

Annual Report

of the

1998-99

University Library Committee

I. Executive Summary

The past decade has been a time of profound adjustment in the operation and maintenance of the UW-Madison's general library system. Over this period the state of Wisconsin has not given the UW system any new funds for library acquisitions. In the face of this severe budget stringency, subscription prices for most library materials have shown annual double-digit increases—forcing the cancellation of hundreds of journals and the inability to purchase many essential books and other materials. Finally, the advent of electronic information has meant that librarians are often forced to purchase both the print and electronic versions of many journals. This marketing strategy by oligopolistic commercial publishing houses exposes the folly of the widely held notion that electronic information is free and happily presages the day when all essential information will be available on a computer screen without the necessary inter-mediation of research libraries. Severe budget realities, combined with the wishful myth of ubiquitous and free “information superhighways,” have brought libraries and library administrators the worst of all possible worlds. Students, faculty members, and the citizens of Wisconsin have paid a high price for this unfortunate convergence of events in the 1990s. Without budgetary relief, and without the exercise of great sophistication in how UW-Madison libraries are both perceived and managed, that price will surely increase in the future.

The ULC devoted the 1998-1999 academic year to studying these trends in the production, acquisition, and dissemination of information essential to the continued excellence of the UW-Madison as a world-class university. Our findings, elaborated in the body of this report, are summarized here.

- We urge the Faculty Senate and the University Committee to support the ongoing efforts of libraries and campus administrators to maintain the concepts of fair use and public domain in an electronic age. We further urge individual faculty members to raise these issues in their professional societies and with the editorial boards of academic journals. We urge UW-Madison faculty members to consider placing their published scholarship in outlets dedicated to the doctrine of fair use and the principle of free access to knowledge that is in the public domain.

- UW-Madison faculty members who are editors of journals published by commercial houses should challenge the exorbitant increases in library subscription rates for those journals. These faculty members are also encouraged to explore Web capabilities, including subscriptions on line, sample articles, and electronic publication.
- The UW libraries should continue their cooperative agreements with other universities regarding licensing of electronic databases and journals. This concerted action will help to counterbalance the economic power of the commercial publishers and therefore help to restrain the rate of escalation in journal prices.
- The UW libraries should provide on their home pages a description of current collection management and development practices. The libraries should also expand the use of e-mail to inform faculty members, staff, and students of new library resources.
- UW faculty members should make use of librarians' expertise and invite them to their classes to demonstrate the use of both print and electronic resources.
- The UW-Madison libraries should proceed with a pilot study to test customized library web pages that would provide a gateway to the most useful information resources for different campus user communities. For example, a web page for a faculty member in bioengineering could feature access to on and off-campus electronic journals and databases licensed by the library for medicine, physics, and engineering.
- UW-Madison administrators should reconsider the disposition of the present Middleton Library as envisioned under the Campus Master Plan. We believe the library would make an excellent repository for lesser-used library materials. Over the longer term, the University will need to plan for a high-capacity storage facility for library and archival materials.

II. Introduction

During the 1998-99 academic year the ULC devoted its attention to two issues of overriding importance to the future of the UW-Madison libraries. The purpose of this report is to alert the faculty to those two issues. The first issue concerns the future of academic publishing, intellectual property rights, and alternative publication outlets for scholarship. Here the issue concerns decisions about where faculty members choose to place their academic writing and the promotion and tenure implications—and the budgetary implications—of those choices. In some disciplines it is not uncommon to see the posting of working papers on various computer lists and home pages. This form of publication might well grow over time. The central question here is whether or not libraries of the future will be expected to collect and catalogue these various literatures. More importantly, perhaps, we are concerned about how these alternative publishing outlets relate to traditional promotion and tenure (and salary) decisions at a major research university such as UW-Madison.

In essence we believe we see a trend in which scholarly publishing is becoming disconnected from the practice in which the "best" journals (on various criteria) are the only legitimate outlet for top-quality scholarship. Commercial publishers have been able to exploit the indispensability of some of these journals by continuing to raise their annual price at rates that defy explanation. However, libraries cannot continue to purchase journals that escalate in price by 15-20 percent annually; to do so would, over time, mean that library acquisition budgets would inevitably be entirely consumed by the purchase of several hundred journals covering the various research and degree specialties of our faculty. On a large and diverse campus such as UW-Madison, with more distinct doctoral programs than any campus (except perhaps the University of California-Berkeley), the need for the very best journals in a large number of fields poses a budgetary challenge of the very first rank. Publishers have also managed to insulate, to some extent, cancellations by enlisting prestigious faculty to serve in varying capacities on editorial boards. These individuals often become local advocates for maintaining library subscriptions regardless of cost. The fundamental dilemma for research libraries concerns how to cope with the rapid price increases of those journals deemed indispensable for research. Alternative publishing outlets for scholarship may present one possible solution to this problem.

The obvious corollary of this matter concerns our second issue—the nature of the research libraries of the future. In particular, all research libraries face the challenge of incorporating information on electronic

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formats into their traditional print-based information stock. Despite common perceptions to the contrary, owners and distributors of electronic information are clearly determined to make sure that the immense profit potential in this new information medium is not diminished by inattention to aggressive pricing regimes. We see indications of such behavior when publishing houses force libraries to purchase both print and electronic forms of many journals. The research library of the future must seek collaborative purchasing agreements with other libraries so that the rising cost of print and electronic information is consistent with budget realities. This means that campuses in the UW System or the Big Ten must constantly seek collaborative relations that will yield some degree of bargaining power with concentrated economic interests in the commercial publishing industry.

The growing importance of electronic information raises important issues about the storage and archiving of information. Can librarians be certain that information they purchase today will still be available 25-50 years in the future? On a related point, as technology advances, can librarians be assured that archived electronic information can be accessed by the new reading devices?

The ULC organized itself around these two related issues. We now turn to our central findings.

III. The Future of Academic Publishing

Several changes in academia in recent years have had a profound effect on the university library system. In both the short and the long term, these changes will affect faculty and students. One change is the proliferation of scholarly material including journals

(both in hard copy and in electronic form), books, and databases. Another is the phenomenal price increase of many journals being imposed by commercial publishers, especially in the sciences. With stagnant acquisitions budgets, university libraries have had to make hard choices. Thus far the UW library system has managed its shrinking resources admirably. However, without major adjustments on the part of publishers, universities, academicians, and perhaps state government, its characteristic good management cannot be sustained.

To consider these two interrelated phenomena—proliferation of publications and significant price hikes by publishers—this subcommittee examined the future of academic publishing. Although electronic publications are more common in the sciences, and the largest price increases for print materials have occurred in the natural sciences, we considered all areas of scholarship because all fields are affected by the changing dynamics now underway in academic publishing.

To address some of the problematic changes affecting libraries, academic publishing, and the faculty, members of this subcommittee met with the chairs of three of the divisional committees. These meetings suggested a consideration of the following issues relating to the dissemination of scholarship: (1) electronic publishing, print publishing, and the relationship between the two; (2) academic vs. commercial publishing, and (3) related library issues. All of these issues affect individual faculty members, departments, libraries, university administrators, and students.

A. Electronic and Print Publishing

Many university users of the World Wide Web seem to be of the opinion that access to those electronic resources is free. Some even declare that, in the future, there will be a reduced need for libraries and librarians. Despite these perceptions, less than 5 percent of the Internet resources supporting higher education are free. Regardless of the eventual role of electronic publishing, libraries will continue to play an important role in: (1) purchasing or licensing databases; (2) providing access to course pages (i.e., serving as a gateway to appropriate materials for university users); (3) instructing users in accessing and developing electronic publications; and (4) being responsible for archiving electronic publications. On the print side, libraries must continue to acquire materials, maintain them for users, and preserve them.

In short, storage needs for print materials are not diminishing with the increase in electronic publication.

Discussions taking place on the World Wide Web stress the fact that everyone does not have access to Internet resources. Indeed, some academic institutions

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in the United States do not have the financial means to rely on electronic materials.

Although few electronic publications have appeared in tenure dossiers thus far, there is no doubt that this will soon change. Discussions on the Web examine this issue from various angles. For instance, Elizabeth Langston, in “Scholarly Communication and Electronic Publication: Implications for Research, Advancement, and Promotion,” 1996 (<<http://www.library.ucsb.edu/untangle/langston.html>>) discusses how electronic scholarly publishing affects the tenure process, including perceptions of stability and quality of electronic publications, whether electronic publications are refereed, and ease of access. Janice Walker, in “Fanning the Flames: Tenure and Promotion and Other Role-Playing Games,” 1997 (<<http://www.english.ttu.edu/kairos/2.1/coverweb/walker/intro.html>>) discusses new forms of writing and scholarship online that do not seem to fit into present tenure guidelines, and the need to change the definition of what is acceptable for tenure.

The emerging advantages of electronic publication have produced a number of responses. For instance, some academic journals have become available both in print and electronic versions, some new refereed journals are available only on the Web, and some print journals are making their presence known by having home pages on the Web. On their web pages, some academic presses provide previews of their print journals' table of contents for recent issues, article abstracts, and sample full-text articles.

Discussions about electronic publications have centered on cost comparisons of print and electronic versions. In a recent issue of the *Journal of Electronic Publishing* (University of Michigan Press), Carol Tenopir and Donald W. King wrote an article entitled “Designing Electronic Journals with 30 Years of Lessons from Print” (<<http://www.press.umich.edu/jep/04-02/king.html>>). They examined publishing costs, authorship, readership, pricing, and library

services, and concerns relating to print journals to see whether electronic journals might be just as viable. Web pages provide the opportunity for articles to be pre-published, for articles in electronic journals to be linked to on-line sources, to include comments by readers, and to update articles as new editions or as an addendum to the first edition. For example, Charles W. Bailey Jr.'s "Scholarly Electronic Publishing Bibliography" (<<http://info.lib.uh.edu/sepb/sepb.html>>) is in its twenty-third edition.

Editors of refereed print journals are often unaware that with electronic publication, access can be wider—and availability sooner—than with a print journal. This occurs with full-text, on-line databases, electronic subscription, and cooperative licensing of e-journals and databases by libraries. Various other media, such as video, animation, and sound, are now available for enhancing electronic publications.

B. Academic vs. Commercial Publishing

Academics should be aware of two major phenomena that will affect scholarship in the coming years: (1) continuing price hikes—particularly for journals published by commercial publishers; and (2) increasing copyright controls by commercial publishers. Both phenomena, if left untended, will bring serious problems in the dissemination of knowledge produced by academic researchers.

The past decade has been one of serious concern over the increasing costs of library materials. For example, since 1991 the average book price has risen 14 percent while the average journal price is up 58 percent. The average price of science-technology and medical journals has more than doubled, and the average price of social science journals has approximately doubled. Meanwhile, the base budget provided by the legislature for library materials has not increased. As a result, more than 7,000 journal subscriptions have been cancelled and fewer books have been purchased than necessary for a major research university. Increased publication costs result from a number of factors: (1) increasing academic productivity (so there are ever more publications for libraries to buy); (2) the general practice of commercial publishers not levying page charges on authors as many academic societies do (which means that the full cost of journal production is not shared between authors and libraries but is fully shouldered by subscribers and libraries); and (3) the increasingly monopoly-like behavior of commercial publishers, particularly in the

sciences, as they increase their market share in particular disciplines by acquiring their competitors.

A number of strategies are being developed in academic quarters to meet the challenge of the increasing subscription costs. Much of the recent discussion among library professionals—and many of the recent recommendations for dealing with library budget limits—have focused on ways to deal with the large commercial publishers. A consensus is emerging

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about effective strategies, spearheaded by the Scholarly Publishing and Academic Resources Coalition (SPARC), a group formed by the Association of Research Libraries. SPARC advocates that scientific academic societies publish their own electronic journals. They suggest other ways in which libraries can use electronic resources, and they demonstrate ways in which authors can assert their rights to use their own material. We discuss this in greater detail later in the report.

The International Copyright Organization has approved a treaty, which the United States has signed, to protect databases as proprietary products. Implementation of the treaty in the United States is changing the historic balancing of creators' and users' interests in intellectual works. At issue are the concepts in American copyright law of fair use and public domain. Extension of the term of copyright protection from life of the author plus 50 years to life of the author plus seventy years means that the great intellectual and creative outpouring of the 1920s will not be royalty free until well into the next century. In addition, strong efforts by international publishers to ensure that every entry in a database is protected from fair use directly threaten access to information and its cost to the university community. The fair-use doctrine has been pivotal in American higher education in facilitating the creation and dissemination of new knowledge through research and teaching. UW-Madison libraries under Ken Frazier's leadership—and with support from the University administration—have actively worked to maintain the information access rights of faculty, staff, and students. The ULC anticipates that such efforts will need to be continued

and strengthened in coming years as a handful of multinational publishers, especially in the science, technology, and medical fields, seeks to extend and solidify their economic control of knowledge. Without continued and coordinated efforts by research librarians, faculty members, university administrators, and professional societies, the nature of higher education will be profoundly altered with costs to each of us that may be realized only after it is too late.

C. Related Library Issues

In our view the management of UW-Madison library collections has been excellent in the absence of increases in acquisitions budgets since the 1989-91 biennium. Without increased funding, librarians have avoided serious erosion of collections by negotiating special discounts, participating in consortia for licensing agreements, and by forgoing the acquisition of materials that are not immediately needed (e.g., some monographs) for teaching or research.

Whether the forgone publications will be available from publishers in the future is of serious concern to us. Publishing trends indicate that higher education will remain dependent on print collections while simultaneously increasing its reliance on electronic resources. While costs to provide access to new electronic resources will increase, the funds necessary to acquire and maintain adequate print resources will not decrease proportionately and, thus, the level of acquisitions must necessarily continue to fall.

There is a concern that the prestigious journals in which faculty members publish will not be purchased by the libraries in the future which must, because of cost issues, turn to alternative means of document delivery (e.g. inter-library loan or facsimile). There is concern, as well, that space for archiving both electronic and paper materials is becoming increasingly scarce. Special space will need to be set aside for special equipment to store and read electronic materials. This will compete with space for storage of print collections and with study space for students.

D. Recommendations Concerning the Future of Academic Publishing

We urge that:

1. Editors of journals published by commercial houses challenge the continued exorbitant increases in library subscription rates.
2. Faculty members at UW-Madison who are editors of print journals explore Web capabilities, including subscriptions on line, sample articles, and electronic publication.
3. The university libraries continue their cooperative agreements with other universities regarding licensing of electronic databases and journals.
4. The university libraries provide on their home pages a description of current collection management and development practices.
5. Campus libraries use e-mail to inform faculty, staff, and students about new library resources. E-mail should be sent to deans, directors, heads of departments, and heads of student organizations who then can send the notices to their faculties and constituents.
6. Faculty members make use of librarians' expertise and invite them to their classes to demonstrate the use of electronic resources.
7. Faculty members support the ongoing efforts of libraries and campus administration to maintain the doctrine of fair use and the principle of public domain in an electronic age.

Questions for Further Study

Based on our deliberations, we believe that the following questions need to be addressed in order to begin to resolve some of the issues discussed above.

1. How do the guidelines for acceptance of articles in print journals differ from electronic publications?
2. How long does it take for an article to be published in a traditional print journal? How does this compare with an electronic-only refereed journal? If electronic publication is quicker, what will be the effect on the future of academic publishing?
3. What are the rejection rates of comparable print and electronic journals?
4. How many refereed journals are now available electronically in a particular field? How many are available both in print and electronically? How many are only electronic?
5. How does the importance—or prestige—of comparable print and electronic-only journals compare? Does their relative importance affect tenure decisions?
6. Who will be the publishers of refereed electronic publications (since they are not free)? While scholars and other researchers may themselves start a new refereed e-journal, it is probably unreasonable to assume that the individuals can continue to maintain such publications.
7. How will electronic publications be collected, catalogued, and archived?
8. What is the cost of accessing such archives (OCLC currently charges \$30 per title per year for accessing the e-journals which it archives)?
9. How can intellectual property rights be safeguarded as more publishing occurs in electronic format?
10. What are the implications of electronic publishing for distance education?

IV. Research Libraries of the Future

The dominant participants in the traditional information market are producers (authors, artists, performers), publishers (professional societies, commercial companies), libraries, and consumers. Information generally flows from producer to publisher to library to consumer. However, new technologies and budgetary circumstances now force these participants to reexamine and alter this flow to allow for a more efficient and rapid transfer of information from producers to consumers. We will discuss some implications of this changing process.

A. Mediation Issues

Certain producers imagine themselves placing most of their productive output on their server (computer) and letting the interested consumer find it on the World Wide Web; indeed the Web is a hotbed of self-publishing by individuals. Clearly, this publishing model is not compatible with the need for peer-review in scholarly research articles.

One arrangement providing aggregation by subject area is the Los Alamos physics preprint archive service (<<http://xxx.lanl.gov/>>) created by Paul Ginsparg in 1991. Authors may electronically deposit their articles before publication in journals. The American Physical Society—and other publishers—now link their journals to these archives, thus providing an imprimatur and a collection of articles certified as worthy of attention. The threat of information overload is partially countered by peer-reviewed overlays to the unfiltered archives.

A proposal such as the 'eprint Moderator Model' (<<http://www.library.yale.edu/scilib/modmodexplain.html>>) aims to reduce the amount of material distributed in a commercial manner. This would be accomplished through very minimal filtering and subsequent placement of eprints on a non-commercial archival server by a subject-specific moderator appointed by a society (or consortia of societies). This arrangement would function in the manner of an online ERIC Clearinghouse.

These and other experiments generally do not scale properly for more general usage. Systematic selection and aggregation from the total amount of information produced is still required and will be provided by publishers. This reminds us that libraries are indispensable in providing organized access to

databases of primary and secondary materials. Libraries can also forge cooperative agreements with other libraries in order to obtain favorable licensing agreements for electronic products. Rapidly rising subscription prices of the commercial publishers have forced many academic libraries to work together to resist traditional price increases. The libraries within the UW System and the CIC have been effective in this regard.

As indicated earlier in this report, a promising development is the Scholarly Publishing & Academic Resources Coalition (SPARC), (<<http://www.arl.org/sparc/>>). As indicated previously, SPARC is an alliance of libraries that seek to foster expanded competition in scholarly communication. By linking up with certain publishers, SPARC seeks to: (1) create a more competitive marketplace where the cost of journal acquisition and use is reduced and publishers who are responsive to customer needs are rewarded; (2) ensure fair use of electronic resources while strengthening the proprietary rights and privileges of authorship; (3) apply technology to improve the process of scholarly communication; and (4) reduce the costs of production and distribution. Among the first efforts of SPARC is an agreement with the American Chemical Society to publish three journals over three years. The first will be *Organic Letters*, to be available in both print and electronic versions, and to be priced at 30 percent of the cost of its commercial counterpart *Tetrahedron Letters*. Other partnership projects include: (1) *Evolutionary Ecology Research* launched by a former editor and editorial board of a Wolters-Kluwer title; (2) *PhysChemComm*, the Royal Society of Chemistry's electronic alternative to a title from Elsevier now costing \$8,400 annually; and the *New Journal of Physics*, an author-funded web service developed by physics societies in Germany and the United Kingdom.

B. Enhancing Producer's Rights

As principal creators of intellectual property, faculty members and graduate students need to be encouraged to push for more retention of copyright privileges in their dealings with publishers. At Caltech the provost, Steven E. Koonin, is fostering this attitude among the faculty. At Yale University, the librarian (Scott Bennett) is urging a similar approach among researchers. The provost at the University of Kansas has asked the Kansas Board of Regents to address this situation. Like these and many other universities, UW-

Madison has many journal editors who should also be encouraged to provide support in the struggle to keep intellectual property in the hands of creators. The legal environment involving copyright laws and its

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evolution in the global market is crucial to the smooth functioning of the library system.

As Stephen Bachrach et al. wrote in *Science* 281 (5382): 1459 (<<http://www.sciencemag.org/cgi/content/full/281/5382/1459>>):

As members of the American Academy of Arts and Sciences' study on electronic communications "The Transition from Paper" our experience has led our working group (representing the natural sciences, publishing, and library science) to express a common and deeply felt goal for the age of electronic communication: The authors of scientific works based on government-supported research should be free to distribute those works as they see fit, via journals, electronic postings, and other new modes that may appear.

At the end of the 105th Congress, the Digital Millennium Copyright Act was enacted which changes U.S. copyright law and places new requirements on libraries and educational institutions. It is expected that the 106th Congress will deal with legislation profoundly affecting databases as described by Jonathan Band in *D-Lib Magazine* 5 No. 1 (Jan 1999) (<<http://www.dlib.org/dlib/january99/01band.html>>):

The action of Armageddon on the Potomac begins against this background on October 9, 1997, when Howard Coble, chairman of the House Intellectual Property Subcommittee, introduced the Collections of Information Antipiracy Act, H.R. 2652. H.R. 2652 contained the same basic prohibition found in the EU Database Directive and H.R. 3531: a person could not 1) extract, or use in commerce, 2) a quantitatively or qualitatively substantial part of 3) a collection of information gathered or maintained by another person through the investment of substantial resources 4) so as to harm the actual or potential market for a product or service containing that collection of information. This legislation would give a database publisher unprecedented control

over the reuse of the information contained in the database.

A relatively small group of database publishers actively supported the legislation. They included Reed-Elsevier (the world's largest publisher of scientific journals), Thomson (which recently had purchased West, the largest legal publisher), the American Medical Association (which publishes the Physician's Desktop Reference as well as membership lists), and the stock exchanges, particularly the New York Stock Exchange. What all these publishers had in common is that they either controlled or had special access to the sources of the information which they published. Because of this unique market position, the legislation only benefited them; they could prevent others from taking information from their databases, without having to worry about their own access to information.

C. Rules for The Networked Information Economy

In their book 'Information Rules' (Harvard Business School Press), Carl Shapiro and Hal Varian suggest five key rules for survival in the networked information economy, which may to some extent apply to libraries: (1) "Exploit the network effect" that causes a product's value to rise along with the number of people who use it. Promote user-to-user interaction so that people see the value of using what their friends and colleagues use, and publicize market share information to create a powerful aura of inevitability; (2) "Differentiate" your information product. Information is costly to produce, but cheap to reproduce. To maximize the value of intellectual property, produce targeted versions that reach as many people as possible; (3) "Don't overprotect your property." Give away samples of your goods to potential customers, but not the whole store; (4) "Lock in users" by making it costly for them to switch brands. Use proprietary features and coordinate your strategy with your business partners; (5) "Cooperate," even with your competitors, on industry standards that benefit all.

D. Challenges for Libraries

The enduring challenge for libraries and librarians is to stay engaged with users in this period in which reliance on print and electronic media is in a state of transition. More reference material will be available

electronically off library premises. The use of email reference services will increase and other routes will become available such as real-time support via video, online, chat, fax and/or phone. Service delivery will be distributed rather than centralized. The increasing numbers of online and electronic sources complement, but do not replace (either in theory or in practice), reference materials that are not feasible to digitize due to time, expense or other constraints. Also younger library patrons—and some newer librarians—are increasingly unwilling or unable to make use of traditional print resources.

The local online delivery of information can cause a loss of visibility for the library system in providing information resources and services. Establishment of an electronic “gateway” through which users pass to access information resources and services funded by the libraries would increase the visibility of the library system. Another value of gateways is that library administrators would be able to assess the data and information needs of users and in that way they could plan more effectively regarding future purchases. Gateways also are valuable to users in that the gateway includes a personalized bookmark page allowing the organization and listing of favorite sites. There are several important questions about the implementation of such a system. Will users embrace the concept of gateways? What hardware requirements are needed to implement gateways on a large scale? How can electronic-use data be accessed and used in management decisions? These and other questions could be answered by conducting a pilot gateway-bookmark study. The Wendt library has discussed with DoIT the possibility of contracting for such a pilot study. Steenbock Library is also interested in participating. This is likely to go forward before fall semester of 1999.

E. Paper versus Digital/Virtual Storage

The apparent trend away from paper and towards distributed electronic storage is bound to accelerate. While traditional storage means will not disappear (in fact will increase temporarily during the crossover phase, when both, traditional and electronic, storage are required), paper storage needs are expected to decrease in importance in the long run. Electronic storage and distribution over the Web will be more prevalent for information that is created in relatively small units such as articles, poetry, commentary and reviews. Ease of use will give books in paper form a competitive edge for a while. Electronic books are being pioneered commercially in the form of the

Rocket eBook from Nuovomedia and the Softbook Electronic Tablet from Softbook Press. These ventures involve portable devices with display screens capable of holding the contents of many textbooks, novels, or reference works. To obtain the contents of a book the user dials a phone number or logs onto a Web site. Libraries also might eventually include services that bundle access to some form of electronic books. For books with low print runs it may be possible for a user to have a library or a local printing/copying firm print a book on demand.

Optimal acquisition and storage of print and electronic media is problematic. Libraries should insist on the availability of electronic access to materials over long periods of time. Publishers may resist such

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guarantees—particularly in the context of possible cancellations of subscriptions in the future. Optimal distribution methods for information are being investigated. Rapid electronic delivery of journal articles upon request is currently being tested in a pilot project at UW-Madison for the faculty and graduate students of four academic departments.

The archiving function of libraries will always be essential. The archiving, referencing and retrieval of non-text materials pose technical implementation problems, especially if the actual storage is offsite. For example, JSTOR (<<http://www.jstor.org/>>) funded by the Mellon Foundation, digitizes back issues of some important mathematics journals and makes them electronically available. This and similar efforts create the possibility of moving some of the corresponding print versions into remote storage in order to liberate scarce storage space for more recent acquisitions. As digital back-runs of journals become available, reliance on printed material will likely decrease. For instance, the Middleton Medical Library eventually will move to a new facility on the west end of campus. The current building is slated in the campus Master Plan for demolition and a return to green space. However, the building enjoys a good central location and possesses storage capacity for more than 400,000 volumes (perhaps more). This building would make a desirable repository of lesser-used materials from all campus libraries.

By mid-1999 a new integrated library system will provide a modernized online catalog of the UW library

holdings (MadCat in Voyager OPAC form). This system will enable the user to display items currently on loan and to place holds and recalls on unavailable material in real time. Integration with other resources will be enhanced with this system. The Electronic Library infrastructure is being improved and will be capable of integration with similar digital repositories being constructed by universities in the United States and in the rest of the world.

Electronic resources created by the UW-Madison library include the digitization of earlier published paper resources, electronic publication as initial version of the resource, and linking of disparate materials into an organized, understandable resource. Examples are: (1) "Madison, A Model City" an electronic edition of John Nolen's urban design plan for the city of Madison, Wisconsin; (2) "Parenthood in America" proceedings of a national conference held in Madison; (3) "Jonas Hallgrimsson, Selected Poetry and Prose" text, translations, commentary and biography of Hallgrimsson; (4) "Wisconsin Electronic Reader" stories, essays, letters, poems, biographies, journals and tidbits from Wisconsin history; and (5) "SEAIT - Southeast Asian images & Text Project" digitized local collection of Philippine images, creating an interactive multimedia WWW site.

Examples of non-local content available online include the "Bartleby Archive" (<http://www.columbia.edu/acis/bartleby/>) operating from 1993 to 1996. Its principles of electronic publishing deserve emulation. These principles concern accuracy, free public access, well-researched selection, and state-of-the-art presentation. A second example is the "Humanities Text Initiative (HTI)"

(<http://www.hti.umich.edu/>) started in 1994 at the University of Michigan. This is an umbrella organization for the acquisition, creation, and maintenance of electronic texts in the Standard Generalized Markup Language (SGML). Only a small part of the collection is in the Public Domain. A third example is "Project Muse" (<http://www.press.jhu.edu/muse.html>) restricted to faculty, staff, students, alumni and library patrons of subscribed institutions. This site publishes many scholarly journals and it provides a (non-searchable) CD-ROM containing all of the articles published online during a given year to any full-campus, full-database subscriber. In this project members of a subscribing institution who subsequently cancels its subscription may continue to access articles from the journals published online during the time the institution was a paid subscriber. Johns Hopkins University Press is committed to permanent maintenance and preservation of all the digital files in the Muse database. This project has partnered with several organizations and electronic journal services allowing access to full-text articles via their indexing and search facilities. Yet another resource is the 'California Digital Library' (<http://www.cdlib.org/>) launched in 1997. Browsing and searching tools at the site provide enhanced access to more than 2,000 electronic journals from major scholarly publishers and information providers such as the Web of Science, JSTOR, the American Chemical Society, Highwire Press, the Association for Computing Machinery, Academic Press, Elsevier, Springer, Kluwer, and many more. The operating principles incorporated in these projects address some major concerns about a possible complete transition from paper to electronic storage.

F. Recommendations Pertaining to Research Libraries of the Future

We urge that:

1. UW-Madison libraries proceed with a pilot study to create a bookmark page that could be personalized by each user, identifying a server for the gateway, and signing up a group of volunteers to test the system. The potential impact of large-scale implementation of such a system should be evaluated by surveying opinions of the participants and by evaluating the user load placed on the server for the pilot study. It will then be possible to make more informed decisions.
2. UW-Madison administrators reconsider the disposition of the present Middleton Library facility under the Campus Master Plan. We believe it would make an excellent repository for lesser-used library materials. Over the longer term, the University will need to plan for a high-capacity storage facility for library and archival materials.
3. The Faculty Senate and the University Committee support the ongoing efforts of libraries and campus administrators to maintain the concepts of fair use and public domain in an electronic age. We further urge individual faculty members to raise these issues in their professional societies and with the editorial boards of academic journals.

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