Beginnings: The Labyrinth Medieval Studies Website
Deborah Everhart and Martin Irvine†

This chapter describes the origin, development, and significance of the Labyrinth—the first Medieval Studies website, as well as the first such site devoted to the Humanities—from its conception in 1992 to the present day. While the Labyrinth is still a living website as of the time of this publication (available at http://labyrinth.georgetown.edu), its story is one as old as the web itself. And, like the web itself, the story of the Labyrinth involves complex sets of connections and collaborations. There have been many, many contributors, both direct and indirect, to the success and value of the Labyrinth and its resources. The pages that follow are an attempt, admittedly incomplete, to chronicle those connections, and the complicated process by which they created a new tool for scholarly collaboration and creation. We encourage others to document the history of other electronic resources, and use this chapter to help them weave an even richer tapestry of scholarly history.

The Beginning

In the spring of 1992, Deborah Everhart had become increasingly excited about the opportunities for connecting the work of medieval scholars using the many networking technologies that were becoming more widely available, including the nascent World Wide Web. In a letter to a friend on 4 March 1992, she wrote, “I couldn’t stop thinking about the networking we were discussing … professors of literature might be a key target … The time is right now.”¹ The email went on to describe what this network (which she suggested naming “The Labyrinth”) might include: online journals, works in progress forums, conference listings, job lists, literature servers, image servers, music servers, a dictionary of literary terms; “the possibilities are endless,” she wrote, “and I think the profession is ripe for the switch to networking.” She was certain not only that the network could be built, but that it could be on line before the May 1994 meeting of the International Congress on Medieval Studies in Kalamazoo.

In October 1992, Deborah met Martin Irvine at the Medieval Academy’s Committee on Centers and Regional Associations (CARA) meeting at Stanford University, where it became clear that numerous people (including Martin) were creating technology-rich projects ready for the kind of collaboration and integration that she had been envisioning. A few months later, in the spring of 1993, Deborah and Martin began working together to learn the technological architecture of the web

† Deborah Everhart, Credential Engine; Martin Irvine, Georgetown University.
¹ Deborah Everhart, email to an unnamed friend, 4 March 1992.
and develop the Labyrinth. In May 1993, we presented an introduction to this work: "The Labyrinth: A Universal Electronic Information Network for Medievalists" at the 28th International Congress on Medieval Studies, Kalamazoo, Michigan. By December of 1993, we had uploaded the first Labyrinth web files onto a server at Georgetown University, thus creating the first website in the humanities. The Labyrinth officially launched on May 2, 1994 with a demonstration at Georgetown University, followed by a public event that same week (the "Labyrinth Computer Demonstration") at the 29th International Congress on Medieval Studies in Kalamazoo. The rest, as they say, is history—a history recounted in the following pages.

Pre-Web Technologies in Medieval Studies

In the early 1990s, there were many electronic resources available that were both specifically and generally useful for Medieval Studies. In order to use these, however, one first needed to know that they even existed. You then needed to know how to use very cumbersome technologies, and the resources were useless to you unless you could understand and follow the detailed technical instructions for gaining access to a given resource that often included a login. In many cases, moreover, although resources were electronic, they were not available online.

These basic challenges are reflected in early guides to scholarly computing such as Edwin Duncan’s “Medievalist’s E-Resources Directory,” which describes pre-web online resources and attempts to clarify how to access them. Duncan lists resources that medievalists certainly valued: eighteen medieval studies academic discussion forums and their archives, many of which had long histories and large numbers of subscribers, as well as sites available via Telnet, including the OTA (Oxford Text Archive), SEENET (The Society for Early English and Old Norse Electronic Texts), the Chaucer On-Line Bibliography, and the Dartmouth Dante Project. While these sites had significant bodies of materials, however, prior to the web one needed to have both scholarly expertise and technical expertise to use them. Therefore, in addition to providing instructions on (e.g.) how to subscribe to an academic network, listserv commands, how to Telnet, or how to use FTP (File Transfer Protocol), Duncan also had to include separate detailed technical instructions for each site that he mentioned, such as these for the Oxford Text Archive:

Probably the largest repository of accessible electronic texts on medieval topics is the Oxford Text Archive (or OTA). From the OTA you may obtain for no charge almost any of the major English or continental literary classics simply by filling out a form and signing a statement in which you swear to use the text for scholarly purposes only and not for class texts or for commercial use. Once the OTA people receive your application, they will send you electronically up to five requested texts, which you can then download onto your hard disk into your own word-processing software. Of course, you may never need an electronic version of a text, but if you do, this service can be invaluable. For more information send to listserv@brownvm.bitnet or to listserv@brownvm.brown.edu the following message: “get

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2 Deborah Everhart and Martin Irvine, "The Labyrinth", [http://hdl.handle.net/10822/1061738](http://hdl.handle.net/10822/1061738), labyrinth/medieval_databases/eduncan-dir1.html.
humanist filelist” or, if that presents a problem, send an e-mail message requesting more information to archive@vax.oxford.ac.uk …

In short, while the stage was set—ambitious and valuable electronic resources were being developed by medievalists, many of whom were already adept at working online—pre-web technologies made their work more difficult and cumbersome than what the web would soon offer.

The Vision Becomes a Reality

The Power of Metaphors

When we first started describing the opportunities of the web to medievalists in 1993, very few people had any idea how a “web” of online resources would work, or why it would be valuable. We needed to communicate even the most basic principles; hence the usefulness and the beauty of the metaphor of the labyrinth. Since all medievalists know the story of Ariadne and Theseus, the winding passages of the labyrinth in classical mythology, and the thread that brought Theseus back to his love, we used it as a metaphor for visualizing both the complexities of the web and the reliable “way home” that would be a key component of our website. We used this in our presentation and publication descriptions of the Labyrinth, as well as in a web page explaining the name and navigation of the site:

Ovid says that Daedalus built a house in which he confused the usual passages and deceived the eye with a conflicting maze of various wandering paths (in errorem variarum ambigue viarum) (Metamorphoses 8.161):

… so Daedalus made the innumerable paths of deception [innumeris errore vias], and he was barely able to return to the entrance: so deceptive was the house [tanta est fallacia tecti] (8.166-68).

The Labyrinth project on the World Wide Web is designed to allow you to make your own Ariadne's thread through the maze of information available on the Internet. And you will always be able to find your way back by choosing the "Return to Labyrinth Home Page" link at the end of each Labyrinth document.

The metaphor not only helped people understand website navigation, but also appealed to journalists, provoking headlines like “On the Net with Ancient Heroes” (Chronicle of Higher Education, 1995) and “Out of the archives, onto the Internet” (Stanford University News Service,

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3 Everhart and Irvine, *The Labyrinth*, [http://hdl.handle.net/10822/1061738](http://hdl.handle.net/10822/1061738), labyrinth/medieval_databases/eduncan-dir1.html.

4 Everhart and Irvine, *The Labyrinth*, [http://hdl.handle.net/10822/1061738](http://hdl.handle.net/10822/1061738), labyrinth/info_labyrinth/ariadne.html.

Such media pick-ups contributed to the Labyrinth’s immediate popularity and recognition: since others were telling and promoting our story, we didn’t need to do all that work ourselves.

We also realized that aesthetics matter. Therefore, we used elegant visuals that were appealing to all audiences, but resonated particularly with medievalists. The key image that became the unofficial “brand” of the Labyrinth website is the labyrinth in the floor of Chartres Cathedral (see the Labyrinth image “labyround.gif”). We also used complementary tile and brick patterns for backgrounds, icons, and navigational markers, (see for example the Labyrinth images “laby-sm2.gif,” “maze.gif,” and “navbutton.jpg”) all of which combined to give the site a coherent style as a “place” with medieval character. Finally, in a prescient example of the importance of user experience design, we created consistent navigation footers with exactly the same text and mnemonic visuals on every page, giving our website explorers the “Ariadne’s thread” that we had promised would help them find their way “home” from anywhere in the site. At the time, this consistent footer had to be manually written into every page, but we were sticklers for detail in both the HTML code and the beauty of the site.

**Contextualizing Web Concepts**

This visualization of a labyrinth also gave us a way to communicate the difference between earlier technologies and the web. Unlike earlier internet protocols such as Gopher, the web is not a hierarchy; since it does not have a “top” or a “root,” it was important to assure people that they would not get “lost” in this new online experience. But most people were also “lost” with regard to the intellectual significance of this new form of communication and publication. Simple metaphors were not enough to explain many crucial innovations, since many complexities of the web that we take for granted today were novel in 1993. One of our earliest documents explaining the web to medievalists, “The Labyrinth: An Electronic Information Network for Medieval Studies” works through a number of challenging key concepts. It’s worth noting that our decision to refer to this as an “article” defied traditional boundaries at the time, since it was never part of a formal publication, but was very widely circulated, referenced, and remixed by us and others. The article emerged from the innovative *Interscripta* project, a topical online forum created in 1993 by Patrick Conner, William Schipper, and us. As the forum authors explained at the time,

> Each six-week discussion on *Interscripta* focuses on a specific topic in a forum much like a round table discussion. Topics are proposed by scholars, then the advisory board of *Interscripta* reviews and chooses topics, schedules discussions, and oversees the general operations of the forum. Each topical discussion is moderated by an individual scholar, and at the close of the discussion, the moderator shapes the material into an article which is

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distributed to all participants for review and commentary before its final revision. Finished articles are then submitted to the on-line journal *Interscripta* for expeditious publication.\(^8\)

The *Interscripta* article about the Labyrinth was, to our knowledge, the first to explain the web and its potential value for medievalists. It is worth emphasizing that the article was not meant to offer technological explanations or guidance, but rather to provide an intellectual context for new ways of communicating and publishing online that were emerging at the time, and to demonstrate how webs of resources could enable new forms of scholarship. Intertextuality and cross referencing always have been familiar to scholars, and hypertext provided a new way of communicating these connections:

Data available to us electronically presents itself in a form extraordinarily different from that of the printed book; rather than following the strict linear order of lines on a page and pages in a book, electronic information communicates the intricate links between and within texts, the constantly shifting meanings of words and other bits of information as they appear in different contexts. Hypertext, the technological method whereby context after context can expand out from a single word, provides us with a new way of maneuvering and visualizing information, promising to supplant the printed book and rewrite not only our understanding of textuality, but also our concepts of authorship, pedagogy, and ultimately theory itself.\(^9\)

As we realized, the connectedness that the web made possible was unprecedented and difficult to grasp. We used metaphors such as the “desktop”, and comparisons to traditional research methods, to explain its impact:

The organization of diverse resources under one easy-to-use hypertext interface is revolutionizing the way we and our students do research. W3 technology allows searches across databases and facilitates customized manipulation of data. Files residing on servers around the world thus become part of one's desktop resources. Fast, powerful indexing programs allow users to process massive amounts of data with a single command. These tools for sorting and analyzing data not only save time, but also allow users to perform searches and make connections that would not have been possible before.\(^10\)

Nevertheless, we did not shy away from how decentering these technologies could be, even fundamentally changing our concepts of “mastery” and “authorship” due to the speed with which data now could be produced, shared, and manipulated in a rapidly expanding number of venues. As we noted, since “scholars may no longer operate under the illusion that they have mastered all

\(^8\) Ibid.

\(^9\) Ibid.

\(^10\) Everhart and Irvine, *The Labyrinth*, [http://hdl.handle.net/10822/1061738](http://hdl.handle.net/10822/1061738), labyrinth/article.html.
relevant information in their field … we can adopt a new metaphor, that of the skillful navigator, the explorer, the user of sophisticated tools.” The internet, we continued,

both metaphorically and practically deconstructs the illusion of the academic master and the authority of the author. Because the manipulation of information in the Web is user-centered, the new scholar does not follow the author's guidelines, does not read texts chronologically or entirely. The Web scholar makes decisions and maneuvers data in ways directly relevant to his or her own research and intentions, decentering the traditional concept of authorship by producing a new hypertext of connections among fragments of authors' works…. And the concept of authorship is further decentered by group practices, as new forums like Interscripta facilitate collaborative writing and blur the distinctions of identity and intellectual property.\textsuperscript{11}

It is no surprise that even in 1993 scholars were struggling with the impact of online electronic resources and how they would affect their own research methods, autonomy, and publication strategies, just as they do today. Since relatively few people were reading resources online at the time we made the Interscripta article available, however, we also spread our message in more traditional scholarly venues. In May 1993, we spoke at the 28th International Congress on Medieval Studies in Kalamazoo, Michigan, which was and remains the largest annual gathering of medieval scholars from all disciplines, offering the ultimate audience for professional outreach and recognition. The key points of our presentation, "The Labyrinth: A Universal Electronic Information Network for Medievalists," were largely the same as those in the Interscripta article, and were well received by a large audience. The Labyrinth became a hot topic at that year’s conference, which set the stage for the technology launch of the Labyrinth in December 1993, and its live demonstration at Kalamazoo in 1994.

\textit{The Web Expands to the Humanities}

Thanks to the work of medievalist visionaries who paved the way for new technologies, combined with our rapid rollout of the Labyrinth at the end of 1993, Medieval Studies became the first field in the humanities to have its resources connected via the web. We would have had a scant amount of content to put in the first Labyrinth web pages had it not been for Gopher, listserv, e-text repositories, Telnet library access, and other medieval and scholarly resources already available online. Prior to 1993, however, the use of the newly invented web protocols was already expanding in the sciences. Perhaps the best known of these was the World Wide Web (W3) interface developed at CERN, the European Particle Physics Laboratory in Geneva, as a fast and convenient way for physicists to share data and work collaboratively. Inspired by such initiatives, we knew that access to relevant scholarly resources organized and connected using hyperlinks could profoundly change the exchange of information and the speed of research in the humanities as well. In this vein, we noted, the Labyrinth could “not only provide an organizational structure for Medieval Studies,

\textsuperscript{11} Ibid.
but … also serve as a model for similar, collaborative projects in other fields of study, thus opening up new possibilities for the academic community of the twenty-first century … For medievalists, the Labyrinth's main menu will be the natural starting point, but the Labyrinth's reciprocal connections to other disciplinary servers will allow medievalists to branch out into other fields of study and … connect medievalists to the rest of the global Web community.¹²

Previously, other non-web-based medieval studies servers had to be accessed separately. By connecting them, the Labyrinth made them more accessible and promoted online scholarship through their virtual combination with other resources. This was a highly effective use of hyperlinks connecting distributed sources that could still remain autonomous, allowing users to consult a potentially unlimited range of materials without requiring those materials to be kept in one location. Of particular value was the Labyrinth's ability to provide access to many different types of digital resources—texts, images, bibliographies, discussion lists, library catalogs, and so forth—while maintaining the autonomy of those resources and the projects and archives that contained them. For example, the Labyrinth offered users a link to the Dartmouth Dante Database (DDD), an early public-access compendium of Dante’s works as well as Dante scholarship, without interfering with the database itself.

While users still could access sites like the DDD directly, the Labyrinth now made this valuable resource known and available to a much wider potential audience, who did not need to know in advance that the DDD even existed, much less how to establish a remote connection to it. The Labyrinth thus served as a heuristic system, allowing its users to find and explore materials that were previously unknown or inaccessible to them. The amount of these now-networked materials rapidly increased in the following years, as did the number of people employing the Labyrinth for their teaching and research. Other scholarly websites in the humanities quickly borrowed from our model, seeking our expertise and developing rich scholarly collaborations that connected medieval studies resources to other fields—among them, the Electronic Archives for Teaching the American Literatures website directed by Randy Bass,¹³ which in 1994 became one of several “Centers of Excellence” besides the Labyrinth developed at Georgetown University.

To be sure, not everyone understood our goals. For example, despite strong references, our 1993 application for a National Endowment for the Humanities (NEH) grant was rejected—funding that would have enabled us to add corpora of primary texts in Old English, Middle English, Old French, Old Norse, Old High German, and Latin to the Labyrinth “library”. Although feedback from the anonymous reviewers was generally positive, they were concerned that the proposal was too ambitious (admittedly true) and that medievalists might not use these resources (emphatically

¹³ Randy Bass, Electronic Archives for Teaching the American Literatures, https://faculty.georgetown.edu/bassr/tamlit/
Fortunately, administrative leaders at Georgetown University, including a number with humanities backgrounds, saw the value of the Labyrinth and funded our work in various ways from its inception. In addition to a start-up grant from the university for the initial demonstration project, the Labyrinth also benefited from the effort of interns funded by Georgetown’s Medieval Studies Program, from the generous assistance of Georgetown IT staff members in developing and expanding the website, from the support of Georgetown librarians in the archiving process, and from Deborah’s own appointment as Georgetown’s first webmaster.

**Early Web Technologies**

When the Labyrinth was created, the technologies available for building websites were extremely limited and difficult to master—not surprising, given that in early 1993 there were only fifty or so websites in the entire world. We wrote the Labyrinth’s HTML code by hand in a text editor, saved it in plain text files, and uploaded them to the Georgetown Unix server via FTP command line interfaces. The files needed to be created in organized sets with a predefined folder structure, so that we could keep resources organized and anticipate the growth of the Labyrinth. Links between these files also were written by hand in HTML code, and then tested manually once the files had been uploaded; any typo or change to the file structure had to be identified and corrected through the same manual process. Links to servers and resources outside our set of HTML files often needed to be accompanied with step-by-step instructions to help people understand how to access and navigate the Gopher or Telnet site to which we were linking; these instructions themselves often changed, however, generating other types of errors that we needed to track down and address manually.

In turn, accessing the web was a major challenge in its own right. In early 1993, the small number of people accessing the web via personal computers did so primarily through command-line browsers. Use of the web was so new and rare that we had to explain to people how to access the Labyrinth, even offering one-on-one advice to potential users about processes that we now take for granted, such as how to get to a starting point web page. We also showed people how to use the web by demonstrating simple but powerful affordances in Labyrinth web pages, most notably hyperlinks—a simple but highly useful navigation device that most people had not experienced before. In our introductory article, we included footnotes with clickable hyperlinks, from which the reader could return to the main text by selecting “RETURN TO ARTICLE”—a practical and

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14 In an ironic twist, the NEH ultimately recognized the Labyrinth (in 1997) as “one of the best sites on the Internet for education in the humanities” (EdSITEment award letter from Sheldon Hackney, Chairman of the National Endowment for the Humanities, to Martin Irvine and Deborah Everhart, 6 May 1997).

15 Worthy of special mention and thanks in this regard are Robert (Bob) Lawton, then Dean of Georgetown College, John (Jack) DeGioia, then Associate Vice President and Chief Administrative Officer for the Main Campus, and Richard (Dick) Schwartz, then Dean of the Graduate School, all of whom understood and supported our vision from the beginning.

16 For a concise overview of dates and developments in early web history, see Dan Connolly, “A Little History of the World Wide Web,” W3C: [https://www.w3.org/History.html](https://www.w3.org/History.html)
immediate demonstration of how to navigate through the Labyrinth itself.\(^{17}\) We were, in essence, teaching the medieval scholarly community how to use the web.

In late 1993, the release of personal computer versions of the Mosaic web browser, with its graphical user interface, made the web much more popular, owing to the ease of navigation and the ability to incorporate images within internet pages. Even before most people had access to a graphical web browser, however, we fully expected that the Labyrinth would be a media-rich environment, extending well beyond the simple top-of-page and navigational images used in the first Labyrinth website. Our plans for the Labyrinth thus included providing access to a wealth of digitized images, including digital images of manuscript illustrations and text, medieval art, architecture, maps, and objects from daily life and material culture, anticipating the critical role that digital imaging and processing would play in fields such as manuscript studies. These plans quickly became realities, as the rapid evolution of web browsers and the adoption of the web not only for scholarly but also for commercial uses ushered in a whole new array of opportunities. By 1995, the Labyrinth supported hypermedia, hybrid online/offline activities, and how-to help for non-technical people to develop their own web-based resources. In a very short time, the Labyrinth had moved from an ambitious vision to a rapidly growing and increasingly popular online resource.

**Growth and Adoption**

In our NEH proposal, written in August 1993, we estimated that at least 800 active users would be accessing the Labyrinth site in the first few months following its anticipated launch in December 1994. As we discovered after the site went public (in May 1994, more than six months earlier than originally planned), our NEH proposal estimate was wildly off the mark. User statistics compiled during the Labyrinth's first month of operation, and documented in a August 1994 Coalition for Networked Information (CNI) workshop project report, revealed 9300 web requests to the Labyrinth from educational, governmental, military, and commercial sites in 25 different countries. In only its first month, we concluded, the Labyrinth already was “reaching an enormous audience, and our correspondence with an incredibly diverse range of interested people demonstrates the great potential for developing World Wide Web disciplinary servers for other subject areas.”\(^{18}\) Just one year later, in August 1995, the Labyrinth received its millionth file request. By 1998 it was averaging over 6000 daily hits.

The immediate success of the Labyrinth was due not simply to our ability to understand and act upon current technological trends. Just as critically, it did not have to start from scratch. When the Labyrinth went live, medievalists had developed a large number of enormously valuable electronic resources already, including e-texts, databases, and vibrant online communities, created in a variety of formats and housed on servers requiring different logins and protocols. They were

\(^{17}\) Everhart and Irvine, *The Labyrinth*, http://hdl.handle.net/10822/1061738, labyrinth/article.html.

primed, in other words, to adopt new, web-based technologies that made it easier to access and connect these previously disparate resources. The Labyrinth in particular provided three key advantages: its use of open standards for hypertext links; its ability to organize resources from different sources; and its provision of open, common access methods. Even in its initial iteration, the Labyrinth provided easy-to-understand menus and navigation tools that made it easy for users to access existing as well as new resources that previously had existed in isolation, including the Oxford Text Archive, the MALIN History Text Archive, Curia Irish Text Archive, SEENET texts, the Oxford English Dictionary, the Vulgate Bible, Studies in the Age of Chaucer Bibliography, the Dartmouth Dante Database, the University of Virginia Electronic Text Center, the Bodleian Library, and a number of medieval-themed Listserv archives. By coordinating, collecting, and organizing such materials, the Labyrinth made it easier for new users to find and access them, just as the existing user base of those resources provided a new audience for the Labyrinth itself.

**Supporting Web Development in Medieval Studies**

Of course, building the Labyrinth was not a simple matter of creating menus of existing resources. Our goal, rather, was to create new resources ourselves at the same time as we supported collaborative development by others. Besides the many explanatory resources in the Labyrinth, we also contributed scores of our own manuscript transcriptions, translations of primary texts, teaching materials, and scholarly writings, and helped others to contribute and collaborate. Since there were few resources in the early 1990s for those who wanted to create web sites or pages, we also ended up teaching many people how to do so and supporting their subsequent efforts. In particular, we provided explicit, step-by-step guidance for specific audiences, including medieval professional associations, as well as on-site demonstrations, seminars, and consultations for scholars and institutions interested in developing similar projects in Medieval Studies as well as other humanistic fields. As we noted at the time,

> the sharing of such information will facilitate the coordination of disciplinary servers in the humanities, such that we may avoid duplicated efforts and incompatible systems. We hope that our experience in developing the Labyrinth will be of broad use throughout the humanities as our profession navigates the transition from traditional forms of research and pedagogy to the technological possibilities of the coming decades.19

At the March 1995 meeting of the Medieval Academy of America, we presented a paper addressing the long-term issues of scholarly development on the World Wide Web, arguing that Medieval Studies organizations and associations should develop World Wide Web resources in their own scholarly communities, resources which in turn could be coordinated and made easily accessible through the Labyrinth. To facilitate this development, we organized a set of materials, including general internet and web introductory resources and Deborah’s Georgetown University Guide to World Wide Web Development. We even created a “fill in the blanks” HTML file that could be

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19 Everhart and Irvine, *The Labyrinth*, [http://hdl.handle.net/10822/1061738](http://hdl.handle.net/10822/1061738), labyrinth/article.html.
used as a template for organizations, who simply needed to substitute their information for the form’s general statements before either uploading the form to a web server at their institutions or e-mailing it to us for inclusion on the Georgetown web server. We also wrote a letter to Medieval Studies organizations, explaining the importance of web development and providing both intellectual context as well as technical guidance on how to create and store files in the new HTML format. Many of these organizations responded positively to our initiative, and some initially hosted their web pages on the Labyrinth server (perhaps most importantly, the Medieval Academy itself, whose website was hosted and maintained by us on the Labyrinth server from 1997 until 2000). In 1999, the Labyrinth directory of Medieval Studies organizations, societies, and centers contained 125 entries, of which 70 had websites.

Our expertise in web development made many other professional contributions possible. Deborah led web development, policy, and processes at Georgetown University from 1994-2000, going on to lead product strategy and invent critical features of learning management systems, portfolios, badges, and digital credentials. Martin wrote Web Works (W.W. Norton, 1996), an introductory book that taught thousands of people how and why to use the web. Martin went on to found Georgetown's Communication, Culture, and Technology graduate program, the first interdisciplinary program of its kind. In many ways, then, our formative experiences in early web development served as a foundation for careers that have promoted and advanced technological innovation far beyond the boundaries of Medieval Studies itself.

Adoption by Medievalists and the General Public

The rise in popular interest in the web in the early 1990s, aided by the launch of image-friendly browsers such as Mosaic, coincided with our ability to show people something interesting. The intriguing intersection of medieval and tech drew attention not only from the community of medievalists, but also from scholarly publications and the popular press, leading to catchy headlines such as one from the Washington Post in 1995, “On the Net with Ancient Heroes: Perturbations, pleasures and predicaments on the information superhighway.” As the article’s author declared, “The Middle Ages have been hyperlinked,” before elaborating on some of the materials that could be accessed via the Labyrinth, including Beowulf manuscripts, drawings of King Arthur, maps of the Hundred Years War, and photographs of Viking rune stones. The Labyrinth’s scholarly importance already had been acknowledged in leading educational publications such as the Chronicle of Higher Education, which in May 1994 observed how

A Dante scholar might use the Labyrinth to connect to an Italian computer to see the text of The Divine Comedy and then connect to a computer at Dartmouth College to read criticisms of that and other works . . . The project also offers a collection of pedagogical

20 See Appendix 1.


22 Thomason, "On the Net with Ancient Heroes".
tools . . . [including] “Interscripta,” a mailing list of 400 people that is devoted to topics of interest to medievalists.23

A year later, Stanford University News Service noted the Labyrinth’s importance to medievalists, as well as the leading role of Medieval Studies within the nascent field of what would come to be known as digital humanities:

In the rush to the World Wide Web, researchers in matters medieval and Anglo-Saxon apparently are leading the scholarly pack . . . Since it was established a year ago, Labyrinth has served more than one million files . . . to some 60 different countries . . . and already has been rated among the top 5 percent of web resources in an independent survey conducted by Point Communications Corp . . . Stanford's [George] Brown, a specialist in Old English and Anglo-Latin who has published on a wide range of medieval topics, says that the isolation that many medievalist scholars feel has fueled the current electronic drive. ‘Most of us got onto computers out of sheer necessity,’ Brown says. ‘And once you're on the computer, it's pretty easy to take the next step of networking.’24

As Deborah told the article’s authors, "We’ve always been driven. In medieval studies you can't just be interested in text. You have to be interested in languages and art history and lots of other disciplines. So adding one more new discipline isn't a problem for us."25

Within a few years, the Labyrinth was included in a large number of guides and directories of web resources, including those compiled by W. W. Norton, Encyclopedia Britannica, the National Endowment for the Humanities, and the World Wide Web Virtual Library, hosted by the W3 Consortium at MIT. Attention from these many audiences translated into traffic on the Labyrinth. These visitors, moreover, were not just casual passers-by; people who visited the Labyrinth were able to quickly access rich and diverse resources, leading them to stick around and spend significant amounts of time on the site. Even as the World Wide Web grew to include hundreds of thousands of websites, offering a myriad of ways for people to spend their time online, use of the Labyrinth continued to grow, averaging over 6000 hits per day from early 1998 well into 2000.

Building Communities and Leveraging the Web

While popular attention was welcome, our primary audience for the Labyrinth was the community of Medieval Studies scholars and students, whose needs we intended to serve by offering a rich and diverse set of scholarly, pedagogical, and professional resources. Building upon the wide range of electronic resources and online communities already available to medievalists in the early 1990s, we thus strove to explicitly create structures for community and professional engagement. Critically, the


25 Ibid.
heuristic nature of the Labyrinth’s collected resources helped people find not only Medieval Studies sources and materials, but also collaborators and organizations that would help them achieve their goals, in the process levelling the playing field by providing access to as much professional information as possible. Indeed, equitable access to resources was one of the most important outcomes of the Labyrinth, and one of our early guiding principles. As we explained in our 1993 article,

This project and others like it will greatly enhance research and pedagogy by making an enormous amount of data universally available, easy to access, and convenient to use. The practical implications of hypertext networks are manifold. The Web is already fostering unprecedented collaboration among scholars, providing discussion forums which are channels for efficient communication and allowing researchers to undertake joint ventures that would not have been possible before. Students, both graduate and undergraduate, often participate in these discussions, furthering not only their own education but also the efforts of their educators. The Web democratizes the process of sharing ideas and information.26

From the outset, moreover, we envisioned a wide range of community resources, including information on professional organizations, conference announcements and calls for papers, academic newsletters, bibliographies, journal tables of contents, job bulletins, fora on work in progress, virtual meeting places for those working on joint projects, pedagogical materials, and job bulletins. While not all of these desiderata were realized, many did end up coming into being on other sites or networks; moreover, the Labyrinth and later Medieval Studies websites became vital sources of opportunities for collaboration and idea sharing, serving a large and diverse group of students, teachers, and researchers.

**Publishing**

One of the most important professional achievements of the Labyrinth was to provide a home, organizing principles, and a model for Medieval Studies scholarly organizations on the web. In turn, bibliographies—both individual and as part of larger databases—became more accessible by being listed and linked on the Labyrinth’s Bibliographies page, which aggregated information about bibliographies that many people would have had difficulty finding, including many that required passwords on proprietary sites that used older technologies such as Telnet and Gopher. Wherever possible, we provided not only links, but also instructions for logging in to these resources, saving scholars hours of frustration. While we never realized our ambitious goal of including tables of contents of journals on the Labyrinth, we did include a directory of publishers responsible for books and journals in Medieval Studies, which while not exhaustive nonetheless provided a vital starting point for scholars wishing to survey the state of the field as well as to find possible publishing venues for their own research. Within only a few years of its launch, the Labyrinth itself came to be seen as a valuable place in which to discover and disseminate scholarly publications; as early as the

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26 Everhart and Irvine, The Labyrinth, [http://hdl.handle.net/10822/1061738/labyrinth/article.html](http://hdl.handle.net/10822/1061738/labyrinth/article.html).
May 1996 International Congress of Medieval Studies meeting in Kalamazoo, two works—William Schipper’s “The Labyrinth Guide to Manuscript Repositories” and the *Bryn Mawr Medieval Review*—were publicized as accessible via the Labyrinth’s new Scholarly Publications page, which would grow to include links to and records of a growing number of monographs, journals, reviews, and websites.27

*Conferences and Discussion Forums*

By aggregating access to sites and forums, the Labyrinth also encouraged and enabled scholars to collaborate, develop and post their work online, attract interest in their projects from publishers, and even attend online conferences. One notable example of the latter was *Cultural Frictions*, a hybrid online/face-to-face conference hosted by Georgetown University in October 1995 which invited participants to investigate the ways that cultural discourse is deeply implicated in the origins of its production. How are the objects we study entwined with the modes of their critical articulation? What does cultural studies offer medieval studies? . . . Post-modern theory is also beginning to notice the impact of the new networked hypermedia environment of the World Wide Web on literary studies and the humanities, and the Web as a new context for cultural studies is both a topic for discussion as well as the medium for transmitting this discussion worldwide.28

In contrast to the traditional conference model, *Cultural Frictions* allowed active and acknowledged participation and interaction through online discussion as well as physical attendance at the campus venue, while presenters were able to publish their papers in an online collection of conference proceedings hosted on the Labyrinth, one that encouraged feedback and comments from readers around the world via a web-based comment form. As the organizers noted at the time, this conference not only was the first event devoted to the topic of Medieval Cultural Studies, but also the first worldwide, interactive conference in any humanistic field.

*Pedagogical Resources*

Both the web and prior technologies such as e-text databases provided unprecedented opportunities to incorporate medieval source material into courses and student research. This fostered a community of innovation among Medieval Studies teachers, with access to and aggregation of resources supported by the Labyrinth. At the outset, we anticipated how pedagogy could evolve with these new tools:


Labyrinth [pedagogical] forums will provide not only shared information among scholars teaching similar subject matter, but also on-line seminars and other opportunities for distance learning . . . We will offer sample syllabi and course outlines, study questions and writing assignments, e-anthologies, bibliographies, aids for learning medieval languages, even multi-media teaching platforms . . . based on contributions from users, representing the widely differing strategies, agendas, and teaching tools of faculty from around the world.  

As we had envisioned, the Labyrinth soon offered access to online courses, course materials, language learning aids, and entire corpora of primary texts in the Labyrinth Library, serving as the only point of access to a number of primary and secondary resources for teaching, research, and scholarship. As the web became increasingly complicated and littered with material of dubious quality and reliability, moreover, the Labyrinth continued to be the site that teachers and their students—both medievalists and those seeking a gateway to medieval resources—could trust. In recognition of this fact, the Labyrinth was added to the National Endowment for the Humanities’ EDSITEment directory, a tool designed to help teachers “streamline your time online by connecting you quickly to websites with real educational value, websites screened by a rigorous academic review process and endorsed by a distinguished panel of educators and parents.”

Scaling and Sustainability Models
Although the Labyrinth was designed for collaborative contributions and distributed development, the unforeseen scale, speed, and complexity of its growth required web management structures that had not yet been invented. Previous technologies such as Gopher depended upon a centrally controlled hierarchical structure, one more suited to top-down management than to collaborative expansion in numerous directions. Online databases and e-text corpora typically had a single owner or governing organization. Comparable commercial ventures were organized according to product and profit structures. Faced with the challenges of unprecedented scaling, we were forced to forge ahead, aided in our efforts by the help and encouragement of numerous colleagues.

Scholarly Contributions
From the beginning, we insisted that the Labyrinth remain a scholarly, non-commercial endeavor, even when the site’s rapidly growing user base offered an opportunity for advertising revenue. While the Labyrinth might well have benefitted from the increased resources that such an income stream could provide, we ultimately decided that commercialization would just as likely dilute and even corrupt the scholarly contributions upon which the site depended and which drew users to it in the first place. Without commercial sources of income, and in the absence of substantial grant funding or institutional budgets, the Labyrinth thus lacked a paid staff, depending principally instead upon the unpaid labor of its creators themselves as well as in-kind technical and intern support from

Georgetown University. Given these circumstances, the Labyrinth never could have succeeded without the time, effort, and expertise given to it by many colleagues, in particular its international advisory board of technologists and medievalists, who in addition to providing invaluable practical and theoretical guidance also agreed to weave their own scholarly work into the Labyrinth’s rich tapestry.

From the beginning, board members helped to collect and manage resources for parts of the Labyrinth that were within their own area of expertise, like William Schipper, who helped to curate the subject page for Anglo-Saxon Culture.\textsuperscript{32} We expanded this model by recruiting volunteer subject area experts and page editors like R. Allen Shoaf, who for several years edited the Scholarly Publications page, compiling online journals and websites relevant for online publishing.\textsuperscript{33} Interns from the Georgetown University Medieval Studies program also collected, curated, and maintained resources under our guidance, while in some cases even undergraduate students had an opportunity to contribute to the creation of the Labyrinth. In each case, we followed a simple but useful model by which numerous people collected resources and feedback and manually edited individually-curated web pages. The resulting pages were naturally (and charmingly) different and varied in the structure of their content, although each featured a consistent Labyrinth navigation structure. Nevertheless, as the Labyrinth grew to include hundreds of HTML and image files for pages providing access to thousands of resources across the web that were constantly moving, changing, and disappearing, this original approach—and the link maintenance that it required—proved to be neither sustainable nor scalable.

**The Labyrinth as a Web-Based Catalog**

As more and more Medieval Studies and cognate academic websites matured, the Labyrinth’s role shifted towards one of cataloging resources rather than hosting multiple individual pages. For example, the Medieval Academy ceased using the Labyrinth as the hosting site for its organizational website; more generally, scholars increasingly were able to publish resources on their own institutions’ websites, rather than relying on the Labyrinth for this service. By 1999, therefore, it was time for a logical and technological restructuring.

In order to shift to this new cataloging role and clean up the disparate subject pages, we turned to a newer technology designed for indexing structured data: the web database server, specifically Adobe’s ColdFusion. This enabled us to store all of the links in a database, organized with categories and other metadata, and generate web pages “on the fly” based upon the user’s selection of metadata or application of search parameters. The automatic generation of a web page based on a user’s specific requests is something that we take for granted today; after many years of managing individual pages manually, however, we found this new technology to be transformative. Unlike its predecessor, the ColdFusion Labyrinth site essentially had only two pages: the home page, where users initiated queries, and the results page, which listed the links that matched those queries.

\textsuperscript{32} Everhart and Irvine, The Labyrinth, \url{http://hdl.handle.net/10822/1061738}, labyrinth/subjects/british_isles/anglo-saxon/anglo-saxon.html.

\textsuperscript{33} Everhart and Irvine, The Labyrinth, \url{http://hdl.handle.net/10822/1061738}, labyrinth/professional/scholarly_pubs.html.
The home page also included links to predefined results for each of the top-level organizational categories, allowing people to have a heuristic experience similar to that of browsing the pages on the earlier Labyrinth site. This was particularly important as a teaching tool, helping students explore and learn about Medieval Studies without prior knowledge of the relevant categories.

Transitioning to Cold Fusion required defining those categories and establishing a metadata structure to give people useful and intuitive ways to find what they needed. For this, we went back to an idea that had been impractical in the early days of the Labyrinth due to lack of web content: the Library of Congress Classification (LCC). Although our original plan had incorporated LCC, for many years Medieval Studies web content was too “lumpy”, with a few categories full of resources and many other categories empty of any content. Moreover, the Labyrinth had evolved by adding what was new, not by systematically cataloging what existed, exacerbating the tension between a tight LCC structure and a loose practice of sense-making. The Cold Fusion site used categories and subcategories based on LCC, as well as types of materials, as an organizing structure, drawing upon metadata in the Cold Fusion database. Users could search for materials either by entering keywords or by using any of these metadata. The “types of materials” filter, for example, allowed users to search for Archaeological Materials, Architectural Materials, Audio, Bibliographies, Catalogues and Handlists, Course Materials, Databases, Discussion Lists and Forums, Glossaries, Images, Maps, Materials for Children, Organizations, Primary Texts, Secondary Texts and Articles, and Video.

By this point, there were sufficient Medieval Studies resources on the web to include materials in all of the categories; indeed, we even undertook a massive expansion by adding hundreds of new links. To be sure, the prior Labyrinth resources and the nature of the web in general resisted our efforts at clear classification. For example, many sites were collections spanning multiple categories, making it difficult to correctly categorize the resources they contained. Likewise, it was difficult to capture metadata about the types of materials on any given site. Nonetheless, the improved management of Labyrinth content provided by the Cold Fusion database far outweighed any disadvantages it posed. The Cold Fusion server made maintenance far easier, providing a fast and efficient way to scan for broken links. It also made it easier to “crowdsource” content through a form that allowed users to offer corrections to existing links and suggest new ones. This web form captured the relevant information in the database structure, so that we could simply review and approve changes and additions. In theory, we had reached a point where the Labyrinth could grow and be maintained largely through semi-automated public input rather than manual scholarly curation. As it turned out, however, public input was not the solution we had hoped it would be.

The Wild, Wild Web

*Cacophony*

Twenty-five years after he invented the web, Tim Berners-Lee reflected on how it had empowered and connected people around the world, transforming “the way we talk, share and create.”34 Yet

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34 Tim Berners-Lee, “I am Tim Berners-Lee. I invented the WWW 25 years ago and I am concerned and excited about its future,” Reddit discussion, 12 March 2014; https://www.reddit.com/r/IAmA/comments/2091d4/i_am_tim_bernerslee_i_invented_the_www_25_years/
when asked, “What was one of the things you never thought the internet would be used for, but has actually become one of the main reasons people use the internet,” his response was unexpected: “Kittens.”

None of us expected kittens. All of our high-minded visions for the scholarly communities on the web and equitable, organized access to the best resources for everyone from beginning students to advanced researchers are dramatically overshadowed by the popular uses of the web.35

The growth of the web into a cacophony of materials from innumerable sources does not, of course, preclude serious scholarly uses. It does, however, require serious web users and developers to gain the skills they need to discern the source, authenticity, veracity, and value of new, ever-changing types of resources. For us, this meant that the Labyrinth needed more intense editorial vetting processes, at a time when we in fact had far fewer human resources to apply to the project. There were many important questions to address: Should the Labyrinth include popular and non-scholarly resources, frequently suggested by users via our public web form? How should we justify excluding sites? How much time and effort could we apply to evolving and documenting our editorial process? Should we include commercial sites?

As commercial interests and advertising became dominant on the web, even on scholarly sites, a link in the Labyrinth became a prized source of increased traffic and in some cases increased income for the site’s owner. This unintended outcome complicated our decisions about what to include in the consistently non-commercial Labyrinth. Despite numerous overtures, we staunchly resisted commercializing the Labyrinth. Consequently, the Labyrinth has never charged for access or resources, never collected member or subscription dues, never billed anyone for posting scholarly resources or even entire corpora on the site, never included advertising, and never had commercial sponsors. While some or all of these options might have made the Labyrinth more sustainable, finding an acceptable balance between commercial and scholarly interests was a task we found too difficult to undertake. At the same time, the need and demand for reliable access to vetted Medieval Studies resources continued to increase. When a raw web search for “King Arthur” returns millions of hits and prioritizes products and movies, it becomes worthless for scholarly research and misleading and even dangerous for students. As a contrasting example, the Labyrinth’s collection of Arthurian Studies resources continued for many years to play a crucial role, offering a reliable and trustworthy starting point for students, teachers, and writers, with teachers in particular pleading for us to keep the Labyrinth up-to-date and available.

Simple Stability

As the demands of vetting resources and the increasing likelihood of link rot threatened to overwhelm us, we were caught between a rock and a hard place. Faced with this dilemma, we chose

35 Ibid.
the rock, narrowing the Labyrinth down over a number of years to a simple but relatively stable site. The hard place, which would have been much more valuable, would have required developing a new governance structure for the Labyrinth. A stable and committed community effort could have restructured the Labyrinth, defined clear editorial processes, staffed the work of vetting and curation (potentially with volunteers), and revived the Labyrinth as a growing, thriving site. That didn’t happen, although in theory it still could. Our careers have evolved away from Medieval Studies, and although we still value this community, we are not the right people to initiate or lead this kind of complex, long-term community effort. A simple version of the Labyrinth remains available at the time this chapter is being written (2021), and many of its collected resources are still valuable. We transitioned to a WordPress web site in 2014 when the ColdFusion server was retired, the Labyrinth having outlived many web technology structures over the decades. The WordPress site largely follows the structure of its ColdFusion predecessor, but without a web database infrastructure. Although the WordPress site receives only minimal maintenance, it continues to provide web users access to these archived resources. It is, in other words, a slice of history.

**An Enduring Tribute and a Foundation for the Future**

While the WordPress site reflects prior versions of the Labyrinth site, we also knew we needed to capture and archive this rich history and related resources. The process of archiving the Labyrinth has been a daunting undertaking. With so many layers of a connected and complex history, it was hard to know where to begin. It was even harder to decide where to draw some sort of boundaries between what is included in the archive and what is not. The web doesn’t work that way, nor do our collaborations and rich professional relationships. Ultimately, then, the archive (and this chapter itself) have been bounded in ways that are counter to their nature. We sincerely apologize for the many important people, activities, and resources that are not included.

**Archived Materials**

The logic of what is included begins with the Labyrinth files themselves, which on their own are massive and complex. Even making decisions about which files to archive was challenging. The Labyrinth web files that are written in basic HTML we have kept in their original form at http://labyrinth.georgetown.edu, as a set representing the most expansive Labyrinth HTML site. They can be viewed with any web browser or text viewer. The ColdFusion files, also in their original format, could be reinstated on a ColdFusion server, but they are not humanly readable. The WordPress files are still available and usable as a website at http://labyrinth.georgetown.edu. All of these Labyrinth web pages changed continuously, so the captured collections represent specific points in time:

1. The latest and most complete set of manually written HTML web files and images, from 2007, when the URL http://www.georgetown.edu/labyrinth was retired
2. The latest and most complete set of ColdFusion files, from 2014 when the ColdFusion server was retired
In addition to our own original copies of the Labyrinth files, we captured third-party documentation of the Labyrinth site from the Internet Archive at numerous sample points from 1997 (the earliest Internet Archive record of the Labyrinth) to 2021. This Internet Archive documentation is included in the archive as PDF files.

Along with the Labyrinth files themselves, we compiled documentation explaining the history of the site and describing its significance. Here again, there was a continuous flow of activities, citations, and influences which we attempted to represent through three documents, which are included in the archive as PDF files:

1. This chapter itself, providing a narrative account of the Labyrinth;
2. An Archiving Dossier Narrative;
3. A Labyrinth History and Documentation (1992-2021) document that includes:
   - An abstract
   - Curricula vitae for Martin Irvine and Deborah Everhart, creators of the Labyrinth
   - List of contributors (necessarily incomplete)
   - Timeline
   - WorldCat catalogue references
   - Publications and presentations related to the Labyrinth by the creators
   - Citations and references to the Labyrinth (necessarily incomplete)
   - List of the artifacts archived, including the Labyrinth files and 3rd party documentation in the form of Internet Archive captures

Further detail about the archive can be found in the Labyrinth History and Documentation document. All of these materials are available from the Labyrinth website at Georgetown University (labyrinth.georgetown.edu) and are cataloged by Georgetown University Library with the permanent identifier http://hdl.handle.net/10822/1061738.

**Conclusion**

At the time of this writing, we could only rest easy with this partial, imperfect compilation by reassuring ourselves that the Labyrinth website is still live, and that we can continue to add historical documentation there and also create additional archives, “had we but world enough and time.” We remain proud of the Labyrinth, its role in advancing Medieval Studies, the humanities, and scholarly collaboration on the web, and the contributions we and our colleagues have made to providing equitable opportunities for discovering and exploring the rich and complex world of our medieval heritage. We hope that this chapter, and the broader archive of our work, will provide a permanent record of one important episode in the history of the web, and lay the foundation for future evolutions in Medieval Studies.

Appendix 1
Letter from Deborah Everhart and Martin Irvine to Medieval Studies organizations on the aims and importance of web development (1995)\textsuperscript{36}

We would like to invite you to join us in this collaborative venture to extend the accessibility and intellectual content of medieval studies resources on the Web.

Web networking technology was designed to be a fast and easy way for communities of researchers to share information and work collaboratively. From this origin, the Web has grown with extraordinary speed to include educational and government organizations, non-profit groups, commercial entities, and private individuals. We began building the Labyrinth, a World Wide Web disciplinary server for medieval studies, over a year ago, responding to a need to organize existing electronic resources and to plan new initiatives. Since the grand opening of the Labyrinth on May 2, 1994, the Labyrinth Web server has processed over 400,000 file requests from users in 56 countries. Currently, the Labyrinth server handles approximately 3,500 file requests per day. These statistics give evidence for wide interest in medieval studies information on the Web, and they also suggest the potential of greatly expanded outreach for medieval studies organizations linked through the Labyrinth.

The growing importance of the Web in all areas of professional and personal life recommends that organizations in our field develop their Web presence as soon as possible. Medievalists have long been in the forefront of technological innovation, and Web development is not likely to be an exception to this pattern. For example, your organization's home page on the Web could provide a center for current and prospective members to find information quickly, share ideas, and coordinate projects. More importantly, your society could serve as a focal point for the development of electronic resources in your field, making a valuable contribution to the intellectual core of the Web. Everything from membership information to new scholarly projects and multimedia resources can be developed and shaped on the Web.

The Labyrinth can facilitate this development by providing a shared center for on-line resources, and in turn, professional societies can help us make the Labyrinth a worldwide web for medieval studies, according to its original design. Now that more and more of our colleagues are using the Net and Web as part of everyday academic life, we expect an explosion of Web development in medieval studies. The existing organizational structures and the collective expertise of professional societies in our field will provide a strong foundation for promoting these developments, and the Labyrinth can continue to provide a central "meeting place" and structure that unites the various fields of medieval studies on the Web.

HTML files are simply ASCII files with markup in angle brackets, and anyone with word processing experience can create Web files. Once you have created Web files, they can reside either on our server or on a server chosen by your organization. These files can act as an opening structure for an infinitely expandable body of materials organized, edited, and maintained by your organization and its membership. This collaborative model will give you the independence to shape Web resources according to your own needs and the intellectual life of your community, and it will

\textsuperscript{36} Everhart and Irvine, The Labyrinth, , \url{http://hdl.handle.net/10822/1061738}, labyrinth/professional/howto/letter.html.
also give your resources enormous visibility through the centralized access of the Labyrinth. Through collaborative development, the global medieval studies community can contribute to and continue to benefit from the rich diversity of the Labyrinth.

Bibliography

Bass, Randy. *Electronic Archives for Teaching the American Literatures.*
https://faculty.georgetown.edu/bassr/tamlit/

https://www.reddit.com/r/IAmA/comments/2091d4/i_am_tim_bernerslee_i_invented_the,www_25_years/

https://www.w3.org/History.html


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https://news.stanford.edu/pr/95/950816Arc5114.html