# Long Live Old Reference Services and New Technologies

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ABSTRACT
REFERENCE LIBRARIANS MUST TAKE THE LEAD in the new era of information. It is not enough to follow traditional patterns of service. Reference services technology has passed its first stage of insuring more accurate, rapid delivery of information. The second revolution, which is underway, will improve on both acquisition and retrieval of data. It is necessary to fit new technologies into traditional reference service goals. The human should be given first priority. A new approach to many methods of service is required.

## LONG LIVE OLD REFERENCE SERVICES AND NEW TECHNOLOGIES

The appropriate advice to offer any reference librarian about time present and time future can be summarized briefly. First, have faith in yourself and the therapy of humor—although, as Dr. Johnson observed, when you reach seventy-seven it is time to be earnest. Second, analyze all the banal oral, twisted print, and rapid digital advice about how to enhance reference services. This will end in irksome boredom, but it is excellent brain exercise. Third, hold tightly to present practices until someone actually demonstrates the new technology works and will make life effortless. Fourth, don't assume someone over thirty can't learn anything. And if under thirty, don't dismiss the elderly librarian as a friend of the original library commander Dewey. Fifth, after a frustrating day, never quit. Take a cold bath.

There is much more to be said, but anyone sick of gratuitous guidance should return to Proust, a bit of madeline and a cup of tea. Others may proceed to a few additional palpable thoughts about the fairest section in the library.

The reference library of today is a technological utopia, a democratic cultural oasis for idiots and intellectuals. In a land where more citizens know the lyrics of a commercial than those of the national anthem, the reference section is of inestimable value for seeking trivial bits of information. At the same time, the mentally engaged may turn from the frivolous to spend years researching the life of Francis Scott Key.

The democratic nature of reference work is well known, and it is presumptuous to labor the obvious. Not so clear is the character of technology and its prodigious effect on the changing role of reference services. The reference librarian is now an information specialist whose position advances in esteem as gradually as his or her salary. In the private sector online impresarios have cranked up lucrative (if not always useful) reference sites. The intellectual problem is how to balance the best of the new technologies with the daily, human needs of individuals. The primary argument is simple enough: Reference librarians should not follow the parade down the information highway: instead they should be in the lead. They must command the technological innovations to help rather than frustrate and confuse the public.

There are numerous ways of moving from behind to ahead. Most librarians are well aware of the possibilities, few of which are revolutionary. All make practical sense. Some libraries now have taken a commanding position in the community. Others are modifying present services to improve public use. The 2001 budget of the New York Public Library devotes an additional $10 million to books and to extending hours for library services. The Alabama Virtual Library gives all state residents free online reference access to sources from indexes to directories. Users may seek the information in library, home office, or wherever they have computer access. California's two largest digital libraries—the California Digital Library and the Library of California—are in step with Alabama by offering statewide online reference service 24 hours a day, 7 days a week. And at the State University of New York at Albany, as in most larger academic libraries, computer clericals (rather than librarians) handle the day by day queries about how a computer functions. Even a cursory glance at library literature demonstrates the imaginative pioneering ideas of working reference librarians.

Cheering on the troops is easy enough. Not so easy is simply trying to keep up. Although Watson-Boone (2000) confines her study to academic librarians and their insistent involvement with research, reference librarians in any type of library would agree that, "In an information-driven world, keeping abreast of new information and knowledge, as well as of procedures for handling them, is part of living and working" (p. 86). Fail to move with the times and what happens? Disaster, in the view of some. Campbell (2000) wonders whether it's too late for reference services to survive: "I honestly do not know. What I do know is that if they are to survive, you will have to transform them for the new age and prove their value" (p. 227).

Bosh. Reference services will not only survive, they will flourish long after today's technology is obsolete.

Harmon (2000) notes that "dozens of companies have announced plans to flood the world with hand-held devices including various mutations of cell phones, MP3 music players, digital cameras, e-mail pagers, Web browsers and geopositioning systems" (p. WK6). Then along comes ebrary.com, which promises to replace photocopying by printing out on-line at a modest cost (around 15 cents per page) most periodical articles or parts of books. Will it work? Like scores of other new technologies, it depends on numerous variables, but for the time being it is worth investigation by reference librarians.

The difficulty is to keep up with almost daily technological advances. In the race, the librarian may forget the traditional role of reference services, not to mention previous peaceful days. Carol Tenopir, the articulate reporter of advances of online reference developments, from time to time draws back to thoughtfully examine the role of the new technologies in libraries. Her conviction, as a librarian working day to day with readers, is that "many of the major goals of librarianship and library services are fundamental and change little over time" (2000, p. 30). She has her own list of "fundamentals" including the pledge honored by all reference librarians, "to provide access to the right information at the right time. Given the tremendous increase in the amount of information published, coupled with the increased costs of materials, this goal poses new challenges" (p. 30).

## TIME PRESENT

In the past decade there is no question the new technologies delivered an impressive number of options to provide access to the right information at the right time. A full-text database lashed to a moderately refined online index can cut the time required to find a citation about rabbits or the meaning of life into seconds rather than hours, days, or a lifetime. One can search information from the world around. It's possible to find in a moment or two a list of books by X or Y author from the Library of Congress; not too many years ago one had to take a train to Washington to find the same data. Library use of technology has an impressive record. What library would willingly give up e-mail, the miracle of the Web, or the increasing number of online reference works?

The promises of online reference services are being fulfilled. Janes, Carter and Memmott (1999) report that, of 150 academic libraries, 97 percent have Web sites and 45 percent offer digital reference services. Despite the cost of the new technology, "News of the Year" (1999) notes that: "nearly 7 out of 10 librarians report not having to cut back in other areas in order to handle increased technology costs. Of the 25 percent who did have to cut back, the majority cut their materials budget" (p. 5). Gullberg (2000) breaks down the way money is spent in academic libraries. Most of the

budget goes for "journals (50%) with only about 32% . . . spent on the good ole book. . . . That makes 82% spent on print. The rest of the money goes to online resources (6%), gateways (5%), CD-ROMs (2%) and other (5%) . . . only 28% of librarians have bought e-books" (p. 24). Similar figures for other types of libraries indicate the percentages are equally impressive, particularly as the number of electronic libraries increases each year.

## Too Much Information

Leadership consists in making decisions others are reluctant to consider. Reference librarians can take (and, in fact, have taken) in many libraries the first step by offering various levels of information to users. This is true particularly for those who rely on the Internet and a billion or so pages of information. Given access eventually to every word written, printed or, yes, spoken, how many people are going to tune in to such services, online or not? In his classic story, "The Library of Babel" Jorge Luis Borges (1962) describes the library where all information is stored. The dream turns into a nightmare: the library is so large that people are unable to find answers. The Web is the Babel library in the making. There is one ultimate solution. Critics boast that the worst movie of the century, *Battlefield Earth,* based on an L. Ron Hubbard potboiler, solves the Babel-Web problem. A machine will beam the wisdom of the ages into the head of any interested person. Blink an eye and the information of the ages is available. Until then, most people will have to rely on reference librarians.

The understandable second thought about the joys of endless streams of information is evident in numerous books. Jeremy Rifkin (2000), from the Wharton School's Executive Education Program, argues that the computer has turned consumers into ciphers whose very lives are wired. The ultimate losers are the individual and the open society. The winners will be the few corporations that control information and entertainment, as well as people who are adjusted to a wired society where being disconnected is close to death. Groups such as The Turning Point Project (2000) are fighting this kind of progress and logically oppose putting computers ahead of teachers and librarians. Stewart Brand (2000), an early advocate of placing humanism ahead of technology, asks the rhetorical question: "Is technology moving too fast?"

None of this matters. The rapid journey into the future will not be stopped. Some may get off the information highway, but none can prevent it from crisscrossing the globe. The real test is how to harness the new machines to benefit, rather than injure, individuals and society. Reference librarians are doing their bit.

Sometimes less is best, particularly when seeking an answer to the average query. The notion that the reference library should give users undifferentiated access to a vast number of reference works, both on and offline, is an error. Well, at least for about 95 to 99 percent of the people who approach

the reference section. The 1 to 5 percent of researchers delving into a complex business, scientific, or academic problem do require an open highway to as much data as they possibly may employ in their work. Others, from the ubiquitous student, social security maven or just plain John or Mary Q. Public, are looking for a simple, direct answer to a usually far from intellectually challenging problem. This means digging about for two or three citations. Parents, too, often seek articles or a short (very short) book that will get their child through one grade to another and on to Harvard.

The paradox is evident. Less is best when less is equated with judiciously selected resources for the ubiquitous average reference-services user. Conversely, where needed, the information of the ages should be available in the same library. It is a matter of matching the basic question with the basic source.

Like all major vendors and most of the search engines, DIALOG follows the "less is best" pattern. The DIALOG solution is to divide their 400–plus databases into discreet subject units (from business and technology to science) and "select," which is a simplified method of searching a limited number of sources. The search for online relevance is a major project. Hundreds if not thousands of articles have been written on the subject, as well as books, research reports, etc. Voorhees (2000) and Cosijn & Ingwersen (2000) offer only two examples of the technical, usually dense language involved in such papers. Be that as it may, little real progress has been made in the electronic struggle to equal or surpass the librarian's evaluation of what is relevant.

In the ideal situation, the reference librarian finds the answers for the user, rather than showing the user how to locate information; thus the information overload problem is answered immediately. Where this is not possible (although it must be, if reference services are ever to reach professional status) then the reference section should divide online and print materials into two or three subsections. One would serve for fundamental, for the most part traditional questions. The second section would offer simple Web surfing where the user is there more for entertainment than for information. The third for the advanced researcher. A divided Web page or other guide or guides can accomplish much of this. The result: faster, more satisfactory use of services by the vast majority of users.

## THE NEXT ADVANCE

Once the librarian has solved the layperson's information frenzy there is time to consider a technological advance. The new hope is to refine information sources and improve the ability to pinpoint specific data. If this happens, and the prediction is that it will, then searching will be more accurate, more reliable, and certainly more satisfactory for librarians. Again, though, watch for the spider in this Web of good things. In the drive for the perfect search some believe there will be fewer companies, fewer alternatives for

searching patterns, and certainly less competition. Basch (2000) predicts: "By 2005, two of the current big three professional quality proprietary online services will be toast" (p. 81). She suggests this will eventually assure that "the entire Web—or a significant chunk of it—transforms itself into a single, humongous, seamless, searchable database. Bots routinely fulfill most common online queries, interfacing with users via natural language voice commands as well as keyboard input" (p. 81). Will libraries be in a position of begging access from a monpolistic enterprise when there are only one or two sources of entrance to the Internet and other information carriers?

In the choppy political-technological sea the reference librarian must take a part in assuring free access to the information highway. Leadership presupposes an active involvement with local, national, and international political decisions. Hardly news, but library administrators are advised that reference librarians must have the free time and the funds to take part in vital discussions.

## WASTING TIME TEACHING AT THE COMPUTER

Just whom is the reference library serving? Technologically, it is possible to assert that the world is the library's clientele. Realistically, at least if the less sophisticated searchers are considered (and this is a good proportion), the reference librarian has to pull up what is possible and match it with what is desirable. This takes distinct forms.

The primary role of a professional reference librarian is to help the user find what is needed. Ability to match the question with the probable source of an answer probably goes back 5,000 or so years in Sumerian and Egyptian libraries, such as they were. Technology certainly helps, but nothing comes close to the knowledge and skills of the reference librarian in making information matches. Beyond that, the librarian should be able to assist in evaluating the potential use of a reference work, a specific paragraph, a periodical, a database, etc., for the particular needs of the user. Again, nothing new. This is tradition at its best.

Unfortunately, in the mad rush to keep up, some librarians have shifted their focus from evaluation to technical computer instruction. Laypersons who avoid books, who naively believe all answers can be found quickly at the computer, have come to believe: "librarians are there for technical support" (Greiner, 2000, p. 88). It rarely occurs to a user to ask the librarian for actual answers, much less how to find what is needed west of the computer in the reference and/or general collection.

Should time fussing about the workings of a computer, and the insistent queries of less than sophisticated readers, concern reference librarians? No. Instead of taking the valuable time of librarians, computer use should be taught by probably better trained clerks or specialists hired just for that purpose. Only when the questions become complex and beyond the mechanical should a reference librarian be called.

A brief moment observing and working in a reference section indicates that the experience of one community college library director is not atypical. Grimes (2000) reports, "I helped a student find several biographical references, both print and electronic. . . . I was the first person to teach her that the Internet is not one source (as in 'You must have more than one source of information for this assignment'). I taught her . . . the Internet is . . . a stream of sources" (p. 281). Furthermore, it probably was a revelation to the innocent student to realize that print reference works are other sources, too.

Mort (2000) observes, "We librarians were chagrined to find that our users often preferred interacting with [the PC] to interacting with us. . . . They seemed to be getting *enough* without our help" (p. 99). One suspects the problem is a common misunderstanding. Users, particularly the younger ones, who are as familiar with the workings of computers as with how to find MTV, simply don't need basic help in computer functions. They do desperately need help with what the computer brings forth.

## EVALUATION AND SELECTION

The librarian's time is much better spent on first and foremost finding answers rather than diddling with instruction. Beyond that, teaching evaluation of resources is truly important.

In an online survey of 41 librarians, Stover (2000) found that "librarians tend to be pessimistic concerning the critical abilities of library end-users" (p. 46). Most reference experts take it for granted that few people are readily able to distinguish true from shades of truth to bias to lies. The hapless user should know he or she can turn to a librarian to evaluate a citation from *National Review* on the joys of business or on the National Rifle Association's views. The simple differences in editorial policy between *People Magazine, Reader's Digest, New York Times,* and *New York Review of Books* will give the student a better grasp of what information is about—a quality perhaps more useful than knowledge of how to feed a laser printer.

Passing on media evaluation skills earned through years of experience and education is a noble thing, indeed. Going over the mechanics of the quick march at the keyboard is necessary, but a horrible waste of time for a trained librarian. This is not the place to drag out arguments in opposition to bibliographic instruction and computer literacy, although instruction seem even less logical now that reference librarians have an increasing amount of work.

## ANSWERS NOT INSTRUCTION

Do most people—young or elderly, poor or rich, busy educated or couch potato—really want to know how to master information? Tenopir and Read (2000) found that in 57 academic libraries in the United States and Canada, "75 percent provide remote access in addition to in-house

access" (p. 241). At the same time, "students may be in chat rooms or surfing the Net at all hours, but few are likely to be searching research databases" (p. 245).

People who find amusement in the gyrations of million-dollar quiz shows and who pride themselves on labor-saving shortcuts to opening a peanut butter jar, don't want to take over from the librarian. They simply want answers. Proof? Ask any adult or student whether they would delight in having a librarian teach them the intricacies of finding an answer, or prefer that the librarian come up with the answer. Unfortunately, technology in the reference section has reinforced the Puritan notion that people must sweat to find answers. It may seem morally, ethically, and logically wrong simply to give them the book, the articles, the manuscripts, or whatever without requiring they first master an online catalog or index.

Being able to find it for yourself in a library is not part of a person's education—unless, of course, you want it. Then all bets are off and bibliographic instruction should move into high gear to help this minority. Librarians should not inflict instruction on those who don't want it.

The librarian should be a true mediator between the individual and the frightening amount of information out there. In most cases this means coming up with the answer, no matter how simple or complex or time consuming. Pointing the hapless user to a computer or an online catalog, or threatening bibliographic instruction, is simply not professional, and it is no way to earn respect. Those who think they can do as well in a library as the librarian are not likely to support the librarian.

What would be the outcome of the librarian assuming the professional role that common sense dictates? Looking forward 15 years, Basch (2000) points out that there will be easy-to-operate gadgets to find answers about stock quotes to sports scores. Where in-depth searching is needed among billions of pages of online data (in Borges's mythical library), then a trusted guide will be required: "Professional researchers (i.e., reference librarians) jockey like X-wing Starfighter pilots through massive, three-dimensional visual data structures. . . .These experts in data mining, information architectures, knowledge management, and institutional wisdom-gathering enjoy a social status equivalent to that of neurosurgeons and celebrity chefs and are paid as handsomely for their expertise" (p. 82). Starfighter pilots? Neurosurgeons? Just staying as an average library reference librarian seems enough.

## ASK JEEVES, OR A LIBRARIAN?

Taking advantage of the reluctance of some reference librarians to answer rather than instruct, commercial organizations now offer a poor type of reference service where the emphasis is on locating what is needed for the user. Librarians must meet this challenge, weak as it is, and go on to demonstrate what professionals can offer the public.

As the New York Public and others recognize, libraries should be open

seven days a week during hours when people have free time, not when it is convenient for the library. Beyond that, libraries must offer 24–hour on-line answering services. Actual answers, not how or where to find the answer, should be given. Patterns are now well established by commercial reference companies from Electric Library (www.elibrary.com) to Ask Jeeves (www.askjeeves.com) to the latecomer Webhelp (www.webhelp.com). Combining fee-based and free response to queries, they are gaining popularity. Drawing on data from the National Center for Education Statistics, Coffman and McGlamery (2000) report that Ask Jeeves had 485 million queries in 12 months—"over 70% more than the 284.96 million reference transactions handled by all public libraries in the United States in 1996" (p. 66). Other information firms report similar results.

Reference librarians have to be better than the growing number of commercial online answering services. This is not difficult. All of the commercial swings at answering questions are little better than search engines, although with the twist that if the user pays an average of $10 a month the service will e-mail responses to specific questions. Results offer the same satisfaction as the several blind men trying to describe an elephant by enumerating its various parts. What may take minutes to hours working with these grapeshot approaches to information usually will require only a few minutes of a reference librarian's time.

Over 3,000 Web pages put up by libraries do, to a limited extent, meet head on the challenge of Ask Jeeves and company. Sophisticated systems are about to. See, for example, the University of California at Riverside "Infomine" (http://infomine.ucr.edu) which offers links to 8,500 or more valuable resources available mostly for free. See, too, Michigan's Internet Public Library (http://www.ipl.org/ref) and the Michigan Electronic Library (http://mel.lib.mi.us). Librarians have other favorites. The problem is that these tend to be local and to lack the support which would bring them up and past commercial ventures. The point is to press home this service to the public by offering 24–hour, sophisticated searches as hinted at by the commercial firms. Why not have reference librarians at hand to answer e-mail requests? Better still, why not suggest the telephone? Why bother? Aside from the duty to offer better service to the poor public, this online full reference service once again makes the librarian indispensable to everyday living for millions. With that comes natural leadership.

The 24 hour/7 day replication of commercial services by libraries is under study and summarized by Coffman (2000) as well as elsewhere. The catch is cost. While some suggest that users pay regular fees for the added services, to charge fees is a great error. The strength of library service is that the tax-supported institution offers free service for all. To abandon this traditional role is to abandon support, when it is most needed, from individual taxpayers. Complicated, expensive, and necessary, the 24/7 system must be a part of reference services in the United States and globally. If not, one

might well ask the rhetorical query put by all reference librarians, including Coffman (2000): "But what happens to our patrons if we abandon them to commercial concerns? And what happens to our profession?" (p. 67). The answer need not be given if the librarian is out in front of commercial efforts—if the librarian is a leader, not a follower.

## REFERENCE REACHING OUT

The sophisticated online library presupposes computer availability. Not so, at least for many. Minorities in low-income areas are less likely to have Internet access. Hardly a surprise. William Kennard, chairman of the Federal Communications Commission, points out the deep digital divide between the haves and have-nots. In an interview the first African-American FCC Chairman points out, "If you look across the nation, 94 percent of homes in America have telephones. When you look at people living on tribal lands, the average drops below 50 percent. And in some areas . . . telephone services is down at 20 percent. . . . In an era of wireless technology and satellite technology, that shouldn't exist" (Labaton, 2000, p. A12).

Several facts will make poverty here and abroad more of a danger to middle-class well being than most appreciate. Ironically, the voice of the poor is heard more loudly due to rapid dissemination of information among the poor's leaders. Where there is a tremendous imbalance of wealth, revolution is right around the corner. A world of great inequality is not only immoral but poses ethnic, religious, and political trouble among those no longer willing to cooperate with duly elected leaders.

Redirecting some of the reference services to the 20 percent or more who are at the bottom of the American economic scale is a practical way of bringing humanism into the library. The reference library is truly an oasis in this land of haves and have nots. In even the poorest district there is or should be free information service, including the horrors and joys of the Internet. The tragedy is that where the information-entertainment qualities of a Web page may be most needed, they are least in evidence. A large urban library in an affluent community will rightfully boast dozens of computer terminals and access to most of the world's information. Less fortunate neighborhood libraries are begging for funds to tap even minimal resources.

What's to be done? Answer: more federal and local funding, made possible by insistent library and user demand. The solution is by way of a cliché. Not so evident, though, is that time worrying about new technologies might better be spent plotting ways to serve the poor.

## THE E-BOOK QUESTION

Confused and often overwhelmed by the new technologies, reference librarians, as well as their fellows, sometimes give up leadership and decisionmaking in favor of following the misguided crowd. Science and technol-

ogy move on regardless of humanistic or social objections to their progress. Sometimes, though, they not only bypass the needy but also take the higher-income classes up a dimly lit technological alley toward a fast approaching train. Grimes (2000) summarizes what most librarians realize: "The Web's gee-whiz period is over. . . . Does taking [the Web] route make sense for everyone? Not at all. . . . It takes time and effort to figure out what's worth-while and what isn't. The Web is still in its infancy. . . . But if Web sites are to sell the average consumer on their virtues, they have to be as good or better than their alternatives" (p. 19). Few librarians who lead the confused charge into the future want to be considered traditionalists. Tomorrow is all.

An excellent example is the reaction of some to the e-book. Enamored by the lure of advertising and the growing need to stay at least two or three laps ahead of potential demand, some libraries seem intent on forging on with e-books. Rogers (2000) reports a "burgeoning courtship between li-braries and electronic books [which] seems to be on the verge of becom-ing into a full-blown love affair" (p. 23). He supports his opinion by the number of discussions at various library conferences. Rockwood (2000), the editor of *Choice,* is typical. He exclaims in an editorial that the e-book " will revolutionize the distribution of information" (p. 1566). He adds, "The only question is what this means." Answer that and the door to fortune swings open. The difficulty is that no one can; that is why librarians should hang back and not, as Rockwood suggests, rush forward. Rockwood is support-ed in a substantial discussion by Bartlett (2000), who hints that *Choice* soon will be reviewing e-books.

With Stephen King's public relations stunt of putting his novella "Riding the Bullet" online for free, librarians bit the bait instead of the skeptical bullet. Schneider (2000) reports that at a Public Library Associa-tion meeting shortly after the King triumph, "many of us who'd had a wait and see attitude understood intuitively that e-books have finally arrived" (p. 88). Pushing this mistaken conclusion was the fuel behind the whole e-book library drive: "There are many libraries circulating e-books—but act fast, and you're guaranteed to be first somewhere" (p. 88). The desire to be "first somewhere" has been the primary e-book motivator. Weisberg (2000) pre-dicts "Despite the fact that hardly anyone uses an e-book yet, the drumbeat of ventures and issuances is breeding alarm . . . that serious reading in the future may no longer require [print]" (p. 23). This Nostradamus just hap-pens to be chief political correspondent for the online magazine *Slate.* Beating the drum himself, he pushes a technological device that now seems cold before it even became economically warm. Librarians may wish to in-vest a few dollars in early e-book readers and electronic contents. Some will be curious to use one in a library—and just as fast to leave it there. Beyond that, the e-book is a waste of money. The books are expensive, for both the reading device and the electronic text itself. Paperbacks cost a fraction of the e-book. Paperbacks may be stuffed in a pocket or purse or read com-

fortably in bed. E-books are difficult to read for any length of time and, in fact, take the same concentration as staring at a computer monitor. Readers refuse to be taken in by a still to be tested technology. Let's hope librarians soon follow their wiser readers.

In the title of his novel on English upper-class life, Anthony Powell (1976) explains a basic reason for treasuring the printed volume: *Books Do Furnish a Room.* Fellow author John Updike (2000) picks up the theme: "Shelved rows of books warm and brighten the starkest room." He adds he prefers print over digital because: the book offers sensual pleasure; "one's collection comes to symbolize the contents of one's mind." In comparison "any electronic text-delivery device would lack substance" (p. WK15). Furthermore, the e-book will "be outdated in a year and within 15 years as inoperable as my formerly treasured Wang word processor." Librarian Leonhardt (2000) agrees, "betting on human nature to reject the electronic machine in favor of that original handheld device, the codex" (p. 85). The assumption that genuine run-of-the-library readers are interested in e-books is usually made by nonreaders, or at any rate those whose reading is limited to technological manuals and threats from future gurus.

Even the most optimistic e-book fans, such as Ardito (2000), admit that "e-publishers have a long way to go before they completely satisfy print book lovers. . . . We need sufficient content to make the industry appealing. Pricing has to be attractive. Portability and comfort are necessary. . . . And most important, we must be reassured that our privacy will not be invaded" (p. 39).

Technology has a habit of burying its dead quickly and moving on. Mann (2000) believes the eventual e-book success secret may be "e-ink," a process under study by major corporations from Xerox to 3M, which will simply duplicate wood-pulp paper but in such a way that electronic messages can be stored and transferred to standard size sheets, not of paper, but of a type of plastic. Fascinating, yet hardly new. The Romans and others had bound wax tablets where text could be inscribed, erased, and inscribed over and over. The new way may be more efficient, but Alexandrian librarians knew the basic mechanics.

## THE ONLINE BOOK TRIUMPH

If the hand-held electronic book is likely to fail, this hardly means online books will meet the same fate. On the contrary. The true question reference librarians should consider, instead of worrying about e-books, is what type of reference book will be replaced by online electronic formats. Eventually all but a few much used reference titles will be available only online. The present CD-ROMs, as well as the traditional print, will disappear. The new format is economical for publishers who don't have to call in Paul Bunyan to supply the paper for more than a few sets of the 25–million-word, 29–volume *New Grove Dictionary of Music and Musicians.* At a price more reasonable than $4,250 for the set, the online reader can search with the

usual sophisticated online tactics. Besides saving paper, the electronic version saves space for, yes, more PCs in the reference section.

The main test of whether to put out print or electronic versions is not fashion or proof one can use the new technologies. It is the number of readers, real and potential. A print reference work may be valuable for a select group of scholars or laypersons. Perhaps the reference librarian consults it once or twice a year to find data on the polar regions or the extent of guerrilla warfare in the First Seminole War. When thousands of little-used, often expensive titles are published electronically, they will spread their influence. They will be available to any library, free or at a modest fee.

There are scores of other justifications for the trek from print to digital for reference titles. Still, when the readership for a reference work moves from two or three people a year to the hundreds of thousands, even millions, then print should be retained. Asked which reference works they turn to the most, the majority of librarians outside large research institutions, inevitably name no more than a dozen print titles. Many of these are found in middle-class homes, e.g., *The World Almanac, Statistical Abstract of the United States, World Book* (or a similar children's or adult encyclopedia), a dictionary (more often than not *Merriam Webster's Collegiate Dictionary*), *Bartlett's Familiar Quotations.* Librarians and readers prefer these standard print titles to most electronic sources because they have used them and know what they can or cannot find. A question is answered faster here than in other electronic reference works. A one-volume encyclopedia can be consulted for all of 20 to 30 seconds to find a name, date, country and the like. Even the most efficient online searcher is likely to take longer.

The serials section so closely tied to reference services will go down the same path. Little-read periodicals (as with reference titles, the vast majority) will be confined to digital. As Judy Luther (2000), points out: "Electronic files may not be fun to read online but they are very efficient at locating previously read articles as users can conveniently scan a large amount of data" (p. 24). Back issues, particularly of more than a few years, can be stored easily and called up quickly. The equation is simple: every reference section should have current issues of serials available online, and the more popular ones in print form as well. Titles which may not be consulted more than once or twice a year hardly need a print backup; here is where the library can recognize real savings. How many titles can be available only online depends on individual library need and experience, but probably no more than 1 to 2 percent over a basic print-digital list of 200 to 400 titles need be in both print and digital forms. Specific data are needed for, as Luther observes, "It is increasingly important for both librarians and publishers to understand the information 'context' of users so that additional capabilities can be developed that will deliver new levels of efficiency" (p. 26).

By the end of the decade, given publishers willing to issue new and older

works in electronic form, the average reference section will consist of 100 to 500 much-used print titles and will offer rapid access to 14,000 to 18,000 others online.

While reference titles are best online, this is not true of the majority of works found in the general reading section. The supposition that in the next 10 or 20 years a library will be little more than a holding station for PCs fails to recognize the reluctance of readers to regularly use digital forms of reading matter.

At Purdue University, two departments declared civil war. One wanted to eliminate books in favor of electronic sources. The other thought this was a scholarly disaster. The electronic-enamored groups saw this as addressing a need for space: eliminate print volumes and there is room for more offices and lecture rooms. The books are not to be burned, but stored remotely and retrieved when needed. Kiernan (2000) reports the librarian summed up concerns about access to print by one teacher with "Jesus Christ, we'll deliver the yearbooks to his office." She added, "You have to ask yourselves: Do we need the real estate we have [for books]?" The skirmish illustrates the maximum influence of engaging the best in technology without considering its consequences beyond its obvious purpose—in this case, saving space. The much-acclaimed Project Gutenberg provides free e-texts of over 2,500 books. None is in copyright. Most are eclectic at one extreme or widely published classics at the other. The point of the "Project" remains obscure. Between interlibrary loan or a good library, all of these titles are available in traditional, easy to read print form. A bad idea can be turned to gold when what is put online is either unavailable except in one or two libraries or rare bookstores, or is rarely read and therefore not found in many libraries. To date a good deal of this transfer from print to online has involved, as with the Project Gutenberg experiment, out-of-copyright content. What happens when a copyrighted book goes online? Who pays the author, the original publisher, and others who traditionally profit from print titles?

## THE DEATH OF COPYRIGHT

While reference librarians may participate in discussions of copyright and related areas, they should do more. Indeed, they must take a leading role in such debates. The American Library Association, to be sure, is actively engaged in the revision of copyright. Beyond that, though, the reference librarian has to consider copyright consequences.

How long will the current copyright laws prevail? Can they hope to charge for what is now free? How long will publishers be able to charge fees to users or to libraries for online reference materials? The answer: copyright is as good as dead. It may take a decade or two of thrashing about in Congress and in other world governing bodies to kill it off officially, but hackers on the Net will do it in the meantime. The real question is not so much

how to save copyright, but what to put in its place to guarantee more than praise for hard-working publishers and authors.

While lawmakers and publishers revise copyright laws to protect online information, others labor equally to defeating the laws through online programs, which will defy copyright enforcement. They firmly believe all information on the Net should be free. These technical idealists have developed programs to defeat passwords, codes, and scrambling devices, which protect online data. The swapping of free music files on the Net (via services like MP3.com and Napster) are early indications of the difficulty of defeating what lawyers, the recording industry, and many musicians call piracy. For a demonstration of cracking the for fee codes try freenet, conceived by a University of Edinburgh student, or Gnutella, the invention of a software developer. They are far, far from perfect about distributing information, but they indicate the problems ahead for publishers.

In early spring of 2000 Stephen King published *Riding the Bullet* online. Within 24 hours, about 400,000 people downloaded the free text. The press announced that a revolution was at hand. Everyone was pleased, including King who reaped masses of unneeded publicity, if limited profit.

Although the book was free, duplicate copies could not be made. This upset some who saw a market for neatly printed copies of the online work. Given this incentive, two days after the digital book was available, a code breaker set up a system to allow anyone to make additional copies. The implication is clear. Fortunately, hackers to date have avoided online fee-based reference services such as indexes and dictionaries. The Association of American Publishers, among many interest groups, is working on encoding standards for distributing texts. Their technology will be so sophisticated (they hope) as to be beyond the reaches of other than authorized readers.

The major hurdle for those trying to profit directly from Web content is the well-known fact that people do not expect to pay for information on the Web. Survey after survey makes that point. A study by Princeton Research Associates (Barringer, 2000) found that 89 percent of the 1,232 respondents had never paid for news or information on the Web, and 83 percent were not willing to pay. So far this works to the advantage of libraries. It accounts in no small way for the popularity of online reference titles in the library and at home stations where library access is offered.

No one knows how a world chock full of online rather than print books will find a way to: a) charge the reader; b) protect copyright; or, most likely, c) ignore charges and copyright and find another path to profit.

Unable to protect their fee-based databases from technological advocates of free data, publishers will post most of their reference sources for free on the Net. This will happen not because librarians assert that "scholarly and government information . . . must be available free of marketing bias, commercial motives, and cost to the individual user" (Keystone, 2000,

p. 103) but because they will have discovered another path to profit tied to free information. Consider the fury generated by the use of magnetic tape and photocopiers: both were supposed to derail television and multiple copies of books. Instead they created new technological industries. Free instead of fee-based Net information will likely follow the same, still uncharted road to profit.

## READERS: THE REAL LIBRARY PUBLIC

While the technological advances are of concern to librarians, authors, and publishers, few readers either know or care much about the struggle. What does interest the average library user? Most of the 30 percent of Americans who regularly use libraries (and that percentage rarely varies from decade to decade or place to place) go there to find a book, not to discourse on the joys of information and the new technologies. Usually through a novel or biography, they are doing their best to forget. Escape, at all ranges of intellectual satisfaction from gothic to Proust, is often the reader's goal. This is to recognize why the vast number of adults, and not a few nervous students, may be less than enthusiastic about the full text online index or appreciate having a reference section.

How can the reference librarian, particularly in smaller and medium-sized academic, school and public libraries, be a leader? How to be more visible, more useful to individuals who rarely have a question more pressing than "When does the library close?" or "Where is the bathroom?" Reference librarians might give a bit of their time to readers' advisory services; they often did in the past, and a few do to this day. While many reference librarians view readers' advisory services as outdated as yesterday's celebrity, citizens still require help in selecting books.

Book clubs, reader groups, great books, and a half-dozen other descriptors apply to gatherings of 10 to 20 people who meet each week or month to discuss what they have read. In many areas it is becoming the middle-class thing to do, particularly for people with children and over 30 years of age. Why do they show such an interest in what technology supposedly stifles? Kellaway (2000) offers three reasons: "Take the question of time . . . . No one wants to admit to being a former reader and the only way of ensuring that reading gets done . . . is to put it in the diary. . . . As an exclusive social event, reading is cool again" (p. 22). Although people feel pressed for time and have many options, reading remains popular. It costs little and impresses those tied only to the mass media. Third, the 45,000 to 50,000 books published in America alone each year raises the question of what to read; book groups make that decision. "Instead of passively flipping through book reviews, bookclub members get the chance to become book reviewers themselves. . . . the downside is that you will have to listen to others pretending to be" reviewers, too (Kellaway, p. 22).

With so many readers out there, Ebsco, for instance, promises help on

their NoveList Web-site (http://novelist.epnet.com). Here layperson and librarian will find a battery of aids, including news about beginning authors, new titles, and advice on book talks.

## FUN AND GAMES

The reference librarian should lead in helping to decide the place of the PC in the library as a whole, not just in the reference section. Is the Net primarily for serious people with serious questions, or for others as well? The Net is as much for entertainment and casual education as for focused research and the gathering of data for free or for fee. The reference section, charged with PC and Net supervision, may (or may not) wish to take over the really "serious" library business of entertainment that is found at a computer terminal. At any rate, every library should offer free, non-filtered access to entertainment, just as most of its books, periodicals, and other materials are there for the same purpose.

The marvel of the Net is that it can carry content to the growing number who find less and less on television, radio, or in newspapers and movies to satisfy their natural curiosity about people and the world. Two examples: the single best English-language radio station in the world is the BBC's Radio 4 out of London. Here, without the horrors of advertising, articulate intelligent people discuss everything from the latest novel to gardening and diet. They play to what it means to challenge deep-rooted beliefs in, yes, the Internet. The consensus about Radio 4, and its allies Radio 3 and 5, is such that that greatest gift of late 1999 and 2000 was the availability of most of their programs, as clear as the proverbial bell, on the Net. Inevitably, American public radio stations that have not succumbed to pop culture will equally be present on the Net. One example of the latter is New York & Co. (http://www.wnyc.org/), which features at least four discussions of books and writers each day.

A cursory glance at what interests people online indicates that learning is at the bottom of their list. Primarily marketed as an entertainment medium, or by the familiar "information can be fun," the Net draws financial support from the same advertisers who effectively disturb television and radio. The commercial virus takes advantage of Net surfers (or more likely waders) who, as Barnett (1999) puts it, are in a "trancelike state that starts with a few clicks and ends hours later without a sense of time's passage" (p. 177).

*Yahoo Internet Life,* the widely circulated guide to popular use of the Internet, features a monthly summary about what people are looking for online. According to these Click Charts (2000) "the most visited news/info/entertainment sites include MSNBC with 8.6 million visitors, followed by Disney Online (6 million)" (p. 67). The most popular queries on one search engine, Lycos, open with Pokemon and midway feature Tattoos and then at the end Las Vegas. Questions most frequently asked at Ask Jeeves are

about weather and climate, such as "Why do the days get longer in the sum-
mer?" On the whole, the page demonstrates how the Net has shoved aside
television as a sandier wasteland dotted with numerous oases of amusement.

Brody (2000) reports what almost everyone knows: "Sex is the hottest
topic among adult users of the Internet. . . . Fully one-third of all visits [are]
directed to sexually oriented sites, chat rooms and news groups." Before
Brody cites numerous studies to validate her figures, she quickly adds: "For
most people these forays into cybersex are relatively harmless pursuits" (p.
F7). Because most public library computers are under the jurisdiction of
the reference section, the question of filters, and public debate over who
is to watch the kids, can be a tremendous headache for the otherwise peace-
ful reference section.

Some parents, who may or may not have tracked sex on the Net, are
anxious for the librarian to act as an information gatekeeper of a sort not
usually associated with reference searches. "Slam the gate on sex" is the
battle cry. That should be the parent's decision. It is not the duty of a ref-
erence librarian to decide who or who will not get through the gate. Al-
though the American Library Association has supported this view, filters
continue to find their way into libraries.[1]

Shopping and stock trading are at the heart of the commercial online
revolution. Virtual stores, for both consumers and business concerns, are
one of the most significant elements of the online age. Expected to grow
over $100 billion by 2003, online commerce has taken hold because it of-
fers comparison shopping and speedy delivery of goods. Rarely a month
goes by without another advertisement plugging an advanced system of
online shopping. Profit aside, the unforeseen social consequences of mov-
ing from mall to computer have yet to be understood. In fact, the night-
mare for online retailers is that people will not give up the social aspects of
shopping: mixing with crowds, talking to clerks, slipping in a lunch date.
This same problem faces those who confidently predict that office environ-
ments will give way to individuals working at home.

Reference librarians note, too, an important lack of social interaction
when users are drawing information from the library at a home computer.
Even in the library, and especially in those with multiple PC stations, the
normal conversation between the librarian and the student huddled over
a monitor screen may be eliminated or severely curtailed. Lack of a two-
way information stream shows in the often poor quality of results, particu-
larly for beginners searching online. Distance-learning experts and Web-
masters are aware of this unforeseen consequence and do their best to ease
the problem via e-mail, links, and telephone calls.

## THE FUTURE INDUSTRY

Not only better service for the poor, but also improved services for the
middle class might be possible if only a small portion of the funding and

effort devoted to predicting the future were instead directed to daily activ-
ities. There is a constant sales pitch to convince librarians that future tech-
nology will solve not only the problems of the world in general, but those
of the library in particular. Henry Kissinger invites Mikhail Gorbachev to a
forum to discuss with other world leaders the role of America in the 21st
century. At a more modest level, hardly a week goes by without someone
wandering into the library for a self-help book that promises the future will
bring consolation. Nervous librarians understandably try to stay one step
ahead of the public in the difficult decision to buy this or that technologi-
cal advance. Stanford University Libraries (Keller, 2000) cite as two of their
"strategic principles for technological innovation" the necessity of install-
ing "telecommunications & power for every seat as rehabilitation or new
construction proceeds; install video and data connections in classrooms,
[and] other group study rooms" (p. 9). Johnson (2000) sums it up: "Hard-
ly a week seems to pass in which we do not wake up to a [radio] program
announcing that buffoons in Cambridge—either the one in Massachusetts
or the one in Cambridgeshire—have cloned an elephant or whatever. . . .
Somewhere in California they are working on . . . a robot which can think
just like us, if not better" (p. 10).

     No meeting of the American Library Association or any other nation-
al, regional, or local organization of librarians goes by without a barrage
of discussion groups and committees talking about both the finite and in-
finite possibilities of the Net. National groups from funeral experts and
artists to newspaper reporters and gardeners pay homage to technology.
And find a university that does not offer courses and conferences on the
subject: "Harvard University proudly presents 'Changing Our Lives' . . . to
focus on the transforming ability the Internet has on society."[2]

     The bombardment about the future is conducted throughout the
media from the *New York Times* to television to radio and, yes, constantly on
the Net. What's to be learned from this fascination with the future? Kniffel
(2000) sums up the situation nicely: "In the quarter-century that I've been
a librarian, I've seen plenty of 'futuring' and 'visioning.' I've concluded that
there is absolutely nothing to be learned from the future. . . . Some of us
are forecasting doom for anyone unwilling to reinvent libraries, while oth-
ers are ducking and covering, hoping for the threat to pass" (p. 46). Why
bother adding to the countless "think" pieces on the subject? Because as
Kniffel puts it "the primary conflict in our profession for the past 50 years
has been tradition versus technology."

TECHNOLOGY AND TRADITION

     The tradition vs. technology struggle must be resolved by the reference
librarian. Not even the best leader can come up with ultimate answers; still
he or she must try.

     Cell phones, robot lawnmowers, gigantic television tubes, palm pilots

and massive movie screens are bound for glory in the years ahead. Genetic engineering will save the lives of countless babies and eventually insure old age for the many. Painless dentistry, a vast increase in availability of healthy foods, and central heating insure an optimistic future for at least those lucky to have been born in this prosperous era and country.

Positive technological contributions are well known, but there are also negative considerations. A flat-screen television with refurbished sound system is an interior decorator's delight. Unfortunately, the technology does nothing to rejuvenate the programs. The irksome cell phone raises the urban noise level and the perception that private conversation is to be shared with the world. Rapid advances in the storage and dissemination of information threaten library budgets and the nerves of librarians. The wonders of a digital camera will drive the photographer to the technological wall. To what ring of hell is consigned the chap who fires humans and substitutes electronic replacements to do everything from solicit magazines subscriptions to, yes, duck frustrating questions about why the computer shut down?

None of the incessant bad manners of the new technology should be forgiven. Much has to be done to civilize the machines. The question is: How did people in and outside of the library establish technology as a church with its advocates as the new oracles and ministers? The response is not easy for, as everyone realizes, technology has several sides. Strom (2000) makes this point about Japan: "The Internet is quietly transforming Japan . . . empowering women, changing the way people apply for jobs and schools and generally chipping away at traditional patterns of behavior" (p. 1). On the other hand, technology too often is expected to do too much. Krugman (2000): "It's a sad story . . . technology is not a magic elixir. The Internet, mobile phone and all that are exciting and important, but those who count on them to solve all their problems are likely to be disappointed" (p. WK15).

*NetFuture*, a small, influential online newsletter, discussed the new technology. Stephen Talbott, a technical writer and former software programmer, asks people involved with the Internet to consider its consequences:

> Our society appears to be following the same strategy with its computer and digital networking policies that it followed earlier with its automobile and asphalt networking policies: First, and at all costs, build the infrastructure and put the new devices in the hands of the consumer; then, a few decades later, check out what this has done to society. If it has hollowed out our institutions—well, that's for historians and sociologists to quibble over; there will always be plenty of new technologies promising a bold and bright future. If today's digital policymakers would read up on the history of the automobile, they could scarcely avoid some grave self-doubts. (Talbott, 2000, p. 5)

Academic leaders (Keystone Principles 2000) agree that "scholarly and government information is created at the expense of the public and/or aca-

demic institutions. . . .There is a public interest in the availability of this information" (p. 103). A breath or two later they claim the for-free information publishers are "distorting search results for profit" (p. 103). In a second test complaint they call for publishers to query librarians "in how information is used" (p. 103). And here is the third point, the heart of the argument: "There is fear among the faculty and many administrators that education will be dehumanized by the introduction of the new technologies" (p. 103).

Electronic vehicles are thousands of times faster than their print forefathers. They put data into the hands of an impatient user almost as quickly as a question is posed. It is too early to evaluate what this has done for the individual and society, but questions are in order.

A wealth of opinion-survey studies indicate that money, and what it can buy, does not make people happy.[3] Obviously a given amount of income is needed to survive, but beyond that there seems to be no real relationship between the weekly check and happiness. Brittan (2000) points out that The World Value Survey at the University of Michigan finds that in affluent countries "the ones with highest reported happiness are Iceland and Sweden in that order, even though they also have a high level of reported suicides. The United States, with the highest income level, comes thirteenth" (p. 24).

All of this raises questions about how to measure happiness. An amber light flashes its warning here for reference librarians who put too much faith in the new technologies. Technology that seems good for the library may not be good for society. "For instance," as Brittan observes, "the growth of ever longer antlers may help stags to find mates; but the cumulative effect of the drive to longer antlers is to make the whole species less efficient and less good at survival. The stag finds it increasingly difficult to make his way among the trees" (p. 24). The analogy between stags and technology filled reference sections is appropriate. We all can learn from nature's mistakes.

## NOTES
1. One argument for screening Net material in libraries is the factor of accident in searches; as of May 2000 the President may be reached via www.whitehouse.gov, but if one by chance substitutes .com for .gov, the result is a pornographic site. For the family value side of the Net see Raskin, R. (2000). Rituals for New Age. *Family PC,* 7 (4), 60–61. "If you are looking for ways to help family ties, you might start by looking at" the Internet (p. 60).
2. Harvard featured "futurists" as star attractions for the May 31–June 2, 2000, event. These priests of tomorrow include Tim Berners-Lee, Patty Maes, and Esther Dyson.
3. An April 2000 survey by *Modern Maturity* reported in the *New York Times* (May 21, 2000, p. 12BU) finds that of the 2,366 people who responded, "earning a lot of money ranked near the bottom when people were asked what made life successful. The top five factors . . . were strong family relationships, good friends, helping people in need, a good education and an interesting job." The trained reference librarian should, then, be happy. If not a millionaire, the librarian at a minimum helps "people in need," has a good education and certainly is in an interesting job.

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