

Chapter Four of *Doing Digital History: A Guide to Presenting, Preserving, and Gathering the Past on the Web* by Daniel Cohen and Roy Rosenzweig (University of Pennsylvania Press, forthcoming, 2005), please do not circulate or reproduce.

Chapter Four: Designing for the History Web

Even before you have finished digitizing the material you will need for your website, you will need to begin thinking about the site's design. At this point most historians once again face unfamiliar territory. But if historians typically have few preconceived notions about server set up or audio sampling rates, many have firm opinions about web design. Users of the web encounter attractive and functional sites, and awkward and unfriendly pages, all the time, and each of us is quite sure we know what good design is and what bad design is and that everyone else is wrong about such things. People who would rarely venture precise aesthetic commentaries about paintings in a museum nevertheless tend to have strong opinions about the layout, colors, fonts, and other design elements of a website—and of all websites. In no other medium has David Hume's dictum perhaps rung truer, that "Beauty is no quality in things themselves: It exists merely in the mind which contemplates them; and each mind perceives a different beauty."¹

With these myriad viewpoints, web design has become highly contested and occasionally belligerent. Since the Internet is still in its infancy compared to other media that historians use, few conventions have arisen, yet everyone seems to know where true perfection lies. In addition, the pull of commercial designers has been strong across the web. Few books discuss academic web design, as opposed to commercial web design, and some would even say that separate guides are unnecessary. In light of this situation, we should remember that the self-declared gurus have been working in a medium that is barely a decade old and that has constantly changed in this incredibly brief time span. It seems a little unreasonable for a science (or a philosophy or an art) of web aesthetics to arise in such a short period of time.

This of course has not stopped anyone from making sure proclamations, and sometimes good business, out of web design. Listening to various schools of thought and companies involved with web design is important, if only momentarily and if only to gain some insight into what might be relevant to *historical* work on the web. Proponents of usability have provided all web designers with a better sense of how actual human beings (instead of the human beings we envision—who are, naturally, all like ourselves) use the web. Like the economists who have approached their discipline’s notion of “rational choice” (that human beings always make sane, calculated choices about money, prices, and major life decisions) with skepticism, usability consultants such as Jakob Nielsen and Steve Krug have made important discoveries about the quite odd ways people approach a web page that should be duly noted and addressed by historians looking to use the web without frustrating their audience. As these consultants note, most visitors to most websites do not take the time to look at every part of a web page with the same attention that their authors took in designing them. Hand constantly on the mouse, with an itchy trigger finger, the average web surfer often clicks on decent rather than optimal links to see if they will find what they are looking for. Sometimes coming to a web page directly from another site (rather than the parent site’s home page), the surfer engages in disoriented stumbling rather than rational, linear touring. Words that seem clear to the web designer can be confusing to most web visitors. If a website is a tool, Nielsen and Krug tell us, then we want it to be as usable as possible, and good design helps to achieve that important goal. Surely there is nothing wrong with—and much to be appreciated in—the clear construction and function of your web pages.²

The problem with this sort of thinking, which has been developed in large part to make it easier for (and more likely that) web surfers check out and pay for items in their electronic

shopping carts, is that it encourages oversimplification. As the title of Steve Krug's usability book declares, with scarcely a trace of cynicism, *Don't Make Me Think*. This can be a frightening title to show to a historian, who is trying to make others think about the past. Don't make me think about what? Why not? And isn't commercial exchange a poor model for academic interactivity? The usability camp, of course, would say that their writings and consulting fees are more about reducing the "friction" in use and obfuscation of information associated with bad design for any purpose, including academic ones, but sites that follow this method to an extreme often do end up with large buttons to press for obvious things and little to ponder. It *is*, after all, remarkably easy to check out with your books at Amazon.com, but are their editors' reviews as substantial as the *Times Literary Supplement*? Wouldn't more scholarly and nuanced reviews "clog" Amazon's web pages with lengthy digressions and footnotes to other works?

At the other end of the spectrum of web design are the aesthetes, who dangle the highly attractive possibility that every site, on any topic, can look beautiful and unique. We all want to be creative and, as we have already noted, we have definite notions of beauty on the web. Stuck with boring-looking texts and the confines of the book and essay for so long, why not revel in the freedom and artistic possibilities of the web? With the economically minded publisher out of the way and the world of color and graphics open to all, why not take advantage and make a lively, lush site? Surely any historical site that follows this path would be, at first glance, far more interesting than 99 percent of websites out there. The rub, of course, is whether such a focus would sacrifice historical understanding on the altar of the artistic muse, or instead enhance that understanding through novel, aesthetically pleasing design that is tailored to the material.

The South Korean poet and web designer Young-Hae Chang does a good job assessing and criticizing both the usability camp and the aesthetes, and the associated tension between beauty and utility in web design, in his Artist's Statement No. 45,730,944: The Perfect Artistic Web Site.³ "I've been thinking about it now for at least the last few minutes," Chang tells the viewer in the large-type style of the conceptual artist Jenny Holzer as Bud Powell's piano jazz plays in the background, "The newest multimediu[m]: The web. The biggest art space: The web. The greatest chance to say something or to make something . . . dumb, or, better yet, boring. Breathtakingly boring. Deathly boring." As Chang's lighthearted musings about the nature of the web devolve into more serious concerns about the military ambitions of North Korea, the viewer quickly gets the idea that the web can be a powerful medium of expression in addition to a bazaar for one-click commerce, and it seems a shame to dumb it down, or design it down, to the point where it is simple to use but has lost its ability to convey profound thoughts and emotions. At the same time, however, Chang gently mocks the artistic aspirations of many using the web. "Yes, upload for a long time, for a long long time, for the time it takes to watch day turn into night, a fat, juicy file of web art. Waiting for reply . . . still waiting . . . and while waiting, isn't this the perfect moment to reflect on life and death?" he jokes, tongue firmly in cheek. Does web art really aid expression, or is it as heavy-handed as the files are large? Is it worth the wait at the end of a slow modem? Or is text, even the hyperbolic text of Chang's "Perfect Artistic Web Site" (ironically, one of rare "artistic" websites with absolutely no color or images) ultimately more interesting?

We believe historians can learn important lessons from both the usability camp and the creativity of the aesthetes, and that we can successfully navigate a middle way between these poles. Surely historians cannot blindly follow a design regime that relegates thinking to a

secondary status; neither should we obscure historical materials and our ideas about the past in deference to pure artistic license. Clio is our muse, and she is the muse of history, not art (although some particularly creative individuals strive to cross breed history and art). To follow her seems to imply that we refrain, in most cases, from hindering our website visitors' ability to use the materials and think for themselves about them, or from obscuring our historical interpretations—which most of the time we will still express in that most ancient of formats, text—in a swirling mist of colorful pixels. Yet done properly, graphical sophistication and occasionally even challenging design can help place historical materials and ideas in formats that solicit powerful responses from viewers. Put succinctly, our rallying cry on the web must therefore be: *enable and inspire me to think about and grasp the past*. Our colleague and fellow historian Michael O'Malley similarly argues that “the look and feel of a website . . . are part of its ideology, part of its thesis or argument,” and he tries in his inventive course websites “to convey some of the philosophy of history informing the course” through their design.⁴ Design in the service of historical understanding is easier said than done, however, and this chapter is intended to go through the specifics of what that means, and with different kinds of historical websites.

A final, and perhaps counterproductive, word about design before we begin this discussion. An honest appraisal would show that many historical websites have successfully answered our rallying cry without great or even decent design. For example, one of the best-known sites on the history of atomic bomb tests from the perspective of American servicemen is the Atomic Veterans History Project.⁵ Compared, for example, to the Korean War Educator site, which has similar memoirs from veterans, this site pales in a designer's eye. However, because of its early launch on the web (1997), wealth of information, constant updating, and a

particularly active user base that contributes content via email (more about this process in chapter six), the Atomic Veterans site has received a large share of traffic and notice.⁶ Indeed, many of the links on the Korean War Educator's subsection on the atomic tests link to the more poorly designed Atomic Veterans site. This is a not uncommon situation across the History Web.

If design appears to have little to do with the overall success of a site such as the Atomic Veterans History Project, some might question whether good design matters at all. That is the position of law professor Doug Lindner, who defends what he admits to be the “clunky” and “garish” design of his Famous Trials website by noting that “I'm not a web design expert and I can't afford to hire one.” His goal, he writes, is not to display “all the capabilities of modern web-building technology” but “to lay out the materials in an obvious and understandable way.”⁷ We feel that the importance of good design depends, in part, on expectations of visitors. Most visitors to amateur websites, such as Atomic Veterans and Famous Trials, will forgive design flaws as long as the information desired is placed within easy reach or the site has other virtues such as a unique point of view or documents found nowhere else on the Internet—as both of these sites have in abundance. Atomic Veterans devotees may actually find its imperfect design validating, since thematically the site sets itself in opposition to the slicker, official information sources on atomic testing from the government.

In contrast, visitors to websites constructed under the auspices of institutions known to pay more attention to design in the real world, especially museums and historical societies but also official college or university websites, demand much more. In fact, they may consciously or unconsciously register disappointment or skepticism about such sites if their design is thoughtless or underdeveloped. For this reason, more and more large institutions, such as the Wisconsin Historical Society, are hiring professional web design firms to create their sites.⁸ Even

some individual historians and organizations with modest funding have handed off the web production so that they may focus on composing or digitizing the content of the site itself. We do not cast shame on those who had their dissertations typed and formatted for them; the same generosity should hold for the digital age.

Costs can be significant if you outsource your web design, but may be worth it if you need to meet high expectations among your audience. With web development rapidly becoming part of the curriculum of many undergraduate and graduate design programs, you may be lucky enough to find an enterprising art student who would be willing to help you for little or no fee, as a chance to try out and improve their new skills. Many capable individual web designers can be found locally or on online freelancing exchanges for hourly rates around \$25-\$75, and for a small, non-interactive site, design costs could be held to several thousand dollars—still a significant amount of money, of course.⁹ A modest site for a historical society with good-looking yet basic pages describing the organization and how to join generally falls into this range. High-end museum exhibit and television tie-in websites such as those produced by Second Story Interactive Studios for PBS or the Smithsonian Institution cost tens of thousands of dollars.¹⁰ For example, the Smithsonian's National Museum of American History handed off the production of their site exhibiting artifacts from September 11 to Second Story for roughly \$30,000, a reduced rate in deference to the subject matter.¹¹ Sites that require extensive programming or databases can easily top \$100,000 since hourly rates for software developers and database administrators are commensurately high. There may very well be a not unreasonable chasm between the high design of museum sites and the more stripped-down productions of dedicated (but cash-poor) individual historians or small historical societies, but we nevertheless believe that all creators of

web content can benefit from solid principles of good design, navigation, and accessibility that this chapter lays out.¹²

General Principles of Design

We do not have to start such a discussion from scratch. Surely all historians, even those with no experience with the web, have encountered good design in other media, and without getting into any technical issues we can discuss what makes historical materials and the interpretations of them more accessible and thought-provoking. Historians who are novices in web design would be well served by looking at other instances of design than just the web. The bookshelf, home to so much historical endeavor through the ages, is as good a place as any to start.

As Michael O'Malley reminds us, we take the book for granted, but it is the repository of literally centuries of thought about design and use.¹³ Indeed, the book's familiarity masks many of the elements that make it such a rich and easy-to-use medium for ideas. Modern books have limited parameters, certain structures and conventions that have arisen through an evolutionary process akin to natural selection guided by the predilection of book buyers, readers, and publishers. You do not find many outrageously large books or many tiny ones. Indeed, aside from some large format coffee table and special purpose books, most come in an easily handled size between six and twelve inches high and four and ten inches wide. The text within a book rarely goes to the edge of the page, instead nestling itself within roughly half-inch to inch-wide margins. Almost without exception there are numbers on the pages to tell you where you are. A title page, table of contents, and index are found far more often than not. In most history books footnotes or endnotes help to clarify the main text and refer to other books and documents.

Chapters bring together more focused themes. Certain fonts are more prevalent than others. All of these elements are design choices, though by now so codified and commonplace as to seemingly disappear. Good design, in this case, does not necessarily mean *obvious* design, or design that attracts attention to itself rather than the content of a book.

Of course, books can also be beautiful. In an age when machine production triumphed over handcrafted goods, Victorians actually became *more* interested in high quality design that augmented the beauty of books. Along with his work in the decorative arts and furniture, William Morris designed intricate cover illustrations, page borders, and bindings that lent Kelmscott Press books a rich look and feel.¹⁴ More recent designers of history books have used a mixture of graphics, maps, and text to create elegant works that also help readers come to a robust appreciation of the past. The study of the Peloponnesian War and ancient Greece is surely enhanced by the dynamic and beautiful design of Robert Strassler's *Landmark Thucydides*.¹⁵ Few historians would argue that this edition is inferior, say, to the flat, uninterrupted text of a cheap paperback edition. Diagrams explaining complex battlefield movements or photographs of archaeological finds from the era, such as coins and vases, are aptly placed adjacent to the relevant passages by Thucydides. One feels the reality of the war and the way of life in the fifth century B.C.E. far more than if the text (rich as it is with Thucydides' lucid depictions) was on an otherwise barren page.

Graphical elements in books such as the *Landmark Thucydides*, including charts, small photographs, and other images, have achieved a certain formal design status in the same way the text of books has, though perhaps with less consistent success. As information designer Edward Tufte has shown with great skill in his books on information visualization, the presentation of graphics in print is often lacking compared to the presentation of text.¹⁶ Like text, visual

information should be an effective means of communicating ideas from historians to their audiences, as well as allowing those audiences to draw their own conclusions, just as they do reading interpretive prose. But sometimes graphics that break up the text of history books and essays, such as bar graphs and pie charts, create unnecessary distractions rather than provide substantive information. Instead of helpful graphical additions, publishers and authors often treat readers to what Tufte derisively labels “chartjunk.”

To combat this tendency, Tufte provides some basic design rules that are as useful online as they are in print. He highlights the essential tension between getting lots of information across to a reader or viewer in a small amount of space and crowding the page with “ink.” For Tufte, the elegance and impact of design comes in the resolution of this tension. How do you get your points across without presenting a dizzying array of text and graphics? How can you maximize expression without cluttering a page? How can you juxtapose elements in a way that allows readers to draw their conclusions rather than bludgeoning them with the obvious?

One of Tufte’s most celebrated examples of great design in historical texts is Charles Joseph Minard’s map showing the disastrous expedition by Napoleon’s army into Russia in 1812.¹⁷ As Tufte shows, the map (which he believes “may well be the best statistical graphic ever drawn”) accomplishes all that a well-designed historical work should. First and foremost, it depicts a tremendous amount of historical knowledge in a way that illuminates an important conclusion about the Napoleonic Wars and the consequences of Napoleon’s enormous hubris. On the two-dimensional space of the printed page (and similarly on a computer screen) there are actually six variables compared, the most telling of which are the rapidly shrinking size of the French army throughout the ill-fated campaign and the commensurate frigid temperatures of the Russian winter. Of the 422,000 men who leave Poland to conquer Moscow (the beige swath

running from left to right), a mere 10,000 return (the black line just below the beige, running from right to left). The tragedy of this important historical event comes through in the thin (and constantly thinning) graphical depiction of the retreating forces. There is an unconventional yet unmistakable beauty to the map, established through its use of an elegant font, proportion, and the judicious use of white space and contrast. Minard's *carte figurative* is an ideal that one suspects can be emulated, although perhaps not matched, on the web.¹⁸

Larry Gales of the University of Washington Computing and Communications Department has done a good job translating Tufte's ideas to the web.¹⁹ Some of the key points Gales makes are worth adding here, especially for historians who work with statistics, graphics, and images. The overall gestalt of a printed page (or poster or work of art) can be conveyed more easily than that of a computer screen, Gales notes. Thus the web implicitly encourages sequential "pages" of information rather than one giant creation in the style of Minard. In turn, this sequentiality and the ease with which you can jump around and between these pages (rather than move in a linear fashion through a book) means that good navigation is essential on the web to allow an audience to figure out where they are and where they might like to go next. At the same time, and in tension with this point, the more space on a web page that is taken up by navigation, controls, menus, and links, the less that is available for the content the audience wants. Finally, in the balance between text and graphics, the web (and the Internet in general) still favors text as the best method to disseminate complex information quickly.

Underlying many of Tufte's and Gales's tenets is the technology of the web itself. Part of the problem with translating many of the best design elements of print to the web is that the web is in many respects a greatly inferior medium. Fully unfold a section of the *New York Times* and hold it up next to an average 15-inch computer screen. Not only is the total page size more than

four times as large as the screen, but the much finer printing mechanism of a modern newspaper press (1200 dots per inch for the *Times*) compared to a common screen (between 72 and 96 pixels per inch) means that text and graphics can be scaled fairly small while still remaining legible in the former medium. The stock tables and charts in the *Wall Street Journal* versus the same information on Yahoo Finance makes this abundantly clear—in a two-page spread the *Journal* can cover most listings on the New York Stock Exchange, while on a single screen Yahoo can barely show the chart for the Dow Jones Industrial index and the most active ten stocks for the day. This giant gap in resolution between the old medium and the new makes designers like Tufte despair about the prospects for displaying information elegantly and efficiently on the web.

Worse—and often not appreciated by those new to web design—is that we can't fully control the medium, even when we can dictate our site's underlying code. A publisher totally commands production and display of a book, and once a book is printed it is fixed in its format and doesn't change (other than to acquire coffee spills, dog-ears, and other hazards of use). By contrast, the web producer may roughly control the design of a site through HTML, but the client computer has a large say in how this HTML renders on a user's screen. Each browser interprets HTML in its own fashion, which can cause headaches for those who want to be sure that every visitor sees exactly the same thing. Indeed, this consistency is essentially impossible on the web, unlike in print where each copy of a book is virtually identical. Although Microsoft's virtual monopoly on computer operating systems and web browsers means that close to 85 percent of audiences for historical websites are using a Windows PC with Internet Explorer, there are many versions of both Windows and Internet Explorer, and some combinations render the same web pages slightly differently. In addition, the small minority of Macintosh users (though larger than

5 percent in academic institutions), and a smaller but growing minority of Linux users, will see minor differences in sites compared to the Windows masses. Moreover, screen sizes vary from 640 x 480 pixels on a small screen to over 2000 x 1500 pixels on the largest screens. And color can vary somewhat from screen to screen and platform to platform, so that a bright yellow on one computer may look slightly brownish on another.

Yet we must forge on in this uncertain environment where we do not have wholly direct control of what site visitors see. The web has more than enough flexibility and methods for laying out text and images to ensure that basic design principles from the past can be brought successfully into the future. In addition, those who hew closely to web standards will find that their sites render more consistently on different computers and in different browsers than they did in the 1990s, given that most recent browsers implement these standards effectively and in a similar way.²⁰

In *The Non-Designer's Web Book* Robin Williams and John Tollett take their ultimate inspiration not from the new medium of the web (though they use many digital examples), but from design principles first perfected in the world of print.²¹ Their four basic design principles are worth repeating here. First, Williams and Tollett emphasize the importance of *contrast* on a page, as elements are set off against each other in a pattern that allows the eye to explore different features, draw conclusions, or simply appreciate the pattern itself. Similarly, they note how *proximity* implies a relationship between features on a page, so that a caption or a subtitle needs to be placed close enough to a photograph or a passage for a viewer to associate the two elements. Feeling the order (or disorder) from the *alignment* (or misalignment) of elements—vertically or horizontally on a page—is also a natural part of the way we look at visual creations. Finally, human beings tend to associate elements that are produced in the same way—the same

font, the same color, the same size, the same texture—and so a web designer must be careful to *repeat* certain design elements appropriately to make a point, or to maintain consistency across the many web pages of a single website.²²

The application of Williams and Tollett’s four fundamental principles of design will raise a confusing eyesore to a legible, comprehensible, and aesthetically acceptable site. To go further, it is worth spending a little bit of time examining not the conventions of print but the conventions of art. Reacquaint yourself with artists that are masters of some of the formal techniques necessary for a well-designed website. For example, to get a sense of how light and dark elements can be placed on the page and made to contrast with one another and arrange themselves in telling and aesthetically pleasing ways, look at paintings by Joseph Wright of Derby or photographs by Ansel Adams. To see how text can look elegant in columns and rows, spaced properly, and laid out next to images, pick up a book on the Chinese calligrapher Pu Ru or a medieval European book of hours. Such works of art will add other principles—perhaps higher principles—to Williams and Tollett’s alignment, proximity, repetition, and contrast. These include proportion and balance, the advanced use of color and geometry, and the elusive concept known as beauty. You can be artistic on the web at the same time that you convey the reality of the past, but only if you know what it means to be artistic off of the web.

As the saying goes, however, you must first learn to crawl before you can walk, or perhaps run. Good historical web design begins, as Williams and Tollett emphasize, when the text and any images or multimedia are placed into relationships with each other and the other essential elements of a web page—for example, navigation buttons or a logo—with each element taking its rightful place and garnering the appropriate amount of attention. Alignment, proximity,

repetition, and contrast must be used intelligently for visitors to your site to view, read, and understand these elements. We first look at each of the basic features of a web page, and then examine some good examples (and a few less optimal ones) of placing these features together in ways that enable and inspire us to think about and grasp the past (or in the imperfect examples, to obscure it).

Text

Text, the largest part of most historical sites, has to be formatted properly on the web, just as in print. Centuries of experience with books has taught us that we cannot display the written word comfortably in a limitless variety of formats. The way the eye moves across the page mandates that the length of a line of characters be within a certain range—a parameter true for all languages, including those that are written from right to left, such as Arabic, Hebrew, and Urdu, or ideographic languages that are frequently written and from the top of the page to bottom, like Korean, Japanese, and Chinese. Carrying this important print design convention over to the web means that you should restrict a column of text to a width of between 300 and 600 pixels, for a total of between 8 and 16 words per line if you use an average-sized font such as 12 point Times. Obviously, narrower columns look (and read) more like a newspaper, while 500 to 600 pixel-wide columns appear more like a book. Regardless of the look you are going for, be sure to maintain white-space (or at least neutral-color) margins on either side of the text. If you plan to have images, illustrations, or charts next to the text, be sure to leave at least 10 pixels (and preferably between 30 and 50 pixels) of space between these graphical elements and the block of text.

Robin Walsh's Journals in Time: 1809-1822, The Journals of Lachlan & Elizabeth Macquarie shows how historians can design text well on the web.²³ In this case the text consists of commentaries and historical background by Walsh, as well as featured transcripts from the subjects of the website, two Scots who moved to Australia during a period of great upheaval. Mostly casual journal entries rather than the formal prose found in a book, the text is appropriately set in a relatively slim column 340 pixels wide, nicely aligned vertically with other elements on the page, and with a separation of 40 pixels from the blue left-hand navigation bar. Legacies of the digitization and transcription process (the conversion of the journals from handwriting to machine-readable text), such as strike-throughs and superscript writing, are also handled well.

The font you plan to use depends somewhat on your own taste, but a survey of sites that have a lot of text (commercial and non-commercial) shows a growing agreement that sans-serif fonts (those without little flourishes at the ends of the letters) are more readable than serif fonts online. (Like many pronouncements on design, this is not a hard and fast rule; the Walsh site that we have just praised uses serif font.) Even the *New York Times* website (which one would think would *have* to use one of the fonts called Times) uses sans serif fonts for the full text of its articles (it does use Times, a serif font, for excerpts of articles on the home page). Years of reading historical texts has predisposed us to the view that sans-serif fonts are less serious than serif fonts, but long passages of text do look a little crisper on most screens in sans-serif, and moreover they are easier to read at different sizes, particularly the smaller sizes used for notes. Sans-serif fonts found on most computers include Verdana, Arial, and Helvetica; common serif fonts include Times, Times Roman, and Bookman. Try to avoid monospaced fonts like Courier

for main blocks of text (though Courier is nice for suggesting typewriting where you are seeking that effect).

But what about the more important question of the text itself, once you have decided on a format that generally will be legible due to the proper specification of column widths, margins, and fonts? Here we diverge from many in the web design community—both commercial and non-profit designers—as part of our mission as historians. Not surprisingly, the usability school advocates placing only small, quickly scannable passages of text on the web, and far too many web designers have followed this lead. While acknowledging that long-form writing like the journal article can remain intact online, even Patrick Lynch and Sarah Horton, the university-based authors of the *Web Style Guide* and standard-bearers for academic web design, accept the need for a reduction or “chunking” of most text on the web in the name of ease of use. Lynch and Horton talk about the “disorientation” that occurs when a poor web surfer is forced to read long passages, and they seem to capitulate to the notion that “most information on the World Wide Web is gathered in short reference documents that are intended to be read non-sequentially.”²⁴ This attitude toward text strikes us as too close to the lowest-common-denominator thinking that historians have always fought against in favor of rich interpretation and the joy of the written word itself. As Jay Leno disparagingly remarked when *USA Today* began publication, “If you can’t write, list.” Must we condemn the web to a similar future?

This dismissive view of our beloved text may turn out to be transient. More people are reading more text on a computer screen, and for better or worse that trend will continue since a greater and greater percentage of our lives involves digital media. Monitors have continued to improve, with flat-panel liquid crystal displays now comprising a large share of the market. While these newer technologies still fall short of the exemplary contrast and resolution of print

on paper, they are a great improvement and surely the harbinger of even better screens to come. As Lynch and Horton, as well as many others, note, users can print out web pages when they want to read a lot of text without the eyestrain associated with screens. Making sure your web pages print easily, or having special pages just for printing, can be a good idea for a historical essay or exhibit site with a lot of text.²⁵

Moreover, we believe in the simple proposition that good writing produces willing readers, regardless of the medium. After all, there are committed readers of websites such as the *Chronicle of Higher Education's* Arts & Letters Daily and other sources of relatively highbrow and lengthy texts on the web.²⁶ Unchallenged, the widespread agreement about the chunking of text may produce even less tolerance for long passages on the web as time goes by. Historians must combat this trend aggressively if we are to claim this medium as our own. Instead of cultivating a style that seems suitable to a chronically short attention span, we should rather look for ways to make long passages of text acceptably quick-loading (dividing them if necessary into a sequence of reasonably sized pages, reducing the number and heft of graphics that accompany the text) and readable (by following the formatting rules above in addition to reducing distractions like bands of color and encroaching images). Most of all, we need to give as much attention to our writing on the web as we do to our writing in media that we know will be read, assessed, criticized, and responded to by our peers. Just because the web makes it easy to disseminate the written word doesn't mean that we should abandon our high standards for prose.

Images, Color, and Multimedia

Edward Tufte's conclusions about the often superfluous or distracting role of graphical elements in print media represent an equally good admonishment to historians who find

themselves attracted by the ease with which one can place images and other non-text features on a web page. Indeed, the mere availability of color and the possibility of using an unlimited number of images (or even video and audio) on a site present welcome opportunities for scholars who have had to be content with producing black-and-white books with a small number of gray-scale photographs. A publisher's concession of a handful of additional graphics or photos, or a segment of a book with color reproductions, may cause much rejoicing among historians who have signed a book contract. The notion that you can add as many full-color graphics as you would like and even change the color of the "paper" a web page is "written" on is, to be sure, enticing.

Although historians do not need to stoically ignore the siren's song of color and graphics, they would be wise to remember what happened to the sailors who became spellbound by Circe's mellifluous voice. No one wants a porcine website replete with ugly images and garish hues. Sarah Horton and Patrick Lynch make some sensible recommendations about the use of color that can help historians avoid this predicament. If you decide to use large areas of color on your website, either to differentiate sections of a page or as a background, choose an unobtrusive color such as beige, grey, or one of the pastels, or at the very least choose a color your text will read well against.²⁷ With an unobtrusive baseline color, images and text will stand out, and the viewer's eyes will be attracted to what's important rather than the background or page margins. Although HTML makes it possible to have an image as a background (either singly, taking up the whole page, or "tiled," where it repeats across the page), avoid doing so. Background images distract readers and make any overlaid text hard to make out.

Follow the same principles of color that have proven successful in print. In *Envisioning Information*, Edward Tufte notes that color is the principal way the mind separates elements in

space and chooses something to focus on. Thus you should use rich or bright colors like red and yellow sparingly, and generally only for things you really wish to emphasize. Use different colors rather than different shapes to distinguish features on a page. Beware of the negative effects of certain highly contrasting colors placed next to each other (such as green and red), as well as the off-putting optical illusions created, for instance, by closely placed parallel lines. If navigational elements have color at all, make it relatively dull so that viewers focus on the main content of the page.²⁸

Web design publications often talk about using only “web-safe” or “browser-safe” colors, meaning those colors that will show up roughly the same in all browsers and operating systems. But, as the web designer Lynda Weinman has noted, very few computers still only display 256 colors, their capability when the web was young.²⁹ Indeed, most people view the web in millions of colors now, and so historians just starting on the web may ignore the browser-safe palette, which is filled mostly with garish, overly bright colors that were chosen for their mathematical simplicity rather than aesthetic value. Those experienced with this palette can continue to use it with no harm, but others shouldn’t bother. The possible exception to this rule is if many of your anticipated users will be using very old computers, in which case you should choose something from the web-safe palette for any major swath of color on your page, as well as any colored fonts.³⁰

In the previous chapter we discussed the differences among various digital image formats. Now is the time that you can show what you have learned by making sure that you predominantly use one of the slimmer formats, JPEG or GIF. You do not have to banish those larger TIFFs, however. If your site needs detailed images to illustrate historical points or if your site is an archive that values the extra information only a “heavy,” high-resolution format can

provide, link to the larger image from a thumbnail version (a small version of the original) that is in JPEG or GIF format.³¹ Fred Lifton, Michael Hanrahan, and Reed College's Faculty Multimedia Lab's website on nineteenth-century Formosa reflects a good understanding of the technical aspects of image reproduction on the web—at least beyond its large-graphic home page, which takes too long to load over a dial-up modem.³² Starting with small thumbnails on introductory pages, they then provide internal pages that have not one but three higher-resolution formats. You can easily find what you are looking for, and then zoom in to the level of detail you desire.

Thumbnail images also present an excellent opportunity to use a fundamental design principle Tufte calls “small multiples.” Small multiples enable the powerful human ability to compare and contrast—an important element in historical reasoning and argument. On the web, placing a series of thumbnail images of between 75 x 75 and 300 x 300 pixel size close to each other creates the effect. Although they are a bit too small in our opinion, the dozens of black-and-white images of the Amiens Cathedral Project at Columbia University show the power of small multiples.³³ Redone in a slightly larger size and released from their slender right-hand frame, these images could provide in a single glance an overview of the cathedral and smart navigation for the site. Harappa: The Indus Valley and the Raj in India and Pakistan also uses small multiples to display and annotate finds from archaeological digs.³⁴ The thumbnails are again slightly too small but they are clear enough to give the novice viewer of this art history a fascinating overview of the field. Dana Leibsohn and Barbara Mundy's *Vistas: Visual Culture in Spanish America, 1520-1820* gets almost everything right in their gallery of images.³⁵ The multiple images are sized well and contrast nicely with the black background. No unnecessary borders or fake frames crowd the images. One feels as if one is in a museum, and yet the web

experience means that you can zoom in on any of the thumbnails to examine them more closely. As Vistas shows, besides providing information in a powerful and compact format while providing links to other pages and parts of a website, small multiples also tend to look good in a purely artistic way.

The same principles hold true for multimedia: if you have many video, Flash, or animation files you should try to use thumbnail stills from them as launch points. For audio, brief text excerpts transcribed from the best part of the recording or a short summary provide acceptable substitutes. Historical Voices's website Remembering the Flint Sit-Down Strike, 1936-1937 uses several methods to provide entrée into their recordings: in some cases they matched archival photographs with the audio segments, and in other cases they composed brief descriptions.³⁶ For both audio and video, you should add a timestamp showing how long a segment is (in minutes and seconds) and the total size of the multimedia file in megabytes (if you are not using streaming software). The Flint website does not do this and thus visitors are left to wonder how long the audio will last.

Putting It All Together

Hypertext, the ability to move in a non-linear way from one place to another, is a foundational principle of the web, and in such a medium you need to include some basic navigation tools on most, if not all, of the pages on your site. Common to most websites is some way to get back to the home page (for instance, by clicking on the logo for a historical organization or project); links to other main sections of the site, if any; a link to an “about the site” or credits page; and links to pages for any copyright, privacy, usage, or other legal notices, if any (see chapter seven). For large historical sites or archives it may also be useful—some

would say necessary—to have links to a site map and especially a search page (or simply a search box right on each page).³⁷ Navigation should be an integral part of the design of your site and can help to unify the site's overall look across a multitude of individual pages.

When all of the pieces—text, images and multimedia (if any), and navigation—come together in a well laid-out and structured historical site, the results can be both visually appealing and informative. The Sport of Life and Death: The Mesoamerican Ballgame, for example, is a well-funded museum site that displays many elements of good design, particularly in navigation.³⁸ In providing a history of Mesoamerican culture from 1500 B.C.E. to the encounter with the Spanish, and, remarkably, in allowing web visitors to play the actual game, the site maintains an outstanding graphical consistency. Fonts and the beautiful Mesoamerican icons used for navigation are repeated throughout. Flash graphics and animation are integrated well and supplement the basic navigation for the main sections of the site with helpful, clickable maps and other ways of accessing materials. One could question whether the site's ubiquitous reliance on Flash and heavy graphics is necessary, especially if you view it over a slow modem. The ballgame itself could not have been reproduced in static HTML (only described, with illustrations), but the site's creators might have left that portion in Flash but made most of the other parts of the site in regular, faster-loading HTML. This is the sort of site that wins web awards (indeed it won the Best Museum Web Site at the Museums and the Web 2002 Conference), since those who hand out such awards always have the latest, fanciest computers and high-speed Internet connections.³⁹

Far less flashy (so to speak) but equally informative, and a good example of an important historical archive made accessible through unobtrusive design, is Gwendolyn Hall's Afro-Louisiana History and Genealogy, 1719-1820.⁴⁰ An attractive grayscale opening page leads to

simple, but also attractive (and more colorful), interior pages with information about the collection as well as essential search forms. The jarring contrast between the home page and the interior pages is somewhat odd and it probably would have been better to choose one theme or the other. Throughout, Hall and her team keep things simple, with an emphasis on easily accessing the vast archive of slave records. In particular, the search form uses nicely shaded tables that allow the first-time visitor to understand instantly the various fields one can search (such as name, gender, and location), and the search results page is exemplary in its Google-like crisp design. You can scan the results without graphical distractions. All of this would look equally as good on a small or large screen, and would function properly on an old computer as well as a brand new one. The explanatory text of the other interior pages is well laid-out, though the use of elastic column sizes for text (programmed to fill a certain percentage of the browser window rather a specific number of pixels) means that on a very large screen some of the text stretches out to less-than-desirable line lengths. For the novice user, Hall could simplify and clarify the Afro-Louisiana History and Genealogy site even further by clarifying the distinctions between the normal search and the “miscellaneous” search, and between the “Introduction” and “About” pages. Combining these elements, and using a slightly smaller font, the thick top navigation band could be reduced to a single line, thus freeing up more of the browser window for the site’s important historical content.

Rice University’s Galileo Project, an engaging topical site on the Renaissance thinker and scientist, has a consistent and attractive light blue and gray design theme throughout, from the home page through the most interior pages.⁴¹ This theme, however, is better aesthetically for the images (which are the same tonally) than it is for the text, which is probably more important for most visitors to the site. Take the first page of Galileo’s biography, for instance. The serif

typeface is blue with the underlined links in gray, both of which are difficult to read against the white background. Worse, the text is right justified to cozy up with the image of the Leaning Tower of Pisa, yet few readers of English find this alignment ideal in terms of legibility.⁴² The creators of the site have constructed the more text-heavy pages, such as the biography of Pope Urban VIII, better, using a left-justified, 403-pixel wide column that marshals the text into a book-like, readable format.⁴³ Unfortunately, even here the text remains blue and gray, poor choices for a historical website consisting predominantly of text.

Site Structure and Good URLs

At the same time that you are creating all of those lucid and perhaps even attractive web pages, you must also figure out where all of them will “go” when you’re finished, and how you will connect them together. Although perhaps not as exciting as graphics and page layout, mapping a clear overall structure is critical to all well-designed websites. As Louis Rosenfeld and Peter Morville summarize in *Information Architecture for the World Wide Web*, such structure “clarifies the *mission* and *vision* for the site . . . [and] specifies how users will find information in the site by defining its *organization, navigation, labeling, and searching systems*.”⁴⁴ Simply put, a properly structured site allows visitors to understand where they are, the location of the historical materials they want, and the site’s underlying logic, just as chapter divisions and subtitles help to organize a book. An online historical essay will have a very different structure than an archive, and an archive will have a very different structure than a website for a historical organization.

Recalling from chapter two that a website is fundamentally a set of files, web producers add structure by placing these files into “directories,” or distinct electronic folders on the web

server, just as you place documents into specific folders on your personal computer. These directories become part of the URL of a web page, found between slashes to the right of a site's domain name. The British Library has placed its digitization of the Magna Carta, for instance, at <http://www.bl.uk/collections/treasures/magna.html>, which nicely parses out to (reading from left to right), the web server of the British Library (in the UK, of course), in their collections division directory, in the special “treasures” directory of the collections division (as the Magna Carta surely should be), followed by the first word of the famous document and the “.html” that comes at the end of most web files. So that they will function properly on all types of computers, try to keep your directory and file names in lowercase, and eschew spaces or any symbols other than underscores and dashes.

Creators of history websites should strive to emulate the clarity of the British Library's site structure, using mostly words (where possible) rather than numbers or symbols for their directories, and naming directories in a sensible fashion that tells the visitor—even without looking at the contents of the web page in the main window of the browser—where they are and what they can expect from a page. This process involves carefully grouping the materials you plan to put on your site. For example, a topical site might have some files that relate to teaching the subject matter, a set of interpretive essays, and a mass of raw archival documents. Although these materials could sit in a single directory, it makes sense both from the creator's and the user's perspective to divide the materials into three separate directories. Directories also can be nested, like babushka dolls, when a main section of a site has a set of subsections. Each URL slash indicates that the directory or file to the right of the slash resides inside of the directory named to the left of the slash. At the “top” of this hierarchy of directories and files, and providing an entrée to all of the others, is the home page, which is usually a file titled

“index.html” or “home.html,” and to which the web server software automatically sends a visitor who types in your domain name. A diagram of a basic website’s structure can look like a genealogical tree, where a parent is a directory with children that are individual web pages.

Good sites sort themselves out and make their logical structure transparent through well-named directories and files. For instance, the African Studies Center at Boston University resides, aptly, at <http://www.bu.edu/africa>. Programs and courses underneath the umbrella of the center have their own directories, so the Environmental History of Africa course by James C. McCann can be found at <http://www.bu.edu/africa/envr>. This is a very easy URL to hand out to prospective students, though McCann did not have to skimp on the digital ink; <http://www.bu.edu/africa/environmental> would have been fine too, and probably easier to remember.⁴⁵ Beyond making it easier to hand out or email the clear URLs that it creates, good site structure allows search engines, particularly Google, to pick up on keywords in URLs and use them to assess how well a web page matches a search request (see chapter five).

Creating and displaying a lucid site structure is much easier for a simple history site, such as a small exhibit or a course website, than for a complex site like an archive with thousands of documents or artifacts. More complex sites such as large archives, as we noted in chapter two, tend to be database-driven, and can have a relatively incomprehensible mix of letters and numbers following the domain name due to the way they pull information out of the database using a set of variables inelegantly appended to the URL. For example, JSTOR, the indispensable online journal repository, has ungainly URLs. Edd Wheeler’s article “The Battle of Hastings: Math, Myth and Melee” in *Military Affairs*, 52, no. 3 (July 1988), pp. 128-134, is found on the JSTOR site at <http://links.jstor.org/sici?sici=0026-3931%28198807%2952%3A3%3C128%3ATBOHMM%3E2.0.CO%3B2-A>. Difficult to cite or

type into a browser (much less remember), one hopes these URLs will not be truly “permanent” or “stable,” as they are so declared by JSTOR’s management. A more logical structure for JSTOR would highlight the key components of the site: the journals themselves, then the year or volume number, then the number or month, then the pages or author. Modern web server software makes it possible to hide the numbers and variables for databases to produce more memorable URLs, though this feature is rarely used. Our suggestion for JSTOR, which has inadvertently out-Deweyed the Dewey Decimal System, would be to recast poor Edd Wheeler’s online article as http://links.jstor.org/military_affairs/52/3/128-134, or better yet http://links.jstor.org/military_affairs/1988/june/wheeler.⁴⁶

The importance of baring site structure should caution historians against using frames on their sites, since these HTML elements generally mask proper URLs and thus a site’s structure. (Frames, or the ability to split a web page into separately functioning windows, are a poor idea in general since they tend to breed confusion, e.g., when one clicks on a link to another site in one window and remnants of the initial site stubbornly remain, hogging part of the screen and making it unclear which site one is on.) For example, though attractive, the Koninklijke Bibliotheek’s Medieval Illuminated Manuscripts website suffers from a major flaw.⁴⁷ How does one bookmark a specific folio, or more important, cite one of the remarkable folios the National Library of the Netherlands has spent the time and money to digitize? Unless you are a technically savvy user, all you get when you try to bookmark or cite a folio is the URL for the overall directory, since the image of the folio resides in a secondary frame. This lack of specificity may upset scholars more than the general browsing public, but it shows how reliant—perhaps unconsciously—we are on good site structure and useful URLs.

Accessibility

Many of the elements we have just discussed—formatting, images, color—may be irrelevant or a hindrance for those who “view” or use a page in a different way than we expect due to blindness, color blindness, or motor skill disabilities. For example, while you might find it aesthetically pleasing to use a detailed map as the sole form of navigation for your historical site, you should think about the repercussions of this choice for those whose vision is less than perfect. As Tim Berners-Lee emphasizes on the World Wide Web Consortium (W3C) accessibility home page, “The power of the Web is in its universality. Access by everyone regardless of disability is an essential aspect.”⁴⁸ The W3C has issued a helpful series of white papers, guidelines, and techniques to make websites more accessible for a variety of people.⁴⁹

Unsurprisingly, however, government regulations and laws, rather than moral suasion, have done the most to advance the cause of web accessibility. In 1998 President Clinton signed into law the Workforce Investment Act, which included the Rehabilitation Act Amendments, which in turn contained an important section, 508, relating to information technology like the web. Section 508 required that beginning in 2001, federal agencies had to make sure that individuals with disabilities could access their electronic documents and information. Because of the trillion-dollar purchasing power of the federal government, and because so many other companies, organizations, and local governments fall into line when Washington makes major regulatory decisions, Section 508 has had significant repercussions across the web. Many institutions, public and private, now demand that website designs be “508 compliant,” and achieving such compliance has become a big business.⁵⁰

The question for historians is how much Section 508 matters, or should matter, to you. With the exceptions of some Smithsonian museum employees and in-house historians in the

Department of Defense, the State Department, NASA, the Park Service, and other historically conscious parts of the government, most historians cannot be considered “employees of federal agencies” under the definition of the law. On the other hand, many historians work at public universities, and many states have added versions of Section 508 to their books. Adoption varies by state, however; the Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) and the Georgia Institute of Technology’s Information Technology and Technical Assistance Training Center maintain state-by-state lists of 508-related laws.⁵¹ To make matters more confusing, many private universities, colleges, and schools accept some amount of federal funds, and thus in a very liberal definition of the law could be considered subject to Section 508. In addition, a lesser-known but perhaps more broadly applicable and stronger provision in the federal law, Section 504 of the Rehabilitation Act, might also apply to design of websites. This section “prohibits recipients of federal funds from discriminating on the basis of disability,” and courts have interpreted “discrimination” to include failure to provide access to information as well as buildings.

Whether you are legally bound to comply with Sections 508 and 504 depends on your affiliation (if any) and the project you are working on (if it has federal funding). Most universities, colleges, and schools have taken the stance that despite receiving federal funds they are not bound by Section 508. After all, the language of the law specifies “federal agencies” — not institutions receiving federal funds. Nevertheless, educational institutions that feel bound by a broad interpretation of Section 504—or that are worried about an Americans with Disabilities Act lawsuit, even if they feel that 504 does not apply to websites—might impose or request compliance with accessibility guidelines. Even so, history students or faculty members at these institutions could question whether compliance means *every* website on *every* university server,

or just those that provide important information from the university to current and prospective students, faculty, and staff. For instance, it is more important that an online application to a history graduate program comply with the mandates of 508/504 than a specialized or experimental archive site. Kathy Cahill, the Lab Coordinator for Adaptive Technology for Information and Computing at the Massachusetts Institute of Technology, helpfully notes that although her university receives a tremendous amount of federal funding, they do not feel bound by Section 508 since they are a private university. “That being said, MIT takes accessibility seriously due to Sec. 504 of the Rehabilitation Act,” she continues, and the ATIC program she works on educates and consults with the MIT community so that those with disabilities have the best chance to access MIT’s extensive web resources.⁵² We believe that with the exception of those who work for the federal government, historians—even those at public universities or educational institutions receiving federal grants or aid—are not legally bound to meet the strong accessibility requirements of Sections 508 or 504.

Ethically, however, historians—as chroniclers of the past who wish to disseminate the truth as far and wide as possible—should try to make their sites accessible to the greatest number of people, regardless of ability. Done in a modest, sensible fashion, following accessibility guidelines on your website not only will serve a larger and more diverse audience, but will also improve the experience of your site for everyone else. Many of the recommendations from the W3C and the mandates of Section 508 are relatively painless to follow and can (and should) be done as the site is being designed and developed.

Jim Thatcher, a retired IBM veteran who works with the Institute of Technology and Learning at the University of Texas at Austin, has produced a good summary of what 508 compliance means for the average web designer.⁵³ First, you should have text equivalents for

images and other multimedia. Consistently use the “alt” attribute in your image tags. While it may be difficult to provide synchronized subtitling for a video or audio file, try to produce a basic transcript if possible. Historical websites with maps and graphical navigation should have redundant text links. Blind web surfers using an audio or Braille web browser often find themselves suffering through seemingly interminable menus and navigation to get to the main content of a web page, so a link that gives these visitors the option to skip over the top part of a page is a welcome addition. These same surfers find most JavaScript, Java applets, Flash interactivity, and other forms of dynamic web design inaccessible. In deference to those with photosensitive epilepsy (or simply those with decent aesthetic sense) avoid graphics that flicker or pulse. More generally, all web designers should take the time to view their site in a variety of “alternative scenarios.” For instance, use the display control panel on your computer to set the number of colors to sixteen or even fewer and the resolution to its lowest setting, and look at your site again. Turn off image loading in your browser, to get a sense of what a blind person (who may use an audio browser to vocalize all of the text on a site) will “see.” Are you as satisfied with your site in these stripped-down formats as you are with it in its full splendor? If so, disabled viewers of your site will likely be happy as well.

As with good URLs, accessibility compliance has the secondary benefit of improving your site for everyone, and making it more easily found. Transcripts of video and audio files will be picked up by search engines, which will drive more traffic to your site. The text in the “alt” attribute of the image tag will similarly be indexed by search engines for additional visibility. Although maps and graphical navigation are nice, many people, regardless of their vision, prefer to click on the clear links of a text equivalent. If a person with sight is viewing a graphically rich historical site over a slow modem, a web browser will generally display the contents of the “alt”

attribute before the image shows up, thus giving them a sense of what's on the page and allowing them to decide whether they want to wait for the full page to load, or to click on a link to move to another page on the site. The anchor tags within a page that are helpful to skip large sections of navigation or text also provide all visitors the ability to jump around a page without scrolling. With such anchors in place it is also possible to save a bookmark that goes directly to one part of a page—the part a visitor wants to read or cite.

As with the other principles of good design, sensible adherence to accessibility guidelines thus amply rewards both the users and the creators of historical websites. An accessible website means that more people can gain a better sense of the past through your digitized materials and commentaries, and also that researchers can locate these documents and artifacts in the first place. Yet good design does not guarantee a large audience for your project—or even a small one. While search engines that index the text, “alt” attributes for images, and transcripts of audio and video may send some interested surfers your way, many others will never know your site exists unless they hear about it through alternative means, both digital and analog. In the next chapter, we explore how to let your intended audience know that your site exists, and what it can offer them in the way of historical understanding.

Notes

¹ David Hume, “Of the Standard of Taste,” in David E. Cooper, ed., *Aesthetics: The Classic Readings* (Oxford: Blackwell Publishers, 1997), 80.

² Jakob Nielsen, *Designing Web Usability: The Practice of Simplicity* (Indianapolis: New Riders, 1999); Steve Krug, *Don't Make Me Think: A Common Sense Approach to Web Usability* (Indianapolis: New Riders, 2000), 14.

³ Young-Hae Chang, “Artist’s Statement No. 45,730,944: The Perfect Artistic Web Site,” *yhchang.com*, http://www.yhchang.com/PERFECT_ARTISTIC_WEB_SITE.html

⁴ Michael O’Malley, “Building Effective Course Sites: Some Thoughts on Design for Academic Work,” *Inventio* 2.1 (Spring 2000), available at <http://chnm.gmu.edu/assets/historyessays/building.html>.

⁵ Keith Whittle, *Atomic Veterans History Project*, <http://www.aracnet.com/~pdxavets/>.

⁶ Korean War Educator, “Atomic Veterans History Project,” *Korean War Educator*, http://www.koreanwar-educator.org/topics/atomic_vet.htm.

⁷ Douglas Linder, “Goals and Purposes of the Famous Trials Site,” *Famous Trials - UMKC School of Law - Prof. Douglas Linder*, <http://www.law.umkc.edu/faculty/projects/ftrials/trialsgoals.html>.

⁸ Wisconsin Historical Society, <http://www.wisconsinhistory.org/>.

⁹ See, for example, Elance’s section on web design services, <http://www.elance.com>.

¹⁰ See <http://www.secondstory.com> for many examples of these high-end exhibit sites.

¹¹ National Museum of American History, *September 11: Bearing Witness to History*, <http://americanhistory.si.edu/september11/>.

¹² Many of the web design firms serving historical museums and societies attend the annual Museums and the Web conference, and can be found through the registration list for that conference. For the most recent list of companies and institutions, see <http://www.archimuse.com/mw2004/reginst/list.html>.

¹³ O’Malley, “Building Effective Course Sites,” <http://chnm.gmu.edu/assets/historyessays/building.html>.

¹⁴ In particular, see Morris’s typographical and illustrative work for the Kelmscott Press, e.g., the individual head pages for each work in William Shakespeare, *The Poems* (London: Kelmscott Press, 1893) or the dense artistry found on Morris’s title page for Raoul Lafevre, *The Recuyell of the Historyes of Troye* (London: Kelmscott Press, 1892).

¹⁵ Robert Strassler, ed., *The Landmark Thucydides* (Free Press, 1996).

¹⁶ Edward R. Tufte, *The Visual Display of Quantitative Information* (Cheshire, CT: Graphics Press, 1983); Edward R. Tufte, *Envisioning Information* (Cheshire, CT: Graphics Press, 1990).

¹⁷ Edward R. Tufte, “MINARD’S SOURCES --From Virginia Tufte and Dawn Finley, August 7, 2002,” *The Work of Edward Tufte and Graphics Press*, <http://www.edwardtufte.com/tufte/minard>.

¹⁸ Tufte, *Visual Display of Quantitative Information*, 40.

¹⁹ Larry Gales, “Web Page Design Inspired by Edward Tufte,” *Larry Gales*, <http://staff.washington.edu/larryg/Classes/Rinflux/zz-influx.html>.

²⁰ Jeffrey Zeldman, *Designing with Web Standards* (Indianapolis: New Riders, 2003), 25.

²¹ Robin Williams and John Tollett, *The Non-Designers Web Book: An Easy Guide to Creating, Designing, and Posting Your Own Web Site* (New York: Addison-Wesley, 1997).

²² *Ibid.*, ch. 6.

²³ Macquarie University, *Journeys in Time: The Diaries of Lachlan and Elizabeth Macquarie, 1809-1822*, <http://www.lib.mq.edu.au/all/journeys/>.

- ²⁴ Patrick Lynch and Sarah Horton, *Web Style Guide* (2nd ed., New Haven: Yale University Press, 2001), 38 and 144-5.
- ²⁵ To ensure that your pages will print well, use an HTML table of less than 800 pixel width, or CSS layout, to confine the text within an A4 or 8 1/2 by 11 inch page. We should note, however, that you will have even less control of the look of a printout than you have over how your website will look on different computers and in different browsers.
- ²⁶ Chronicle of Higher Education, *Arts and Letters Daily*, <http://aldaily.com/>.
- ²⁷ Lynch and Horton, *Web Style Guide*, 183-4.
- ²⁸ Tufte, *Envisioning Information*, 90ff.; University of Washington Computer Training, “Graphics and Web Design Based on Edward Tufte’s Principles – Color,” *University of Washington Computing and Networking*, <http://www.washington.edu/computing/training/560/zz-tufte.html#Colors>.
- ²⁹ This was due to the 8-bit video cards installed on most computers, PCs as well as Macs. Lynda Weinman, “Non-dithering Colors in Browsers,” *lynda.com*, <http://www.lynda.com/hex-test.html>.
- ³⁰ Lynda Weinman provides a good palette, organized by hue rather than hexadecimal code, for choosing web-safe colors. See <http://www.lynda.com/hexpalette/images/nhue2.gif>.
- ³¹ There are two ways of doing thumbnails. The first, and simplest, is to simply shrink the entire image (using graphics software like Photoshop Elements) to a smaller, more manageable size. The second, more time-intensive, manner is to choose a representative portion of the image and crop and zoom into that area of the original. Some web designers advocate using this second method exclusively. However, it is in part a matter of taste and a function of what you are thumbnailing. It is true that small images of maps, for instance, can be almost indecipherable, but other images shrink remarkably well. Try both methods to see which one works best for your project.
- ³² The Reed Institute, Formosa: Nineteenth Century Images, <http://academic.reed.edu/formosa/>.
- ³³ Media Center for Art History, Ameins Cathedral Project, <http://www.learn.columbia.edu/Mcahweb/index-frame.html>.
- ³⁴ Harappa.com, Harappa: The Indus Valley and the Raj in India and Pakistan, <http://www.harappa.com/>.
- ³⁵ Dana Leibsohn and Barbara Mundy, “Vistas Main Gallery,” *Vistas: Spanish American Visual Culture, 1520-1820*, http://www.smith.edu/vistas/vistas_web/gallery/gallery_main.htm.
- ³⁶ Historicalvoices.org, The Flint Sit-Down Strike Audio Gallery, <http://www.historicalvoices.org/flint/>.
- ³⁷ Jakob Nielsen, “Search: Visible and Simple,” Alertbox, <http://www.useit.com/alertbox/20010513.html>.
- ³⁸ Mint Museum, The MesoAmerican BallGame, <http://www.ballgame.org/>.
- ³⁹ Archives & Museum Informatics, “Best Museum Web Site,” *Museums and the Web 2002: The Best of the Web*, http://www.archimuse.com/mw2002/best/win_overall.html.
- ⁴⁰ Gwendolyn Midlo Hall, Afro-Louisiana History and Genealogy 1719-1820, <http://www.ibiblio.org/laslave/>.
- ⁴¹ Albert Van Helden and Elizabeth Burr, The Galileo Project, <http://galileo.rice.edu/>.
- ⁴² Albert Van Helden and Elizabeth Burr, “Galileo’s Early Life,” The Galileo Project, http://galileo.rice.edu/bio/narrative_1.html.
- ⁴³ Albert Van Helden and Elizabeth Burr, “Pope Urban VIII,” The Galileo Project, http://galileo.rice.edu/chr/urban_viii.html.
- ⁴⁴ Louis Rosenfeld and Peter Morville, *Information Architecture for the World Wide Web* (Cambridge, MA: O’Reilly, 1998), 10.
- ⁴⁵ Note the lack of “.html” here—most web servers will automatically look for the file “index.html” or “home.html” in a folder or directory, which means that for home pages you can

just use a short form of the URL if you name it one of those options. In other words, the full URL for McCann's site is actually <http://www.bu.edu/africa/envr/index.html>, but the abridged form is perfectly acceptable.

⁴⁶ These plainer URLs can be created using some technical capabilities most web server software programs have, such as `mod_rewrite` for the most popular web server software, Apache. In general, try to avoid query strings, those ungainly strings of numbers and symbols after the question mark in a URL. The History Cooperative uses an addressing system of the sort we advocate. For example, Kenneth Cmiel's essay on "The Recent History of Human Rights" in volume 109, issue number 1 of the *American Historical Review* is found at <http://www.historycooperative.org/journals/ahr/109.1/cmiel.html>.

⁴⁷ Koninklijke Bibliotheek, Medieval Illuminated Manuscripts, <http://www.kb.nl/kb/manuscripts/>.

⁴⁸ Web Accessibility Initiative, Web Accessibility Initiative, <http://www.w3.org/WAI/>.

⁴⁹ Web Accessibility Initiative, "WAI Resources," Web Accessibility Initiative, <http://www.w3.org/WAI/Resources/>.

⁵⁰ For those who do need to comply with the federal laws, the United States Access Board has placed the full law and its interpretation of how to enact the law at <http://www.access-board.gov/sec508/508standards.htm>. The law itself, with all of the technical language, is at <http://www.section508.gov>, with the critical passages for web design in subsection 1194.22: "Web-based intranet and Internet information and applications." It is notable that this subsection closely follows the first edition of the Web Content Accessibility Guidelines from the World Wide Web Consortium, which does a much better job explaining some of the principles and the technical ways web designers can conform to these principles. The full text of the W3C guidelines is at <http://www.w3.org/TR/1999/WAI-WEBCONTENT-19990505/>.

⁵¹ Rehabilitation Engineering & Assistive Technology Society of North America, <http://www.resna.org/>; and Information Technology Technical Assistance and Training Center, "Overview of State Accessibility Laws, Policies, Standards and Other Resources Available Online," <http://www.ittatc.org/laws/stateLawAtGlance.cfm>; Information Technology Technical Assistance and Training Center, "A National Assessment of State E&IT Accessibility Initiatives," <http://www.ittatc.org/laws/state.cfm>.

⁵² Email correspondence with Kathy Cahill, 30 June 2003.

⁵³ Jim Thatcher, "Section 508 Standards," <http://www.jimthatcher.com/webcoursec.htm>.