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Pathfinders: Documenting the Experience of Early Digital Literature

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Grantee: Electronic Literature Organization (ELO)

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Remember playing Tetris on a diskette you accessed on your desktop? Listening to your favorite musician's CD on your laptop? As you probably realize, these technologies have become—or in the midst of becoming—obsolete. While Tetris has migrated to other technologies and your musician's music on to a digitalized format via iTunes, Pandora, or the like, other forms of media have not been as fortunate. Literary works created with and for the computing environment, what we refer to as born digital literature or digital literature, are in need of preserving for long-term access by the public and by scholars. These experimental works of literary art reflect the cultural heritage of the early 21st C much in the same way early works of print experimental writing by Gertrude Stein, HD, T.S. Eliot, and others reflected the early 20th C. and so must be documented for posterity.

The **Pathfinders** project undertakes this important work. Additionally because experimental digital writing often involves readers interacting with the work, our project introduced a novel method of documenting this form of literature. Rather than simply collecting the original media or translating the software to new technical contexts, our method, which we refer to as a *Traversal*, calls for recording demonstrations or performances of the work with video, audio, and static photography. *Traversals* are performed using original software on machines that come as close as possible to the systems for which the works were originally designed.

Four important examples of early electronic literature were selected: Judy Malloy's *Uncle Roger* (1987); John McDaid's *Uncle Buddy's Phantom Funhouse* (1993); Shelley Jackson's *Patchwork Girl* (1995); and William Bly's *We Descend* (1997). Video recordings of Traversals and author interviews, along with a wealth of other material, became the basis for *Pathfinders: Documenting the Experience of Early Electronic Literature*, an eBook produced and published with the multimedia authoring system Scalar.

Our project involved numerous activities.

1. Traversals

Pathfinders began in May 2013 with preparation for an experimental Traversal by Co-PI Moulthrop of his 1991 hypertext fiction *Victory Garden*. This work is technically similar to two of the four works in the main research sequence (Jackson's *Patchwork Girl* and Bly's *We Descend*), and the Co-PI's authorship allowed examination of the process from both sides of the transaction, subject and researcher. The Traversals (author and non-author), author interview, and public talk were recorded in July 2013. More than four hours of video and audio were collected. We experimented with numerous camera angle and microphone settings, as well as strategies for capturing screen images. Valuable lessons were learned for the main Traversals. Results of the prototype work have not been published with the main project since they represent a rehearsal rather than a production, but they remain available for future development.

Following that experiment, we moved to documenting the first of the four works we aimed to preserve. To that end, in August 2013 John McDaid traveled to the Electronic Literature Laboratory (ELL) that Co-PI Grigar directs at WSUV for a Traversal of *Uncle Buddy's Phantom Funhouse*. Traversal videos were recorded with notably better success than in the prototype. Camera angles and audio setups were effective, though capture of fine screen detail remained a challenge, especially in the case of McDaid's work, which has considerable graphic content. Author and non-author Traversals were recorded, along with a follow-up interview. McDaid presented a public talk on the origins of his work. Co-PI Grigar and her staff live-blogged the event and reported extensively in social media.

The next author, Judy Malloy, is the author of the groundbreaking "narrabase" novel *Uncle Roger*. At the time of our Traversal, she served as a visiting faculty member at Princeton University. Physical impairments make long-distance travel difficult for her, so the co-PIs and a videographer traveled to Princeton for her sessions, which took place in September 2013. Co-PI Grigar arranged access to a vintage Apple II personal computer. Malloy demonstrated *Uncle Roger* and a number of other works, and engaged in extended interviews. Non-author Traversals were also recorded. More than six hours of video material were obtained. Filming in the remote location was challenging, but was accomplished successfully. Co-PI Grigar covered the event extensively on social media and compiled a journal of notes and impressions.

In October Shelley Jackson, author of *Patchwork Girl*, perhaps the best known and most influential hypertext fiction, visited the ELL. Author and non-author traversals were recorded, as well as an author interview. Jackson gave a public talk reflecting on the development of her current work from its early-electronic roots. Techniques refined by experience made this the most successful of our video shoots so far. Approximately four hours of material resulted. Co-PI Grigar and staff covered the event extensively on social media.

The customary NEH grant recipient meeting was canceled in 2013 because of uncertainties about the Federal budget. The Co-PIs received permission to re-allocate funds that would have covered their travel to Washington, D.C. for a fifth traversal session hosted by the Maryland Institute for Technology in the Humanities, at the University of Maryland in College Park in late October, 2013. The subject of this session was William (Bill) Bly, author of *We Descend*, a novel-length hypertext fiction whose publication history straddles the early (Storyspace) and later (World Wide Web) contexts. Bly's literary effects are part of a collection recently installed at MITH. In addition to our standard author and non-author Traversals (one of these performed by MITH Associate Director Matthew Kirschenbaum), Bly took part in a public symposium on archives (the main subject of *We Descend*) and the challenges of digital documents. Working with a local videographer, we collected more than four hours of traversal and interview material. Co-PI Grigar covered the event extensively in social media.

In sum, Traversal activities were completed at the end of October 2013. In all, more than 25 hours of recordings were made, along with hundreds of documentary photographs and a similarly large number of tweets and blog posts. Two public talks, a public symposium, and an author interview lasting more than three hours (Malloy) were produced.

2. MLA Exhibition, January 2014

Co-PI Grigar had been invited to create an exhibition concerning electronic literature at the 2014 annual convention of the Modern Language Association. When the *Pathfinders* project launched, she invited Co-PI Moulthrop to collaborate. The Co-PIs produced a curated show at the 2014 Modern Language Association Convention in Chicago, centering on the Pathfinders project. The show was called *Pathfinders: 25 years of Experimental Literary Art.* It was envisioned as an experiential counterpart of the Pathfinders project that would allow an early release of some of the data collected for the project, introducing scholars to the project. The conference provided the Co-PIs to meet and plan post-production for the Traversal materials.

3. Editing and Post-Production of Traversals

University of Wisconsin-Milwaukee: The budget provided for two graduate research assistants from the University of Wisconsin-Milwaukee. These students began working with Co-PI Moulthrop in February 2013 with the goal of quickly producing a first cut of the author traversal videos for McDaid, Jackson, and Malloy, for dissemination on the World Wide Web. (The Bly videos required more extensive post-processing and were deferred at this point.) The first task was to inventory and annotate approximately 100 video and audio files. As preparation of the rough cuts proceeded, it became necessary to collect screen images from several of the works, using vintage equipment and techniques. This work was accomplished by May 2014. First-cut videos were made available on the Web at this point.

ELL at Washington State University Vancouver: First-cut videos were evaluated at the ELL and found (a) to have unsatisfactory audio quality and (b) to be in a format not ideal for use in the planned Scalar eBook. Co-PI Grigar arranged for a videographer to construct a new set of videos, using the first-cut examples as models. These videos, featuring enhanced audio quality, were uploaded to a Vimeo channel. Personnel in Vancouver also produced videos for the Bly Traversals, for all the non-author traversals, and for the four main author interviews. In total 102 videos were produced for the Scalar eBook.

4. Planning for Scalar eBook

The project plan called for presentation of the video and other materials from traversals to be presented in the form of an eBook produced with **Scalar**, the multimedia

authoring environment developed by the Alliance for Networked Visual Culture at the University of Southern California. In August 2014, the Co-PIs met in Vancouver to complete plans for this phase of the project. Production began soon thereafter. This format made it possible to place commentary side-by-side with the videos we produced and the images we took of the physical artifacts. As literary theorist Joseph Tabbi says in his comments about our work: "What Stuart Moulthrop and Dene Grigar did . . . was to turn reading itself into a performance, to *stage* "[p]articular encounters with the text," what are here called *Traversals*."

Production of Scalar eBook

Based on the inclusion of a fourth main author (Bly), the Co-PIs received a no-cost extension of *Pathfinders* through the second quarter of 2015. This time was used to develop wireframe models and presentation styles for the eBook, to perfect video elements, and produce written contents. Production of the Scalar eBook, involving efforts by the Co-PIs and key support staff in Vancouver, was completed in May 2015. The eBook was published in the Scalar system, and as a virtual imprint of NouSpace Press, on June 1, 2015. This event marked the conclusion of the *Pathfinders* project.

The book was reviewed by digital humanities scholar Élika Ortega in an essay called "Preservation Paths. A Review of Pathfinders: Documenting the Experience of Early Digital Literature by Dene Grigar and Stuart Moulthrop" for *Digital Literary Studies* 1.1 (https://journals.psu.edu/dls/article/view/59747). As she says in her review, "Grigar and Moulthrop open the door for renewed studies of the works included in *Pathfinders* and set the ground for a subfield of E-Lit reading studies (our emphasis). The description and study of E-Lit reading like the ones found in the traversals might in time be explored further. Ultimately, these protocols propose and invite the development and establishment of a novel approach to E-Lit preservation. The emphasis on "reading studies" underscores what we see as one of the most exciting aspects of reading literature: analyzing the way it is constructed. In analyzing the four works of e-lit for *Pathfinders*, we used a combination of literary theory, traditional literary analysis, and digital-based platform studies. This approach provides a very robust way of making sense of born digital writing. With various theorists like Nicholas Carr, Cathy Davidson, and even N. Katherine Hayles telling us that engagement with digital environments is changing the way we think, it seems a good direction to go with teaching reading in the late 21st century involves the deep reading practice that we argue for with *Pathfinders*, one that takes into account both the literary features of a text along with its mechanic practices.

[b] Accomplishments

1.   Books: Scalar eBook & Print Book

The primary tangible outcome of the Pathfinders project is our Scalar eBook: *Pathfinders: Documenting the Experience of Early Digital Literature*, available at http://scalar.usc.edu/works/pathfinders. The work features 173 screens of content, including approximately 54,000 words of commentary, history, and analysis, more than 102 video clips, 200 color photos, and numerous audio files. The eBook represents the culmination of the *Pathfinders* project and the primary method of disseminating our research to scholars and the general public. Since its launch it has received over 13000 visits from over 30 countries and over 50 different universities and libraries in the U.S. and beyond.

The eBook contains significant information about four diverse and distinctive authors of early electronic literature, their works, and their circumstances of production. At minimum, the eBook preserves visual traces of the four works in operation, in a medium (digital video) that is relatively durable and readily convertible to later-evolving formats. Beyond this archival function, the associated interviews contribute to the oral history of experimental writing in the late 20th century. They reveal Judy Malloy's connection to Fluxus and other avant-garde communities; her understanding of the Whole Earth 'Lectronic Link as a social network for creative practice; John McDaid's curious ambition to "write a novel no 20th-century novelist could write"; Shelley Jackson's conception of hypertext as a balance between coherence and ambiguity; and Bill Bly's attempts to bridge between the conventions of early systems and the emerging sensibility of the Web.

In sum, *Pathfinders* shows how to conduct research for and publish documentation on an art form that, because of the sound, movement, and interactivity it possesses, cannot be captured satisfactorily in print. For that reason, our findings hold implications beyond early digital literature and can also be applied to video games, virtual worlds, digital music, digital collections, to name a few other areas.

The Co-PIs also completed a manuscript, entitled *Traversals: The Use of Preservation for Early Electronic Writing* forthcoming in spring 2017 for The MIT Press. This book provides a critical look at each of the four works documented in *Pathfinders*. Co-PI Moulthrop produced the content for McDaid's and Jackson's works while Grigar handled Malloy's and Bly's. Literary theorist Joseph Tabbi provided the Preface. The book is the first to focus solely on criticism for digital experimental writing.

Along with two books we produced, we wrote and published four essays about the project. Co-PI Moulthrop produced an essay derived from his work on McDaid's *Funhouse* originally written for the eBook, combined with other ongoing research. This paper is currently under review by the *Journal of Multimodal Rhetorics*. Co-PI Grigar wrote "The Legacy of Judy Malloy," forthcoming in #WomenTechLit, a collection edited by Maria Mencia for the University of West Virginia Press. She published "Pathfinders: Documenting Curation as a Scholarly Practice" for *Authoring Software* in January 2014 (http://www.narrabase.net/mla2014_curator_statement.html).

Both Co-PIs are co-authors of a chapter solicited for the *Routledge Companion to Media Studies and Digital Humanities*, edited by Jentery Sayers. The chapter is entitled "Traversals: A Method of Preservation for Born-Digital Texts." The book is scheduled for publication in 2016-17.

2. Presentations and papers

Co-PI Grigar presented on *Pathfinders* at five venues:
- "Teaching Electronic Literature," a workshop held April 18 at Hamilton College (NY);
- "Digital Humanities and Media Studies: Exploring the Intersections," at the Society for Cinema and Media Studies, March 2014 in Seattle;
- "Accomplishments of the Pathfinders Project," Digital Humanities Summer Institute, University of Vancouver, June 2014
- "Curating and Preserving Electronic Literature," *Materialidades da Litteratura* Doctoral Seminar, University of Coimbra, Portugal, November 2014
- "Paths to PAD: Saving the Legacy of Early Electronic Literature," invited talk at the University of Victoria's Electronic Textual Cultures Lab, January 2015

Co-PI Moulthrop presented papers based on *Pathfinders* research at four venues:
- "Broken Time Machines: Narrative and Obsolescence." International Conference on Narrative, Chicago. March, 2015.
- "Toward a Theory of Broken Time Machines." Society for Literature, Science, and the Arts Conference, Dallas. October, 2014.
- "Deep Time of the Player." Center for 21st Century Studies Fellows Seminar, UWM, April 2015.
- "Broken Time Machines: Obsolescence and the Deep Time of Objects." *After Extinction* Conference, University of Wisconsin-Milwaukee, May 2015.

The Co-PIs jointly gave a paper, entitled "Preserving Literature through Documenting Readers' Experience: The Pathfinders Project," at the Electronic Literature Organization 2014 Conference in Milwaukee in July 2014.

3. Increased awareness of the need to preserve early digital work

Literary critics have recognized the cultural importance of early digital writing. N.K. Hayles calls these productions "cradle works" that explore possibilities of computational media; Lori Emerson shows how creative openings tend to be suppressed in "Web 2.0" and other attempts to commoditize information; Kenneth Goldstein and Marjorie Perloff suggest a broader recognition of electronic literature within traditions of literary

experimentation. With a few exceptions – Emerson and Kirschenbaum, among others -- critics have not been strongly concerned about the preservation of cradle works has traditionally been dubious. Through the Pathfinders project and its successor efforts, we seek to overturn this assumption by raising awareness of the importance and fragility of early work. We can document some success in this effort:

- The Pathfinders project is mentioned in an article on early electronic fiction appearing in the *Guardian* newspaper's online edition: http://www.theguardian.com/books/2014/mar/12/ebooks-begin-medium-reading-peter-james

- The Pathfinders project has been covered in several additional venues, including the ProfHacker blog of the *Council of Higher Education*, and the official blog of the *Council of Library and Information Resources*

- The *Pathfinders* Development Blog (http://dtc-wsuv.org/wp/pathfinders; distinct from the eBook) has received approximately 9537 visits to date

- In the first week of its launch, the Scalar eBook (http://scalar.usc.edu/works/pathfinders) received visits from 3755 individuals.

- In November, 2014 Eastgate Systems re-issued Shelley Jackson's *Patchwork Girl* in a newly-engineered version compatible with the latest Macintosh operating systems, returning the work to currency. Eastgate has been working on this project since at least 2010, and we cannot claim direct influence on the outcome; but it seems reasonable to speculate that renewed interest in Jackson's work stemming from *Pathfinders* contributed to the decision.

 A complete of achievements can be found in the Final Report.

[c] Audiences

1. Specialists in Preservation, Archiving, and Dissemination (P.A.D.) of digital materials

We address specialists in our area through an innovation in method. The two major approaches in this area are Collection (preservation of the digital objects on original media or through contemporary records) and Emulation (imitation of the original function of the objects using modern technology). Pathfinders contributes a third method, which we might generally call Demonstration, though we know it familiarly as *Traversal*: a recorded demonstrations using equipment as close as possible to that for which the work was intended at time of publication. Adding this method, which has

both limitations and advantages when compared to others, opens the possibility for discussion about how each method is appropriate, and what is to be gained from any effort in P.A.D.

By reaching out to colleagues such as Matthew Kirschenbaum, Curator of the Bill Bly Collection; Lori Emerson, who also maintain research collections of vintage equipment; Michael Ashenfleder, Digital Preservation Project Coordinator Library of Congress; and Andrew Armocost, Curator of Collections & Head, Collection Development Department, David M. Rubenstein Rare Book & Manuscript Library Duke University, we have established the basis for future, multi-methodological approaches. Co-PI Grigar's decision to extend our research to include Bly, and to situate that part of the work at MITH, was crucial to this outcome. Her upcoming visit to the David M. Rubenstein Rare Book & Manuscript Library at Duke University to conduct archival research in The Malloy Papers will continue to build knowledge about early digital literature.

In sum we are already planning for Volume 2 and 3 of Pathfinders and are currently partnering with Kirschenbaum, Emerson, and others on a grant with the Institute of Museum and Library Services to fund these projects.

2. Digital Humanists more generally

The Co-PIs have engaged with scholars in the broader field of the Digital Humanities through presentations, papers, and symposia. In our efforts here we speak to the value of intensive, focused practices such as curation, archiving, and interviewing as a complement to the more extensive, big-data-focused efforts that currently characterize the field. One example of outreach to the DH community involves the two courses that Grigar taught at the 2015 Digital Humanities Summer Institute —"Introduction to Electronic Literature" and "Advanced Criticism of Electronic Literature"—where she taught material from the *Pathfinders* project and presented the Scalar eBook. She has also been invited back to the University of Victoria to give a talk to members of the ETCL about her work with Judy Malloy for the *Pathfinders* project in fall 2015. She returns in summer 2016 to teach a course devoted to documenting digital work, entitled "Documenting Born Digital Creative and Scholarly Works for Access and Preservation." It should also be noted that the Pathfinders eBook was selected as an Editors' Choice for *Digital Humanities Now*.

3. Literary researchers and teachers

Both Co-PIs were trained in literary studies and see the project making an important contribution to this field. The Traversals invite useful consideration of the nature of literary interpretation in interactive or "ergodic" systems. By preserving traces of works exposed to obsolescence, we hope to preserve examples that have been and continue to be relevant to literary scholars. Given the demonstrated importance of one of our

works (*Patchwork Girl*) to the teaching of literature, and the arguable importance of all four in this regard, we also reach out to collegiate and secondary-school teachers.

4. General audiences

Finally, though the Scalar eBook is not addressed to general audiences, we have tried to make it as accessible as possible to non-specialists and certainly the methods we developed can easily be adopted for games and other forms of popular interactive media. In this regard, Co-PI's undergraduate student assistant received funding from WSUV to help Grigar with Pathfinders but also to use the experience to produce her own project. She was able to produce the Scalar eBook, *Chronicles: Documenting the Articulation of Culture in Video Games*, which documents the popular Real Playing Game (RPG) ChronoTrigger (http://scalar.usc.edu/works/chronicles/index). For this work she received an award from the WSU Emeritus Society.

The shape of intellectual institutions is rapidly changing, and tools like social media have ways of broadening communities of discourse. We invite this aspect of our audience. In this regard, Grigar mounted a public exhibition of the Pathfinders project and a book launch for the Scalar eBook 5-28 June 2015 at Nouspace Gallery, located in downtown Vancouver, WA. Over 250 people attended the opening night reception on June 5, 2015. Visitors were able to interact with Moulthop's, Malloy's, McDaid's, Jackson's and Bly's literary works on vintage computers and read the *Pathfinders* Scalar eBook on iPads set around the space.

[d] Evaluation

1. Planned, programmatic evaluations

Work on various phases of the project, especially the Scalar eBook, was informally evaluated by members of the consultant group, especially Will Luers and Tara McPherson, acting as representatives of the Scalar project.

Joseph Tabbi has written a critical analysis of the project, which will ultimately appear as the Preface to our second-stage print book (see below). We have also had useful, informal conversations with Matthew Kirschenbaum, who has been particularly helpful in our thinking about complementarities between our approach and the Collection and Emulation approaches.

As mentioned previously, the *Pathfinders* eBook also received a positive review from Élika Ortega in an essay entitled "Preservation Paths. A Review of *Pathfinders: Documenting the Experience of Early Digital Literature* by Dene Grigar and Stuart Moulthrop," Published in *Digital Literary Studies* 1.1 (2016). (https://journals.psu.edu/dls/article/view/59747).

2. Emergent indicators

Co-PI Grigar has set up mechanisms to monitor visits both to the main project Web site and the Scalar eBook. There are strong indications of interest in the project from these measures. Below is the information Grigar collected:

***Pathfinders* Book Stats**
These stats represent varying levels of engagement with the book by the public. Using a third party system called StatCounter, we have been able to determine who is visiting the site, where visitors are coming from, how long they stayed on any given page, and what pages they visited, and much more information. We initiated tracking at the moment of the book's launch at noon PDT on June 1, 2015 until 12 Noon PDT, April 6, 2016

Total Visits: 13324
83.3% are first time visitors
Sites driving traffic: *Pathfinders* blog, ELO website, WSU online press release, Scalar blog

Countries: 58
Argentina, Australia, Austria, Belarus, Belgium, Bosnia and Herzegovina, Brazil, Cameroon, Canada, Chile, China, Colombia, Croatia, Czech Republic, Denmark, Ecuador, Egypt, Finland, France, Germany, Greece, Hungary, India, Indonesia, Iran, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Korea, Luxembourg, Malta, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Russian Federation, Saudi Arabia, Singapore, Spain, Slovenia, South Africa, Sweden, Switzerland, Taiwan, Tunisia, Turkey, UAE, UK, the US, Venezuela, Viet Nam, and Zimbabwe

Universities, Centers, Libraries and Schools: 273 U.S.: 208
Arizona State University, Amherst College, Arkansas State University, Armstrong Atlantic State University, Art Center College of Design, Art Institute of Chicago, Augustana College, Austin College, Austin College, Ball State University, Bard College, Bates College, Baylor University, Boston College, Bowling Green State University, Brown University, Bucknell University, California College of the Arts, California State University San Marcos, California State University Northridge, Case Western Reserve University, Christopher Newport University, City University of New York, Claremont University, Coastal Carolina University, Colby College, The College of William and Mary, Colleges of the Fenway, Columbia University, Concordia University, Connecticut State University System, Cornell University, Creighton University, CUNY Graduate Center, Dartmouth College, Davidson College, DePaul University, Dobie Center, Duke University, East Carolina University, Emory University, Fashion Institute of Technology, Fayetteville State University, Florida Atlantic University, Florida Gulf Coast University, Florida International University, Florida

State University, Garner Webb University, George Mason University, Georgetown University, Georgia Institute of Technology, Georgia Perimeter College, Georgia State University, Georgia Southern, University, Gettysburg College, Hamilton College, Hampshire College, Harvard University, Harvard-Westlake School, Houston Community College, Houston Independent School District, Howard University, Illinois Wesleyen University, Indiana University, Kansas State University, Kirkwood Community College, James Madison University, The Johns Hopkins Medical Institutions, Johns Hopkins University, Lake Forest College, Lasalle University, Lehigh University, Library of Congress, Longwood Medical and Academic Area, Loyola Marymount, Loyola University of New Orleans, Macalester College, Maine Libraries/Dept. of Education, Marist College, Marshall University, MIT, Miami University, Middle Tennessee State University, Middlebury College, Minnesota University System, Molloy College, Montana State University, Mount Hood Community College, Muhlenberg College, NASA Glen Research Center, National Library of Medicine, New York City Public Schools, New York University, Northeastern University, Northern Illinois University, Northwestern University, Occidental College, Oregon State System Of Higher Education, Oregon State University, The Pennsylvania State University, Pittsburgh State University, Portland State University, Princeton University, Providence College, Purdue University, Reed College, Rice University, Richard Stockman College of New Jersey, Ripon College, Rhode Island Network for Education Technology, Rutgers University, Ryerson University, Salem State University, San Diego State University, Seton Hall University, Simmons College, Smith College, Southern Methodist University, Susquehanna University, The New School, St. Catherine University, St. John's College (Sante Fe), Skidmore College, Smith College, Sonoma State University, Stanford University, State University of New York at Albany, State University of New York at Buffalo, State University of New York at New Paltz, Syracuse University, Temple University, Texas A & M Commerce, Texas A & M University—College Station, Texas Christian University, Thomas Edison State College, Tufts University, University of Alabama, University of Alaska, University of Arizona, University of Buffalo, University of California Berkeley, University of California Davis, University of California Irvine, University of California Los Angeles, University of California Riverside, University of California San Diego, University of California Santa Barbara, University of California Santa Cruz, Regents of the University of California President's Office, University of Central Florida, University of Chicago, University of Colorado Boulder, University of Connecticut, University of Denver, University of Florida, University of Hawaii, University of Illinois Chicago, University of Illinois Springfield, University of Illinois Urbana Champaign, University of Iowa, University of Kansas, University of La Verne, University of Mary Washington, University of Miami, University of Massachusetts Amherst, University of Massachusetts Lowell, University of Miami, University of Minnesota, University of Missouri Columbia, University of Nebraska Lincoln, University of Nevada Reno, University of New Mexico, University of North Carolina at Chapel Hill, University of North Florida, University of Northern Colorado, University of Notre Dame, University of Oklahoma, University of Oregon, University of Puget Sound, University of Rochester, University of San Diego, University of South Carolina, University of South Florida, University of Tennessee, University of Texas at Arlington, University of

Texas at Austin, University of Texas at Dallas, University of Texas at San Antonio, University of Washington, University of Wisconsin Madison, Valparaiso University, Vanderbilt University, Vassar College, Virginia Commonwealth University, Virginia Polytechnic Institute, Washington and Lee University, Washington State University Pullman, Washington State University Vancouver, Washington University, Wellesley College, Whitworth College, Williams College, Wheaton College, Woodbury University, Xavier University, Yale University

Canada: 15
Carleton University, Libraries and Archives Canada, McMaster University, Memorial University of Newfoundland, Ryerson University, Simon Fraser University, University of Alberta, University of British Columbia, University of New Brunswick, University of Guelph, University of Ottawa, University of Prince Edward Island, University of Toronto, University of Victoria

UK: 13
Goldsmiths University of London, National Library of Scotland, Oxford University, University College Falmouth, University of Bristol, University College London, University of Glasgow, University of Leicester, Univwersity of Newcastle upon Tyne, University of Surrey, University of Wales Aberystwyth, University of Wales Bangor, University of Warwick, York University

Australia: 8
Brisbane Catholic Education, Curtin Unversity of Technology, Monash University, Royal Melbourne Institute of Technology, State Library of Queensland, Queensland University of Technology, University of Western Sydney, University of New South Wales

New Zealand: 2
Auckland University of Technology, University of Canterbury

Singapore: 1
Singapore University of Technology and Design

Korea: 2
Taejon Institute of Education Science, Chungnam National University

Austria: 1
Danube University Krems

Denmark: 1
Danish Network for Research and Education

Germany: 10
Hochschule Fuer Technik, Wirkschaft Und Kultur Lei, Humboldt University Berlin,

Rupfrecht-Karls-Universitaet Heidelberg, Techische Hochschule Mittelhessen, Universitaet Hamburg, Universitaet Kiel, University of Leipzig, University of Siegen, University of Trier

Greece: 1
Greek Research and Technology Network

Finland: 1
Aalto University

France: 1
Universite De Lorraine

Italy: 1
Universita Cattolica Del Sacro Cuore

Poland: 1
Institute of Bioorganic Chemistry Polish Academy

Romania: 1
Universitatea Babes-bolyai

Scotland: 1
University of Glasgow

Sweden: 3
Malmo University, Sunet Swedish University Network, University College of Gavie

Switzerland: 1
Universite de Fribourg,

Chile: 1
Pontificia Universidad Catolica De Chile

Colombia: 1
Pontificia Universidad Javeriana

Mexico: 1
Universidad Nacional Autonoma de Mexico

Pathfinders Blog
Launched on June 14, 2013, the *Pathfinders* blog documented the development of the *Pathfinders* project and made research available to the public as it was collected to facilitate sharing of information. The blog is also one of several entries into the

Pathfinders book, thus helping to drive traffic to the book's site. The statistics shown here cover these dates: 14 June 2013-7 August 2016.

Total visits to the site: 11706

We are also aware that *Pathfinders* videos and other materials have been adopted in curricula in several institutions, including Princeton University ("Electronic Literature: Lineage, Theory, and Contemporary Practice") and the University of Santa Cruz ("Playable Media").

3. Validation through subsequent peer review

For various reasons (the need to publish research products non-commercially; the experimental nature of our formats) it was not feasible to publish the eBook through an academic press. However, it became clear in late stages of the project that we could propose a more traditional scholarly book as a distinct second stage of our research. The Co-PIs developed a proposal for this print book in August 2014 and submitted it to the MIT Press. The book, to be called *Traversals: The Uses of Preservation in Early Electronic Literature*, was accepted in April 2015 and is now in production with the publication date set for spring 2017.

Reviews of the book proposal did not speak to specific aspects of the Pathfinders project, but it does at least indirectly validate the nature and direction of our research. Reviewers of our proposal pressed us on several important points – the clarity of our definition of traversal; our intellectual framework for the approach; the relationship of electronic literature to other experimental writing – and in each case we have been able to offer substantial responses.

[e] Continuation of the Project

As indicated, the Co-PIs have begun work on the *Traversals* book, with a complete manuscript due September 1, 2015.

The Co-PIs meanwhile retain a commitment to the Scalar eBook. Future volumes include:

- Volume 2: Stuart Moulthrop's *Victory Garden*, Michael Joyce's *afternoon: a story*, Carolyn Guyer's *Quibbling*, and M.D. Coverley's *Califia*
- Volume 3, Stephanie Strickland's *True North* and Richard Holeton's *Figurski at Findhorn on Acid*, Jane Yellowlees Douglas's *I Have Said Nothing* and either George Landow's *Dickens' Web* or David Kolb's *Socrates in the Labyrinth*

To date we have undertaken the following activities for the production of the next volume:

- All author and reader Traversals and interviews for Moulthrop's *Victory Garden*
- All author and reader Traversal and Interviews for Marjorie Luesebrink (M.D. Coverley) of her pioneering hypermedia work *Califia*
- A reader Traversal and Interview for Joyce's *afternoon* by DH scholar James O'Sullivan on 15 January 2016
- A practice Traversal by Michael Joyce of *afternoon*, the first hypertext fiction on 3 May 2016.
- Introduction of the Traversal methodology to Carolyn Guyer, also on 3 May 2016.

The completion date of Volume 2 is scheduled for spring 2017 to coincide with the publication of our book with The MIT Press, *Traversals*.

Additionally, Co-PI Grigar updated the Malloy section extensively to include data collected from archival research at the Judy Malloy Papers, held at the David M. Rubenstein Special Collections, Duke University. She is traveling to the Museum of Modern Art in September 2016 to visit its Malloy archives, research she speculates may require additional revisions to the Malloy section.

[f] Long-Term Impact

At minimum, *Pathfinders* has put four important titles from a key period of recent literary experimentation back into scholarly and pedagogical circulation and provides evidence of their design and function that should outlast technical obsolescence. With the Electronic Literature Organization looking at developing a repository for work in danger of obsolescence, it is our belief that projects like ours will take hold, not just for electronic literature, but also in other domains of digital production, such as media art, and video games.

[g] Grant Products

The primary product of this grant is the Scalar eBook, *Pathfinders: Documenting the Experience of Early Digital Literature*, available at http://scalar.usc.edu/works/pathfinders.

The project Web site, including Co-PIs Grigar's blog of the work, is at http://dtc-wsuv.org/wp/pathfinders/