

ALA Serials Section Program

The Dimensions of Seriality

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How Many Electronic Serials Are There Anyway?

In the spring of 1991, I edited and published what I believe to be the first directory ever produced of electronic scholarly journals and newsletters. That slim volume has grown in bulk through annual editions since. I saw it through five editions in my time with the Association of Research Libraries, and my successors there now wrestle with the results. Let me share some numbers with you.

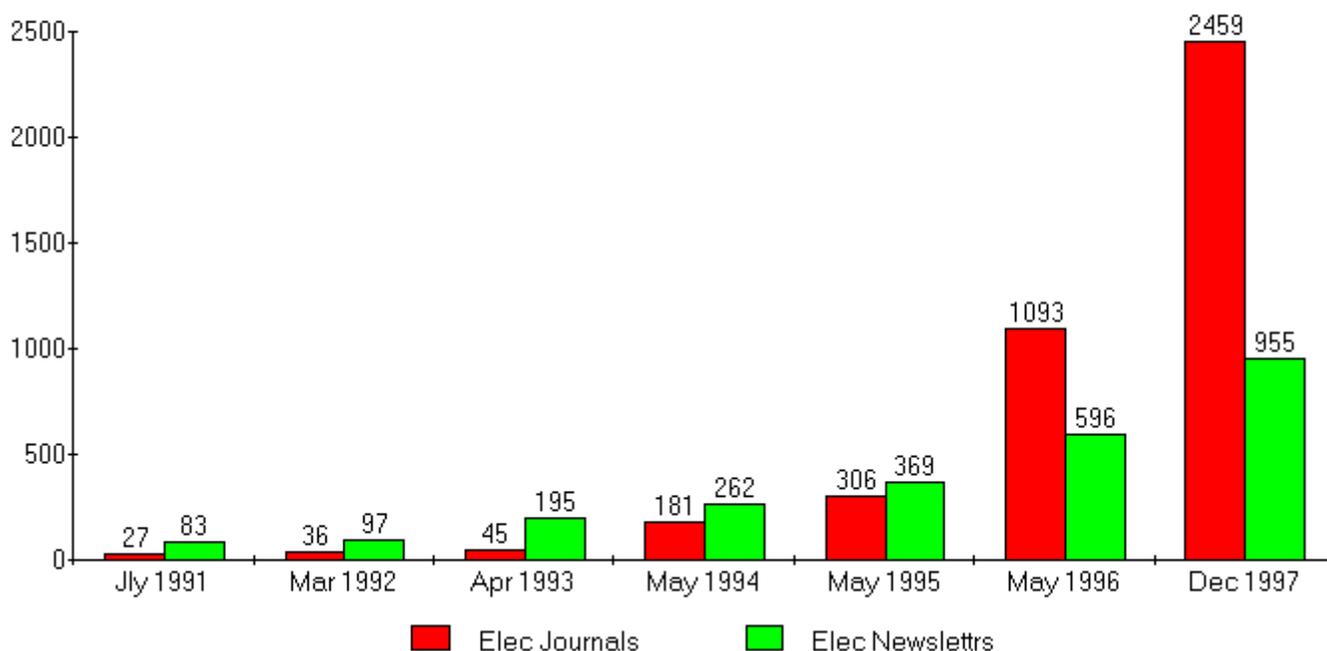
1. The [ARL Directory](#): In 1991, there were 110 items in the first edition; 133 in 1992, then 240 in 1993, 443 in 1994, 675 in 1995 and 1689 in 1996. The 1997 edition is due out shortly with no final count in hand.
2. Another benchmark may be taken from the archives of a list that I moderate. The list is [NewJour](#) and it distributes notices of new on-line journals, magazines, and newsletters to over 4000 subscribers worldwide. It began in August 1993. By January 1995, it had distributed notices of 2000 new titles. In little more than a year, the archive had grown to 200 titles (in May of 1996). Today, in May 1997, 3800 titles are recorded, a number that is low for two reasons: (1) it omits some huge new projects either on-line or about to appear: for example, the 1100 titles of Elsevier journals of which we will hear later in this program and a couple hundred from Springer Verlag; (2) our list is limited in its production capacity to the services of a few volunteers and one diligent student worker at the University of Pennsylvania. We have a sense we are not fully keeping up, but we cannot quantify the shortfall.
3. From a study done by McEldowney at the University of Virginia, we can add some detail with these charts:

TABLE A. Growth of Academic Electronic Journals and Newsletters*

	Jly 1991	Mar 1992	Apr 1993	May 1994	May 1995
Electronic Journals	27	36	45	181	306
Electronic Newsletters	83	97	195	262	369
Total	110	133	240	443	675

	Jly 1991	Mar 1992	Apr 1993	May 1994	May 1995
Soc & Humanities	381	470	610	717	1145
Education & Lib Science				275	365
Business	24	72	51	82	117
Sciences --Computers			126	311	359
--Biological	104	125	124	155	222
--Physics	71	102	151	245	272
Total	517	769	1062	1785	2480
Percentage--					
Non-Sciences	66.2%	70.5%	62.2%	60.2%	65.5%
Sciences	33.8%	29.5%	37.8%	39.8%	34.4%

Journals & Newsletters
Electronic 1991 - 1997



In reviewing these figures, several things stand out:

A. If you build it, they will come. In this case, the "it" was not the network but the browser. The explosion of e-publishing interest came after Mosaic and then especially Netscape created vehicles for delivery of attractive, formatted, high-featured text to readers across a wide variety of platforms.

B. Nonetheless, the network infrastructure remains important. The boom has also coincided with the permeation of academic life by networked PCs. The leadership shown by countries in which there is a substantial penetration of the audience of readers and writers by readily accessible Internet access is not surprising -- hence, of course, it was not surprising at all to receive this invitation to Finland, which is by some standards the most wired country in the world.

C. A related factor is the boom in non-academic use of the Internet. The last 1-2 years particularly have seen a huge invasion of the Internet by the general public of readers and the commercial marketplace of information providers. The ARL Directory began at a moment when the group of people producing on-line resources was almost exclusively limited to academics. In discussing the phenomena of Internet life in 1992, Willard McCarty, founder of the influential and pioneering listserv discussion called HUMANIST and now Senior Lecturer in humanities computing at Kings College, London, predicted that the academic dominance of the Internet would have about five more years to run. Now, five years later, he seems to have been right. Henceforward, standards for applications and infrastructure will increasingly be driven by the growing base of non-academic users and providers. Whatever we predict or strive for will have to take that change into account.

4. It is also undeniable that a very large percentage of what has come onto the net in the last year or so particularly admirably fits the definition of "shovelware": existing print products whose owners have seen the potential of the Internet and have sought to create an electronic replica of a print resource. Many new e-journals have the look and feel of an awkwardly-presented paper journal. (Think of pages posted as images or as PDF files which require the reader to scroll back and forth left and right just to see a whole line of text, then repeatedly up and down to see text, footnotes, text, footnotes, etc. Examples of such inelegance are too easy to find.) Only a relatively small number of electronic publishers are beginning to take real advantage of the possibilities for new ways of presenting information through the Internet.

Electronic Seriality for Librarians

In this program, our aim is to discuss the features of electronic serials that raise distinctive issues for librarians. How do electronic serials expand our range, and how, at the same time, do they complicate our lives?

On the surface, electronic serials have all the advantages of electronic texts generally. They bring in multimedia content, they are dynamically available on-line, their content can be cut, pasted, searched, reformatted, stored, and retransmitted with vast ease, and reading them does not require trips to monumental buildings. To be sure, not every e-journal takes advantage of these possibilities, and in particular it is striking how little use creators for electronic information have yet made of multimedia possibilities and of active linking within journals between articles of different dates. At least, this is true of academic e-journals, and it is particularly true of "shovelware," where the inherited models from paper journals rule. But not everything that might be an e-journal is print-bound. For example.

A few weeks ago, Bill Loughner at the University of Georgia, a cherished volunteer helper in the NewJour list project that I co-moderate, proposed for our consideration a series of sites provided by CNN. Some provide news stories, some provide transcripts of televised programs. Here is a list:

Daily:

CNN: earth
www.cnn.com/EARTH/

CNN: health
www.cnn.health.com/HEALTH/

CNN: science and technology
www.cnn.com/TECH/

Weekly (transcripts of programs)

CNN computer connection
www.cnn.com/CNN/Programs/CompConn/

Future watch
www.cnn.com/CNN/Programs/FutureWatch/

Science and technology week
www.cnn.com/CNN/Programs/Science/

Are these e-journals or serials? Yes, on some level they are: they appear in regular chronological order, they add new material, they archive old material, and they have distinctive editorial possibilities. How many titles are there, then? Is this one CNN site? Or is it (at least) six sites?

Try using the sites and see what happens. The first time I logged in, about in early June, the EARTH site, for example, featured pictures and a story about a tiny rhino born at the San Diego zoo. Enthusiastically, I messaged a rhino-loving friend that he should at the charming story. By the time he got there, it had moved -- pressed down the page from headline status to a section for "other recent stories." By the time we discuss the baby rhinoceros at ALA, it will have been pushed back further by the ineluctable press of new stories, and the tiny rhino will have crept off into an archive, perhaps to find a comfortable corner of cyberspace in which to have a nap. How will we find him then? How does this kind of mobility resemble the sensible of kinds of serials we enjoy in print or other fixed media?

Elsewhere on the same site, a current feature about Cambodian politics contains links to earlier stories by CNN - a valuable backwards link. But in pursuing those backwards links, one has altogether lost the traditional serial advantage of context -- land on an article from 1963, if the archive goes back that far, and one does not see a standard kind of backfiles of a paper journal or paper or microfilm -- easy access to the other stories of the same time.

Next, the story on the CNN site contains several links at the foot of the "page" to other CNN stories, a single click away, and to other e-resources, a precisely equivalent single click away -- including, for example, a link to a Yale University page that documents the Cambodian genocide of the 1970s. CNN "owns" some of the content it links to and points to the rest of it. The archived version may continue to point to the earlier articles reliably -- and at least CNN can control that fairly easily -- but will the archive always point to the Yale Cambodia project's page? Will it always be there? In short, does the value and identify of the "journal" change over time as material becomes inaccessible?

Let us leave the CNN example and comment more generally on some other things that are powerful and vexing, returning then to extract some lessons for us. As appetizers, let us anticipate the issues our next speakers will raise about providing organization and access to the body of electronic serials. The current world is a world of just-in-case cataloging. Professional knowledge organizers (cataloguers) assign call numbers and subject headers to serials before sending them to the stacks. This organizing work not only gives order to the shelves and facilitates physical retrieval, but it also structures the catalogue and orders the collections intellectually. The

drawback for conventional journals, of course, has been that the optimal cataloguing probably ought to take place at the article level, but it almost never does. (Interestingly, Project MUSE at Johns Hopkins has begun to assign LC subject headers to the articles in its on-line versions of journals.)

The electronic environment widely expands the potential access to electronic resources, serials included. Keyword searching begins to compete with subject header searching in OPACs, and Altavista offers a kind of just-in-time cataloguing, rough and ready to be sure, but highly functional in many respects at the same time. Smart agents, knowbots, or whatever other tools come to hand in the next generation will accelerate that process and challenge anew the value of traditional just-in-time cataloguing, with its relatively narrow definitions of how access ought to be provided.

But those issues point to another current issue of great importance, integration of paper with electronic collections. Here, I think, we have just begun to imagine the way into the future. Today's solution would put paper and electronic resources in different categories and different records. Web pages, for example, readily index e-journals in a discipline, but where are the paper journals? They are to be found in the traditional card catalogue, or rather, the traditional card catalogue's on-line manifestation, the OPAC. On one hand, there are tremendous possibilities in offering multiple points of access to the same resource, but add to this the multiplicity of choices a CNN-like site offers and a new challenge arises. Where a paper journal's reader might migrate from one library to another and know what to look for in that next library, now the same resource is presented and accessed in very different ways from one or more libraries (traditional) to another (digital). The possibilities of intelligent communication across a user community may actually be restricted by this kind of prospective inefficiency. As librarians we may find ourselves collecting and warehousing less physical information in the future, but the real challenge will be as it always has been: organizing and managing ever-increasing masses of information -- and as the rate of increase of diverse media and formats begins to really take off, that job will become all the more challenging.

Beginning to Learn About E-Journals

Let us abstract from the above fairly concrete remarks and summarize some of the lessons we are starting to learn from the first decade of electronic journals.

1. Digits homogenize the presentation of information. The fundamental fact about electronic publications is that cyberspace and digitization create a common platform for more kinds of artifact than ever before. Think of cyberspace as a giant vacuum cleaner, sucking in all kinds of information and materials and presenting them to the user.

In a way, this is not new. The seventeenth-century founders of the first scientific journals were doing something similar: using a base of technologies (not just print, but also the technologies of widespread geographical distribution and sale) to bring together letters from explorers, public lectures of scientists, communications from multiple universities into a new trans-local space that could be shared by more readers than ever before. The paper archive of the journal, arranged linearly in space and time, created a context for knowledge far broader and more powerful than ever before.

Cyberspace synthesizes on a much larger scale. It abandons the linear arrangement of material in space and time, and so loses the traditional contexts provided by static media: microfilm issues of old serials or in dogeared shelved backfiles. In cyberspace, every digit in a collection is in principle equidistant from every other digit. No more marching from floor 7M to floor 3 in Sterling Library to get from one item to another -- if one know where it is, the information is a single click apart, and the same click could lead potentially to any other digit in the library's collection or in network-accessible cyberspace. Now any journal can reach a much wider audience more easily, to the benefit of authors and readers -- cherish though one might the riches of one's own collections, we will be happy when readers in Singapore and Ougadougou are at less of a disadvantage vis-a-vis readers in New Haven or Chicago or Albuquerque than has traditionally been the case.

2. Digits expand the idea of the traditional content of serials.

A. Beyond what's really there: As we saw with the CNN example, digital resources contain many things they don't truly contain. That is, from the user's point of view, resources linked to a serial or a site are as much a part of the happy discovery of a given article as things that are located on the same site -- but as intellectual property goes, they may be very different things, and immediately plaguey access issues underlie the apparent adjacency and simultaneity.

B. Beyond information that can be contained in print: The fact is that the working definitions of serials, while theoretically applicable to many media, have generally been applied to a limited range of materials that can be fixed in form (sets, journals, maps, microfilm, and so on). Because it is possible now from a single computer screen (or digital library if you prefer) to access and see or hear, for example, weekly NASA data tapes from planetary voyages, or PBS educational series, Smithsonian ethnomusicology tapes, or numerous other "regular" releases, these now begin to claim librarians' attention as serials in a way that they never did before.

3. "Create your own serial" mode now operates: The hot 1997 cyberspace jargon cyberspace references "push/pull" technologies. Of course, traditional print journals have their own mix of push and pull. If one subscribes to them, one instructs a paper journal producer to regularly push new material to you, and individual subscribers benefit most from this. But if an institution subscribes, the "push" is not felt until some individual reader "pulls" the journal from a shelf somewhere. (This disadvantage is met in some places by librarians who photocopy tables of contents to distribute to faculty, to surrogate the effect of a personal subscription.) For the most part, traditional serials are a "pull" technology, waiting on shelves in libraries for readers to come and fetch them.

Cyberspace, by contrast, allows new and curious mixes of push and pull. The most notorious push technology is that of PointCast, who take over one's screensaver and turn it into a customized current display of kinds of information that the individual reader has chosen. Corporations and universities are now using PointCast to add their own high-value information and thus push it before the eyes of users -- at least those users who have not yet been so driven to distraction that they uproot and erase it from their systems! But short of the madness of a never-ending flow of information aimed at me, there lies a series of compromises -- ways of customizing web pages and sometimes web services to pre-select the pieces of this resource and that resource that I want to see, and of setting up alerting services that tell me, the reader, when a particular valuable source has something new for my attention..

When this happens, our experience of, let's say (to imagine a future) CNN's Yale Edition (where our readers skim over the latest national headlines about fighter pilots with bemusement, pay rivetingly close attention to news from the parking service and never even see an article about the hockey team) will be very different from every other person's at Yale, to say nothing of any one else's in anywhere. Such a phenomenon is very different even from television, where one may stumble on what one doesn't want and where one knows in principle what is being offered at any given time -- fifty channels of nothing much -- and instead now lives in a space where, once the choice is made, one never sees or surmises what might be a vital part of the same service to another reader.

Had we networked terminals here today, we could jump into those CNN sites and then consider more fully what to make of each of them, as well as the larger transformations that this small, popular subset of examples can introduce to us. But, we ought not become derailed or distracted by the commercial nature of CNN. There is every reason to think that it is but one popular example of the cutting edge. It is not only that the CNN Yale Edition can't be far behind, but that numerous scholarly and scientific publishers are producing live, aggregated, customized services for all our patrons: Cambodia scholars, students of contemporary culture, gastroenterologists, and so on, down to the most specialized level. Should you find this a preposterous notion, observe the fact that the first e-journal devoted to a single bacterium was announced on NewJour a few months ago: *H. pylori* news, of urgent importance to anyone concerned with stomach ulcers, is already merrily doing its business.

Additional Issues

What else is there to say? Too much. Here and now, today, the focus is on issues raised by the qualities of electronic serials that arise from their electronic nature and their serial nature. Beyond those issues lie a whole raft of sociological and cultural issues, of which two deserve mention:

1. User acceptance and rate of change. Both readers and the authors of scientific, scholarly, and popular journals are their users. It remains a fact that there are various disconnects and disharmonies in the progress towards consistent utilization of new technologies. Would all users only march in lockstep, we could make more efficient progress in addressing the challenges of digital information. Some fields are already driven by e-publishing (think, for example, of high energy physics), while others -- even ones with some distinguished journals on line -- show author and reader resistance and confusion. The pace of change varies and will vary widely across fields and users.

2. Perpetual access and preservation. Management of the universe of available resources, especially of that subset of resources judged to have scholarly value, now poses two technological challenges, the challenge of the new and the challenge of the old. The challenge of the new means that as new browsers, plug-ins, helper apps, and the like come along, we must be both upgrading libraries; hardware and software, working with campus communities to help them upgrade to certain standards as well, and tracking carefully the needs that user communities encounter in exploring specific resources. At the same time, librarians need to track old technologies. As yet, there is no need yet for each library to feature a small backroom technology museum, but one does have to wonder just how long it will be before no current technology will be able to show "old" QuickTime movies or obsolete audio formats. I know of one university Chief Information Officer who has recently installed a 14-year old Kaypro II in his office, just in case he needs it; he is joking, but it's a joke with a point. Libraries have always been the after-market preservation and stock control managers for the scholarly publishing industry; that responsibility will now take on new dimensions. Of course, such responsibilities apply equally to non-serial as well as serials delivered electronically. And they are complicated by the licensing issues that may make it impossible for libraries to take on a preservation role for that which they do not own -- fortunately, not the topic of this program.

3. Ownership/access issues. More than two hundred years elapsed between the widespread introduction of print for "copyright" and its emergence as an intellectual construct that enabled and empowered publishing as an industry -- thus the notion of publication as a beneficial agent of widespread communication. We are now in the throes of the first generation of experiments, debates, and fears about the future of access, ownership, and copyright, the rise of license-based business relationships (will scholarly readers lose access and control if copyright is de facto supplanted by contract law as the basis for dissemination of information?), and great uncertainty about what will happen to access when libraries physically possess less of what they pay for than before. My own faith is torn between the forces the market exercises on all parties to bring them to reasonable compromises that benefit all sides on the one hand and, on the other hand, the real possibility that in the passing of the economy of print and the rising of the economy of electronic information, we will suffer losses as well as enjoy gains.

Our task as librarians is to maximize the gains and minimize the losses.