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ATG Interviews Eileen G. Fenton

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ATG: How long have you been with Portico, and what is your role in the organization?

EF: It is hard for me to believe, but I have now been focused exclusively on the electronic journal archiving problem for three years. In 2002, JSTOR started the Electronic-Archiving Initiative — which was to become Portico — and I left my position as Director of Production at JSTOR to lead the Electronic-Archiving Initiative. I am now the Executive Director of Portico. As a librarian, the opportunity to work on the electronic-archiving challenge was just too interesting to pass up!

ATG: When, why, and by whom was Portico created?

EF: I’ll answer the last part of your question first. Portico has emerged from a confluence of forces as the community transitions to reliance on electronic resources, but primarily it was the concern about electronic archiving and preservation at JSTOR and at The Andrew W. Mellon Foundation that is responsible for our founding. Portico began as the Electronic-Archiving Initiative launched by JSTOR in 2002 with a grant from The Andrew W. Mellon Foundation to build upon The Foundation’s seminal E-Journal Archiving Program. The charge of the Electronic-Archiving Initiative was to build a sustainable electronic-archiving model, and for more than two years, project staff worked on the development of necessary technology and engaged in extensive discussions with publishers and libraries to craft an approach that balances the needs of publishers and libraries while generating sufficient funding for the archive. Building upon extensive input gathered from commercial and not-for-profit publishers and guidance offered from libraries at a range of small, medium and large academic libraries, an electronic archiving service, now known as Portico, was developed. Portico was launched in 2005 with additional financial support from JSTOR, Ithaka, The Library of Congress, and The Andrew W. Mellon Foundation.

ATG: How many libraries and publishers are currently supporting and participating in Portico?

EF: We are in discussions with dozens of publishers — commercial, university presses, and society publishers — and we will notify the community and post new publisher participants on our Website (www.portico.org) as new agreements are executed. As of February 26, 2005, seven publishers have signed on, representing more than 3,000 journals. They include:

Elsevier
John Wiley & Sons
Oxford University Press (OUP)
American Mathematical Society (AMS)
United Kingdom Serials Group (UKSG)
Berkeley Electronic Press (Bepress)
Symposium Journals

To participate in Portico, a publisher:

• Signs a non-exclusive archiving license which grants Portico the right to ingest, normalize, archive, and migrate the publisher's content.
• Agrees to deposit electronic journal source files in a timely way.
• Indicates whether Portico will be designated as a mechanism to address the longstanding perpetual access concern in the publisher and in the library communities.
• Makes an annual financial contribution based on the publishers' total journals revenues (subscription, licensing and advertising).

With respect to libraries, we have just begun the process of asking libraries for commitments. Annual Archive Support payment levels were announced on January 22, 2006, at the JSTOR Participants' Meeting in San Antonio. We have begun sending out the license agreements to interested libraries, and we are very excited about the responses we are getting. Although we have not yet received signed licenses, we already have verbal commitments to participate from more than two dozen institutions.

To participate in Portico, a library:

• Signs an archiving license.
• Makes an Annual Archive Support payment which is tiered according to a library's total materials expenditure (LME).
• We will keep the community informed of the growing number of library and publisher participants on our Website.

ATG: What has been the reaction of publishers since Portico was launched in 2005? What about libraries? Who has been the most enthusiastic in embracing Portico?

EF: Over the course of 2005, the interest in and concern about this problem accelerated dramatically among both librarians and publishers. All parties now realize that we are growing increasingly dependent on the electronic medium for distribution of scholarship and that we need to have protection in place.

As for publishers, in spite of the fact that preservation has not traditionally been part of the publishing community's mission, they now realize they have a role to play in preserving vulnerable resources in a world in which they continue to own the electronic versions of journals which libraries license. With this realization has come the awareness for the need for third-party trusted entities to provide this service on their behalf, and the response has been very positive.

On the library side, the reaction has been equally enthusiastic. Since the Association of Research Libraries, the Association of College and Research Libraries, and others endorsed the statement “Urgent Action Needed to Preserve Scholarly Electronic Journals” in October 2005 (http://www.arl.org/osc/EJournalPreservation_Final.pdf), the long-term preservation of this content has become a high-priority issue for libraries of all sizes.

You asked about who has been most enthusiastic about embracing Portico. We have been encouraged that enthusiasm for the effort spans the spectrum. Large publishers value the opportunity to enhance their own internal archival efforts and to initiate or diversify third-party archival arrangements while smaller publishers appreciate the security gained by establishing archival arrangements with a trusted third-party. Many people thought that only the large research libraries, traditionally active in investing in preservation, would be supportive of a community-based archive, and they are, but we have also seen enormous interest from small libraries. Electronic resources have allowed smaller institutions to expand their collections significantly, and these libraries recognize that their faculty and students are increasingly reliant upon electronic materials for which they have no print backup. Because assured long-term access to these e-resources is so important to their faculty and students, smaller libraries are eager to do their part to support an archiving solution. So we are finding that the enthusiasm and support is coming from...
all directions, and based on our experiences over the past year, I believe that this enthusiasm will continue to grow as e-resources become ubiquitous.

ATG: How is Portico currently funded, and what is your business plan? What do you think the long-term sustainability of this model is?

EF: First, it is my belief, and I think it has been borne out by the accelerating interest in archiving over the course of the last year, that the scholarly community needs to take collaborative action to address this problem. It is not simply going to take care of itself. So the long-term sustainability of various archiving initiatives are going to depend on a shared sense of that reality and the responsibility to act cooperatively that comes with it. Ongoing investments will need to be made in this area, and it is a matter of the community defining a sustainable collection of services and activities to support. Sharing the costs broadly across the community ensures that no one institution must bear the full force of the costs while enabling all parties to share in the savings that can be realized by accelerating the ongoing transition from print to electronic resources. That raises another aspect of this effort, we all would benefit from an orderly transition to the new electronic medium. Establishing a reliable archival system is a foundational element of this transition.

Speaking more specifically about Portico, there are resources required for the start-up phase, and then there are resources needed to support ongoing operations. Our current funding has been provided to help establish the service. Over the last three years, we have secured start-up and development grants totaling $9 million from www.mellon.org/ The Andrew W. Mellon Foundation, www.ithaka.org/Ithaka, www.digitalpreservation.gov/ The Library of Congress, and www.jstor.org/ JSTOR. These resources have enabled us to develop the technological infrastructure or “digital stacks” required for a reliable and robust archive and are supporting the efforts now underway to begin to receive and archive e-journal content, and to build the broad support in the publisher and library communities necessary to sustain ongoing operations. Unlike in the for-profit sector, the funds made available for Portico’s start-up phase do not need to be repaid. The return to the earliest funders is a reliable, functioning archive.

Looking to the future, Portico will cover its operating costs from diversified funding sources; it cannot rely upon any single revenue stream. The chief beneficiaries of the archive — publishers and academic institutions — will provide the primary sources of funding; however, charitable foundations and government agencies will also be expected to provide support. Publishers are asked to make annual contributions to defray the initial cost of developing content processing tools and storage infrastructure and the ongoing cost for content ingestion, migration, and archiving. Supporting publishers’ annual contributions are tiered and vary according to the size of their annual journal revenue (subscriptions, licensing and advertising). Publishers also agree to supply electronic journal source files in a timely way.

Libraries are asked to make an annual support payment to defray a portion of the archive’s ongoing operational costs. Library payments are tiered according to a library’s self-reported total Library Materials Expenditure (LME). (Both publisher and library fees are detailed on the Portico Website, www.portico.org.)

This approach, which distributes the costs of the archive very broadly across the community, is especially appropriate because it creates a way to build a significant level of collaboration required by the scale and capacity needed for the archive to succeed.
plexity of the archival challenge. Based upon the very positive response that we have seen from both publishers and libraries to date, it seems that the community is prepared now to embrace a model that relies upon broad support and enables wide scale cooperative action to meet what is an urgent community need.

**ATG:** As Tananbaum points out in his column, both LOCKSS and Portico are dependent “on the timely and accurate supply of data from the publishers.” What mechanisms does Portico have in place to ensure that data will be received?

**EF:** As I mentioned previously, we have been impressed by the enthusiasm of publishers both about Portico and about addressing the problem of archiving more generally, so we are very optimistic about their commitment to supply the data. They have expressed no hesitation to do so in our licensing discussions, and we have already begun to regularly receive data from the first publishers to sign archival agreements, including the American Mathematical Society, Elsevier and the UK Serials Group. Early work with other signed publishers is also moving ahead.

It may be helpful to explain something about our mechanisms to ensure receipt of the data. Our process begins with discussions with the publisher to determine the nature of their content and their production processes. These conversations are necessary in order to identify any special issues or problems such as how updates or corrections are handled or any unusual file formats or data structures. We also agree on how the data will be transferred to Portico, by what mechanism and with what frequency. Publishers come in all shapes and sizes: some are regularly exporting content to many business partners and have sophisticated automated processes already in place; others have never exported their full content before and have to work through operational issues before the process can begin. As I said, all the publishers that we have worked with have been extremely cooperative, in some cases even making changes to their systems so that additional content can be archived successfully. Once the data transfer begins, there are numerous safety nets, as discussed below.

**ATG:** How does Portico ensure the accuracy of the data collected? What data control mechanisms do you have in place?

**EF:** Portico’s archival approach is that of managed preservation; we therefore take an extremely cautious approach and verify the integrity of the content submitted by publishers so that we can fulfill our preservation commitments that we make regarding the usability and sustainability of the content. For example, once a profile, a machine-readable set of publisher-specific rules, is established for a given publisher’s data stream, any change in file formats or naming conventions on the part of the publisher will raise a warning in our ingest system. All content is identified by ISSN and mapped to an archiving agreement; every file is virus-checked; file formats are identified and validated; and preservation metadata is created including provenance, technical metadata, and archival events. We also inspect a randomly selected portion of the content to assure that our processes are working correctly and that the content is what was expected. In some cases our quality control mechanisms are more stringent than those of the publishers, in part because the need of long-term preservation are somewhat different from that of current Web content delivery.

Consistent with this conservative approach, when publishers’ proprietary XML and SGML DTDs are normalized to the NLM Archive and Interchange DTD, the archival format which Portico has adopted, both the original and the normalized XML are retained in the archive. Our archive also includes all DTDs and schemas necessary to understand the archived content and accompanying documentation where available. The entire archive can be recreated from the assets and the METS files without reference to any proprietary data structures other than human-readable XML Portico METS files.

**ATG:** Considering that both Portico and LOCKSS are still under development and operation, it is difficult to predict what type of solution will prove to be a solution to the archiving of journal content. What do you think are some of the biggest obstacles to the permanent archiving of journal content, and what type of solution do you think will come the closest to surmounting those obstacles?

**EF:** I think that we all recognize that these are the very early days of digital preservation, and naturally we face some uncertainty as we move ahead. But the library community has faced uncertainty before and has found innovative ways to address important problems through collaboration and collective action. The early days of interlibrary loan or the creation of OCLC might offer interesting examples. Faced with the challenge of a dearth of resources, libraries found a practical way to act cooperatively to solve important problems. Working with publishers and libraries Portico has begun taking action to address another critical need in the community. We have done so fully anticipating that other archival operations will and should develop and emerge. These efforts will vary one from another in technology, economics and organization. LOCKSS and Portico, for instance, are pursuing approaches that are different in complementary ways. These differences make for a diverse system that offers additional security for all. I expect that as we move ahead the community will find the right balance of diversity and security.

**ATG:** Where do you see Portico heading in the next year? Five years?

**EF:** The need for robust electronic archiving solutions is significant and is growing. There is a diverse array of electronic content ranging from journals, list serves, blogs, email, Websites, databases and datasets that together forms a rich, complex, and growing body of scholarly communication that is critical to today’s scholars and future generations of researchers. To preserve this rich heritage, we must develop a robust and varied archival network and understand the role that national libraries, institutional repositories, trusted third-party, archives, and government agencies must play. As a part of this emerging network Portico is focused on a very specific, important subset of the digital preservation challenge — securely archiving electronic journals. To date we have signed approximately 3,000 journals and successfully archiving these is our immediate task. Over a period of five years we expect the archive to grow to more than three times this number of journals.

We are encouraged that the library community has both a broad-based desire to meet the archival challenge head-on and a conviction that action is urgently needed. Our goal is to provide a framework that enables and encourages a broad base of libraries to take action and to support the Portico archive on an ongoing basis. Over five years we expect this base of support to grow to more than 1,000 libraries. In the early response from the community we see encouraging evidence that libraries — and publishers — working with Portico can successfully ensure that an important part of the scholarly record is securely preserved through broad, active community collaboration.

More generally, I see Portico continuing as an active member of the community, deeply engaged in addressing the urgent electronic archiving needs of the community. These needs will evolve and change, and we will need to evolve and change with them. We will rely upon input from the community to guide us through these changes, just as we have relied upon community engagement to shape Portico initially. The Portico service was developed through extensive input from the publisher and library communities. The Portico Advisory Committee, which is comprised of leaders from across the spectrum of organizations involved in scholarly communication, is one expression of this engagement. We were also active in the PREMIS Working Group and are pleased to be involved in the Library of Congress’ National Digital Information Infrastructure Preservation Program. We look forward to continuing to work with these types of active efforts to support collaboration in electronic archiving, even as we focus directly on our primary responsibility to preserve the scholarly literature being entrusted to us. 🌟