The Development of Resource Sharing, Scholarly Communication, and the Role of Publishers in the Context of Academic Libraries

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Abstract

Both commercial and noncommercial publishing have impacted interlibrary loan and other types of resource sharing, such as patron-driven systems, in a variety of ways. Interlibrary loan has always been a concern of publishers, with the possibility libraries would copy in "such aggregate quantities as to substitute for a subscription to or purchase" of a work (CONTU 1978). Exceptions and limits have been in place in the law and as guidelines for library copying for patrons and interlibrary loan since 1978. However, over the past five decades or so, as traditional print publications, electronic "Big Deals," licensing, and permissions have become increasingly unsustainable for library budgets, the open access (OA) movement has gained acceptance and has influenced resource sharing as well. OA materials are being used to fulfill resource-sharing requests, and researcher behavior may bypass traditional means of resource sharing altogether for greater speed and ease of access. Traditional publishing has found itself at a crossroads with the need to adapt as researchers increasingly accept new models of scholarly communication. There are plenty of moving parts in resource sharing today, and these are explored herein.

Introduction

Even for the largest and most well-funded libraries, it has never been possible to own every work its patrons need or want. Basil Stuart Stubbs tells the tale of interlibrary loan (ILL), or as it is alternatively known, resource sharing, in a long-ago issue of *Library Trends* (April, 1975). ILL has existed as a concept since at least the seventeenth century when French humanist Nicolas Claude Fabri de Peiresc tried and failed "to arrange for the

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interlibrary lending of manuscripts between the Royal Library in Paris and the Vatican and Barberini libraries in Rome" (Stuart-Stubbs 1975, 649). This idea was revived briefly in 1876 when Samuel Green presented his paper on "personal relations between librarians and readers," and suggested that "an agreement should be made to lend books to each other for short periods of time" (quoted in Stuart-Stubbs 1975, 649). Again, the idea was ignored and forgotten until Bunford Samuel wrote his 1892 letter to *Library Journal* attempting to revive this idea (quoted in Stuart-Stubbs 1975, 650). In it, he pointed out that these arrangements were already taking place between "Harvard College Library and the Boston Athenaeum" (quoted in Stuart-Stubbs 1975, 650). Over the next few decades, a nascent ILL system developed, one which Richard Rogers Bowker, editor of *Library Journal*, praised as follows: "It is not wise to cumber the shelves in any library with books seldom called for, provided they can be borrowed elsewhere when required" (quoted in Stuart-Stubbs 1975, 661), whereas, Library of Congress reading room superintendent William Warner Bishop wrote, "The inter-library loan is an expensive process . . . one wonders whether the time spent in borrowing and lending between libraries does not represent in money value a good many times the value of the book lent" (quoted in Stuart-Stubbs 1975, 660). This tension exists today as libraries struggle to keep up with readers' demands and needs. How are ILL transactions affected by publishers' practices? Are those needs better fulfilled by purchase or by ILL? What if some authoritative, peer-reviewed scholarly research is freely available to anyone with access to an internet connection? Does this eliminate the need for ILL as a service? Do scholars easily locate these materials? Both Bowker and Bishop were—and are—correct. As much as libraries have changed, even since 1975, library leaders and ILL practitioners struggle to find the right balance among factors such as discovery, ownership, and access, weighing factors such as speed, delivery mode, storage space (both physical and virtual), new technologies, and, most importantly, expense.

Scholarly Communication, Peer Review, Copyright, and Technology

Although journals as "we know them" have existed for over 350 years (Tagler 2005), peer review is a relatively new practice. Dennis Dillon (2012) writes about scholarly communication, noting that peer review is just under sixty years old. Librarians began to express concerns about the "information explosion" in the 1960s, pondering the growing amount of publications "resulting from federal funding for the cold war and the space race" (Dillon 2012, 614). Over time, this phenomenon evolved into an ongoing three-player type of chess game between researchers, libraries, and publishers. Researchers needed venues in which to publish, the more prestigious the better, particularly for those who are employed as tenure-

track faculty. Publishers responded with more publications. Libraries took hits to budgets between 1970 and 1980 as institutions experienced cuts. Libraries responded in part by cancelling subscriptions while reducing monographic purchases to cope with subscription inflation. This process has repeated itself periodically ever since. Time and again, libraries have turned to ILL to help meet the needs of researchers. Relatively recently, however, and especially since movements such as the 2002 Budapest Open Access Initiative were born (Rizor and Holley 2014), OA materials have proliferated, gaining both contributors and readers, and threatening to disrupt the usual cycle.

In 1978, the updated Copyright Act of 1976 became law. Libraries and archives (though not museums) were provided with their own section, §108 (Limitations on exclusive rights: Reproduction by libraries and archives), which allowed them to make copies for library users and for other libraries under certain conditions. Section 108 specified that although such interlibrary arrangements were permitted, they must not either purposefully or unwittingly substitute for a subscription to or purchase of a work. As the law specifies:

> (g) The rights of reproduction and distribution under this section extend to the isolated and unrelated reproduction or distribution of a single copy or phonorecord of the same material on separate occasions, but do not extend to cases where the library or archives, or its employee—
>
> (1) is aware or has substantial reason to believe that it is engaging in the related or concerted reproduction or distribution of multiple copies or phonorecords of the same material, whether made on one occasion or over a period of time, and whether intended for aggregate use by one or more individuals or for separate use by the individual members of a group; or
>
> (2) engages in the systematic reproduction or distribution of single or multiple copies or phonorecords of material described in subsection (d): Provided, That nothing in this clause prevents a library or archives from participating in interlibrary arrangements that do not have, as their purpose or effect, that the library or archives receiving such copies or phonorecords for distribution does so in such aggregate quantities as to substitute for a subscription to or purchase of such work.[1]

The photocopier was the new technology that threatened subscriptions and publishers' profits. What precisely constituted the amount of copying that would substitute for a subscription? This topic was studied by the members of the National Commission on New Technological Uses of Copyrighted Works, and the resulting guidelines became known as the CONTU guidelines. They are commonly referred to as the "Rule of Five," but are perhaps more appropriately deemed the "Suggestion of Five," as they are not part of the law. These were an early attempt to mitigate the effects of all this photocopying and sharing between libraries. Also, they

were meant to be evaluated after some time: "These guidelines shall be reviewed not later than five years from the effective date of this bill"; however, CONTU stands unchanged from 1978 and serves as policy for many ILL departments to this day.

Around the time the CONTU guidelines were developed, Congress suggested that an entity be formed to collect royalties for photocopies made under the new guidelines. The Copyright Clearance Center (CCC) was thus born in 1978. It collected royalties from libraries copying beyond the limits of the CONTU guidelines and passed them along to publishers to make up for subscription and purchase losses (Copyright Clearance Center 1999). As the decades moved along, as rounds of budget cuts to institutions came and went, libraries indeed cancelled journal subscriptions, frequently based on studies indicating low usage and in consultation with faculty at colleges and universities. In turn, publishers raised prices, both on journal subscriptions and on royalties charged through CCC.

Internet histories abound, along with definitions of the internet itself. "What is the history of the Internet the history of?" asks Thomas Haigh (Haigh, Russell, and Dutton 2015, 143). The major push for researchers and universities came in the late 1970s when the US National Science Foundation developed NSFNet to "connect US universities and research establishments" (Ince 2013a). Use of electronic mail, later known simply as "email," and connected networks using TCP-IP protocol, allowed for text-based information, such as in Usenet newsgroups, to be accessed through gateways that became widespread over the next decade into the early 1990s. The internet became available commercially to nonuniversity and nonresearcher users around this time, and the web was subsequently developed using technologies developed by British computer scientist Tim Berners-Lee (Ince 2013b). Utilizing these technologies, exclusively digital, free-to-access journals began. The upside was free access for anyone with an internet connection; the downside was the volunteer care and feeding of the journal without a commercial entity to organize the chores of the publication process: recruitment for articles, peer review, editing, arranging access, and marketing. Another problem facing these early upstarts was that of prestige. Assistant professors still contend with reappointment, tenure, and promotion policies that provide lists of prestigious journals in which they are required to publish to meet standards. The OA movement as a real player in scholarly publishing was placed on hold until the next few decades.

This article will return to the topic of the effect of OA on ILL; however, the role of technology for both publishers and libraries shall be examined first. Not long after the photocopier came into common usage, affordable flatbed scanners were introduced that could create electronic image files. In turn, it did not take long for the first software that allowed journal articles and book chapters to be scanned, transmitted over the internet, and

printed out at the other end of the transaction where they were automatically deleted. The ARIEL software was developed by the Research Libraries Group to speed along ILL transactions and began to be adopted by libraries as early as 1990 (Jackson 1991). Although fax machines were still the fastest method, and far more common, they required long-distance phone calls with associated charges. The copies they made for the end user were frequently of poor quality. To get a copy to send through a fax machine, someone had to photocopy the article from the printed publication, then push it through the fax machine feeder. In addition to the third-generation copy that came out of the fax machine at the other end, the telephone line allowed a great deal of data loss, and most fax machines used thermal transfer; printouts faded quickly. ARIEL was not a perfect technology; it frequently crashed, but it allowed some libraries to scan materials directly from the original piece and involved less data loss than the fax machine, creating a higher-quality copy at the other end. Copyright-wise, was digital transmission any different than print photocopying? Publishers thought so. Some librarians were fearful of using it; not only was it disruptive to established ILL workflows, librarians had their own copyright concerns, especially as technology evolved to save the ARIEL file after transmission. Electronic delivery of ILL articles is commonplace today; the ILLiad ILL management system, along with its electronic delivery counterpart, Odyssey, which many libraries licensed during the 2000s, had this effect. Today, OCLC's Article Exchange offers "secure, copyright-compliant" electronic delivery of a wide variety of file types (OCLC, n.d., under "Article Exchange"). With regard to copyright, Article Exchange makes some concessions to both access and storage, limiting on-server views for the user and time the document is stored. Only the patron who placed the ILL request can access the electronic file. This is in the spirit of §108, which states, "the copy becomes the property of the user." The Article Exchange web site specifies:

> Once a file has been retrieved, it remains available for five (5) views. After the file has been viewed five (5) times, it will be removed. A file can be picked up a maximum of five (5) times for each URL/password combination. Files not retrieved remain available for 30 days. (OCLC, n.d., under "How It Works")

Patrons are advised to print out articles or save files on their own drives if they need to use or access them repeatedly.

Journal Inflation, Journal Cancellation Projects, and Effects on ILL

The term "serials crisis," defined as increases in journal prices at rates disproportionately above inflation, has been discussed in the literature and by researchers and librarians for decades. The Association for Re-

search Libraries (ARL) is one organization that has tracked this; ongoing resource expenditures, formerly known as serials expenditures, are up by +521% since 1986 (ARL 2017a). Bosch and Henderson (2017) report, for example, that the overall price increases for titles in EBSCO's Academic Search Complete are expected to be in the 6% range for 2018. This is despite the headway OA (discussed below) currently is making in the realm of scholarly communication.

Libraries routinely respond to rounds of budget cuts with journal cancellation projects. David McCaslin (2010) warns that "decreased book purchases or journal subscriptions could cause a significant increase in interlibrary loan or document delivery requests" (229). Judith M. Nixon (2010) described three journal cancellation projects, due to budget cuts and serials inflation, at Purdue University, having taken place in 1992, 1997, and 2009. The details and differences of each iteration of cancellations are described. Though no postcancellation statistics are reported in this study, librarians involved in the cancellation projects felt that for low-use journals, "Interlibrary Loan could fill the occasional need" (307).

What are the effects of journal cancellations on ILL volume? Kristin Calvert and Rachel Fleming (2013) examined this topic, first based on four studies that were conducted between 1980 and 1999 (Warner 1981; Crump and Freund 1995; Kilpatrick and Preece 1996; and Wilson and Alexander 1999), "the years of the first major serials crisis" (184). Their analysis concluded that although small increases in ILL requests were noted, they were not significant and reflected good decision-making on the part of collection development librarians and others participating in the process. Faculty expressed a willingness to rely on ILL as a substitute, and borrowing was found to be more economical than subscribing. Noting that changes in both ILL and in publication, such as widespread adoption of electronic journals, had taken place since 1999, they studied the effects of a journal cancellation project at Western Carolina University in 2011–2012. Although they noted an 11% jump in ILL requests, the same period in which journal cuts took place, a closer examination of the data showed that only 2% of this increase was due to journal cancellations, mostly from aggregator-embargoed titles.

Similarly, another study by Jacob L. Nash and Karen R. McElfresh (2016) at the University of New Mexico Health Sciences Center noted that the ILL request rate increased by 137% during the study period, 2015. However, this was attributed to a new ILS and discovery layer. Only "43 ILL requests for articles from cancelled journals . . . constituted 1.4% of the total ILL requests for the year" (229).

Though ILL requests for both borrowing and lending may be increasing, those increases are generally not significantly attributable to journal cancellation projects. Why did the journal cancellation projects studied have minimal impact on subsequent ILL requesting? Reasons may include

librarians correctly determining low usage of certain journals, pointing to the general failure of the older just-in-case philosophy of collection management. The effort needed to place an ILL request as well as the time needed to wait for an ILL request to be fulfilled may be factors for some library users. Perhaps researchers under deadlines may be satisfied with using the materials that are immediately available through full-text sources. Likely, a combination of these factors contributes to the minimal effect of journal cancellation projects on ILL requests.

Electronic Journal Licensing

Publishers responded to advances in technology in the 1990's by introducing electronic versions of print journals, sometimes free with a print subscription, sometimes sold separately, sometimes through an aggregated database with full-text links, as part of "Big Deals" (discussed below) but always licensed. Licensing electronic content was the publishers' response to both CONTU and ARIEL, and an attempt to garner more control of the electronic phenomenon and limit subscription loss. Through licenses, which take precedence over law, publishers have the ability to allow ILL lending . . . or forbid it entirely. Mary E. Jackson (2000) discussed this extensively, noting that the fear of digital electronic delivery was based in economics. Fearful that extensive sharing would result in only one library in the world licensing a particular title and distributing it to the rest, publishers placed restrictions on lending and borrowing beyond the requirements of the law or CONTU.

Libraries' and some scholars' response was advocacy. Researchers, knowing that technology could be employed to receive materials much more quickly, put pressure on ILL practitioners to fulfil these requests as well as reduce turnaround times. Workshops are sometimes held so that librarians can gain the license negotiation skills necessary to ask for what they want from publishers. Despite advances with advocacy, licenses may be one reason why ILL lending has not grown as quickly as ILL borrowing, according to ARL statistics (see fig 1).

ILL Statistics in ARL Libraries

Karen Okamoto's 2012 article "Licensed to Share" cites a study by Lamoureux and Stemper (2011) of 241 electronic journal licenses at the University of Minnesota; 214 of them (89%) permitted sharing through ILL. The ones that did not "were largely small scholarly societies" (139). A 2009 document by Kevin MacLean at the IDS Project revealed that fewer than 15% of journals did not allow for any form of ILL lending at all; however, some licenses permit print ILL only, or require that an article be printed out before being rescanned into an electronic delivery system. Nearly 27% of licenses have restrictions on lending to libraries outside the United States (MacLean 2009). Still other licenses limit lending by library

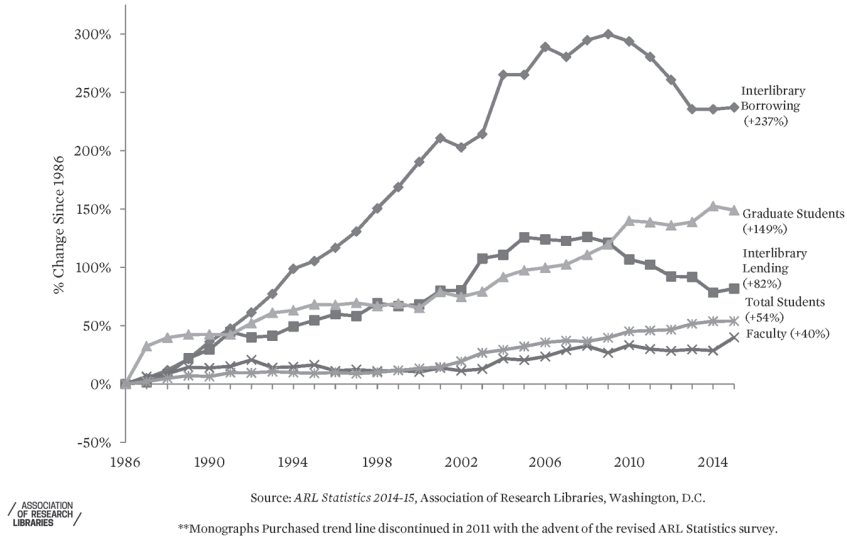

Figure 1: Supply and Demand in ARL Libraries, 1986–2015 (ARL 2017b)

type; for example, they allow lending to nonprofit or academic entities and forbid lending to for-profit institutions (Munson 2012). Some do not permit electronic transmission of electronic journals, requiring printing and physical shipment. Some refer specifically to either the Section 108 or Fair Use or CONTU guidelines, and still others are silent. Ultimately, licenses cloud the already-confusing aspect of copyright and confuse many ILL practitioners. The resulting chaos might be intentional on the part of publishers; indeed, some ILL operations have decided not to fill requests for all articles from electronic journals, either canceling them or deflecting based upon format (Okamoto 2012).

Electronic Finding Aids, Electronic Journals, and Impact on ILL

Selected studies (Egan 2005; Williams and Bailey 2007; Rheiner 2008; Kenefick and Devito 2013; Musser and Coopey 2016; and Scott and Barton 2018) on the effects of electronic finding aids and electronic journals on ILL have demonstrated a mixed effect on quantity of ILL requests. Over the years, researchers using Google located more research as references began to appear on the web. If these searches led researchers to full-text, whether illegally posted publicly or located in an institutional repository or in an OA source, this would naturally decrease ILL. On the other hand, additional access to reference lists in articles and books available only in print might lead to increases in ILL.

Nancy Egan's (2005) ten-year study of this topic at the John Jay College of Criminal Justice showed a general downward trend in demand for ILL along with increasing availability of a variety of electronic full-text resources over the decade 1994–2004, with 354 total copy requests in 1994 and 312 in 2004. Egan suggests that perhaps "content is being replaced with convenience," noting that "this appears to be the case across disciplines and regardless of the currency of needed materials" (23). The author suggests this impact may offer ILL practitioners the opportunity to reorganize services and acquire new skills.

Karen Carter Williams and Timothy P. Bailey (2007) discovered a reduction in ILL requests for materials already available in subscribed databases after the Auburn University Montgomery Library began a subscription to Serials Solutions' E-Journal Portal along with an openURL link resolver with links to full-text. A study by V. Renee Rheiner (2008) at the Blough-Weis Library at Susquehanna University showed a decrease in ILL requests between 1995 and 2000 following the start of availability of full-text in 1996; however, from 2001 to 2005, the numbers either increased or remained static. Rheiner believes that the use of ARIEL starting in the year 2000 in addition to a web-based request form added in 2001–2002 contributed to a "want-it-now" mindset among researchers. Indeed, the availability of full-text material through libraries has increased user expectations; "available means *immediately*" (Diedricks 2001, 208).

Williams and Woolwine (2011), in their national study, found a positive correlation between the presence of both databases and link resolvers and the resulting increase in ILL activity in American academic libraries. They did discover a downturn in *successful* fulfillment of loan requests, to which they attributed possible strain in the overall ILL system. A downturn may be attributable to an increase in databases, pointing to "obscure or esoteric citations" (McHone-Chase 2010). An overall increase in both borrowing and, to a lesser degree, lending seems to be reflected in the ARL chart (fig. 1, above), although journal cancellations and an increase in electronic journals with licenses no doubt factor in as well.

Musser and Coopey (2016) found an overall 22% decrease in ILL borrowing requests four years following implementation of a discovery system at Pennsylvania State University. The rate of decrease in undergraduate requests was greater than for faculty, staff, and graduate students (649). "The number of cancelled ILL requests due to local ownership dropped by 57% two years after implementation" (648), saving patrons time needed to place an ILL request as well as ILL staff time delivering these materials. ILL staff enhanced and expanded services with the time saved, offering delivery of physical materials to faculty and staff offices and interacting "with users in new ways by assisting at both physical and virtual service desks (651).

Scott and Barton (2018) described two projects at the University of

Memphis in which ILL was promoted both through the traditional online public access catalogs and in discovery layer settings. Open URL links were inserted into bibliographic records for titles in the OPAC not held locally, and the authors worked with EBSCO to create ILL CustomLinks for unavailable materials. With regard to the URL's placed in the OPAC, although the library experienced moderate increases in ILL traffic for loans, 1.9% in the first semester of the pilot, 2.2% in the second, and 2.8% during the summer of 2017, "it folded nicely into existing workflows . . . not creating additional work for ILL staff" (78). Although the University of Memphis experienced an overall decline in ILL requesting, the authors found an increase in percentage (14.4% to 29%) of ILL requests initiated from EBSCO databases with the CustomLinks enhancement. The authors considered the projects successful, as their ideas of promoting "ILL as a viable access alternative" and "turning discovery into access" (75) were met.

It is apparent from these studies that publishers' offerings of electronic finding aids, together with electronic full-text, have shifted the nature of ILL work. Undoubtedly, the availability of linked full-text from publishers and aggregators has reduced the need for ILL, while in other cases, OpenURL links to ILL requesting systems may increase ILL requests but also result in more accurate citations that facilitate ILL requesting for staff. Furthermore, increases in full-text availability due to content in institutional repositories as well as OA content factor in as well; OA is discussed separately below.

Big Deals and ILL

Publishers began to offer large package deals of journals in the late 1990s. In these, libraries or consortia would sign contracts in order to get access to electronic journals they needed, bundled with many they did not, for a dollar amount that would increase by agreed-upon amounts, presumably less than the usual journal inflation rates but enough for publishers to sustain profits. Unfortunately, the prices for these deals "provided a new base for escalation in the cost of journals higher than the inflation rate and greater than increases in library acquisitions budgets" (Blecic et al. 2013, 191). The authors also describe a methodology for determining the individual journal titles to which a library should subscribe after departing a package deal, partly based on the likelihood of subsequent ILL requests.

The term "Big Deal" was coined by Kenneth Frazier in 2001. As Frazier (2001) writes:

> Simply put, the Big Deal is an online aggregation of journals that publishers offer as a one-price, one size fits all package. In the Big Deal, libraries agree to buy electronic access to all of a commercial publisher's journals for a price based on current payments to that publisher, plus some increment. Under the terms of the contract, annual price increases are capped for a number of years. The Big Deal usually allows

> the library to cancel paper subscriptions at some savings or purchase additional paper copies at discounted prices. But the content is, henceforth, "bundled" so that individual journal subscriptions can no longer be cancelled in their electronic format.

Frazier went on to warn library directors and consortia leaders against signing on to Big Deals because of being locked in to licenses to journals that may not be needed, with no provision to cancel them. Frazier advocated use of ILL: "We could also provide free document delivery (fast interlibrary loan from commercial information vendors when necessary) of any article needed by our users as an alternative to the Big Deal" (Frazier 2001).

Jonathan Nabe and David C. Folwer wrote in 2012 and again in 2015 on their experiences with leaving and renegotiating their libraries' Big Deals (Southern Illinois University at Carbondale and University of Oregon Libraries, respectively). They defined "authentic demand" for a particular title "previously available in the 'Big Deal'" as represented by "requests for articles" from that title through "Interlibrary Loan (ILL)" because they "require some effort on the part of the faculty or student and incur some delay" (2015, 21). They found that "in any given year, at least 75% of the 'non-subscribed' journals showed no demand" (2015, 22) as demonstrated by a lack of ILL requests. As did Frazier, Nabe and Fowler cite "a very efficient ILL/document delivery operation, which can generally provide any requested article within 24 hours" (2015, 24). Five years later, they found that over two-thirds of one publisher's titles failed to generate even one ILL request per year. They concluded that ILL analysis demonstrates that download statistics are "deceptive" and that "only a smaller percentage of that purported demand translates into ILL requests" (2015, 24). Researchers might download many full-text articles because of the ease of doing so, never using them. Once access is removed, the articles themselves might not seem important enough for researchers to place or wait on an ILL to be fulfilled. The authors maintain that many downloaded articles are likely not used, while other articles are downloaded repeatedly. Not surprisingly, many journals included in Big Deals were the ones researchers really needed. With five years of ILL data, decisions were made to renegotiate with publishers, licensing some high-use titles as "individual subscriptions at retail cost, rather than as a package" (2015, 25). The authors maintain that although this meant the cost of individual titles went up, this strategy provided them with more flexibility in addition to modest savings.

SPARC devotes a website to tracking Big Deal cancellations among individual institutions and consortia around the world (https://sparcopen.org/our-work/big-deal-cancellation-tracking/). SPARC notes that Big Deal package inflation has been 5–15%, again outpacing library budgets. The earliest Big Deal recorded is 2006 at the University of New Mexico,

and the most recent is for 2019 at Florida State University. Publishers involved are noted along with any strategic considerations and outcomes. Estimated savings are rarely disclosed. However, under the headings of "strategic considerations" and "outcome," ILL is mentioned frequently. Cost per use is compared with potential ILL costs, and ILL is mentioned as a means to provide access to canceled deals, as well as pay-per-view options for individual articles (discussed below). Other factors include usage data, researcher feedback, and goals for OA publishing and policies.

Pay-per-View and Purchase-on-Demand Projects as a Supplement to ILL

Many libraries have supplemented or even experimented with replacing traditional ILL with pay-per-view (PPV) or purchase-on-demand (POD) projects. There are plenty of case studies on such projects in the literature (Campbell 2006; Alder 2007; Zopfi-Jordan 2008; Gibson and Kirkwood 2009; Hussong-Christian and Goergen-Doll 2010; Brown 2012; Sammonds 2012; Imamoto and Mackinder 2016). Frequently, PPV and POD result in faster turnaround time and result in equal or less expense for the libraries. These projects frequently have based purchase decisions, at least in part, on the average cost of an ILL transaction (see OCLC Research 2018). Technical services departments can process returnable materials either before or after providing materials to the patrons; however, the former saves turnaround time and enhances patron satisfaction. Interlibrary Loan, Technical Services, and other library departments work together to determine criteria for purchase (sometimes limited to one or a few specific publications), and to streamline workflows to maximize the speed of delivery for the patron.

For journal articles, PPV and POD have the added advantage of copyright clearance. Document delivery vendors must include royalty costs in the price of the documents they sell. Such purchases can result in savings if the sum of the lending library fees and the royalties owed to CCC exceed the commercial document delivery or publisher's price. Heather L. Brown (2012) tested this hypothesis at the University of Nebraska Medical Center McGoogan Library of Medicine. The author compared the totals of a number of ILL requests, estimated at $11 each, with copyright royalty fees and lending library fees added, with the actual cost of articles purchased from the publisher. The library realized some significant savings: 40% in FY2010 and 43% in FY2011. Whereas staff costs are included in the average costs of an ILL transaction, the author did not factor these in to her study, instead noting that "the time spent looking for an article on the publisher's website is negligible," an estimated "30 minutes per day" (101).

Becky Imamoto and Lisa Mackinder (2016), of the University of California, Irvine and Ohio University, respectively, conducted three consecu-

tive pilot projects with UC Irvine staff from access services, acquisitions, and collection development working together to purchase materials initially requested but not received through ILL (nonfilled requests). They dubbed it "Next Generation Interlibrary Loan or Next Gen ILL" (371). Their goals were to "enhance the delivery of ILL content" as well as "save on costs" (371). Workflow and budgets are described along with results, including delivery turnaround times, purchase costs, and staff time and compared to traditional ILL and traditional book circulation. For example, in the second pilot, the authors discovered that foreign language titles are too costly and take too long to arrive for them to be handled through Next Gen ILL. Tweaks, changes, and budgetary increases occurred along the way, with library administration making the pilot projects operational because of program successes. The authors continue to evaluate this system.

These attempts to meld the best features of both ILL and commercial publishing might be a model worth pursuing to balance the effects of flat library budgets, publisher cost increases, and the need of researchers for immediate access. Ideally, perhaps at some point in the future, libraries will be able to consult a system that could automatically comparison-shop for the best deal—ILL or purchase—benefitting researchers, libraries, and publishers alike.

ILL for Monographs and Electronic Books

In large academic libraries, monographic budgets were shrinking to accommodate increases in journals and in subscription prices. ILL borrowing and lending of monographs helped in dealing with this shortage; patron-initiated circulation systems such as Innovative Interfaces INN-REACH helped streamline resource sharing of physical items. This is supported by Section 109 (a) of the Copyright Law, the right of first sale,[2] which was upheld by the Supreme Court in *Kirtsaeng v. John Wiley & Sons, Inc.* (2012).

However, the lending of electronic books through ILL has been far slower to evolve than that of electronic journals. Licensing and digital rights management (DRM) factor into this, along with the presence of proprietary readers such as Nook and Kindle, and perhaps most importantly, fears on the part of publishers over piracy and loss of profits. Wayne Bivens-Tatum (2014) laments this, noting that "a 19th-century scholar would have had to travel to a library to access a book. A 20th-century scholar could acquire the book through ILL and not have to travel. But a 21st-century scholar might well have to travel to access a book from a different library if that book was available only as an ebook."

A product called Occam's Reader (http://occamsreader.org/), first launched in 2014 and hosted at Texas Tech University, facilitates loans of electronic books using a reasonably priced system of tokens to authorize

readers to view electronic books. *College and Research Libraries News* ("News from the Field") reported on this in November 2015: "The system is designed to provide secure temporary access to an electronic book. The new version is being used by libraries throughout the country this fall and is open via subscription to other libraries that would like to participate." It is not yet clear how large of an impact Occam's Reader might have in ILL operations, but for patrons who prefer electronic books, this is an auspicious start.

Bethany B. Sewell and Forrest E. Link (2016 and 2017), wrote two articles on developing workflows for electronic book lending as an adjunct to ILL. The first (2016) involved working with EBSCO to study electronic book equivalents to print books in EBSCO's holdings. The authors found that out of 854 unique titles requested over two semesters, 378 had an electronic book equivalent and 290 were available as short-term loans. Based on this data, the authors estimated that it might be possible to fill up to "35% of our post-2005 ILL book requests with short-term loans" (245) of electronic books. The 2016 article also contains an ILLiad workflow for streamlined borrowing of electronic books. The 2017 article reports on a survey of library patrons as to whether they would prefer an electronic book, and a semester-long trial was conducted. The authors discovered that fewer books than expected were fillable with electronic books. Although patrons were enthusiastic about the short turnaround time for delivery, they had mixed feelings and responses regarding their use. Unfortunately, vendors raised their prices by as much as 400% for the short-term loan of electronic books, and their pilot never became practice.

More experimentation in ILL with electronic books will likely take place in the future; however, prices need to be competitive, and a variety of books need to be available to incentivize libraries to explore this further. Publishers would need to resolve their fears over loss of profits, and patrons' preferences and intended usage need to be assessed. For example, patrons may prefer short-term loans of novels but need printed copies for research or textbook purposes; perhaps they simply need a choice. The ILL of electronic books is, to date, still in its nascent stage.

Open Access, Library Publishing, and Effects on ILL

Open access (OA) publishing has thus far proven beneficial to researchers who can access peer-reviewed research articles (and other quality content, such as publisher content made available for free), immediately, on the web, and free with an internet connection. The benefit to ILL operations is a bit more complex. Throughout the literature, OA is at times expressed as a "detriment" to ILL, given that widespread use would reduce ILL statistics. Other studies point to OA as a positive development that saves library budgets and increases speed of delivery.

ILL practitioners have been locating and sending to researchers mate-

rials available for free on the internet since the beginning of widespread use of Google. Tina Baich (2012), writing on the topic of the effects of OA on ILL, notes Karen Kohn's 2006 article which emphasizes savings on borrowing fees. Rebecca A. Martin (2010) contributed an article on locating both free and OA resources for patrons, calling this a value-added service. Martin described and defined OA articles as well as Open Textbooks, Open Educational Resources, and provided a list of sources, products, and services for ILL practitioners to consult.

Heather Morrison, also in 2006, studied this issue from the point of view of an avid open access advocate, noting the advent of the Directory of open access Journals (DOAJ), which came online in early 2005 (96). The DOAJ includes only journals that are scholarly, peer-reviewed, and free of charge for researchers to access and in which to publish. DOAJ is funded by sponsors, members, and publisher members, which include domestic and international library consortia and commercial publishers (https://doaj.org/). Baich (2012) quotes Morrison (2006), who quotes Mike McGrath: "[OA] is one of the reasons for the decline in document delivery in so many countries" (McGrath 2005, 43). However, Baich notes Morrison's response: "A decrease in routine interlibrary loan requests, combined with an increase in more complex requests requiring more expert knowledge" (Morrison 2006, 106).

It has always been true that researchers sometimes fail to locate materials in their own local print collections. This factor has transferred to the online world as well, and not just for IP-protected licensed materials. Baich (2012) wrote that at her institution, IUPUI, requests filled with OA materials were increasing even as overall ILL request numbers were otherwise relatively flat. In 2015, Baich reported that "the current inconsistency in discovery of open access content through a Google or Google Scholar search has a negative impact on user discovery" (69). OA materials might never be requested through ILL if discovery were easier for researchers.

However, in terms of fulfillment of ILL borrowing requests, OA materials can save libraries money while delivering materials to researchers who have not found them on their own. Baich (2015) notes:

> As open access materials are free of charge, libraries are saved potential borrowing and shipping fees that a typical ILL transaction could incur. During the two years included in this study, RSDS [UIPUI ILL operation] filled 1,557 borrowing requests using open access materials. The potential cost of borrowing these items through traditional ILL is $27,247.50 based on Jackson's (2004, p. 31) cost estimate of $17.50 per borrowing transaction. By utilizing open access materials, the cost for these requests is reduced to a minimal amount of staff time. (74)

Commercial and scholarly publishers' involvement in OA has exploded onto the scene. This became an inevitable necessity for their survival over the past decade and a half. Large commercial publishers offer research-

ers gold open access in which authors pay the APCs (article processing charges). Authors routinely "crowdsource" needed funds from their institutions, grants, and other sources. Content is available free of charge to readers, including ILL operations. Other publishers allow green open access in which preprints and/or postprints are permitted to be posted on an institutional or subject repository, even as the publisher's PDF version remains behind a paywall. Authors and library staff involved with populating institutional repositories use SHERPA/RoMEO to help determine publishers' policies. SHERPA/RoMEO "is an online resource that aggregates and analyses publisher open access policies from around the world and provides summaries of self-archiving permissions and conditions of rights given to authors on a journal-by-journal basis" (SHERPA, n.d.). Some grant agencies require that scholarly publications resulting from funding be self-archived with green open access, frequently a peer-reviewed postprint; these are called OA mandates. Arguably, the most famous of these is the National Institute of Health (NIH) mandate (NIH 2016), codified in Section 217 of PL 111-8. Elsevier purchased the Social Sciences Research Network (SSRN) in 2016 (Pike 2016). Obviously, OA is a beneficial development for researchers and scholarly communication in general, leaving commercial publishers scrambling to adjust . . . but how are ILL operations affected?

Collette Mak and Tina Baich (2016), looked for evidence of decreases "in ILL that could be attributed to the spread of open access" (1) over a decade (2006–2015) at the University of Notre Dame and IUPUI, respectively. Notre Dame "experienced declines in 2010 and 2014" (2), but then experienced increases. At IUPUI, "a significant decrease occurred in 2013" (2), but increases were otherwise experienced. Overall both institutions showed a steady net increase over the ten years, examined across all disciplines. The authors found that the impact of OA "is more likely to be seen in requests placed within the first two years of publication rather than in the total number of requests" (4). This is due to publishers' embargo periods, typically 12–18 months. Unless the journal is an OA, it is highly likely to be subject to embargo periods. They were "unable to definitively assert an open access impact on ILL based on their preliminary analysis" (6). The authors cite other environmental factors that make the effect of OA on ILL requesting difficult to evaluate, for example, "personal sharing of content outside" (6) traditional channels. In other words, many researchers have turned away from ILL and have begun sharing scholarship without the library as intermediary.

Radical Rebellion in Resource Sharing

Problems with accessing licensed materials over networks have caused many an off-campus researcher to experience difficulties and frustration with authentication systems. Sometimes ILL departments are perceived

as being too slow. This has led to crowdsourced research sharing. In this context, "crowdsourcing" refers to the peer-to-peer exchange of scholarly material over social or web-based networks where licenses, terms of service agreements, or copyright laws are likely being violated. Gardner and Gardner (2017) wrote about researchers' motivations behind this phenomenon, which takes place over social media such as Twitter (#icanhaspdf), Reddit Scholar, and Facebook (131). The authors cite a study by Tenopir (2015) that estimates "articles are shared approximately eleven times for every one download. In other words, for every twelve scholars reading an article, only one will have downloaded it from the publisher" (132). They found that researchers are motivated by civil disobedience against unfair copyright laws, similar to the late Aaron Schwartz's "guerilla open access" activism, feeling that information should be free, fueled by a great deal of animosity toward publishers. The Sci-Hub network created in 2001 by Kazakhstani graduate student Alexandra Elbakyah to facilitate scholarly communications in the developing world was shut down by courts, only to be moved from server to server (Mak and Baich 2016). Although many journal licenses allow sharing via email with a colleague, most explicitly forbid posting to public networks. One such network is ResearchGate, a popular social network for researchers frequently connected to Facebook accounts.

Some researchers feel that ILL request forms are too cumbersome and that ILL takes too long in any case; some ILL departments charge their users fees. Some participants in crowdsourced research sharing are, in fact, librarians. To combat this phenomenon, ILL practitioners generally recommend more streamlined ILL with quicker turnaround time along with OA advocacy; however, the situation is unlikely to be untangled in the near future.

Conclusion

ILL and publishers both have gone through many changes since Basil Stuart Stubbs wrote about it in 1975, arguably more changes than were seen between his time and de Peiresc's in the seventeenth century. These have included the proliferation of sources of scholarly communication and the accompanying cyclical "serials crises." US law and accompanying guidelines followed in the 1970s to accommodate the widespread use of the photocopier, but major developmental leaps in technology have occurred since then, including the use of personal computers and the internet. OA models of publication threaten to usurp the reign of traditional publishing, and networks of various types, along with social media, allow researchers to bypass other traditional avenues, including ILL, for acquiring materials. Now that we can read journal articles on a device that also serves as a phone and a camera, publishers struggle to keep up, as do libraries.

Undoubtedly, changes will continue as scholarly communication and technology continue to evolve, and the people who use them adapt. These changes will undoubtedly be dynamic and faceted; they should involve good-faith conversations between libraries, publishers, and researchers regarding the best way to communicate and share scholarly communication to ensure quality and promote the progress of our society.

Notes

1. Copyright Act of 1976, 17 U.S.C. § 108 (1976) (Limitations on exclusive rights: Reproduction by libraries and archives), https://www.law.cornell.edu/uscode/text/17/108.
2. Copyright Act of 1976, 17 U.S.C. § 109 (Limitations on exclusive rights: Effect of transfer of particular copy or phonorecord), https://www.law.cornell.edu/uscode/text/17/109.

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