Most observers have long predicted the eventual replacement of printed journals with electronic-only publications. Yet today—some 15 years after the Web first captured the popular imagination—most journals are published in dual print and electronic formats and many are still published in print only. A growing number of journals are born digital, but the digital metamorphosis of established journals seems stuck in the transition zone.

With the establishment of online editions of journals, the next step was presumed to be that print would be shed and journals would continue their development in strictly electronic form. In the abstract, this makes perfect sense. After all, online publication opens compelling new possibilities for use of journals. Moreover, most users have warmly embraced online access. As a society director of publications observed, electronic publishing increasingly offers authors a “more hospitable environment” in which to publish.

While evidence suggests research libraries are moving inexorably toward electronic access to most journals, that doesn’t necessarily mean users have abandoned print en masse or that printed journals will no longer be published. Publishers are reluctant to turn their backs on existing revenue streams from print subscriptions, even if they are declining. And library subscriptions are not the only piece of the puzzle for many journals, such as those that largely rely on print advertising revenue. For society publishers, membership-related factors further complicate the situation.

Why Libraries Care
As long as dual-format journals persist, publishers remain saddled with the operational costs of maintaining two systems. However, given the apparent price inelasticity of demand in the journals market, it is unlikely that cost reductions from elimination of print would be passed along as price cuts to institutional subscribers. So why do libraries care if print editions continue to be published?

Perhaps the most direct impact for libraries is that the availability of dual formats results in dual acquisition and preservation challenges. The differences between print and electronic editions of journals will likely grow as unique capabilities of online publishing are understood and further developed and as readership bifurcates. Already differences between print and online versions of the same journal are not uncommon. For example, some publishers include extra content in the online edition—such as supplementary data in the online version that is not feasible to include in the print. At the same time, a print issue’s front matter, letters to the editor, editorial board list, or other shorter pieces may be omitted from the online version.

Also of concern—to libraries and publishers alike—is the opportunity cost of supporting dual-format publication. Maintenance of print editions consumes resources that might otherwise be directed at electronic
editions. The current hybrid state is especially challenging to small publishers, whose scarce resources are stretched thin. They often find themselves at a disadvantage in relation to large, resource-rich publishers as they compete for subscribers, authors, and readers. Since these small publishers often are societies or university presses, the situation is of more than passing interest to research libraries and the institutions that support them.

It is important to recognize that many self-publishing societies, particularly in the humanities and social sciences, haven’t yet entered the transition zone; their journals continue to be available only in print. These organizations probably account for the majority of the estimated 8,000 remaining print-only journals (about 40% of all peer-reviewed journals). Most of these societies publish a single journal, suggesting that lack of scale may be a barrier to e-publication. Although they may serve more print-oriented users today, they face the prospect of declining impact and deteriorating financial stability as a new generation of scholars takes over and print-only journals become increasingly marginalized if they aren’t available on the Internet.

Drivers of Change
Although change has reached across the journal-publishing marketplace, journals individually are at varying stages along a continuum from traditional print publication to dual print and electronic publication to (perhaps) electronic-only publication. Market-wide forces brought by the Internet will propel further change in the years ahead, but many of the next steps will be shaped by influences that need to be viewed from the individual publisher’s perspective. From there we see a complex matrix of market, financial, management, and technological inputs to decision making and action.

It is helpful to separate the forces that are actually driving publishers toward e-only publication from other less dynamic factors in the environment. A series of a dozen interviews conducted in 2007 by the authors with journal publishers, publishing platform hosts, and publishing production consultants aimed to shed light on the key motivations for publishers to go down the e-only path. These interviews point to a mix of financial exigencies and user expectations. (Unattributed quotations below are drawn from these interviews.)

Shifts in the Economics of Publishing
At its simplest level, the elimination of the print version of journals is an opportunity to improve a publisher’s bottom line or free-up funds to invest in new capabilities. It offers the prospect of eliminating printing, mailing, warehousing, claims, and other costs. But, of course, the net effect is favorable only if there is not an offsetting loss of revenue.

In recent years, many publishers have spoken of the added costs of publishing online. Because most of them are now publishing in two media instead of one, their financial statements reflect the additive effect unless they’ve taken assertive steps to squeeze out costs via process reengineering or use of productivity enhancing electronic tools, for example to manage manuscript submission and review.

As journal pricing evolved in recent years from print plus electronic (p+e) to electronic plus print (e+p) it has paved the way for e-only by establishing the expectation that the electronic is the primary version of the journal. Yet it is apparent that relatively few print journals have actually been replaced to date with electronic journals. Today dual media is the norm.

However, under the right conditions the opportunity to profitably discontinue print publication is present and sufficient to motivate action. Some society publishers have noted that they are losing money on individual/member print subscriptions. Publishers of all types would probably agree that printing and fulfillment costs are increasing sharply; both are impetuses toward offering e-only. Whether that impetus is converted into action depends on the perceived ratio of risk to reward.

Given the possibility of large-scale cancellations of institutional print subscriptions as libraries eliminate redundancy, publishers may soon be facing a rise in unit costs of printing as quantities dwindle. The impact will be greatest among publishers that mainly serve institutional subscribers or that rely on institutional print subscriptions to subsidize member subscriptions. At present, however, most publishers seem to be experiencing only gradual erosion of their institutional print base. One publisher reported a 6% annual decline in her society’s library subscriptions and another spoke of a “steady decline.” Eventually, however, the proverbial chickens will come home to roost.

Some publishing managers have begun considering the impact of various change scenarios and planning accordingly. One publishing technology vendor observed, “If there’s a precipitous drop [in institutional print subscriptions, the publishers are] not ready. If it’s slow, they will make a series of micro-adjustments,” such as developing online infrastructure, restructuring their pricing, expanding sales efforts, pricing adjustments, adding pay-per-view sales, etc.

Even without looming changes in volume, market factors also may argue for e-only publication in certain circumstances. Printing in color is expensive but is often highly valued by authors and readers. Shifting to e-only enables publishers to accommodate this demand for color without incurring the significant costs. For example, the American Society for Cell Biology (ASCB) recently decided to discontinue the print edition of Molecular Biology of the Cell (MBC) so that they could eliminate the cost of color printing and thus reduce color figure charges to their authors. (See Figure 1.) Only a relative handful of MBC’s authors were resistant to e-only. One of their
editors reportedly asked, “What print journal?”

A publishing consultant has observed that, “The right time to drop print is when your customers no longer want it enough to pay an economic price.” But the risk of this approach is that it may ignore the opportunity cost of continuing to support a declining print base at the expense of a growing online opportunity. Getting clarity on those costs and choosing the right time to abandon print is the challenge facing many publishers.

**Desire to Enhance Publication**

While the current importance of offering electronic editions of journals differs from field to field, most publishers appear to recognize the risk that, even in the scholarly world, readers will eventually stop using information that is not available online. Especially in scientific, technical, and medical fields, many publishers already have embraced technological capabilities that were not available in the pre-digital environment. These enhancements make editors more productive, peer reviewing faster and more convenient, and publication more timely and robust. By offering these capabilities, journals gain advantages in the competition for authors’ articles.

While the benefits of electronic publication do not necessarily argue for discontinuing print journals, they do imply that electronic publishing increasingly offers authors advantages in creating, presenting, and distributing their work. As the opportunity cost of continuing to invest in print becomes too great, online will be the growing focus of publishing processes. Except for top-tier, broad circulation titles—which sometimes are used more like magazines—or other exceptional circumstances, surviving printed editions may become mere add-ons available via print on demand.

The electronic edition is a rich environment in which to present and conduct scholarship. It can be readily discovered online, accessed at the desktop, and linked to related information. It can present content that is not suitable for print—data, sound, or video, for example. Use of research is expanded and accelerated online. Citation becomes easier and more accurate. Given faster connection speeds and cheaper server space, images that once were superior in printed form can now be of sufficient resolution online to offer advantages over print. Except where their licensing costs are a barrier, it is possible to offer images online without regard to the substantial cost of color printing. New kinds of computational analysis techniques are potentially opened up online, as is interactivity between users and content and collaboration among researchers.

A university press electronic publishing director suggested that movement toward the primacy of online publishing may be hastened by introduction of increasingly robust Web-based communities, social networking, and other Web 2.0 functionality. She wonders “if the

**Figure 1. Molecular Biology of the Cell**
Eliminating the print edition of their journal in 2008 will allow the American Society for Cell Biology to reduce color-printing charges levied on authors without incurring a loss. (Source: ASCB Newsletter, April 2007, http://www.ascb.org/files/mbc_cost_printing.pdf. Chart reprinted with permission.)
potential for personal interaction with content will more clearly delineate the advantages of electronic over print,” and is eager to understand how these features might bear upon the migration to e-only subscriptions.

Even putting aside many of the as-yet-unrealized possibilities of digital scholarship and the varying relevance of new capabilities in different fields, publishers interviewed pointed to the likelihood that generational changes will transform the publishing landscape. This shift will expand the importance of online publication—and perhaps even diminish the role of journals as we currently conceive them, regardless of medium.4

Dampers on Change
A move to e-only entails substantial adjustments to a publisher’s business and production operations as well as cultural adjustments to the online publishing environment. Anticipated savings in printing and mailing costs must be balanced against the risks of reduced readership, lost members (for societies), and forgone revenue. Plus there is the matter of the time, resources, and expertise to re-engineer production processes and devise new business strategies.

Publishers vary dramatically in their readiness to take on such challenges. The large commercial houses are relatively well prepared for an e-only publishing scenario. Societies and university publishers, on the other hand, run the gamut from having already adopted e-only in a relatively few cases to being far from ready to consider it. At this stage, there is not yet a clear path nor are there proven guidelines to follow.

Business Models and Marketing
It has taken time for publishers to decouple the pricing for print and electronic formats. For example, although the American Chemical Society has offered their journals in electronic form for several years, they just introduced a new pricing model in 2007 that replaces the historical print price with usage data as a factor in determining the price.

For societies the business model is further complicated when the print journal is provided to members either at a discount or as a benefit of membership, as is often the case. Publications, along with membership dues and meetings, are a main source of revenue for many scholarly societies. When libraries provide desktop access to journals, societies fear it can diminish the need for an individual’s subscription and thus jeopardize membership. Exacerbating the problem is the outlook for declines in membership with the impending retirement of the baby-boomer generation over the next five to twenty years.

According to one publisher, “a society may save 20% of their publication cost by discontinuing print but there are offsetting risks.” Early reports on a few societies that have switched their member benefit from a print subscription to an electronic one are mixed and reveal the need for careful planning. In one dramatic case, a society lost 25% of its members after print was abruptly dropped at the instigation of a board that was impressed with the potential for enhancements and presumed the electronic format was inherently superior.

Another society lost members and ad revenue before deciding to reinstate a print option. In both these cases, decisions were made somewhat arbitrarily and suddenly without adequate communication with members. These examples reinforce the fears of smaller societies, especially in the humanities, that declare they would lose members if they went e-only.

One life sciences society acknowledged that they subsidize their members’ print subscriptions via surpluses from institutional subscriptions, saying they “lose money with every member print subscription.” A business society chose to ease the transition by offering its members online access as a free member benefit and print for an added fee, while a science society is planning to allow the additional fee for print to rise over time to reflect the real costs.

“Eventually, there won’t be a choice for most journals,” suggests one publishing technology vendor. “The longer that society journals delay, the less efficient they will become relative to the for-profits and the costs for society journals will rise as they try to subsidize print from online.”

Although most print subscriptions are declining steadily, they are still a significant revenue stream for some and a source of security for many publishers. Print journals were typically marketed through direct mail and sold title by title through subscription agents. The transition to licensing electronic journals globally requires different skills internally and a new array of partners that can effectively reach libraries worldwide.

Electronic versions are more often sold as a package with other titles or additional years of content. To price the package attractively for a broad range of large and small institutions may involve tiered pricing or consortia discounts. Handling these electronic sales requires staff with the expertise to manage consortia negotiations and complex relationships with multiple agents globally. The many publishers whose titles are available online only in aggregator databases may be especially resistant to e-only since aggregator payments may not be sufficient to replace the lost subscription revenue.

Some journals, especially those in clinical medicine, rely on ads in the print publication; in one instance the ads represented 50% of the journal’s income. In such cases, discontinuing print can put ad revenues at risk unless the publisher develops a plan for ads in the electronic environment or, as one publisher reports doing, creating a new printed news publication and migrating the ads to it.

Production and Distribution
Though business models may increasingly be e+p, the production process for many publishers is still p+e.
Production is built around creating a printed product—with the costs of layout, typesetting, and page design—while the electronic version is a by-product. A publishing technology vendor noted that currently half of their publishers derive the online version after they have created the print version. He observed that, “There are a lot of publishers whose primary production stream is print and they have not thought out the implications for online.” Until this situation is resolved, a move out of the transition zone is impractical.

When an article is available either to be read on screen in HTML or downloaded and printed in PDF, evidence shows high use of PDFs. One publisher that offers articles in both HTML and PDF reported 50% of articles accessed are downloaded in PDF form. Thus, rather than eliminating printing altogether, the e-only business model may be simply shifting this task to the user. The length of the average scholarly article prompts many readers to print a copy rather than read on screen. Images can also encourage printing if screen resolution lacks the clarity of printed images. Since most users still expect to be able to download and print articles, the requirement for publishers to create a printable version remains.

But to thrive in an e-only environment, it is necessary to optimize the potential of digital formats. This means re-engineering publishing processes to incorporate XML tagging earlier in the process so that it applies to the entire document, not just the metadata. Use of XML can provide flexibility in utilizing or repurposing content from various formats and sources to create documents that can be far more efficiently output in print or online for new applications. For example, if case studies appearing in each issue of a journal were XML-tagged, it would be easy to collect them in a single document for classroom use. XML-tagging of text also facilitates searching and discovery by humans and machines.

Of course, this adaptation requires investment, which can challenge many smaller publishers who, in addition to lacking the requisite capital, are without the technical expertise and economies of scale of larger operations. “Societies with sufficient staff dedicated to business-related issues are the exception rather than the norm. This lack of in-house resources becomes especially critical as the transition to electronic dissemination accelerates.”

As print subscriptions have declined, some publishers have been forced to consider how to manage changes in demand. Their printers have responded in a variety of ways. Some have invested in digital technologies that can produce high-quality and cost-effective small print runs or print on demand. Of particular significance to some disciplines are new processes adopted by printers that drive down the cost and improve the quality of color images.

**Readers, Authors, and Markets**

Perceptions of readers’ readiness for electronic-only publications reinforce publishers’ thinking about continued support of print.

A manager of social science journals noted that there are no obvious benefits for the publisher to discontinue print because “print is still the center of our universe.” One society publisher who is considering e-only observed that they would “alienate” a minority of members if print were no longer available. Another society found that 25% of their members were willing to pay extra for the electronic version when it was offered in addition to their print member benefit. When they flipped their model to an electronic benefit with print for an additional fee, 33% of their members were willing to pay extra for the print.

Until members choose to relinquish print, library preference alone may be insufficient to prompt a switch to e-only by societies. Library subscription revenue is significant to most society publishers, but the number of member subscriptions far exceeds the number of library subscriptions. (See Figure 2.) And for some publishers, print advertising revenue is sufficient to motivate continued print publication for as long as individual/member subscription volume is adequate to attract advertisers.

**Figure 2. Changes in a Society’s Print Subscriptions**

When one society switched their member benefit from print to electronic, the proportion of print attributable to library subscriptions increased from 16% to 31% of total print. The percent increase might have been higher except that a third of their members chose to pay extra to retain their print. (Source: One society publisher’s subscription data.)
Some publishers stated that print and electronic formats are used by readers in different ways. According to one society publisher, the print edition is useful as an alerting service, is portable, and is convenient to read and browse while the online version is used as an archive to find articles that have been read or to search topics across multiple years.

Author perceptions also weigh heavily with publishers. Some publishers believe that print copies of a journal aid in attracting authors who want wide readership. The director of a platform host noted that publishers “fear they will not compete as effectively for authors without a print edition.” To the extent that dual-format publishing extends readership, actions that eliminate print may also constrict readership. The effects of such losses are more than purely economic. Society publishers emphasize a broad readership and thus fear sacrificing a portion of current readers and ultimately limiting the audience for authors by discontinuing print subscriptions.

Some commercial publishers have indicated that print is still required in particular international markets for a variety of reasons. For instance, a major disincentive to e-only sales in Europe is the Value Added Tax (VAT) tax that applies to services such as e-journals but not always to print products.

**Outlook**

As use and norms evolve, print journals will increasingly exist to address specialized needs or business opportunities. For libraries a 100% e-only journals environment is remote, but 95% could be on the horizon. But a more mixed picture is likely for publishers, especially societies and advertising-driven journals. Nevertheless, financial imperatives and changing use patterns will draw many publishers toward a tipping point where it no longer makes sense to subscribe to or publish printed versions of most journals.

A decline in print subscriptions will be accompanied by an increase in the relative cost of supporting each of the formats, raising the threshold for justifying their continuance. Both publishers and libraries will be driven to rationalize their investments in declining print revenue streams and to finance investments in infrastructure and emerging opportunities. Some will be faster to do so, such as those already straining from the cost burden. Others will be slower, such as publishers with a self-supporting base of individual subscribers or significant advertising revenue from print.

In the humanities, and social sciences, resistance will dwindle as generational change leaves its mark and a critical mass of electronic resources (including books and primary documents) reach the desktops of users and bring productivity gains. In the arts, progress may turn on reduction of the higher cost of licensing images for online publication.

Large commercial publishers, being both financially attuned and generally less encumbered by membership needs (except to the extent that they publish journals for societies), could change the game by moving large numbers of journals to e-only. If their reported concerns about slower take-up of e-only by libraries outside North America are overcome, change could soon follow. This would alter the norms and embolden other publishers to follow.

The interdependency of libraries and publishers is in sharp contrast to the differences that frame their separate motivations, perspectives, and decision-making processes. Yet the impact of their actions on the work of scholars and the progress of scholarship suggests the urgency of finding an appropriate means of “social coordination” to reduce some of the risks associated with the large-scale changes in journals that lie ahead. Issues emerging from this study suggest the need for a fuller examination of and response to obstacles impeding the transition of journal articles fully into the digital networked environment.

Further work centering on these areas by librarians, publishers, or both could help accelerate the ongoing migration from dual-format publishing to a new environment of single format (electronic) publishing. The goal of focusing on these areas must be to equip publishers and librarians with sufficient information and insight to successfully navigate through today’s transition zone.

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3 Mark Ware, “E-only Journals: Is It Time to Drop Print?” Learned Publishing 18, no. 3 (July 2005): 193.

4 It has been argued that the traditional functions of a journal can now be distributed via the Internet among various service providers, rather than being tightly bound together in a journal. For example, it is no longer obligatory for the certification of research quality (e.g., the peer review process overseen by a particular editorial board) to be bundled with dissemination; they can be independent. This disaggregation implies the expanded significance of the article and the reduced importance or even disappearance of the journal as currently conceived. Discussed in Richard K. Johnson, “Will Research Sharing Keep Pace with the Internet?” Journal of Neuroscience 26, no. 37 (Sept. 13, 2006): 9349–51, http://www.jneurosci.org/cgi/content/full/26/37/9349.

5 Crow, 7–8.
BOUND FOR DISAPPOINTMENT: FACULTY AND JOURNALS AT RESEARCH INSTITUTIONS
by Jim Self, Director of Management Information Services, University of Virginia Library

Editor’s Note: It is widely understood that faculty have voracious appetites for journals, appetites that are hard for a library to satisfy. The report below quantifies the pervasiveness of this faculty disappointment even across research libraries with very large journal collections and highlights the alignment of this assessment with faculty overall feelings about the library. In addition, the author describes how the University of Virginia Library conducted follow-up interviews with their faculty to identify specific shortfalls in the journal collections and understand better how to address real or perceived collection gaps.

An earlier version of this paper was presented at the Seventh Northumbria International Conference on Performance Measurement in Libraries and Information Services, Stellenbosch, South Africa, August 15, 2007.

Overview
LibQUAL+® is a suite of services that libraries use to solicit, track, understand, and act upon users’ opinions of library service quality. The program’s centerpiece is a rigorously tested Web-based survey where respondents offer their views about the services offered by their library. Specifically, the survey asks the user to report on their desired, perceived, and minimal level of expectations for a range of library services.

This paper mines LibQUAL+® data for 2004, 2005, and 2006, focusing on faculty at ARL member libraries, and their responses to the survey question that asks about the library’s “Print and/or electronic journal collections I require for my work” (question IC-8).

One of the striking findings of the LibQUAL+® survey is the low regard that academic faculty, even in large research institutions, have for the journal collections in their own libraries. Most reporting of LibQUAL+® results has used composite results, either conflating faculty and students into a single category, or combining several variables into a single “dimension.” A search of the LibQUAL+® literature does not reveal any reporting or analysis of faculty evaluations of journal collections.

ARL is an organization of 123 of the largest research libraries in North America. Of these institutions, 113 are university libraries. Each of these libraries spends a considerable sum purchasing journals and other serial publications. In fiscal year 2005, serial expenditures at ARL university libraries ranged from $1.6 million to $11.3 million.

In the three years from 2004 through 2006, 76 of these 113 university libraries in ARL conducted LibQUAL+® surveys of their faculty. During this period, thousands of faculty members at ARL institutions have completed the LibQUAL+® survey. These faculty have consistently stated that their libraries are not meeting their minimum needs when it comes to print and/or electronic journal collections. In 2006, a total of 37 ARL libraries used LibQUAL+® to survey academic faculty.

This paper explores an important question: Given the substantial investment in journals at ARL libraries, why are faculty at these institutions consistently dissatisfied with their library’s journal collections?

Methodology
This paper analyzes LibQUAL+® results at ARL libraries in 2004, 2005, and 2006. For 2004 and 2005 the ARL composite notebooks were examined to provide an overview of the results. The 2006 results were studied in more detail; the results notebooks of each of the 37 participating ARL libraries were examined and analyzed. The analysis of the 2006 data focused on faculty responses, but there was also some examination of graduate student responses.

The 2006 responses of faculty and graduate students at the University of Virginia received further analysis, using the full data file, rather than relying on the notebooks. Results for question IC-8 were tallied for each major discipline, in order to determine which academic areas were most (and least) dissatisfied with the library’s journal collections.

The quantitative information was supplemented with qualitative data from the University of Virginia (U.Va.). The comments from the survey were examined. In addition, a total of 82 faculty members at U.Va. were interviewed. They were asked to state their needs and desires for journal collections, and to provide detailed information regarding shortfalls, including specific names of missing journal titles and databases. The interviews concluded with open-ended questions regarding journal resources and services.

The LibQUAL+® Survey
The LibQUAL+® survey includes demographic questions, general satisfaction questions, information literacy questions, queries on frequency of use of libraries and search engines, and a set of locally selected questions. However, the distinctive aspect of LibQUAL+® is the set of 22 core questions for which the respondent provides three answers on a 1–9 scale: the minimum level, the desired level, and the perceived level of the service actually provided by the library.

This three-part answering scheme is what makes LibQUAL+® particularly noteworthy. Some respondents are confused or annoyed by this feature; however, it allows LibQUAL+® to provide information that is not available in a standard survey. It allows the analyst to compare desired level and minimum level with the
perceived level of service for each of the 22 items, and for each category of respondent. It provides context for each set of scores.

**Results at the University of Virginia**

Figure 1 displays the responses of University of Virginia faculty when LibQUAL+® was administered in November 2006. The graph shows the three scores for each of the 22 core questions. The top of the bar is the desired level, the bottom is the minimum. The gold square indicates the perceived level. In an ideal world, the square would be at the top of each bar.

The graph clearly indicates that U.Va. faculty place a relatively high value on “affect of service” (the left side of the chart), and believe the library is performing at almost optimal level. The faculty give an even higher value to “information control,” and believe the library is barely meeting the minimum, or is falling short. “Library as place” is not important for faculty, and given those low expectations, the library is performing adequately.

Figure 2 provides the same display for U.Va. graduate students, who also have high expectations, and rather low perceived ratings, for information control. In the other areas the library is performing at least adequately.

**Results at ARL Institutions**

In 2006, 37 ARL libraries surveyed their faculty. The composite results are shown in Figure 3.

When examining the composite of 37 ARL libraries, one finds results similar to U.Va., but with more negative scores in the information control section. Faculty at large research libraries throughout North America are willing to say the library is not meeting their minimum needs when it comes to collections and resources.

This paper is focusing on question IC-8: “Print and/or electronic journal collections I require for my work.” Looking at Figure 3, one sees that IC-8 has the
highest “desired” score, the highest “minimum” score, and the largest negative gap between the “perceived” level and the “minimum” level.

Journal collections are what ARL faculty want most of all, and the area of their greatest dissatisfaction.

**Comparisons over Time**

Figure 4 compares composite scores for faculty and graduate students at ARL institutions for question IC-8 over the past three years. The ratings for journal collections have consistently been in the negative zone; 2006 was not an exceptional case.

**Results at Each Participating ARL Library**

Figure 5 drills into the ARL data, showing the faculty scores for IC-8 at the 37 ARL libraries that conducted LibQUAL+® in 2006. The libraries are arranged from the largest (on the left) to the smallest (on the right). In only two of the libraries did the faculty rate the journals above the minimum level.

In scanning the bars across the chart, it is apparent that the desired level at the smallest libraries is almost as high as it is at the largest libraries. However, the perceived ratings tend to drop as one moves from largest to smallest.

What is most remarkable about this graph is just how very important journals are for faculty across ARL institutions—from largest to smallest.

Serial expenditures at ARL libraries in fiscal year 2005 ranged from $3.6 million to $11.4 million. The 37 libraries shown above spent a total of $232 million for serials that year.³ However, there is no statistical relationship between serial expenditures and the faculty desired score. (r = -.14) In the ARL libraries, faculty at smaller institutions, with smaller libraries, want journals just as much as those at the largest schools.

Asking a somewhat different question: do serial expenditures seem to affect the perception of journal...
collections (as opposed to the desired level and minimum level)? There is a connection between serial expenditures and the level of satisfaction regarding journals. When comparing the IC-8 “adequacy gap” and serial expenditures of the 37 participating ARL libraries, one finds a positive correlation of .63.

**Journal Ratings and Overall Satisfaction**

Another issue worthy of exploration is the connection between journal scores and overall satisfaction. The scattergram in Figure 6 plots faculty results for two variables in the 2006 LibQUAL+® survey: overall satisfaction score and IC-8 adequacy gap for each of the 37 ARL participants.

The vertical scale in the scattergram is the overall satisfaction score; the horizontal scale is the journals question. Each square is an ARL library. The libraries closely follow the trend line. Only two libraries had a positive score on the journals question, but several were very close to the minimum level. The ones close to the vertical line all had high overall satisfaction.

The correlation between the IC-8 adequacy gap and overall satisfaction is a very strong .81. If faculty are happy with the journal collections, they are happy overall.

**Following up at U.Va.**

At the University of Virginia there has been an effort to identify specific sources of dissatisfaction. The comments submitted with the LibQUAL+® survey were examined. The qualitative information provided general information, but nothing very specific or actionable. Typical comments were:

- “We need more journals in my field.”
- “Budget problems have caused too many cancellations.”

Another part of this effort sought to identify those academic areas with the greatest dissatisfaction. Figure 7 displays the journal collections ratings among...
U Va. faculty and graduate students in each major academic unit.

This display shows clearly there are shortfalls in the architecture school, the engineering school, and the humanities departments. With this information in hand, the Management Information Services (MIS) unit at the U.Va. Library followed up the LibQUAL+® data with a series of very brief interviews with faculty. The purpose was to find specific issues and problems relating to journal collections. The interviews were not given to a random group of faculty. While the interviewees were diverse, the focus was on those areas that had given low scores in the journals question. Each interviewee was asked to state his or her specific needs and wants regarding journal collections. A total of 82 faculty were interviewed, distributed as follows:

- Humanities 20
- Engineering 19
- Architecture 14
- Social sciences 10
- Science/math 8
- Education 7
- Music/arts 2
- Business 2

The results from the interviews were suggestive, but not definitive. Nearly everyone said the library was meeting their minimum level for journals, but many respondents said the library was not meeting their desired level. The specific shortfalls mentioned included the following:

- Access to journals is confusing
- More foreign titles are needed
- More older content and backfiles are needed
- Location (branches, storage) is often a problem
- Electronic remote access does not work well
- Browsing facilities need improvement

In summary, no single issue is producing the shortfalls. Searching and access are major problems, but not the only problems. At the University of Virginia Library there are continuing efforts to improve the search interfaces, and a greater effort to inform and instruct faculty and graduate students, as well as increased awareness of the importance of journals to faculty. It is hoped these measures will bring greater satisfaction, or less dissatisfaction, with the journal collections.

Whatever the reasons for the discontent, the basic finding of this study is the importance of journals to faculty. When it comes to libraries, journals are the most important item for faculty, and the source of their greatest dissatisfaction. How faculty feel about the library is closely aligned to the feelings toward the journal collections.

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2 Colleen Cook et al., LibQUAL+® 2006 Survey: ARL (Washington DC: ARL, 2006), http://www.libqual.org/documents/admin/ARL_Notebook_2006.pdf. The LibQUAL+® notebook for 2006 lists 46 ARL members as participating that year. The number includes four health science libraries, two law libraries, two small units within the institution, and one institution that surveyed students but not faculty. These nine participants are not included in the analysis for this paper. All institutional data are derived from the 37 institutional LibQUAL+® notebooks that are available only to survey participants through the LibQUAL+® Web site and this article complies with the LibQUAL+® Policy on Disseminating Results that states, “Institutions may use other libraries’ data in a confidential manner without disclosing the institutional identity of other libraries.”

THE AUDACITY OF SCOAP$^3$
by Ivy Anderson, Director of Collections, California Digital Library

Introductory Note: SCOAP$^3$ (Sponsoring Consortium for Open Access Publishing in Particle Physics) is a grand experiment. It is a new model for scholarly communication proposed by a community of scientists. Physicists interested in expanding access to their literature have designed a novel approach to garner support from individual libraries, library consortia, research institutions, and even nation states to turn a core set of journals in the high energy physics (HEP) discipline into open access publications. SCOAP$^3$ aims to convert all HEP literature published in high-quality journals, existing and new. This operation will be facilitated by the fact that seven journals carry the largest majority of the literature in the field. These journals are published by the American Physical Society (APS), SISSA-IOP, Elsevier, and Springer. Already leaders in making their science freely accessible through the e-print service arXiv, the scientists are now proposing to make a substantial portion of the published literature open access as well.

The project principals have estimated that the total amount of money currently spent by the library community on these titles worldwide is about $15M US. They estimate that the US commitment to make the publications open access would be $4.5M. The general plan is to provide a financial base of support by creating a consortium of institutions that would “redirect” the money they currently pay for subscription access to support open access publication.

On February 29, 2008, the University of California, Berkeley, hosted a meeting for the US community during which the SCOAP$^3$ model was described and organizers reported on financial commitments received to date. Ivy Anderson provides the following summary of the day. Slides and videos of the presentations are available at http://www.scoap3.org/focalmeeting.html.

—Julia Blixrud, Assistant Executive Director, External Relations, ARL, and Assistant Director, Public Programs, SPARC

On February 29th, I had the privilege of participating in the US focal meeting on SCOAP$^3$ at the University of California, Berkeley. (Disclosure: I was one of the organizers of this meeting, and the University of California, for which I work, was the first US institution to express tangible support for SCOAP$^3$. ) Based at CERN, SCOAP$^3$ is an open access (OA) publishing initiative of a new and different sort—one that is largely non-disruptive to both scholars and publishers, and in whose discussions at least two society publishers (APS and IEEE) are actively participating. That these unique aspects have attracted so little attention is surprising; one can only assume that no one has been paying serious attention. Hopefully, that will not be the case for long.

There are several important elements that distinguish SCOAP$^3$ from other OA initiatives:

SCOAP$^3$ is a funding consortium that seeks to mediate between author and publisher, while still conceiving of payment as a supply-side activity. By pooling funds from multiple sources and asking publishers to submit to an open tender process, it is hoped that publishing fees can be reduced. The notion of a consortium of funders has significant new appeal for three reasons: first, it avoids shifting the burden of funding to individual authors; second, it provides a context in which funds from multiple sources—libraries as well as other funding agencies—can be aggregated and deployed to support the peer review and publishing process; and third, by aggregating funds on behalf of authors, the consortium can exert the leverage of the marketplace to negotiate fees and control costs at an earlier point in the publishing cycle. This is fundamentally different from models that ask authors to cough up funds for their own articles or invite libraries to finance the publishing activity of their institutions’ authors in a decentralized, disintermediated, and ultimately unsustainable manner.

SCOAP$^3$ is non-disruptive to authors—and to a substantial degree, to publishers and societies. As noted above, SCOAP$^3$ insulates authors from publication charges, which can act as a powerful disincentive in the “author-pays” OA model. In addition, it maintains the vetting and credentialing functions of the existing journals while transforming them to open access. This is why the societies that publish HEP journals have actively engaged in the discussions about SCOAP$^3$—it proposes to support, not replace them. The most critical functions of the current scholarly system, functions which work well for scholars, are preserved under SCOAP$^3$, while still undergoing significant transformation.

SCOAP$^3$ has the potential to fundamentally alter the role of libraries in the publishing process. SCOAP$^3$ funding agencies, including libraries, will be responsible for the governance structure that is formed to contract with publishers for peer review and publishing services, placing libraries in a role that is well aligned with the “university as publisher” paradigm gaining currency in other areas of university-based scholarship. This alignment will place new demands on libraries and assign to them new roles in administering the outputs of scholarship and research.

SCOAP$^3$ has emerged in a discipline that is responsible for some of the largest and most ambitious experiments in all scientific endeavor. Scholar-led, its fundamental aim is the development of a global e-science infrastructure commensurate with the ambitions of its scientists. In the SCOAP$^3$ model, final published articles will be deposited in a network of open access repositories, enabling unrestricted data mining and re-use of scholarly output.
SCOAP$^3$ makes such deposit a key element of the model. Everyone interested in the grand experiment of open access publishing, whether pro or con, should sit up and take notice of this audacious new OA accelerator that is SCOAP$^3$. To be sure, the success of this endeavor is far from certain; but that is precisely what experimentation aspires to teach us. The California Digital Library on behalf of the University of California Libraries is pleased to have been the first organization in the US to sign a formal letter of intent to provide SCOAP$^3$ with financial support. All libraries who envision a future in which academic libraries assume new roles in building and supporting the research cyberinfrastructure, or who seek to advance the convergence of libraries and academic publishing, should join the experiment and boldly accelerate its findings.

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**ARL Creates Web Guide to NIH Public Access Policy**

Earlier this year, ARL developed a Web-based guide to assist research institutions in implementing the new Public Access Policy adopted by the National Institutes of Health (NIH).

The new NIH Public Access Policy, which becomes effective April 7, 2008, calls for mandatory deposit in PubMed Central of peer-reviewed electronic manuscripts stemming from NIH funding. The change from a voluntary to mandatory policy creates new expectations, not just of funded investigators, but also of the grantee institutions that support those investigators.

The ARL guide, “The NIH Public Access Policy: Guide for Research Universities,” focuses on the implications of the NIH policy for institutions as grantees, although some information for individual investigators is included and links to further details are provided. The guide is helpful to a range of campus constituencies that may be involved in implementing the new policy, including research administrators, legal counsel, and librarians.

In addition to compliance concerns, the guide considers the benefits of the new policy and institutions’ opportunities to build on the policy requirements by seeking additional rights for using funded research to address local needs.

Reflecting the dynamic nature of campus implementation activities, the guide will be updated as more campuses release plans, resources, and tools that can serve as models for their peers.

The guide is freely available online at http://www.arl.org/sc/implement/nih/guide/.

**Taking Action on SCOAP$^3$**

by Julia Blixrud, Assistant Executive Director, External Relations, ARL, and Assistant Director, Public Programs, SPARC

To move the SCOAP$^3$ project forward, libraries and consortia can take the following steps:

2. calculate the amount of their pledge to SCOAP$^3$ by estimating their current expenditures on seven HEP core journals, as outlined at http://scoap3.org/whichjournals.html;
3. sign the expression of interest to join SCOAP$^3$ at http://www.scoap3.org/scoap3us.html; and
4. promote the project within the physics community on campus.

After enough commitments are made, the SCOAP$^3$ principals will issue a tender to the publishers of HEP journals. The publishers answer the tender and a formal agreement on details is made. SCOAP$^3$ participants then establish the consortium, decide on governance, and commit funds. Finally, contracts are signed with publisher partners and funds are transferred. The yearly cost of the SCOAP$^3$ operation will be determined by the number and the prices of contracts awarded following an invitation to tender, and will be reissued regularly.

While many details are yet to be clarified, the project can provide the library, scientific, and publishing communities with information on the effects of making a discipline’s published literature freely accessible as well as this particular new approach transitioning journals to open access. For more information about SCOAP$^3$, see http://www.scoap3.org/.


In February, the National Information Standards Organization (NISO) issued **SERU: A Shared Electronic Resource Understanding**, which codifies best practices for the sale of e-resources without license agreements.

SERU offers publishers and librarians the opportunity to save both the time and the costs associated with a negotiated and signed license agreement by agreeing to operate within a framework of shared understanding and good faith.

The SERU document and additional information about the process of its development can be found at http://www.niso.org/committees/seru/.
A TRIBUTE TO DUANE WEBSTER
by Sul H. Lee, Peggy V. Helmerich Chair and Dean, University Libraries, University of Oklahoma

In everyone’s professional life there are people who become one’s mentors and models for emulation. They are the people who lead and others readily follow. All fields of endeavor have them and librarianship is no exception. One person who has made a lasting impression on me, as a mentor, leader, and model is Duane Webster, Executive Director of the Association of Research Libraries (ARL). Duane will retire in 2008 after 38 years of service and his presence will be greatly missed.

I first met Duane Webster in 1973 when I was Associate Director of Libraries at the University of Rochester working on a Management Review and Analysis Program (MRAP) project. Duane was then working in ARL’s Office of Management Studies and was serving as a consultant to the University of Rochester Libraries for its MRAP study. I was immediately impressed with his professional knowledge and understanding of library issues and, most of all, his vision for libraries of the future. I later became better acquainted with him when I had an opportunity to serve on the committee that oversaw the Office of Management Studies.

When I became Dean of University Libraries at the University of Oklahoma in 1978 my work brought me in more frequent contact with Duane. As I began my new position at Oklahoma, the University Libraries was finishing its own MRAP study and I invited Duane to speak to the librarians here. In 1988, he became executive director of ARL and our already lengthy association continued and our friendship grew.

Duane has served as Executive Director of ARL for 20 years. That in itself is a major accomplishment. It is the longest tenure of an executive director in ARL’s history and speaks volumes about Duane’s interpersonal and leadership skills. It is, indeed, a challenge to lead 123 of North America’s most accomplished librarians for two decades.

It was Duane’s leadership that brought a new era to ARL beginning in 1989 as he addressed a wide variety of emerging issues in ways that positively affected all academic libraries. Duane created the ARL Office of Scholarly Communication, which called attention to skyrocketing serial prices and explored ways and means of dealing with this financial crisis in libraries. In partnership with CAUSE and EDUCOM he established the Coalition for Networked Information (CNI), which promoted the use of the Internet to enhance academic scholarship. He has played a major role in CNI’s development, management, and staffing over the years. It was under his leadership that ARL secured a grant from the Andrew W. Mellon Foundation to put in place a professionally staffed unit for gathering statistics and measurement capacity to improve ARL data. Working with Texas A&M University staff, Duane developed Web-based assessment services that allowed universities to analyze and evaluate user perceptions of library performance. This service became known as LibQUAL+,® and has been utilized by many academic libraries to improve services for their clientele. He began the Scholarly Publishing and Academic Resources Coalition (SPARC) to promote scholarly publishing systems for the improvement of access to scholarly journals in the sciences, technology, and medicine. Equally important was Duane’s establishment of the Global Resources Network for improving access to foreign language resources and his work with intellectual property legislation and litigation. He was in the forefront to promote a diversity program that helped research libraries build a more diverse staff; and he was a strong advocate for enhanced copyright legislation. Indeed, Duane was a key player in the development of the Library Copyright Alliance.

A couple of Duane’s accomplishments were tangential to his work with library issues, but nonetheless of paramount importance to ARL. One was his successful increase of the ARL organizational budget from $3 million to more than $7 million and the establishment of a $1 million reserve fund. Another achievement was moving the organization to 21 Dupont Circle, which made ARL more visible to its constituency and improved the working space for its staff. His efforts to make ARL an integral part of higher education were rewarded in partnerships with EDUCAUSE and the establishment of CNI; with the Association of American Universities (AAU) and the creation of Global Resources Network; and, perhaps most significantly, in the invitation for ARL to join and become the only library-related organization in the Washington Higher Education Secretariat.

From another perspective, but highly indicative of his dedication to his work, it should be noted that in the 38 years of his association with ARL, Duane never missed a Membership Meeting and participated in more than 200 ARL Board meetings. During this time he has worked with more than 500 ARL member representatives and reported to 19 different ARL presidents.

Duane’s career with ARL may be summed up by noting that he successfully raised the influence and visibility of the organization both nationally and internationally and, while doing so, improved scholarly communication and focused attention on the rapidly changing role of the academic library. These are all laudable achievements that reflect Duane’s amazing leadership abilities. I predict it will be a long time before his achievements are equaled and even longer before they are surpassed. Thanks to Duane Webster, ARL has become a more responsive and more
COLUMBIA UNIVERSITY LIBRARIES CONVENE SYMPOSIUM IN HONOR OF DUANE WEBSTER

James G. Neal, Vice President for Information Services and University Librarian at Columbia University, has organized a symposium in honor of Duane Webster, Executive Director, ARL. Webster is retiring after 38 years at ARL, including the past 20 years as Executive Director. The symposium is an occasion to reflect on his leadership, the changes underway in research libraries, and the future agenda of ARL. The symposium will be held April 25 at Columbia University’s Low Library.


TRANSITIONS

ARL Transitions

Boston College: Jerome Yavarkovsky announced his retirement from his position of University Librarian, effective June 30, 2008.

Georgia Tech: Rich Meyer announced his retirement from his position of Dean and Director of Libraries, effective summer 2008.

Indiana: Patricia A. Steele was named Ruth Lilly Dean of University Libraries, effective January 1, 2008. She served as Ruth Lilly Interim Dean since 2005.

Ohio: Scott Seaman was named Dean of Libraries, effective April 1, 2008. He was formerly Associate Director, Administrative Services, Norlin Library, University of Colorado at Boulder.

Rochester: Susan Gibbons was named Vice Provost and Andrew H. and Janet Dayton Neilly Dean of River Campus Libraries, effective March 1, 2008. She was previously Associate Dean for Public Services and Collection Development in the same library, and succeeds Ronald F. Dow, who stepped down March 1 after 11 years as Dean.

ARL Staff Transitions

Mark Young resigned as Statistics Liaison, effective March 7, 2008, to take a position at PinnacleSports.com.

Other Transitions

American Council on Education: Molly Corbett Broad was named President, effective May 1, 2008. She is currently a professor in the School of Government at the University of North Carolina (UNC) at Chapel Hill and was formerly UNC President.

HONORS

Daniel E. Atkins, inaugural director of the Office of Cyberinfrastructure at the National Science Foundation (NSF) and a distinguished professor in the School of Information and in the Department of Electrical and Computer Engineering at the University of Michigan, was named the 2008 recipient of the Paul Evan Peters Award. The award recognizes notable, lasting achievements in the creation and innovative use of information resources and services that advance scholarship and intellectual productivity through communication networks. The award is presented by CNI in concert with ARL and EDUCAUSE

Lynne Brindley, Chief Executive of the British Library, was named a Dame of the British Empire in the New Years Honors for her services to education.

Carol Pitts Diedrichs, Dean of Libraries at the University of Kentucky, was awarded the 2008 Association for Library Collections & Technical Services (ALCTS) Ross Atkinson Lifetime Achievement Award for her exceptional service to ALCTS and its areas of interest.

Peggy Hoon, Special Assistant to the Provost for Copyright Administration at North Carolina State University and former ARL Visiting Scholar and developer of the ARL Know Your Copy Rights initiative, is the 2008 recipient of the L. Ray Patterson Copyright Award: In Support of Users’ Rights. The award is sponsored by the American Library Association (ALA) Office for Information Technology Policy (OITP) and the OITP Copyright Advisory Committee.

McMaster University Libraries was awarded an Association of College and Research Libraries (ACRL) Excellence in Academic Libraries Award for 2008. The award recognizes the library staff for programs that deliver exemplary services and resources to further the educational mission of the institution.

Duane E. Webster, Executive Director of ARL, was named as the 2008 recipient of the American Library Association (ALA) Joseph W. Lippincott Award in recognition of his many accomplishments during his distinguished career at ARL.
ARL Calendar 2008
http://www.arl.org/events/calendar/

May 20–23  ARL Board & Membership Meeting
            Coral Gables, Florida

June 3  Using LibQUAL+® Effectively
        Washington DC

June 28  SPARC-ACRL Forum
        Anaheim, California

June 28–July 1  LibQUAL+® Consultations at
                 ALA Annual Conference
                 Anaheim, California

July 28–29  ARL Board Meeting
            Washington DC

August 4–6  Library Assessment Conference
            Seattle, Washington

October 1–4  National Diversity in Libraries
             Conference
             Louisville, Kentucky

October 14–17  ARL Board & Membership Meeting
               Washington DC

November 17–18  SPARC Institutional Repositories Meeting
                Baltimore, Maryland

December 8–9  CNI Fall Task Force Meeting
              Washington DC

ARL Membership Meetings 2009

May 19–22, 2009, Houston, Texas

October 13–16, 2009, Washington DC
Tentative dates