Serial conversations: a man for all reasons: an interview with clifford lynch

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Abstract

In July 2004, Cindy Hepfer asked friends and colleagues: “What question would you like to ask Clifford Lynch if you had the chance?” As a result, Clifford Lynch discusses a wide variety of topics and issues impacting the serials community from Open Access, institutional repositories, what we can learn from Google and Amazon, and Shibboleth to where his favorite places are to travel and how he prepares for presentations.

Article Outline

Clifford Lynch has served as director of the Coalition for Networked Information (CNI) since mid 1997, after spending eighteen years at the University of California Office of the President, the last ten as director of library automation. His relaxed speaking style, in-depth knowledge of the broad information landscape, and remarkable ability to present difficult and complex information in highly understandable ways make him a sought-after speaker in the serials community. I have wanted to interview Cliff for *Serials Review* for years, and I was delighted when he agreed to answer some questions this summer. I pulled together the following list of questions by asking friends and colleagues across the country, “What question would *you* like to ask Clifford Lynch if you had the chance?” Several questions emerged repeatedly (if differently phrased). I therefore included them in this interview, as clearly they are things serials folks “want to know.” I also included a few unique but particularly interesting questions, and one or two of my own. The questions and Cliff's responses are divided into two categories, professional and personal.

One question that Cliff declined to answer was how he got interested in working in the library field. Instead, he referred me, and *SR*'s readers, to a previously published interview in the journal *Ubiquity* which includes a response to this very question.[1] That interview with Cliff is also well worth reading.

Professional questions

CINDY HEPFER (CH): Where do you think the Open Access initiative will stand in five years? If it persists, what will the economic model be? If the pervasive model is that the author or a grant has to pay, will faculty support it? Do you believe that such a model is sustainable?

CLIFFORD LYNCH (CL): Let me first be sure we are on the same page about what Open Accessmeans. Stevan Harnad has talked eloquently about the "gold and green roads" to Open Access, these being, on the one hand, journals that make their contents available without restriction, and on the other hand, journals that permit author self-archiving-plus, of course, a world in which authors widely practice this self-archiving of their work. Author self-archiving is now very widely permitted (if I recall, Harnad is indicating this is up at the 90 percent of journals level), and seemingly getting more widely allowed daily. In five years, I have to believe that only a sort of lunatic fringe of journals will seriously stand in the way of their authors self-archiving articles; in most disciplines this will be a massive competitive disadvantage. Getting authors to practice self-archiving of various sorts and putting tools in place to allow readers who wish to do so to easily navigate the complexities of various self-archiving mechanisms and practices is still a real challenge, and it's not entirely clear to me who is going to have the incentive to invest in constructing and deploying good systems to do this.

But let's now talk about journals that are directly Open Access, as opposed to journals that facilitate the development of an Open Access world through author self-archiving. I'll refer to these here as OA journals.

Open Access has a lot of momentum behind it. It addresses the desire of the author to have his or her work read widely. OA journals do this with the least amount of effort on the part of the author. And there are other motivators for Open Access that I don't think have been widely recognized yet: we are moving into a world that contains both human and non-human (i.e., software) readers. The first of these non-human readers were the indexing programs from services like Alta Vista, Google, Lycos, etc; they are now being followed by much more sophisticated text mining and analysis programs that will do things like comb large chunks of the biomedical literature suggesting new connections and research hypotheses. Technically, it's proven very, very hard thus far to support non-human readers in environments where there are access management barriers, which is why you don't see most of the non-Open Access scholarly journals indexed in services like Google. (I know that this is starting to change, but it's based on some very technically messy ad hoc arrangements publisher by publisher that I don't think are going to scale well to a multiplicity of readers and a huge universe of content).

It's clear that Open Access journals need some form of subvention, whether from authors, or authors' institutions, or other third parties, at least to me. (I suspect that a lot of the controversy right now is really about how much it costs to publish a journal, what's a fair level of profit, and what other activities you are going to underwrite and bundle into the journal costs, as scholarly societies often do today). Personally, I'm a bit skeptical about lots of transactional payments from authors in the long run. I'm thinking that "memberships" of some kind from the author's institutions may be a more likely pattern (we are already seeing some business terms from some OA journals that move in this direction). There's no question in my mind that it's sustainable, though I do take the point of some OA critics (skeptics) that we want to be careful about how we introduce dependencies, particularly very concentrated ones. The notion of governmental underwriting is a bit scary, both because of the potential long-term instability of the funding and also because of all the policy strings that can come along with such support. There's a lot to be said for more distributed support models.

Final comment on this: I suspect that we will be in a mixed world of OA and non-OA or "semi-OA" (i.e., OA, but not till six months after publication or other such variants) journals for the foreseeable future.

CH: Will Open Access catch on in the social sciences and humanities to more or less the extent that it has in the science, technology and medicine (STM) area? Do you believe that a majority of scholarly STM journals might move toward Open Access? If that is the case, what effect might the Open Access environment have on scholars and on libraries?

CL: The question of OA in the humanities and social sciences is a very interesting one, particularly in the United States where the funding picture is so different from the sciences. (Note that all the sciences aren't the same either: for example, there are an awful lot of mathematicians who don't get research grants of any kind but are publishing, active research mathematicians). I think that the direct author-pays model (as opposed to institutional subvention) is even less likely in the humanities and many of the social sciences.

There are other problems. At least in theory, one might hope that publications in the humanities and social sciences might reach a broader general public audience than scientific publications, and OA reopens a lot of these questions about the role and mission of the humanities in society. And in most of the humanities and many of the social sciences, the book rather than the journal is the "gold standard," and books come with rather different economics, including the fact that people still want to buy them in physical form.

I cannot resist a comment here about publishing practices in the library and information science world, since I know much of the readership of this interview is likely to be members of the library community. Where does that community stand on Open Access, and are they practicing what they preach in terms of the journals they support, write for, edit, etc.?

I'll admit to some personal biases here. While I'm on the editorial board of one journal that isn't Open Access, I have to admit that I have a strong bias towards publishing my own writings in OA journals most of the time; and not being able to self-archive (and make my stuff available on the Web, one way or another) is now usually a show-stopper for me. For example, this interview will go up on the CNI Web site if the *Serials Review* version of it isn't Open Access.

While I have my soapbox out, let me say one other thing about Open Access. The point of the movement towards Open Access isn't to save libraries money, reduce pressures on their acquisition budgets or let them acquire more material—though this might be a desirable and welcome side effect. (Also, I note that one still gets the feeling that too many libraries don't have a sense of “ownership” over materials that are available to them for free, but only those that they pay for, and this is going to have to change big time if OA journals are going to be preserved and accessible in the long run.) The first and most central point of the Open Access movement is to facilitate the growth and dissemination and use of knowledge and scholarship by removing barriers and friction. Libraries have a stake in Open Access because the growth and dissemination of knowledge and scholarship is a core part of their mission.

There is a second point to the Open Access movement. While the public underwrites a great deal of academic research, historically it has been difficult for the public to get access to a lot of the reports of this research. In many cases, indeed, various parts of the research community have suggested directly or indirectly that the public really doesn't need to have access to this material; it's too complicated, too technical, too hard to interpret. One of the most disgusting examples of this has been the patronizing positions that characterize a lot of publishing in the health sciences (e.g., high costs, access barriers, pre-publication embargos) and my sense is that this is finally collapsing under the weight of pushback of a public that has been very generous in funding research in the biomedical and health sciences and that is now being forced by changes in the health care system to take much more responsibility for understanding and making treatment decisions. Open Access is part of this commitment to tearing down the barriers between the research community and the public in areas where the public wants and needs access.

But it's not just the biomedical sciences. Indeed, big swaths of the academic disciplines have been successful in getting this exclusionary, barrier-oriented message out to the public, to the point where we now have complex fault lines between the parts of the humanities that connect with the general public (certain kinds of history, biography, etc) and those parts that are considered academically legitimate and significant but seem almost deliberately constructed to be incomprehensible to all but a tiny group of readers. These fault lines are at least some part of the problem that underlies the economic crisis in the publication of humanities monographs, and at least some part of the crisis in the public support of the humanities, particularly the academic variety of the humanities. Open Access in the humanities and social sciences is going to open up enormous amounts of research work for public inspection and is going to raise questions about why so much of the work can't be done in a way that is accessible to the public. And I think this is a very healthy set of questions for our society, our higher education system, and our scholarly disciplines to be talking about.

CH: What has been your experience with institutional repositories, and what do you think their future holds? Are there any “best models” available for institutions considering setting up repositories, and are there pitfalls to be avoided?

CL: It's still the very early days for institutional repositories, but I think that they are going to be terribly important. I hope that institutions that choose to implement them do so only after a very deliberate decision-making process: once a university makes such a commitment, it's very problematic to go back on it.

One set of issues that I think is going to need some careful work deals with the relationship between institutional and disciplinary repositories. Much of the investment in cyber-infrastructure or e-science or e-research is still working mostly with the disciplinary repository model, which is fine. But we aren't going to see these in all disciplines; we are going to see the phasing in and phasing out of disciplinary repositories with specific missions and foci over time, and there is going to need to be a smooth linkage and provision for graceful migration and effective interoperation between institutional and disciplinary systems.

As far as "best models," it is probably too early. Massachusetts Institute of Technology (MIT) has done fabulous work in this area, and anyone who is thinking about creating an institutional repository should look carefully at what MIT has done. The "second-wave" Mellon-funded DSpace institutions, such as the University of Toronto, Ohio State University, and the University of Washington, are doing fine work too but are even earlier in deployment than MIT. The Fedora-based work coming out of Cornell University and the University of Virginia also bears close watching, though it too is in early stages. Harvard has done some good institutional thinking about repository strategies. In the video area, the Digital Well system at the University of Washington is very impressive.

And, of course, we tend to be so parochial sometimes. We can learn a huge amount from the United Kingdom, which has been a real leader in developing repositories to support scholarship (though they have tended to take a somewhat more disciplinary approach). Check out the Arts and Humanities Data Service, which the UK Joint Information Systems Committee (JISC) has funded.[2] More recently, as part of the e-Science initiative, the UK has launched a Data Curation Center based at the University of Edinburgh.[3] This is going to be a very significant enterprise that we need to track and learn from in the United States. In the Netherlands, SURF has launched what is in essence a nationwide institutional repository program that has some very interesting relationships to the national library there.[4]

One "bad" idea that I would single out is confusing an institutional repository with a venture into scholarly publishing that's intended to directly compete with traditional journals. For more on this, take a look at my essay on repositories at the CNI Web site.[5]

Let me just note that the whole complex of issues around institutional repositories and the stewardship of intellectual assets and institutional records, the support of e-research and e-science and related matters is a major ongoing programmatic focus for CNI.

CH: What similarities do you see between institutional repositories and corporate knowledge management initiatives that also attempt to capture the intellectual output of organizations? What are the challenges for institutional repositories to deliver on their promise from the perspective of a valued collection if there is great diversity of topics and little coherence? And as far as delivery goes, are institutional repositories likely to be easily accessible to everyone through Google?

CL: I suspect that institutional repositories will be indexed by Google and similar services. Work is already underway to do this for some of the DSpace repositories. But note that Google is still very much oriented to textual materials, although recently they've done work with images. If a significant part of the content of a repository is digital datasets of scientific observations, or simulation outputs, or is made up of learning objects, then the kind of indexing and searching approaches that Google uses may not be very effective. For textual stuff, search engines like Google will definitely be a major access path.

Institutional repositories are not intended to be coherent collections, in my view. There will be, and should be, great diversity of topics and coverage. We'll see new systems that span large numbers of repositories and other sources of information and present these as more coherent and comprehensive collections.

The question about corporate knowledge management and its relationships to institutional repositories is central and probably calls for a more detailed answer than I can give here. Let me just make a couple of points. In higher education, knowledge really belongs mostly to the faculty and the students. Any attempt to use a system like a repository as a fulcrum to institutionally seize control of these knowledge assets will doom the repository to failure, as well as set off a substantial revolt on campus. Institutional repositories are about *helping* faculty and students to more effectively disseminate and manage their knowledge work, and letting their organization provide a service to them by ensuring that this work is preserved for the longer term.

One of the big problems with corporate knowledge management systems has similarly been motivating individuals to contribute to the corporate knowledge base asset; many employees view this as making oneself ever more vulnerable to downsizing or outsourcing. Corporate knowledge management bases are also viewed as competitive advantage for the corporations that own them; in the higher education environment, the knowledge bases are going to be collectively owned by communities of scholars that span institutions and, indeed, ultimately, by society at large. They definitely won't work well in most university cultures.

That said, I believe that institutional repositories also have an additional role: providing a way to manage institutional records and the records of the intellectual and cultural life of a university or other organization. To the extent that these records include some form of knowledge management assets, one might put them into a repository for preservation and dissemination.

CH: In a February 15, 2004, article in the *Washington Post*, University of California at Berkeley professor Peter Lyman is quoted as saying, “There's been a culture war between librarians and computer scientists. And the war is over. Google won[6].” What is your perspective about the quote itself as well as about the significance of its appearance in a multi-page feature article about Google in the *Washington Post* under the sub-heading, "Mom, What's a Library?"

CL: This is certainly a very quotable sound bite, but I don't believe it for a minute. There's a lot more to the roles of libraries in our institutions and our societies than the online catalog. I do think this quote points up the fairly awful job that libraries have done in coming to terms with designing the successors to online catalogs in the twenty-first century, in incorporating personalization, in recognizing that they are dealing increasingly in content where the full text is available rather than surrogates, and in failing to recognize that for many purposes instant access online to full text is everything to the user. And I want to stress that the competition to library catalogs is as much Amazon as it is Google, perhaps in some ways more so. Google covers a different class of material than the copyrighted commercial marketplace works that form the core of most library collections; Amazon deals with this kind of material. And I would urge you to note that Amazon has over the past few years been doing some very delicate negotiations with publishers about full-text searching (so-called "search inside the book") which libraries seem to be avoiding, just as they have mostly avoided personalization.

I have characterized Amazon more than once as a brilliantly designed digital library for selecting and acquiring books (amongst other things), and I would invite you to consider this characterization, and then stack the online services of a typical library up against them.

The ironies here are complex and painful; for example, libraries have avoided personalization out of a commitment to protect user privacy; to date they haven't been comfortable investing in systems that let users give up some privacy (with informed consent) in exchange for enhanced services. The private sector had no such qualms.

There's a *lot* more we could talk about here, and we don't have the space or time. But I want to at least get a couple of points on the table. Libraries (and for that matter museums) are often still obsessed with physical traffic; if people don't come to the library they feel that they are failing in their mission. There are lots of people who really don't want to (or can't, or don't have time to) come to the library very often. While I expect that there will continue to be an important physical place component of most libraries, not all patrons need or want that physical place, and network-based remote electronic services are going to become a much bigger part of library services. So libraries need to stop thinking in terms of success, meaning that they continue doing what they were doing twenty or thirty years ago with an ever-growing set of statistics about door count, reference questions, physical books circulated, etc. The library of the future won't be the library of the past.

And we need to be crystal clear about one other set of issues which are very unpleasant. At least in the United States, the legal doctrine of first sale as part of our copyright framework is in essence what makes libraries work, both as methods of sharing information publicly and as cultural memory institutions. Licensing, digital rights management technology and legal developments like the Digital Millennium Copyright

Act all continue to chip away at these foundations. The future of libraries, and particularly public libraries dealing predominantly with non-scholarly content, is profoundly at risk as we move away from purchasing and circulating physical artifacts. Public libraries, along with a number of other things we take for granted like the "used" resale market, could be eliminated or radically restructured (economically and legally) as we move from physical artifacts to digital content; there are powerful economic interests wielding far-reaching political influence that would like to do exactly this in the interests of optimizing profits and control. They've already basically halted the growth of the public domain. I would be very surprised, barring some major cultural changes or new case law developments invalidating the Bono Copyright Extension Act (and this has been tried once, in *Ashcroft v. Eldrich*, unsuccessfully; the issue is going to be raised again in *Kahle v. Ashcroft)*, to see any work enter the public domain in future other than by the specific and deliberate assignment of the author or other owner.

If you think I'm exaggerating, you might note that when various companies (Microsoft comes to mind here) were trying to sell appliance e-book readers to the traditional publishing world a few years ago, one of the great benefits they trumpeted when pitching their wares to the publishing community was that such e-books would allow the publishers to recapture all of the revenue being lost because of library lending and used book sales.

CH: OCLC is working with Google on a pilot[7] and RLG has been developing Red Light Green.[8] Are you aware of other efforts to bring library catalogs to the Internet? If these efforts are successful and users become increasingly dependent on these kinds of search engines to search library catalogs, what impact will user expectations and "google" technology have on scholarly publishing, the journal format, and access to scholarly information?

CL: These are the two major efforts Im aware of right now. This is a huge topic, and I've touched on a number of aspects already, such as the potential relationships to Open Access. The one other point I'd like to put on the table is that Google does not accept pay for placement in search results; it provides searchers with paid advertising labeled as such, separate from the search result. This is just Google policy, as far as I understand it. I believe that it's an enlightened policy that has helped make them as successful as they have become, that it's helped to build trust in Google. Other search engines, again, as I understand it, actually do accept paid placement. Understanding which search engines do and which don't accept paid placement is going to be very important for the population at large. There's a big consumer education issue here, perhaps even a public policy issue that might require regulation at some point in future (at least, in my view benign, to the level of mandating that search engines disclose whether they include paid placements in their search results). And then one could of course ask the question, "What happens if we end up with *all* the search engines incorporating paid results?" Do you think consumers would be willing to pay for searches that didn't include such paid results? Would libraries be prepared to underwrite access to placement-free versions of commercial services for the public? Or would there be resources to run a "non-commercial" service?

CH: Ten years ago there was a great deal of talk about merging libraries with information services. Where do you stand on that issue? Would merging the two services create more problems than it solves? Is the issue more one of dialogue and communication rather than of administrative mergers?

CL: This seems pretty simple to me. Libraries and information services simply must work together closely and effectively, and this is getting ever more complex as the campus information landscape gets more complicated with the introduction of technologies like course management systems which raise extensive and poorly explored technical and policy problems related to the management of the content that they house. So we are really talking more and more about effective collaboration that spans libraries, archives, records management, information technology, instructional technology, policy makers and other groups.

Within some university cultures it makes sense to combine these functions in various ways. Within others it doesn't. The tradeoffs may vary as the constellation of people managing the various functions shifts. There is no universal right answer. But I can pretty much assure you that merging functions in order to repair failures to work together, to circumvent dysfunctional organizations or incompetent managers, to avoid dealing with budgetary shortfalls or for other similar reasons is a recipe for more problems rather than a panacea. If you are going to merge these functions successfully, you need to start with functions that are working well by themselves.

CH: Do you foresee libraries continuing to serve the role of memory organization for future generations now that most of us lease access to “core” content and are not collecting it for future access? What do you see as the role of librarians in the future? Should we continue to collect for our institutions, or should we focus more on service? Many libraries are spending huge portions of their acquisitions budgets on licensed resources, rather than on collecting materials that will be available for future generations. If you agree that access rather than ownership endangers the future of libraries, what advice can you offer us?

CL: I'm trying to write a book that deals at least peripherally with some of these questions. Let me try to provide a short answer that gets at some of what I think are the key issues beyond those I've already mentioned.

What libraries have as their fundamental mission the preservation of the cultural and intellectual record for the overall good of scholarship and society broadly? National libraries clearly, and if you look around Europe, at least, you will see that they are getting very active in the preservation of digital materials. In the United States the Library of Congress is now moving the National Digital Information Infrastructure and Preservation Program along. The National Library of Medicine is taking a strong stance about its role in preservation of material in the health and life sciences. The broader research library community faces a real dilemma here. They are terribly stressed financially and very cautious about taking on new commitments without new funding. Yet as scholarship becomes increasingly digital in nature, they are (sometimes reluctantly, to be sure) stepping up to make the investment to manage the scholarly materials that are being produced by their own communities through the establishment of institutional repository services, as we have already discussed. The key questions that I can see are these: what institutions will take responsibility for the preservation of the published scholarly literature and how will this be funded? To what extent will research libraries other than national libraries take preservation responsibility not just for scholarly works but also for the raw materials of future scholarship? How will the majority of libraries, which are not research libraries and have very limited or no mission responsibilities for systematic preservation contribute to the support of the system of preservation that comes into place (which they will need to draw upon from time to time)?

Just as a final remark here: the problems and challenges facing memory organizations as the stuff of that memory becomes increasingly digital go way beyond these kinds of questions about library strategy and really reach to reformulating the legal, economic, and public policy compact between society and its memory organizations in far-reaching ways if we are going to ensure that we can sustain our memory as a society in the future.

Let me give you just one example of what I'm getting at here. While a court might bar a book from being sold (normally after it has been published) due to copyright, libel, or other considerations, I would like to believe that even the most over-reaching judicial and law enforcement agencies would not dispatch people to raid every library in the country to confiscate and destroy copies; they would not systematically invade bookstores to confiscate unsold copies and seize sales records and then go breaking down the doors of the homes of people who had purchased the book to seize those copies. I've not been able to uncover any recent examples of this in the United States, though I would be grateful to hear about examples from readers of this interview.

But *why not*: because it's wrong, illegal, inconsistent with our fundamental values as a society, because it is more appropriate for an Orwellian society than a democracy? Or simply because it's *impractical*? Because the likelihood of comprehensive destruction of all copies of the books is small, because it would be very expensive, because there would be jurisdictional problems, because the publicity would be bad?

Now, fast forward to the digital world. There's a central database run by a consortium of libraries. It has five mirror sites around the world. These mirror sites house copies that are licensed for use by many thousands of libraries, and perhaps hundreds of thousands of individuals. Here it's pretty easy, technically and operationally, to just go in and erase the work from the society's cultural memory.

Indications so far aren't encouraging: now that they *can* pragmatically make such erasures, there seems to be little hesitation, no balancing the need for social and cultural memory with the rights of aggrieved parties who are unhappy about some part of what's making up that memory.

CH: Why should faculty—and librarians!—continue to write, interview, edit, review, or do anything else for a Reed Elsevier publication?

CL: People seem to portray Reed Elsevier as the devil incarnate, and I don't think this is fair. I'm sure that you mentioned them just to put a bit of a “point” on this question, but I hear them mentioned so often in this context that I want to speak a little in their defense. They certainly produce many journals that are very expensive, but they also produce some journals that, as far as I can tell, are very well respected. And they have, I think, been very responsible and helpful players within the community on a number of important matters, such as digital preservation and archiving. I don't intend to get into name-calling here, but there are some scholarly and professional societies (a sector collectively often held up as paragons of virtue in comparison to commercial publishers) that I wish were as enlightened as Reed Elsevier about the changing nature of scholarly publishing and all the implications and potentials and promise of the digital world, about Open Access and self-archiving and the move to electronic theses and dissertations and the circulation of pre-prints on the network, even if their publications cost less. (And, in fairness, there are also many wonderful and truly enlightened professional and scholarly societies.)

Having said that, I believe that it's really essential that people think before agreeing to write, edit, review, or whatever for *any* journal from any publisher. As an author, you need to think about who it is important that you reach with a given piece of writing, what the best way is to try to reach that audience, and what compromises you may or may not be willing to make in the course of doing so (transfer of copyright, delays due to peer review or publication backlogs, inability to provide Open Access, editorial control, length limitations, embargos, whatever). As an editor or reviewer, you need to think about whether you really want to contribute your time to (or, if you are paid, work for) the journal in question as opposed perhaps to other competing journals.

I'm also of the opinion that we need to do some fundamental reorientation about success factors in journals and in the role of editors and reviewers. Let's think about how we can become more selective: how we can publish a smaller number of journals, publish fewer articles per year in a given journal, how we might increase the rejection rates. Not how we can add more pages per year, or launch yet another redundant journal. If you don't think there's a need for yet another journal in the field, or a journal with an even more specialized scope, do you have the integrity to decline that flattering invitation to serve on the editorial board? As authors, think about how to say no, to avoid publishing mainly redundant work, to resist the blandishments of endless numbers of editors with endless numbers of pages to fill.

The journal publishing system mixes up mechanisms that are intended to bring the few things that are really important to our attention with mechanisms intended merely to vet contributions for correctness or reasonableness. We have got to disentangle these.

CH: What's your prediction for the future of print journals? Do you think that the journal wrapper will eventually disappear, leaving behind an article-level environment? Do you see some other way that the journal as an aggregation of simultaneously published short pieces (a.k.a. “articles”) might change?

CL: In the medium term, I suspect that the future of the print journal is twofold: we'll print the things that most readers actually want to read (for example, think of the front sections of *Science,* or maybe most of *Notices of the American Mathematical Society* or *Communications of the ACM)*. And we'll print trophy materials that we want to present with a full “thud factor” in tenure and promotion contexts, including scholarly monographs. Over time, I suspect that the trophy material will get scarcer.

In the longer term, as we (I hope!) return some greater degree of rationality to tenure and promotion, we'll print just the materials that most people want to read on paper and that make economic sense, not to make icons and trophies. I expect that we'll also see the dis-aggregation of the review and credentialing part of journals in that longer term as various folks are predicting.

CH: Do you think there is any chance that the current model/process for tenure and promotion will change? Will faculty ever be primarily evaluated on teaching skills rather than on their ability to produce articles and publish in often expensive, high impact journals?

CL: Ultimately the model for tenure and promotion will change; I believe that universities will (and should, and must) end up taking a lot more direct responsibility for making tenure and promotion evaluations, rather than simply settling for the indirect evaluation that's implicit in acceptance of books or journal articles. Some of this is going to be generational, I suspect, and I think there's some evidence that the change is already starting to happen. This is of central importance, frankly, as our sometimes responsibility-adverse tenure and promotion practices are one of the major impediments to change in scholarly communications.

You ask about teaching as a primary basis for tenure and promotion. This is another matter altogether and reflects institutional values and priorities. I believe that at many of our outstanding liberal arts colleges, promotion and tenure already rest primarily on quality of teaching rather than research achievement, at least for all but the most extraordinary researchers. Some of our major research universities are assigning more weight to quality of teaching in tenure and promotion evaluations, though I would characterize it as an alternate path: truly world-class research abilities are still recognized and honored at our major research universities, even if the person under consideration can't teach very well. And this is as it should be—we should recognize that both research and teaching skills have value to our institutions of higher education and that real excellence at either is a strong justification for tenure and promotion. It's the truly rare individual that excels simultaneously at both teaching and research.

CH: What's happening now with Shibboleth, and when do you think it will be supported widely enough throughout the serials community to make a difference?

CL: Shib is clearly rolling out on a reasonably large scale now among the content providers (as well as other systems like course management systems). It will help. But I think that it's inevitable that for the foreseeable future we'll be in a mixed environment, and the best we can hope for is a mixed environment that includes Shibbolized proxies to a fair number of non-Shibbolized resources. The higher ed and library communities are not the primary marketplaces for all the resources that we need access to. In some cases, we have the market power to get vendors to implement Shib, but in others we don't.

CNI has been involved in Shib since before there was Shib. In the late 1990s we helped to pull together what were, in essence, functional requirements for such a distributed authorization system, and we have been working with partners like EDUCAUSE and Internet2 ever since to help with information sharing, adoption, deployment, and implementation. One thing that CNI will come back to focus on in more depth now is some of the new emerging privacy issues in the networked information environment; a lot has happened since the mid-1990s.

CH: What is the real potential of metasearching, and what is the downside? What kinds of improvements can you envision?

CL: I would invite you to go back and read some of the work from 1980s and early 1990s about Z39.50, scholar's workstations and related topics. Metasearch isn't new at all; it's just a new name for a long-standing problem. There are reasons why this problem is intrinsically hard and didn't get resolved in the early 1990s.

Some of the problems are technical. They have to do with balancing heterogeneity (the contents of databases being very different, and it being very important to the user that these differences be visible and that they be honored, so that if you had a database that had intergalactic brain license number as a field, you could search on that, even though no other database anywhere used it) with the need for interoperability and standardization. This is hard, indeed I think fundamentally insoluble, and each distributed system engineers its own pragmatic and imperfect compromise. This means that if you are a builder of a database resource that's going to be a constituent of many different distributed search environments, you have a terrible time deciding what to do, particularly if you can't afford to implement lots of different alternative interfaces.

Some of the problems have to do with standards. Z39.50, due to political pressures that are an intrinsic part of the standards-making process, became so general that it gave little guarantee of interoperability without extensive and very complicated profiling. There was also a certain amount of what one might politely call idiosyncratic (or less politely, perhaps, cynical) implementation of Z39.50 that didn't necessarily interoperate well with other implementations. Distributed authentication and access management has been a big barrier; Z39.50 just said that was basically out of scope (correctly in my view), but solutions like Shib have been a long time coming.

There are some new technologies and some new tools that can help in these areas, and revisiting some of the standards issues in light of the experience to date may give better results, particularly if we are prepared to be more disciplined (ruthless?) in the standards-making process.

But it's important to recognize that many of the problems are business problems. Most content suppliers are ambivalent about interoperating; brand and supplier identity can disappear into seamless interoperation. There are legitimate concerns about commoditization in some areas. No amount of standardization or technology is going to solve these problems; some of the way forward is going to be negotiation between the services that consumers want and the services that content suppliers are willing to provide in a metasearch environment, and perhaps some compromises between competing objectives and concerns.

CH: Is Stanford's idea of endowing an electronic resource a strategy that can be used widely?

CL: I am not sure that this is Stanford's idea. I've been advocating it personally for at least a decade now (and I'm sure I'm not alone in arguing for this model) as the way we are going to probably have to fund digital materials in future special collections. It seems to me that it's likely to become a standard approach for fund-raising in the future and widely used. Interested readers might want to have a look at a piece I did for an ACRL (Association of College and Research Libraries) meeting a few years ago called “On the threshold of discontinuity” for more on this.[9]

CH: What kind of future do you see for journal publishers? Will prices keep rising and will libraries have to keep canceling? Are there going to be more mergers, so that even more of the scholarly production is in the hands of even fewer publishers? Where will this trend end?

CL: I'm not sure I can answer this. It's hard to believe that there will be a lot more major mergers. There just aren't that many players today, and sooner or later I have to believe that antitrust issues will arise. I think what we will see is some continued growth at the big players by incremental acquisition of journals from scholarly societies, one or two journals at a time, in part because the scholarly societies can't afford the capital investment and expertise to make their journals digital themselves in an effective and competitive way (though we have seen some very innovative responses to this dilemma, such as the BioOne project, which tries to share some investment and infrastructure cost across a number of scholarly societies).

Prices will keep going up. Libraries will keep canceling. Maybe this is okay to the extent that we probably need fewer journals. The really good journals will tend to survive this situation, I suspect. Some focus on cost-effectiveness of specific journals is badly needed, and it's a conversation that faculty need to get involved with. Subscription cancellation projects tend to engage the faculty in these questions.

But let me tell you one trend that I find very troublesome. There are some scholarly and professional society publishers who think that their society has some sort of divine right to at least a steady revenue stream at a given level from their publications. As the number of subscriptions drops, they simply raise the rates to get the revenue stream back to where they want it. Now where this gets particularly nasty is that for reasons that are not entirely understood, many societies are seeing steady drops in membership year after year. Since a chunk of the membership dues goes to support publications, that represents lost publication revenue. The societies replace this by raising the *library* rates for their journals to compensate for the lost individual subscriptions; indeed, to justify this they often argue that library site licenses are to blame for the lost memberships (thus tacitly suggesting that the only reason people used to belong was to get the print journal) and that thus it's only fair that the libraries should pay to make up the shortfall. I suspect that there's going to be a major controversy emerging here as we try to sort out whether these organizations are really just non-profit publishers or whether they are scholarly societies, and whether they can continue to be scholarly societies when the scholars in the relevant disciplines won't support them through membership dues. As to whether universities should underwrite the works of scholarly societies, and if so, whether that should be done through library acquisition budgets. These are important and complicated questions that demand some very careful consideration.

CH: What is your take on the state of archiving and preservation of online information?

CL: We've already talked about some aspects of this. As we revisit this question, I just want to stress that at some level scholarly communication is the least of our problems. In the realm of scholarly communication we have a very strong set of common values—even among the for-profit publishers that are part of this community—about the importance of long-term preservation of the scholarly record. The issues are about *how* to accomplish our preservation objectives. In the world of (non-scholarly) consumer content we are in a completely different parallel universe. There is no consensus that society has any rights or expectations that it should be able to preserve this material or that any motive other than profit optimization is on the table. There is no consensus agreement that preservation is a legitimate or socially important objective. There doesn't seem to be any common set of values that can form the basis of a rational and constructive discussion. We have really serious social, legal and cultural disagreements to resolve.

Again, I want to note that preservation of digital information has been, and continues to be, a major program focus for CNI.

CH: What's the future role for abstracting and indexing (A & I) services in light of the demand for full-text databases?

CL: The future role for A & I services is lot more difficult than the past. With the growing presence of full text, A & I services are challenged in a very direct way to define the value that they add in terms of access to the literature. For those A & I services that do things that cannot be replicated by full-text indexing, such as evaluation of results or assignment of specialized subject terminology that researchers in the field actually care about, the case is easy to make. For A & I services that just post a citation and a few general subject headings, I think the future is pretty bleak.

Part of this is really engaging the issue of what value intellectual indexing and abstracting adds in the presence of full text and in what contexts. I did a talk about this a couple of years ago as part of the Library of Congress' Symposium on Bibliographic Control for the New Millennium in which I think I framed the issues pretty clearly.[10] But I continue to see too many abstracters, indexers and catalogers in an advanced state of denial about many of these issues.

Note that there are two ways of thinking about A & I services. One is as description, as an access mechanism or retrieval tool. The other is as a *selection* mechanism, for defining a literature, or defining what's important in that literature. Evaluation and selection have real value, and if it's done really well I believe that people will pay for it in a world where time and attention are such scarce commodities. But just like journals, there's a tendency for A & I databases to keep expanding scope, rather than being more and more selective, to define an ever-growing literature rather than just highlighting what is most important in that literature. I don't think that most A & I services today believe that they are fundamentally in the evaluation and ranking business.

Personal questions

CH: We are all very busy these days, but you are busier than most people. Yet you are aware of the cutting (bleeding!) edge of many topics. Bill Gates is said to take a week off every year just to read. What's your approach? What do you read? Are there Web sites you visit to regularly to stay current? What do you think librarians should read to stay current, in particular what non-library publications?

CL: It would be nice to be able to take a week off every year, without interruptions, to read. Or to write. But it doesn't seem to be in the cards for me.

I actually have no idea how to answer this question usefully. My lists of things I read change a good deal from year to year, and range from very traditional things like newspapers and books to obscure technical reports, Web sites, journals, and magazines. I doubt that my list is going to be that helpful to anyone else. I do want to take note of one phenomenon which may raise some useful thoughts for your readers. We all suffer from very finite time to read. Because of that, I find it's often very useful to pick a few sources with radically different points of view in a given area, and to do this in a fairly wide range of areas. More and more, particularly on the Internet, we see sources that synthesize and select from other sources, adding only very incremental value or novelty over the set of sources they select from. What this means is that it is getting very hard to pick those investments of one's scarce time that return a lot of new and novel material, insight or perspective. I find this particularly true of Web sites (and nowadays of blog-type constructs); they are so much based around linkage, and recombinant linkage, when often what I really want is more synthesis from a particular point of view. I also have to admit that I feel like I am losing the battle to try to allocate my time in a rational and realistic way. Wherever I am, it seems I am surrounded by mountains and drifts of paper, many of which I truly intend to read, and I just never get to a lot of them. After a few years, I just toss a lot of it as overtaken by events or higher priorities. Most depressing.

One other gripe. Expanding a journal, or a newsletter, or a periodical, or a newspaper to more pages per issue may be an excuse to charge more (or to get more advertising revenue) but it's seldom an improvement from the point of view of a reader who isn't getting more total attention bandwidth to allocate from one year to the next. From the reader's point of view, growth in size or frequency often is *not* a good thing. It means that the periodical is getting less selective, more diffuse, that it's essentially trying to crowd something else out of your limited span of attention. Here we have a basic conflict between the goals of readers on one side, and editors, writers, publishers on the other. Yet readers haven't been very smart here. How often do you see readers canceling subscriptions because the periodical added issues or pages, or how often do you see readers applauding because a journal raised rates and reduced the number of pages it published simultaneously? But sometimes, isn't this what we need?

From my perspective, probably the worst mistakes that many people, and particularly many professionals (including librarians), make is to confine their reading to a fairly narrow set of professional literature rather than a real diversity of material, and to things that reinforce or are consistent with their beliefs and biases rather than sometimes challenging these assumptions.

CH: Many individuals in the serials community are impressed, even blown away, with your speaking ability, as well as the content of your presentations. Before you talk, you always pull out a tiny 3 × 5 piece of paper or folded paper napkin out of your hip pocket and then talk in an entirely coherent fashion for forty-five minutes. What do you write on that piece of paper?

CL: Just a few notes; points that I want to be sure to remember to cover. The bits of papers are usually hotel or airline club phone note pads, by the way; paper napkins are terrible for this purpose because ink bleeds on them, and you really can't make very extensive notes on a napkin.

CH: How do you prepare for so many speaking engagements and still manage to be so fresh?

CL: I think through carefully what I want to say and what points I want to cover, but not in exhausting detail. And think about it again every day, for every talk and every audience. Avoiding unnecessary A/V stuff (e.g., typically PowerPoint bullet points) is an important component of this.

CH: How do you make speaking look so easy and extemporaneous?

CL: Flattery will get you somewhere, but it's really neither easy nor extemporaneous. Extemporaneous would be without notes or thinking about it in advance.

CH: You are so good at clearly stating a problem or topic, and then talking about it effortlessly, making sure to tie all the threads together, many of us wonder if you have ever considered a teaching career?

CL: At least up till now I haven't been interested in a full-time faculty role, but teaching as a part of my life is very important to me, and I've been co-teaching a seminar at University of California at Berkeley's School of Information Management and Systems with my long-time colleague Michael Buckland (and starting this fall we'll be joined by our colleague Ray Larsen as well) there since the mid-1990s. I love doing this. Having said that, let me point out that this is a seminar. There's a very different art to doing a seminar, or short talks (one or two hours), as opposed to teaching a more traditional and more structured course. I've only tried that once, back in the late 1980s.

CH: Of all of the places you've traveled giving talks and going to meetings, what are your favorites? Are there places you've visited but been too busy to enjoy that you'd like to return to?

CL: This is a tough one: there are just so many answers. I suspect that some people think I've been everyplace, which is far from the truth. Even the places I've been, often I've just been whisked in and out for a talk or a meeting, seen the airport, a taxi, a hotel, and nothing else, and I've wished I had the opportunity to visit, tour, get to know the place a bit and at least see the sights.

I've been to most of the major cities in the United States and to a good number of college and university towns and a few resort locations. I actually grew up in New York City, and the whole Boston-Washington corridor is very familiar territory at this point; I spend a good deal of time there, I'm comfortable there, and I have lots of comfortable, well-established haunts. I like visiting some of the college towns a lot, like Ann Arbor, Michigan. I've been to Hawaii many times; it's a very pleasant place, magical at its best moments. I was only in Alaska once, for a very short trip, and it would be interesting to return there.

I have had the opportunity and good luck to visit Canada many times and to travel widely across that nation. It has always been a special place for me, perhaps especially the Maritimes—the places and the people are always wonderful. And they are doing so many interesting and wonderful things in cultural memory organizations in Canada. There's so much to learn from them.

I have visited a fair number of countries in Europe, but in most cases I haven't had much opportunity to do tourist things, with the partial exceptions of the UK and some bits of the Netherlands and Scandinavia. I would really like to spend some more time in Scandinavia: I was in Trondheim, Norway, last summer doing a keynote for the European Digital Libraries Conference and this was a fabulous experience. We stopped in both Copenhagen and Oslo on the way. Stockholm is also a fantastic city.

There are huge swaths of Europe I have never had a chance to visit at all: Greece and Italy most notably (and ironically, since at one time I knew both classical Greek and Latin pretty well; of course, I've forgotten almost all of that now from long disuse). I've been to Eastern Europe only a couple of quick times, and I'd like to see more of that part of the world.

Spain is another place I'd like to go back to, especially the beautiful city of Barcelona, where I spent a couple of days some years ago. While I've visited Australia (another wonderful place), I've hardly seen Asia, and I've never been to Africa or Central or South America. I haven't been to the Caribbean since I was a child. So I have a lot of the world yet to see.

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