimedia & Technology Reviews*, again an offshoot of a longer-running reviews publication, *ARLIS/NA Reviews*. It's been publishing approximately a dozen reviews a year on a variety of digital publications and resources (https://arlisna.org/publications/multimedia-technology-reviews).

Ideally, when digital publications are reviewed, attention needs to be paid both the content, and the technology supporting it. Indeed, during its short run, *BMERR* "made an effort to address the permanence and the scholarship of the sites by including in reviews questions such as peer review, availability, permanence, and publication date," even if it was often just "to note that there was no indication of provision for permanent archiving" (MacKay, 2014). And ARLIS/NA's reviewer guidelines specifically request evaluation of projects in terms of "access," "user experience," and the "use of media and technology" for the *Multimedia & Technology Reviews*. Still, the perspective and evaluations tend to be from that of educated and savvy, but non-technologically trained users. Though, one would be hard pressed to find examples currently, digital publication reviews could be further enhanced by including technologists as reviewers. Such professionals would be in a better position to evaluate the true benefits and limitations of any give digital choice, and such information could help to guide future development in a meaningful manner.

Another limitation of reviews for digital publications thus far is that they tend to be quite isolated, both by type within any given review publication, and from publication to publication. While there are cross-publisher directories of digital publications like AAUP's aforementioned Directory of Digital Publishing Projects, and the independent Directory of Open Access Journals (https://doaj.org) that can cover a great scope of subject matter, these directories and the individual reviews and review publications offer little in the way of comparisons of the type that might help us better understand the field and evaluate its trends. One notable exception to this is the *Catalogue of Digital Editions*, by Greta Franzini (https://dig-ed-cat.eos.arz.oeaw.ac.at/), who defines "digital edition" for these purposes as a critical edition that is not merely a facsimile edition, but one that takes advantage of its digital space and that fully "represents its material (usually as transcribed/edited text)" (Franzini). Though limited to its own particular subset of digital publishing activity, Franzini's *Catalogue* comprises a dataset of some 230

digital editions, currently, with some fifty consistent and comparable pieces of data on each, that range from the edition's subject matter and URL, to its features, textual encoding scheme, and technological infrastructure. While it takes a more object, data-focused approach to reviewing and cataloguing the included editions, the *Catalogue* also uniquely offers the possibility of rich comparison and analysis across publications, even if that more subjective and evaluative work is yet to be done. It may also someday provide a model to be applied to the evaluation of other types of digital publishing projects, specifically like the Mellon-funded university press projects, the Getty's OSCI collaborative, and other open access, scholarly editions which have been the subject of our history here thus far.

The Getty's final report on OSCI (*Museum Catalogues*, 2017) offers to date perhaps the most thorough evaluation of these types of projects, and of the challenges that remained following their completion. Notable in this case particularly is that the report evaluates eight individual publications from different sources, and all of the same basic type, which allows for fruitful analysis in much the same way the *Catalogue of Digital Editions* promises, even while not relying on very specific data points.

In a section of the report entitled "Remaining Challenges," the Getty identifies four key areas of concern, as gleaned through reports from OSCI participants directly, in a number of user studies, and by its own evaluation:

1. Finding the catalogue
2. Reader confusion about catalogue boundaries
3. Preserving online catalogues for the public
4. Sustaining digital publishing

In other words, how can museum publishers ensure readers find these books, how can they ensure the books will remain functioning and accessible well into the future and that the museum's own publishing practices will too, and how can readers identify (implicitly and explicitly) the scope and status of the books once found? What might be simplified to: discovery, longevity, and perceptual scope or what might be called, objectness. Echoes of some of these same ideas can be found in an independent review of the OSCI initiative and its resulting catalogues (Goodyear, 2016). While applauding the overall initiative, the rich illustrations, and many of the features of the catalogue, the author also noted potential issues around the management and sharing of collection data associated with the catalogues, maintenance and preservation strategies, change or version control, and user access.

For the Mellon Foundation projects, as part of their large, publishing-focused grant cycle in 2014, the Foundation also awarded a grant to Simon Fraser University specifically to evaluate the overall initiative

(S., Katie, 2015). The report has not been published, but the Mellon has certainly continued to evaluate its programs and define its priorities on their own as well. Based on their lengthy experience in the field and conversations with their various grantees and other constituents, they developed a set of "features of the monograph of the future," which would be fair to also read as a lessons-learned from previous projects (Waters, 2016). A list of what either has been achieved and should be repeated, or what has not yet been achieved, but should:

1. Portable across reader applications
2. Able to support a user's annotations independently of any particular reader technology
3. Capable of supporting metrics of use that respect user privacy
4. Reviewed and eligible for disciplinary prizes and awards
5. Maintained and preserved in its digital form
6. Expertly marketed, widely accessibly, and owned (not rented) by the reader
7. Economically sustainable

Again we hear echoes of the evaluation of the OSCI projects with ideas around portability or scope, maintenance or longevity, accessibility, discoverability and sustainability. Likewise, a working group from Emory University, considering the possibilities of open access academic publishing in the humanities, came to much the same idea:

> *Among the many issues about the digital publication of monographs, two emerged of particular concern: The long-term preservation of digital monographs, and the ability of university presses to ensure that digital publications reach their desired readerships, including new audiences that could be cultivated through digital dissemination. (Elliott 2015)*

So, discoverability, longevity, and objectness. It is these qualities that will be considered here, as we look to better understand their implications and offer concrete, actionable steps to answer them in creating the next generation of online publications.

Discoverability

For discoverability, the issues are twofold. On one hand, there's the issue of search engine discoverability. Like any website a significant if not majority share of traffic to online catalogues comes through search engines. A consistent and thorough handling of head metadata, and the optimization of website accessibility (which includes the use of semantic HTML and explicit content attributes) can both

play a significant role in website discoverability. They also make for more professional product, the digital publication version of an excellently done book index. Looking ahead, the next frontier will be the use of more advanced techniques like the integration of linked data, and controlled vocabularies; and perhaps even creation of a Catalogue API to encourage both discovery and re-use.

The second kind of discoverability issue for online catalogues, is marketplace discoverability. This is the case even if, or maybe especially if, that marketplace is one of free and open access books like museum online publishing projects typically are. The advantages of print books in this arena are undeniable. Print publishers have built up a supply chain so efficient that its many benefits are now taken for granted and completely overlooked. When a print book is published it triggers a cascade of activity. The Library of Congress catalogs it, distributors share data about it to myriad retailers, wholesalers, libraries and information services, reviewers write about it, and when they're ready to get it, readers find it easily at Amazon, other booksellers, online, and in their library catalog.

To solve this issue of marketplace discoverability, and to get online publications into the marketplace alongside the rest of their books, one sure option is a seeming step backward, for museums to publish online publications in print. Not just print in fact, but in multiple formats including e-book and pdf. The simple logic is that the more formats the book has, the more place the book can be, and the more naturally it will be found. We needn't reinvent decades of systems built up around print books, or worse, ignore them altogether, when the same technologies that allow us to make an online book can also be leveraged to create that same book in other formats.

Longevity

It doesn't take much time following links on the web to realize the extremely limited lifespan of most websites. While we're still reading paper books that are hundreds, or even thousands of years old today, the lifespan of the average website is certainly a mere fraction of that. A serious publisher (maybe even more so a museum publisher who has the added mission of serving their collections and the public more broadly) must take seriously their stewardship of the work they're publishing far into the foreseeable future. With digital publishing, the difficulties surrounding that responsibilities are compounded.

Multiple-format publishing, mentioned above as one possible solution to online publications' discoverability issues, has the added benefit of being a very good hedge against long-term loss. Even without the inclusion of a print edition, having the content of online books available in other formats greatly increases the chances of the content remaining accessible and relevant to readers for years to come. And perhaps the best format for this is also the simplest: plain text.

Plain text files with very simple human-readable markup, like Markdown or even HTML, allow the contents of a catalogue to live independently of almost any file format. Unlike, InDesign, Word or even PDF documents, it doesn't take a very specific program to cleanly open and access the contents of a plain text file. While readers may not want to read that way right now, having it there is an easy, efficient and software-agnostic way of archiving it for the future. It also means you can use version control (especially git) to monitor and record changes down to the character level to that content over time, and to roll back those changes if and when necessary. Of course, change like that becomes its own kind of concern, and that brings us to the third key issue that must be addressed in pushing online publishing to the next stage.

Objectness

With print books, readers can and do make an automatic assumption that they'll be able to go back to it, refer to it, cite it, and so on, and that the contents of that book will not have changed in the intervening time. A sense of permanence and stability comes built-in to every print book. No such assumption can be made with digital books.

Similarly, in extended user studies on a couple of the OSCI publications (both of which were notably intertwined with their parent museums' websites by design or by navigation) one of the primary findings was the difficulty for readers to understand the site boundaries of the publications, and the negative effect this perception (or lack thereof) had on their experience. A sense of boundaries also comes built-in to every print book. And again, no such assumption can be made with digital books.

Both of these conditions come down to what can be thought of as a quality of objectness. Having a sense of the objectness of a thing, especially a book, gives us answers to vital questions: What is this thing I am in? Where does it start and stop? Who is responsible for it? What rules does it follow, such as for navigation and updates? And what position does it have relative to other "objects", such as other online catalogues, museum collection pages, exhibition websites, and so on?

The best solutions to the problem of objectness encompass a number of varying approaches, including mindful UI design, but also accessibility, transparency and the explicit answering of questions readers may have. Using tools like GitHub to track and display revisions, exposing thorough metadata, hosting open source files all help readers better understand an online catalogues objectness. It is not enough to simply declare something to be a book. "Ceci n'est pas une pipe." Rather, the inner workings of the online catalogues being created must be exposed for readers to see and interrogate, and hopefully ultimately understand and trust for themselves.

Putting It All Together

In the past year at Getty Publications, we have tackled these issues head on in a series of online publications, and the development of an open source software package based around static site generating tools, that will allow other museums to do the same. The software will be released in early 2017, and we'll share details as part of the presentation at MW, but this is only one way. The entirety of the web is at the disposal of museum technologists and publishers searching for solutions to the key issues raised. We need only stay focused and find ways to use these tools wisely in addressing the lessons we've learned, to move digital publishing forward together.

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