Surviving the Flood: Antediluvian Libraries and the Ark

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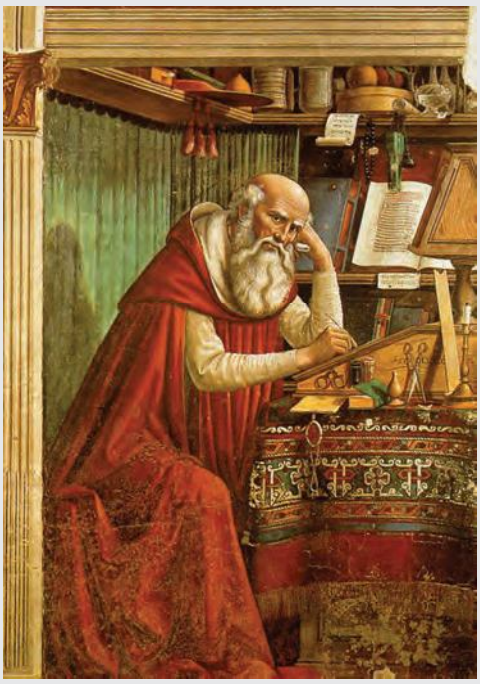
Introduction

Library automation has been a reality for some fifty years now, but its transformational impact is only just beginning to be felt at quite fundamental levels. It is customary to date the start of the process to the end of the Second World War. In a farsighted 1945 article, Vannevar Bush imagined an automated system that would store information, including books, personal records and articles. Bush envisioned a hypothetical "memex" system which he described as a mechanical library that would allow the user to view stored information from several different access points and to look at several items simultaneously (Bush, 1945). Libraries were then early adopters of computing technology as it slowly became available throughout the 1960's. Its progress in that decade can be marked by such events as the appearance of the first books on data processing in libraries, by the appearance of the MARC format and by the appearance of library bibliographic systems such as UTLAS, while the IFLA Section on Information Technology was set up in 1963.

But in truth until the early 1990's, even the most advanced libraries were practising mechanisation not automation. Librarians by and large spent a generation developing library housekeeping systems with all sorts of glittering features, but these were and are gold-plated dinosaurs. As a general rule, throughout the period, library users still had to visit the library, still go to a catalogue hall and write down the call number on a scrap of paper, still go to the shelf, still find the book they really wanted was not there, and still come to the issue desk to argue about paying fines, or visit the reference desk to seek help from a librarian.



St Jerome, patron saint of librarians

Before the Internet

From the 1960's to the end of the 1980's library automation focused on making printed collections more readily available. The great pre-occupation of the profession was the retrospective conversion of catalogues. Almost without exception the entire university passed through the doors of the library. No serious researcher, scholar or undergraduate could work without the collections of the library and the inter-library loan service. There was as yet no national library service and very little co-operation with other libraries beyond the local. According to the Dempsey Paradox (Dempsey, 2010) this was the time when researchers were time rich and information poor, so that local collections had to be mined exhaustively and librarians who knew the collections in detail were integral to research. International co-operation and travel existed, but remained unusual. That had begun to change by the mid-1980's as the novelist David Lodge perceptively noted:

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"...information is much more portable in the modern world than it used to be. So are people. Ergo, it's no longer necessary to hoard your information in one building, or keep your top scholars corralled in one campus. There are three things which have revolutionized academic life in the last twenty years, though very few people have woken up to the fact: jet travel, direct-dialling telephones and the Xerox machine. Scholars don't have to work in the same institution to interact; nowadays: they call each other up, or they meet at international conferences. And they don't have to grub about in library stacks for data: any book or article that sounds interesting they have Xeroxed and read it at home. Or on the plane going to the next conference. I work mostly at home or on planes these days. I seldom go into the university except to teach my courses.
...As long as you have access to a telephone, a Xerox machine and a conference grant fund, you're OK, you're plugged into the only university that really matters - the global campus. A young man in a hurry can see the world by conference-hopping" (Lodge,1984)

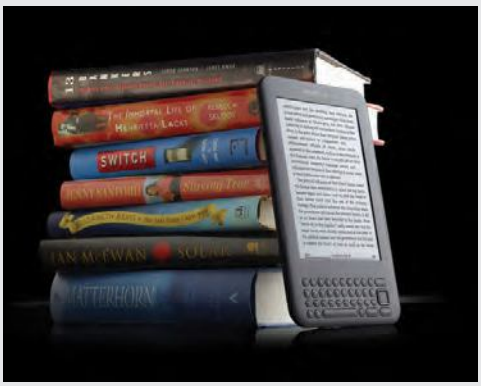
Library co-operatives were seen as the way of the future. In 1967 OCLC then the Ohio College Library Center - was set up by Fred Kilgour with a strategy to create an on-line union catalog through shared cataloging in order to reduce individual transaction costs for libraries. Much the most successful co-operative, it now supports 72000 libraries in 86 countries. Most others have withered away. For example, in 1969 in the United Kingdom a number of libraries founded a small co-operative project, based in Birmingham to provide services that would help the libraries become more efficient. The project was known as the Birmingham Libraries Cooperative Mechanisation Project, or BLCMP. It has now morphed into a commercial provider of library systems. Most co-operatives have proved of their time and have disappeared leaving OCLC as the great survivor.

Throughout the first half of the twentieth century the dream of universal bibliographic control was largely embodied in those monumental multi-volume works of erudition, the Library of Congress Catalogue and the British Museum (later British Library) Catalogue. Although they filled great banks of shelves in their dress of green and blue, no research library was (or is) complete without them. But they were never easy to use and followed sets of independent - one hesitates to say arbitrary rules devised by great libraries conscious of their eminence and independence. From the middle of the twentieth century and spurred by the ubiquitous computer, a quite different spirit has pervaded the profession and it has been quick to recognise the opportunities presented by automation and the globalisation of research. The international nature of scholarly literature has been reflected in the growth of international (or at least interoperable) standards which at least complement if not replace these great works of scholarship - and national libraries have been at the forefront of this standardisation. A large number of com-mitted professionals, operating under the banners of national libraries and professional organisations has produced and maintained a string of standards which collectively have made the identification of almost any published item a straightforward task. Almost more importantly, these standards have been enthusiastically embraced by the profession and by related groups such as publishers and booksellers. The Anglo-American Cataloguing Rules, the MARC standard, ISBNs and ISSNs and the growth of national bibliographies all represent a huge and successful professional effort over the last four decades to globalise and standardise bibliographic control. Subject access as well as author/title access has also been fully explored. There were, of course,

diversions as library thinkers made detours into the exotic world of faceted and other classifications, but the dominance through constant revision of both the Dewey and LC Classification schemes has also forced order and structure on to an essentially chaotic publishing output. Curiously, the financial pressures of the last two decades have also helped to gain control of what is published. Research libraries have introduced coherent collection development policies in an effort to focus their collections and as a response to those financial pressures. At the same time consortia have appeared which share responsibility for acquisition and good catalogue access is a pre-requisite for such sharing.

As library housekeeping systems became universal in the 1970's and 1980's in the developed world at least, co-operative catalogues grew and retrospective conversion on a quite massive if unco-ordinated scale took place. Although not yet complete, it has massively enhanced access to collections throughout the world from throughout the world. This was encapsulated in IFLA's core programme of Universal Bibliographic Control (UBC). Political and economic instability in many parts of the globe may have prevented the total establishment of UBC, but as a profession we have developed and actively maintained a vigorous and robust bibliographic infrastructure. All of this has required a constant but largely unremarked stream of diplomacy and activity of the very highest order. There is no self-evident reason why a spirit of international co-operation should have triumphed over national ambition.

If UBC can be considered a professional success, the development of IFLA's Universal Availability of Publications programme (UAP) is even more astonishing in its final form. Universal Availability of Publications has been a particularly British led activity - indeed IFLA's UAP office is based at the British Library in Boston Spa. If bibliographic control is a necessary pre-requisite of access to collections, inter-library lending is its acme. Of course libraries have lent books to other libraries or scholars for centuries, but the development of standardised national and international systems with first Urquhart then Line the successive Directors-General of the British Library's Lending Division at Boston Spa acting as leading thinkers, advocates, drivers and promoters of internationalism has created the hard-won rather than inevitable system we see today. Inter-library lending is now a core activity in support of scholarship rather than a peripheral and exceptional one. And yet it is not self-evident that subject-based document delivery systems such as that of the National Library of Medicine in Bethesda (USA) or co-operative systems such as that run by OCLC for its member libraries should be interoperable with systems run by a major national library such as the British Library. The development of a common currency; the very act of trusting fellow professionals and even more implausibly their readers - in small libraries in countries at the other end of the globe to act in a uniformly responsible way; the meshing of different copyright and fair use traditions and legislation; all represent quite remarkable acts of



A kindle which makes paper books redundant

international co-operation and trust. Not all is perfect, of course, since not everything is deliverable and sometimes the scholar must still move to the book. Nevertheless it is broadly true that scholars anywhere can identify and acquire or gain access to the most obscure works of printed scholarship, wherever held.

Electronic information resources had existed since the mid-1960s, particularly in the sciences. However access to them had been significantly restricted. The resources were commercially created abstracting and indexing tools rather than primary sources and all searching was mediated and batch processed. In many universities, while on-line searching operated from the library it was conducted by externally funded individuals whose principal skill was disciplinary. It was very much at the edge of library life. Technology slowly and inexorably spread, although it was not until the early 1980s that the possession of a personal computer became relatively common in universities. What had slowly begun to change however was the thinking about the future of libraries. In a seminal paper in 1978 Lancaster stated "We are already very close to the day in which a great science Library could exist in a space less than ten feet square" (Lancaster, 1978).

Stemming the tide

The first harbinger of real change came in 1991 in the United Kingdom when the first national site license was agreed with the Institute for Scientific Information for their databases. The BIDS service based at the University of Bath allowed any UK researcher to search the databases from any institutional computer without assistance from either library or librarian.

And then in 1993 the World Wide Web moved from an idea to a reality with the Mosaic Web browser and the world changed forever. In the four years after that it achieved a phenomenal acceptance, in what has been characterized as the largest mass migration in human history. It was adopted by 50 million users in fifty months. Radio took thirty-eight years to gain such an audience and television some thirteen years (Law and McSean, 1998). Libraries are still grappling with the impact of these developments.

The shift taking place is like the shift from the Ptolomeic to the Copernican view of the world. In the Ptolomeic vision, the Library, like the earth, sits at the centre of the Universe and everything revolves round it, users, vendors, faculty, college administration. The analogy is made even more apt by the fact that as access to the Internet has grown we can see that library users do in fact orbit rather than enter the Library. Consider then the Copernican universe where the user like the Sun is at the centre of the universe, and sits at an office terminal surrounded by information, books, document delivery and library services. For half a century now the library response to technology has been curiously schizophrenic. On the one hand we have been early and enthusiastic adopters of everything from photocopiers to virtual worlds. On the other hand we have tried to ensure that we stood between users and the technology as gatekeepers. And in every case there have always seemed to be good reasons. On-line searching used expensive telephone connections at first and it made sense to use intermediaries to minimise those costs; CD-Rom allowed users to undertake searches themselves, but it made sense to insist that they were trained in the niceties of Boolean searching before allowing them to use these systems both to reduce the time spent searching

(allowing more users access) and maximising the results. When OPACs were Web-enabled it made sense to route users through them so that they could find relevant local resources before going to the uncharted wastelands of the Web. And most recently it has seemed preferable to digitise the collections on our shelves rather than manage the born digital material created by our organisations.

Born Digital Collections

It is a curiosity of the library profession in the last ten years or so that it has significantly failed to engage with the e-resources produced by our institutions. Rather than manage this burgeoning and difficult to organise material we have as a profession been obsessed with negotiating licences for commercial material and with digitising the collections we already possess, creating cabinets of curiosities rather than setting out our skills to deal with and take responsibility for managing corporate assets. It was calculated that the worldwide annual growth in digital data would rise from 161 exabytes[1] in 2006 to 988 exabytes in 2010, in other words a six fold growth in five years. Every indication is that this phenomenal growth is a reality. Yet no one appears to be dealing with this coherently at corporate level (Ganz, 2008). Universities are part of this trend and yet it is doubtful if any university has any idea of what its annual digital outputs are, far less has a collection and curation policy for them. It is probable that all e-outputs are managed by someone, but typically in a wholly un-coordinated way, with no single point of knowledge, standards, advice and monitoring, which is the minimum one might expect. Librarians do not seem to be asserting their central role in this task. Nor is it evident that any university library has a collection policy for the e-archives of poets, politicians or physicists which are already at risk. One of the best examples of born digital libraries is that at the University of Texas Libraries' Human Rights Documentation Initiative whose efforts to address these challenges for Web resources and audiovisual born digital records emerging from human rights conflicts, advocacy, and study offers a stunning view of what is possible. It takes traditional collection building skills, uses them on new media and then enhances them and adds value by using network tools such as Google Maps to enrich the data. (Kelleher 2010).

Mitchel Library Sydney reading room (Flicr CC)

Born Digital Users

The notion that the world is changing fundamentally and that the digital natives have arrived is hardly novel, but once it enters the heart of the establishment we must grant a new gravitas to the presumption of such change. The way in which church and state have both arrived at this conclusion now leaves little room for the sceptic.

The Catholic Church has adopted this view. For World Communications Day 2010, Pope Benedict XVI developed the notion of cyber priests. He proposed a new commandment for priests strug-

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gling to get their message across: "Go forth and blog". The Pope, whose own presence on the Web has grown massively in recent years, urged priests to use all multimedia tools at their disposal to preach the Gospel. This message can be found not only on Facebook, but also on the papal Website Pope2You[2].

At almost the same time, the Lord Chief Justice of England[3] called for a rethinking of trial by jury to meet the abilities of the Internet generation (Gibb, 2009). He believes that individuals no longer have the ability to listen to sustained oral presentations for hours on end and then draw valid conclusions. This in turn reflects a world where jurors are increasingly in trouble for such activities as using Google Maps[4] to view crime scenes - and not only in the United Kingdom (Schwartz, 2009).

The world is increasingly populated by the a-literate, for whom reading and writing in the way past generations have understood these are becoming optional lifestyle choices and not the normal requirement of the intelligent individual. For the a-literate:

- Instant gratification is expected
- Convenience (which is seen as superior to quality) is expected
- Images are at least as important as text
- If it's not on the Web, it doesn't exist
- Cut and paste is preferable to original thought
- Just enough material for the task in hand is expected, not everything

(Law, 2006)

Perhaps the ultimate if slightly tongue in cheek application for this attention deficit disorder generation is the Ten Word Wiki. (Ten Word Wiki, 2010). Rather like the haiku it attempts to distil if not wisdom then at least information in exactly ten words.[5]

The change from the Browne issue system to housekeeping systems (quisnovos Flicr)

The Way Ahead

This information world characterised by change and flux requires two things which only librarians and others involved in cultural heritage organisations can give. First it needs to be bibliographically secure. It must be definable, then accessible. This relies absolutely on work done by the local library. Second, it must be aggregated with the resources of other university libraries and value added through creating virtual collections with metadata and tagging which demonstrates the links between items in different libraries. Thus one might imagine a definitive collection of David Livingstone papers and materials being created from the resources of thirty or forty libraries, archives and museums in a dozen countries or

linked collections of research data coming from grid computing. The beginnings of such aggregation can be seen in the first struggles to build major collections. For example, the recently launched Europeana database aspired to make available ten million cultural heritage objects from hundreds of European libraries, museums and archives by the end of 2010. This proved so popular at its launch in 2008 that it crashed under the weight of ten million hits on the Website. In the same vein, Gallica links almost a million French objects. Importantly, both collections are distributed and libraries and museums are using technology to aggregate links rather than objects. Both collections point to the digitised objects of the past rather than born digital resources. But the methodology and importance are the right ones.

The second key area on which libraries should build is that of the trusted brand and trust metrics. Most of the marks of trust in the paper and print world simply do not apply on the Internet. If a book is published by, say, Oxford University Press we have a set of values associated with that on the level of scholarship and authority, for example. But if a Website address is ox.ac.uk, we have little idea of whether this is a Nobel prizewinner or a first-year undergraduate. On the Net, only Google seems to have any level of trust. However, even that is beginning to wane as we learn how Google kowtows to the Chinese government and has routinely passed material on usage from other countries to the US Intelligence services. At the same time it is American librarians who took a stand against the PATRIOT Act and refused to reveal information to the intelligence services about user behaviour. Libraries and librarians are seen as trustworthy, helpful, neutral, unbiased and objective. The whole area of kite marking, quality assurance, relevance ranking and recommended resources is an area ripe for exploitation.

The third key area is that of training, or user instruction. Prensky's (Prensky, 2001 and 2001a) notion of digital natives was contentious when he first propounded it a decade ago, but, as with climate change, the overwhelming weight of evidence is that the teenagers of today are fundamentally different. More interesting than that debate, however, is the growing weight of evidence that while the Net generation are technically competent, they are information illiterate and assume that a Google search exhausts the possibilities of information gathering. It is almost a definition that publishers sell on difference, not similarity. No one closed a sale by claiming his product was the same as a competitor's! So there is a need to instruct in how to maximise the benefit from the different search engines, indexes and electronic resources available to the university. This is a much harder challenge than it might appear. OCLC studies have shown that user satisfaction declines when librarians try to help. This is popularly attributed to what is known as the 'eat your spinach' syndrome. That is, the librarian will insist on showing the student how to use the tool properly, rather than helping with the quick fudge which will get the student assignment completed on time. Nor should it be seen as purely a student phenomenon. There is growing evidence of young researchers using social networking tools for collaborative research - OpenWetWare is a prime example of this - and again the library has a real possibility of helping promote those tools and services.

Finally, there is one underlying principle that needs to be re-established, and that is partnership rather than service. For decades librarians were seen as partners in the life of the academy - minor partners, perhaps, but partners nevertheless. Then from the 1980s onwards libraries expanded at

a huge rate with rapidly rising budgets, staff numbers and collection sizes. Librarians became managerialist rather than academic. As a result, libraries have never been better run or managed. But, as a consequence, the library has become just another service department with all the power and status of the Director of Catering and a much smaller budget than the Head of Estates. We - and the burden falls predominantly on professional leaders - need to restore the notion that we are partners and part of the academy.

Conclusion

As libraries struggle to understand their place in the new Web enabled world, the very need for libraries of the classic sort is brought into question. Anderson comments on the impact of the steady growth of digitised collections, which increasingly erode the differences between library collections by making the same content universally available. Every library can now be "a great library" but so can every home or office:

"What should cause concern for academic libraries is the fact that such a corpus already exists, and is growing by the day; the dam holding it back is fragile and cracking. There is already a steady flow of water through the breaches in that dam (existing search functionality in Google Book Search; the quickly growing Hathi Trust collection), and the dam will give way entirely when some version of the Google Book Settlement is approved." (Anderson, 2011)

The library will look increasingly different as mass digitisation continues and born digital material grows in importance. There can be little confidence in the long-term viability of traditional local collection-building. The one hugely significant exception is locally/institutionally created or collected born digital material. Adding value using network level tools as Texas has done and aggregating resources with other institutions will be critical. Renewing our belief in active co-operation as the IFLA programmes of the last century achieved offers a clear path ahead. The library of the future will look very different from the library as we know it today. We need to prepare ourselves - now - for the inevitable (and probably precipitous) arrival of what is behind that dam.

Old and new in the library
Photo by Derek Law

As is so often the case Lorcan Dempsey has encapsulated the dilemma facing libraries in his blog:

"As regular readers know, "network level" is a favorite expression of mine. This question is interesting because of the transition we are working our way through. Libraries tend to be institution-scale in reach as they were organized as a pre-network response to information management. In that context, institutionally based services make sense. For example, information materials were acquired and made available to the local population on a just-in-case basis. The institution remains the appropriate scale for many activities. However, researchers may now be drawn to newer network level approaches which aggregate supply and/or attention across the network, or

across a discipline . Think for example of initiatives like ICPSR, SSRN, Repec, Arxiv or more generally of Google Scholar or Twitter. At what scale will researchers look for applications to do their work - institution, collaborative group, discipline, network? Where does it make sense to let services be provided by external network level providers and where should the library provide services? There is no right answer of course, and practices are shifting." (Dempsey, 2011)

The question is whether they shift fast enough to build the ark which will beat the flood.

Notes

1. Formally an exabyte is a unit of information or computer storage equal to one quintillion bytes. Another way of describing it is that a single exabyte is equivalent to 50,000 years of DVD recordings
2. www.pope2you.net/
3. www.judiciary.gov.uk/about_judiciary/roles_types_jurisdiction/lord_chief_justice/index.htm
4. www.maps.google.co.uk/
5. www.theridiculant.metro.co.uk/2010/02/ten-word-wiki-for-when-wikipedia-is-just-too-long.html

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