"I don’t need the library, it’s too big, too complicated, and anyway, everything worth having is on the Internet," the bright eager undergraduate answered the ancient faculty member who recommended using the library.

"Anyway, the library’s catalog is on-line, and I can look at it if I need stuff," she concluded.

"But maybe you’ll need one of the real books that they have in the library," the old professor suggested.

"Maybe," she conceded, "but probably not, and anyway, if there's a source on line, I'll always use it before anything in the library." (1)

Conversations like this appear with increasing frequency among academics bridging the generational divides. Students increasingly see the library as mostly irrelevant, while faculty and librarians of a certain age cling to the security of an authoritative collection and familiar classification systems. Brought up on the web and the endless flow of marginally organized information that is CNN, MTV or ESPN -- a flow that makes almost no distinction between the important and the trivial, fact and speculation, authority and gossip -- students have little patience with the formal organizational structure of the library and the authority of the librarian.

We, whose introduction to libraries preceded the computerized card catalog and thus truly obsolete dinosaurs of the emerging digital age, live by a hierarchical information model. We think of information as organized and structured taxonomies of sources; we understand the difference between government documents and rare books, between the US history and Latin American history sources, and we expect to find these materials in their appropriate, separately structured locations in our libraries. We think that science and art, business and literature inhabit different information spaces. Educated in a world dominated by the physicality of libraries, from the neighborhood public libraries to college libraries and the great international research libraries, we think of information as residing in a particular place.

I know about the New York Public Library, the Lilly Library, the Bancroft Library, the Nettie Lee Benson Library, the Library of Congress, and the Bodelian Library. Each one is in my imagination as a physical place with its own personality that tells me what sources I can expect to find within its walls. I have a mental map of each one’s physical layout, a
Academic Libraries in a Digital Age

memory of its organizational peculiarities and cataloging quirks. The advent of the computerized card catalog did not
disabuse me of this mental map for these digital artifacts simply reproduced in a more convenient way most of the same
information that resided on what now appears charming and quaint library cards.

To my students, this recitation is as picturesque, decorative, and ultimately useless as the artifacts scattered about the
restaurant chains of America, the washboards and kerosene lanterns, the Chew Mail Pouch Tobacco signs, and the other
impedimenta of a lost age. They indulge my reminiscence, for after all, I will give them a grade, but I can see in their eyes
the same bemused tolerance I gave my grandparents when they talked about the procedure for hand cranking their Model T.

Nonetheless, for all of the digital progress we have seen, this generation and the next (and in universities the time span for
generational change is four to six years) will continue to find that libraries remain imposing buildings that house relics of a
past age. These library monuments already serve as places to study, places to get online at a computer laboratory, places
for the social rituals of female-male bonding that constitute so much of college life. Some students pursuing difficult
projects will ask a librarian for help, others will use reserve books forced on them by old fashioned professors, and
advanced graduate students may actually recognize the value of the materials collected and managed within their
university's physical library.

Yet the activity of the traditional library takes place within uneasy hearing distance of the current trendy mantra
anticipating the total digitization of human knowledge, whatever its original form (print, manuscript, picture, sound, or
digital representation). The library, we hear, is pretty much over unless it can remake itself into an academic Yahoo, an
intellectual Google, or some other competitive hyper-textualized, multi-threaded, linked, digital resource.

What are librarians to do and what should their universities think?

For one thing, we stopped building the buildings. In most universities, this aversion to physical library space began in the
mid 1980s at least and grew into a full-blown phobia by the end of the 1990s. Talk to a university president about
expanding the library, and you get this conversation.

Laments the librarian, "We need more library space, the books are filling our existing space and the patrons have no place to sit and study or read. We will be out of space by June two years hence."

"How much new space do we need?" asks a cautious president.

"Oh," says the librarian with confidence, recounting the results of endless planning committees and design workshops, "x-zillion square feet at multi-hundred of dollars a square foot. After all, library buildings require good air conditioning, strong foundations, special shelves and lighting, and lots of security."

"So, this is what, $80 million, $100 million?" asks the president, now fully alert.

"Something on that order," responds the librarian.

"And this new space," the president asks, "How long will it be adequate for the library's needs?"

This honest if foolish librarian responds, "Oh, until the time the building is built and occupied, then we'll need to plan for more space."
Desperate to exit this conversation, the president asks, "And how much of the collection housed in this space is used in any one year?"

"About 1/3," reports the still honest librarian.

Seeing an escape route, the president proposes, "Let's put the unused 2/3's of the collection in a warehouse and get it when someone wants it. Then we won't need the new space."

Familiar with the ways of university politics, the librarian admonishes the president, "Oh, but the faculty won't like it. When they want a book they want it now, and they want to browse the stacks."

No amateur in university politics either, the president counters, "OK, I'll take the library building plan to the faculty and ask the following questions and we will see what the faculty think."

Herewith the questionnaire to the faculty:

"The University has $80 million in construction funds. Which one of the following projects should have the highest priority?

A. The Library at a minimum of $80 million
B. A science building at $30 million
C. A general faculty office building at $20 million
D. A classroom building at $20 million
E. Renovation of our old space at $10 million
F. All of the above except for the Library building"

Recognizing defeat for the moment, the librarian begins planning to expand remote storage. We do not build new library space much anymore unless for computer centers, for computer labs, for classroom and seminar space, or for study halls. The books go into remote storage, the computer catalog lets us recall them on a 24-hour or better turnaround, and complaints about this policy barely rise to the audible.

Every year I take my students in an advanced history class to the library for a show and tell. You might think they would know where it is and how it works, but in fact, for many, it is new news. Sure, they know where it is, they have been there to get a reserve book or meet their boyfriend, but the book part of the library is not much relevant to their academic lives. We do the show and tell, and each year it has more and more computer content, more and more computer indices, digitized finding aids, digital representations of journal articles, online access to newspapers, whatever you can imagine.

My librarian friend, who does this for me every year, now brings in at least two physical items. One is a periodical index (bound, real pages, small print, authoritative, structured) and one is a government document of some kind. He does a great job, and when it is over, some of the students come up and look at these physical objects, with the curiosity of the museum visitor. "What quaint things," they seem to say, but out of respect for my white hair, they do not speak these thoughts aloud. They pick the books up and handle them, as you would look at a hand powered wringer washer in the local museum: interested, curious, but not relevant to your daily life.

Then they go on with their work, on-line, on the Internet, each year the density of their digital experiences and abilities greater and greater, and their familiarity with the physical library less and less.
Do they read physical books? Of course they do. They buy and read paperbacks of all kinds, they read the student newspaper, they buy how-to-do-it and self-improvement books. The library, though, that is something else again. It is there, it can be useful, but it is not at the center of their understanding of knowledge and information. (3)

What then, does this mean for the university library, the academic librarian? Is it the end of the world, as we know it? Is the digital revolution likely to eliminate the art, craft, and science of librarianship? Not likely, but it certainly has and will continue to change it. Fortunately, it is expensive to digitize the world. The rate of change previously limited by bandwidth (the capacity for storing and manipulating digital representations of knowledge) now faces the barriers raised by the cost of converting the old touchable stuff into virtual digital stuff. Politics and power also create their own barriers.

The digital landscape belongs to no one and everyone. Property rights to digital space hardly exist because anyone can create new digital territory. I have a virtual server located somewhere (I'm not sure exactly where). I own two domain names, each one creating completely new digital space. It cost me perhaps $50 to set this up, and I pay about $90 a month to maintain this reasonably sized plot of digital real estate. This space not only belongs exclusively to me, but it came without limiting anyone else's ability to create more digital space. Since digital real estate, unlike the limited physical land I grew up with, is close to being a free good, it complicates the relationships of power and authority, all of which depend on the management of scarcity. (4)

Books and their publishers represent this power and authority. We deliver books to the world within a system that centralizes and controls the distribution of intellectual content on behalf of various powerful groups. We like to think that this is all done in the service of true and unfettered knowledge but of course that is not so. All physical book and journal publishing involves gatekeeper processes that enforce certain standards of content and marketability on the production and distribution of content. Many people and organizations live off this gatekeeper function, the basis of which is the scarcity and high cost of intellectual bandwidth. Paper, printing, binding, distribution, and the rest of the physical process of information production serve to limit the bandwidth for delivering content. Librarians also limit the content available to their clients under the name of collection development (another gatekeeper function) selecting the physically available subset of information accessible to their publics. Much effort, expense, and rationalization goes into this rationing process

The digital imperative changes the structures of cost and power that underlie these transactions. The cost of producing a book on the Internet is close to zero (leaving aside the cost of generating the intellectual content). I put two books on line, both of them out-of-print, both previously produced at considerable expense by reputable houses, sold to tiny audiences, and surely resulted in significant financial losses to the publishers. I put them on line for free, with the exception of the sweat equity of my own work, a minimal investment compared to what it would have taken me to produce these books in physical form. They now live on my digital real estate, they cost me very little to maintain there, and they remain available to anyone at any time for no cost. I am my own gatekeeper. (5)

It is the physicality of the information medium that made possible the rationing, gate keeping, and in the case of for-profit scientific journals, profit gouging that are key characteristics of the paper-based information age. With the dramatic decline in the cost of bandwidth (disk drives, internet access, personal computers, and other forms of digital transmission and storage), the threat to the monopoly of physical media grows exponentially. We only need to look at MP3, Napster, and their offspring to recognize the collapse of old rationing paradigms with their attendant power and authority systems. (6)

So where, in this wonderful new world, is the library? We do not know for sure. Many smart people work overtime to translate traditional library strengths into digital age essential resources. We see the mega catalog movement in search of the virtual union catalog. These efforts take the core finding aid of the library and attempt to construct a monster computer searchable file that will contain records for all the media recorded in all the library catalogs of the known universe. Well, I exaggerate slightly, but not by much. Like most such visions, the critical challenges come from the most mundane of human foibles: territoriality and resistance to common standards. Librarians have many standards, but the wonderful human need to make common things our own causes each library or librarian to modify or use the standard in slightly
different ways. These differences, not easily reconciled, create a significant challenge to the implementation of the megavision. (7)

Another effort seeks to digitize unique subsets of the physical assets of libraries or groups of libraries. Rare books, photographs, manuscripts, and similar special collections yield to digitization and publication within the infinitely expanding space of the Internet. These projects leverage the unique physical assets of individual libraries into unique digital assets, thereby preserving the identity and presence of the institution in knowledge space. (8)

Others, observing the rise of the portal boom, seek to transform the library into an information utility for a specific set of customers, usually faculty, students, and staff of the academic institution. With exactly the same purpose as Yahoo and the Microsoft Network, the library portals create a central location where patrons begin their search for the information that their lives require. Successful library portals must compete not only against the commercial portal sites but also against other portals within their own institution for athletic programs, alumni associations, or the university’s own homepage. (9)

Then we have the dynamic and competitive business of electronic library catalogs. I have looked through the sites of many of these companies. They all promise to serve us better, solve our technological problems, and adapt to any changes in the electronic universe. They promise low costs, user friendliness, and the ability to do everything and anything you might want with the catalog resources of your library, and they announce the capacity to link your systems seamlessly to everything on the net. (10)

How then does a library, in real time and with real money and serving real people, deal with infinite possibilities of the digital age? (11)

The digital world has forced us to think somewhat differently about the value of the library. Once we valued the library for the duplication it could sustain, as represented in the annual ranking of library volumes and acquisition expenditures. These data points told me that the book I wanted that I knew to be in the University of Illinois library was likely to also be in the Bancroft Library. It told me that most of what I had used as a graduate student in New York, I could probably find in the UCLA library. Physical duplication of common titles proved to be the touchstone of library quality. Indeed, I can still remember the impressive repetition of the major university library acronyms in the entries of the National Union Catalog. Those eight or ten libraries whose initials always appeared under every citation were surely the best for they duplicated the most.

In a digital world, no one cares who has the copy we find on line. The existence of duplicate copies gives no one an advantage when the digital copy is infinitely reproducible. If I find the journal article in JHU’s Project Muse, I do not care if it also exists in my home library or if it exists in Berkeley’s library. I have it if Project Muse has it. I only need the library to facilitate my access to this digital resource.

The key to this shift in emphasis, of course, is the recognition that physical copies of expensive but common artifacts have little value if a digital version exists. The trick is to find the digital version, and to find all those that are like it, or related to it, or suggestive of it.

Who among us has not used Google or Yahoo or Altavista? For us old people, these services are a miracle and a threat. Where are the subject headings? Where is the authority that classifies this as Latin American history and that as Latin American literature? I search for Bolívar, and I get endless amounts of stuff. Some junk, some interesting, some unanticipated. I browse around, I find serendipitously wonderful things about Don Simón, but when I am done, I do not know if I am done. What did the search miss? What did I skip over in skimming through the endless Bolivian items, most of which have nothing to do with the historical Bolívar of my work? The Internet search engine is a miracle, but it also finds more junk than stuff. I go to Project Muse, I search there and get a big list of articles, some relevant, some not, but again, unstructured, free form text. I love it; I worry about it.
Librarians should be in this game in a big way, and many are. As the Internet becomes so large an information space that it requires systematic and authoritative management, the librarian's skills, properly translated, will become crucial for ensuring me that I do indeed have all that I should on Bolívar. The ownership of the physical space or the artifacts matters much less than the ability to find the right digitally stored knowledge. I do not care where Bolívar's Carta de Jamaica is stored; I care that I can read the authoritative annotated text on line. (12)

Will all this become free? No; money will change hands, and probably more money than we now spend on libraries, but we will spend the money differently. We will spend it on hardware, software, and the gurus who manage them. We will spend it on translating content into digital form; we will spend it on search engines and the research that builds them. The construction of these tools, currently in the earliest stages, will require us to waste much money. We will build the tools, anticipating one kind of bandwidth and capacity and as soon as our tools appear, the bandwidth will expand to such an extent that we will need to begin again.

Libraries and librarians will do two things most. They will maintain and manage unique collections of objects (sheet music from Hoagy Carmichael or the Letters of Thomas Jefferson), many of which they will digitize and deliver into the world. They will provide their constituents with help and assistance, as they always have, in finding, evaluating, and understanding the universe of information that the digital world has provided us. They will spend less time and energy developing collections and much more developing on-line guides to subjects, topics, and resources. They will buy fewer materials. No one will care what volume of material each library owns, only what volume of materials each library's clients can access. (13)

Can we predict this development, its pace and content? Probably not. But let me offer you Lombardi's Rules for Digital Survival created from 30 years of engagement in the academic computer revolution.

1. The objects are not as important as the content. Collection development becomes access development. Access to content is the primary mantra of all library work. Geography becomes increasingly irrelevant.

2. Helping clients find resources in a digitally chaotic world is the first priority. Digitizing the rare book collection might be the second.

3. If a vendor promises you seamless access and modular compatibility with any future developments, expect expensive upgrades.

4. If others spend money on a similar project, let them finish before you start yours. Being first to invent large scale digital library projects is for those with money to lose, tolerant customers, and tenure. If it will take ten years to deliver value, let someone else invest in it.

5. If someone else has a service you need, buy it, do not invent it. If someone has 80% of the service you need, buy it; do not invent it.

6. Nothing currently defining the Internet will remain recognizable after 5 years.

7. There is safety in numbers; join consortia and urge others to take the lead.

8. Invest in unique products only when you have a comparative advantage and someone else pays for it.

9. For the next ten years, if it works well, is reliable, and you know how to use it, it is obsolete.

Notes

http://www.dlib.org/dlib/october00/lombardi/10lombardi.html (6 of 9) [08/26/2003 12:33:41 PM]


[9] Suzanne Cohen and colleagues present the Cornell University version of this movement in "MyLibrary: Personalized Electronic Services in the Cornell University Library," *D-Lib Magazine* (6:4 April 2000) <http://www.dlib.org/dlib/april00/mistlebauer/04mistlebauer.html>. For another version, see the site at MyLibrary@NCState at <http://my.lib.ncsu.edu/>. For an excellent example of an athletic portal see the Stanford sports portal at <http://gostanford.fansonly.com/>. An alumni portal for the University of Florida that represents a shell system applicable to many universities with similar functions appears at <http://zgators.myway.com/features/home/default.asp>.

[10] An example from Innovative Interfaces *Millennium* system reads: "Innovative Interfaces partners with libraries worldwide to provide Web-based information technology solutions to both patrons and staff. Innovative's *Millennium* system is a Web-based, open-platform system that offers the best and most comprehensive functionality of any library automation software. Its Java™ interface offers staff and patrons an intuitive, easy-to-use, and platform-independent system. With its multi-tiered system architecture, object-oriented design, and complete scalability, Millennium provides full, integrated functionality; its core modules constitute a time- and library-tested automation system that can be implemented in every type of library. Innovative prides itself on its adaptation to and adoption of new technologies; it offers libraries industry-standard software solutions that are platform-independent, Web-based, and intuitive, as well as outstanding, industry-leading services and support. *Millennium* includes modules unequalled for quality, value, functionality, and ease of use. Innovative offers a full suite of Millennium modules designed for a variety of functions that can be implemented in every sort of library." <http://www.iii.com/products/>.

Laura Zick offers a compelling view of librarians and intelligent software collaborating to serve patrons in "The Work of Information Mediators: A Comparison of Librarians and Intelligent Software Agents," *First Monday*, (5:5 May 2000) [http://firstmonday.org/issues/issue5_5/zick/index.html]. For an example of a collaboration that produces a guide to new materials appearing on line see *The Scout Report* [http://scout.cs.wisc.edu/]. This review appears not only on the net but also in various specialized email editions sent to subscribers for free. Their intro blur highlights the librarian's role: "Surf smarter, not longer. Let the Internet Scout Project show you the way to the best resources on the Internet -- then you can choose what's best for you. Librarians and educators do the filtering for you, reading hundreds of announcements each week looking for the online resources most valuable to the education community." (emphasis added).
