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The Print Block and the Digital Cylinder

By J. P. McCarthy
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The Depository at University College Cork

This year, 2004, marks nearly 30 years of experience in the use of depository type storage at the Library of University College Cork (UCC). For the first 10 years the Depository functioned as a stock processing centre as well as a place for remote storage. In the subsequent 20 years some processing elements were retained but the primary activity of the facility became that of controlling offsite storage. This has led to: 1) the accommodation of stock in traditional mode on fixed shelving at the Depository and 2) the storage of stock in boxes on pallets at another premises. During this period we moved premises 3 times with the quantity of stock increasing from 12,000 to 32,000 linear feet. The Depository building is now full and we have had to resort to warehousing for additions to stock. Two streams feed these additions and they are: 1) relegations from the Library, and 2) the direct intake of donations/presentations which can vary from small offerings to the libraries of deceased professors and the libraries of religious houses. There is no means of predicting the latter and as the Library does not have, as yet, collection development or collection management policies, growth at the Depository is a very uncontrolled activity. It seemed, at each move, that each new premises would have more than enough space for long term growth. However in practice this has never been the case. We have always used leased buildings, sometimes sharing with other parts of the College and we have contemplated the idea of a custom built building.

Administrators and Academics Ask

In recent years administrators and academics have responded to such an idea with some of the following comments:

- What of the digital age?
- Why invest in housing and servicing an activity which ICT will probably make either totally or partially redundant in the not too distant future?
- Why can't you monitor and predict what will happen - particularly as you are already using digital alternatives for print?
- Why can't you act upon current print holdings in tandem with this changing digital platform?

Platform Tensions

So what is the digital platform? It is one which changes our mode of delivering scholarly communication. It is one which will collect digital surrogates of scholarly information which now appears in print form. It is one which will collect scholarly information which will never appear in a printed form. It is one which at the same time will capture retrospectively what has appeared in print for the past 350 years or so ever since the Royal Society in London published its transactions in the1660s. At that time print technology provided the platform. Now digital technology offers an

alternative. There is a certain amount of tension between the two platforms. The three communities of the scholarly world i.e. the publishers, the librarians and the scholars, question this tension and where it will lead. The Librarian, as intermediary, tries to broker safe passage offering transition strategies, such as hybrid libraries and collaborative remote storage options. Indeed, the Librarian is no longer the only player in this part of the marketplace as is evidenced by the CRL/JSTOR's print journal archive.

As print and digital product providers such as Elsevier introduce librarians and scholars to economic rationales for a complete change in subscription types for academic journals, what will cause tension between the print and digital platforms? In an article by Joost KollÖffel and Arian Kaandorp entitled *Developing a cost/benefit financial model for hybrid libraries* the authors say regarding developing digital library services over print based ones that all parties involved are confident that this is the right direction.

If we take such a direction at UCC what will be its impact in the not too distant future? What is it we will have sitting in remote storage, sitting there on a 'what if' basis costing so much per annum to house, preserve and service? Will this block of printed paper be something for which its digital surrogate provides complete coverage? When, and if we reach a platform of digital journal publishing only, then is there any rationale for such backup print storage? And if there is, is there any rationale for individual institutions to tackle this themselves or should they resort to rationalisation on a regional or national basis?

Culture Shock Questions

When such questions are presented to institutions whose identities have always been primarily about their collections culture shock can be one predictable reaction. In response to the question, what will happen to our print collections and to everything needed to accommodate and service them, perhaps the digital world will say:

> *Print is obsolete and therefore it is advisable to discard your print holdings because they are absorbing valuable resources which you now need to service your digital collections. If you don't feel 100% secure about this advice as yet, find a depository somewhere which will take your print stock and archive it into a lock-up facility at a reasonable annual fee. If you change your mind later on you can drop the subscription and there are contractors available who will dispose of all the paper for you. Remember the intellectual content, which is the reason you bought the paper in the first place, has already been totally migrated to digital alternatives!*
>
> But, you respond, *we won't be able to pay the digital subscriptions either now or long term. We can't afford to purchase an adequate number of computers to give all of our users the same level of access they have with print. Many can't afford their own machines. Online connection charges are outside the scope of our budgetary structures. The software isn't sophisticated or friendly enough to allow high quality retrieval.*

And there are other concerns swirling in the pool of change. What happens if our library no longer worries about the logistics of handling printed information; no

longer worries about a life cycle of text handling from acquisition through to relegation and all the years of shelf dynamics which go on in between, no longer worries when the whole system of traditional library activity becomes a quaint memory? What scale of tension might resolving these questions produce between the two platforms?

To pull things into focus I have used two metaphors for the platforms and these are the ***'print block'*** and the ***'digital cylinder'***. For the process of changing from one to the other I think in terms of a process of '***melting***', of content flowing notionally from one to the other and the consequences for both.

The melting process is achieved by streaming content into the cylinder from a variety of sources some external, some, in time perhaps, internal. The print block is all the academic journals we hold in print transferred to remote storage. The digital cylinder is all the content we currently hold in this form along with what would then be the sole form of acquisition for academic journal publishing. The melt process may be a simple scenario, easily quantified and predictably manageable, alternatively we may well face some dilemmas.

The Print Block

Physical Characteristics

Our block of journals at the Depository contains about 12,5000 linear feet of publications. This represents a third of the total length of stock held there. As a block of texts sitting on fixed shelving it occupies a space of about 300 cubic meters. A significant portion of it has been well preserved through binding. Otherwise stock sits sagging on shelves or in pamphlet boxes with faded labels. Much of the paper is in good condition and there is little evidence of deterioration except in the case of titles acquired during the first half of the 20th century where some brittle book syndrome is evident. Generally speaking the stock is dirty and dusty having travelled though several stores and having received rough handling at certain times in its history. For the second time around we have had to do a significant amount of tidying up of scatters resulting from previous moves i.e. scatters of up to 13 different places for some titles and this problem spread significantly over 4,000 titles some of which are long run subscriptions stretching from the 19th century. To facilitate retrieval we have recently completed a rebuild of the database for these holdings. The print block is now ready to perform its function once again. But, does a demand still await it?

Intellectual Characteristics

But what is this paper block about intellectually? I might answer that it reflects the material remains of UCC's involvement with this type of scholarly communication, and its marketplace, in past times. There is historical intellectual content carried by the paper such as its process of manufacture, by the bindings such as the evolution of the binder's craft, by the examples for typographic design, by the examples of old library processing systems such as labels and ownership stamps. There is much unwitting intellectual content if you wish to see the paper block as an assemblage of artefacts. But there is also that intellectual content which the artefact was designed to transmit through time and space. That content is something which has evolved organically to provide a corpus of developing thoughts in those academic disciplines represented. So the print block is an old system for sharing thoughts, ideas,

discoveries and explorations with others, with initiates who have learned the access codes and the conventions of communication within their disciplines. It allows their work to build on that of those who went before them and to pass the torch of their learning to those who come after. The technology used to achieve this was merely the technology of the era. The traditions of scholarship it carried may not survive in the digital age and one wonders about contributing to its survival through local rather than national efforts.

Practical Realisations

The collection in Cork does not have complete runs or comprehensive coverage of all respectable titles produced by the disciplines down the years. It represents the best of what we could get together as time went by with resources as they were. There was never an underlying commitment to a policy of comprehensive collecting, after all we are a teaching and research institution and our primary aim has been to service current needs and demands. Yes, we have tried, when economically times were good, to acquire on a broader basis and when part runs were donated to us we felt that it was good to take whatever we could get in the hope that some day we might complete them. To have a rich collection has always been an aspiration rather than a practical aim. In this sense it is more realistic to say that what we have collected is a reflection of 'passing needs' rather than long term ones.

An Evolving Absence of Need

We have relied significantly on interlibrary lending over the years and recently a strange thing happened. As I mentioned above there were problems with the organisation of the stock after previous moves and as a consequence, following our last move the journals in remote storage were designated as 'off-line'. This lasted for a period of about two years with little or no major reaction from the academic community. The context for those reasons why, has emerged recently and it shows that in that time some departments cancelled all their print subscriptions in favour of access to certain full text databases, – some pay per view, while others increasingly used interlibrary lending services. So it seems that when the library was unable to deliver access to the older remotely stored stock this was not an impediment to current scholarship. It also emerged that the increased amount spent on interlending to compensate was not hugely significant. It may be possible to identify underlying trends emerging here such as an evolving 'absence of need' for the older print journals. Also we may be seeing here a distinct shift in the client base in favour of digital access to what is the most vibrant area of scholarly communication.

The scholars and the future of print

It is not uncommon in academia to encounter the view that the behaviour of scholars will dictate the future need for print holdings. After all it is their intellectual product which librarians mediate and it is their intellectual product which forms the basis of commercial activity in this area. Therefore is it not more likely that the scholars will say faster than the librarians that print holding are obsolete, redundant and that preservation is a waste of valuable finances which could be directed more profitably into access charges to fuel current research needs? And will someone say

> *O Well! Wasn't the real reason for having all these local piles, these replicated holdings to do with the issue of distance to travel in former times. As distance for accessing is no longer a factor, we don't need these paper piles anymore.*

Is it still of use to a modern library to point to its journal print holdings to express its worth as a place adequately equipped to support good research? Or will the number and calibre of online subscriptions, the level of departmental budget allowance for pay-per-view access and interlending requests, be the alternative? Will there be growing acceptance within the scholarly community of such expectations, leading to local printed journal collections becoming redundant? If so then what justification can we make for spending scarce euros on rental costs – not to mention expenditure on services, equipment and staffing – to preserve the print block? What possible value can it give in return over the long term future?

Past Use of the Block and Value for Investment

A question comes to mind here about just how much of what we have bought during the past 150 years of collecting, as represented by the print block, has ever been used? I do not know how many articles are in there. If I assume that on average only one article per issue may ever have been fully read and/or of practical benefit to a patron, then a substantial portion of this 12,500 linear feet of volumes may never have been used and we have been accumulating it - with all of the associated processing and storage costs, over a long period of time and possibly to no major beneficial end.

But surely this is the whole point i.e. that as librarians it is our role to archive knowledge in this way. We acquire vast quantities in the expectation that it may be of some use or that at least by having such stock on hand, readers will discover and make use of it. But then is that expectation realistic when the cost of annual storage per article is taken into account?

The Digital Cylinder

Characteristics

Our present version of the cylinder at the Boole Library, University College Cork, has been built from subscriptions to commercially available reference and full text databases - some sourced independently, some through consortia deals. It has also been built by the acquisition of links to single or groups of titles available from publishers and learned societies. Fundamentally, these two streams coming into the notional cylinder are what our embryonic digital periodicals collection is. It is a collection of electronic links, of licenses to access - with levels and varying contractual conditions attached, notional grip-lines and grappling hooks slung onto a fast growing, organically evolving Gulliver travelling in cyberspace. Maintaining these grip-lines can be expensive and we may have no choice about the range of what we get when we sign on for a package deal. Much of what we acquire access to may not be significantly used. High year one figures could simply be a reflection of curiosity rather than an indicator of real change in media use patterns.

When I look to collaborative library projects like JSTOR for statistical data, such as at their *Facts and Figures* page, I get some idea of what the world of the cylinder is really like. I see that for their 2.25 million articles online they record a figure of about 16 million accesses spread over a total participant population of just under 2,000. These are impressive figures across the group and we are in there among the participants and our statistics are not high. How many of the titles are of any real interest or use to us and are we acquiring what we may never use, at least not significantly either for intellectual enrichment or to show that our literature searches to support our research papers are comprehensive? We have no history with many of

these titles. Some are titles for which we have no research or teaching associations within the institution. Indeed we may have no potential future history with them either.

Quantities Compared

I have talked about the number of articles available to us through the print block. How does the quantity of articles currently available in the cylinder equate with this? Are the quantities similar? Seeking an answer to this question I have gone to our library webpage (http://booleweb.ucc.ie/databases/elec.htm) and I read under the heading Electronic Journals that I can have the full text of articles online through EBSCO's Business Source Primer, JSTOR, Science Direct, Swetswise. JSTOR tells me of full access to 2.25 million articles, Science Direct says that we have the potential to access more than 5 million articles spread over 1,800 titles. So, even without factoring in Swetswise and EBSCO, we have about 7.5 million items alone available from Elsevier and JSTOR. Compare this with the print block as commented upon above i.e. 12,500 linear feet of journal articles. Even if each foot contained a hundred articles it could not compare significantly with the potential content of our embryonic digital cylinder.

Over Acquired

We seem to be replicating a supply problem / psychology/philosophy here by again acquiring far more than we will ever need and paying vast sums out of limited budgetary resources for it. Strange as it may seem are we over-acquiring, what is over-produced for no precisely defined use? The full text databases we subscribe to will predictably grow rapidly and exponentially. How many more will we link to and what long term value will we get from this tidal wave of digitised articles?

The Rampant Waves of the Digital Tsunami and Matters Arising!

Print Growth Projections

So we come to the question of what perceptible 'melt' impact the digital cylinder is having on the print block, not just as it is now but on its future - and possibly long term growth? At just over 1,800 subscriptions per annum we might estimate - using the method used earlier- that the annual additions to the printed journal holdings in our library amounts to many thousands of articles per annum. For the purposes of this paper I'll assume that available shelf capacity for journals at the Library is fixed and now full. Therefore, one might assume that future annual acquisition quantities will result in an equal quantity of relegations to the Depository's print block.

But the number of subscriptions has fallen by over 50% in the past 5 years and if predictions are correct, it will continue to do so because of rising costs as long as we continue to source journal literature in the traditional way. So the pressure for occupancy of the library's shelves should reduce and the growth in remote storage will, possibly, also tail off as a consequence. In time will Depository retrieval activity also tail off and create a redundant archive? Such an archive however is already beginning to melt due to retrospective digitisation projects. As a result of increasing digital access alternatives, the purchase of printed publications by the Library may tail off also because of growing satisfaction with digital products. I'm reminded by this scenario of one where vinyl recordings and audio cassettes vanished from music stores with the arrival of audio cds. Should this happen we may no longer see printed

journals on our shelves, the remnants of such collections having journeyed to remote storage or even, to the pulping machine.

The Bound Volume Survey

In this regard, JSTOR's **Bound Volume Survey** shows some interesting trends for the period 1999-2003. My reading of this data is that there has been an increase in the number of bound volumes going to storage but hesitancy about the scale of continuance. Disposal appears as an alternative option to storage but there is also hesitancy with this. Cooperative projects are increasing. Binding of recent issues is being discontinued. Lost or damaged items are not being replaced. Are these trends indicative of a change in attitude towards how we see the issue of long term preservation of the printed word?

Changing to the cylinder

So the impact of changing to the digital cylinder is a multifaceted thing! During what may indeed be a transition phase this impact is redesigning and remodelling several aspects of print holdings management. How will collection management thinking evolve during this phase? Might it be driven by the Depository Managers and their services rather than by the Subject Librarians? Why would this be advantageous? Perhaps for the very reason that future occupancy of library shelves by incoming print journals might be limited to a current awareness period only i.e. until the content is available online resulting either in disposal or relegation to remote storage. Perhaps disposal should occur after relegation and perhaps decisions on disposal should be shaped by national print or regional archiving policies rather than by individual libraries. Perhaps individual remote stores are a redundant and introverted approach, one which should be replaced by national or regional repositories and this for the very reason that such depositories can be the developers of print collections, the long term preservation of which is dictated by a defined national objective bringing with it significant recurrent financial investment.

In their report *Developing Print Repositories: Models for Shared Preservation and Access* published by Council on Library and Information Resources (www.clir.org) Bernard F. Reilly and Barbara DesRosiers point to the distinction between depositories which are simply warehouses and those which seek to perform a very active integrated collection development/resource modelling role. For journal literature in print perhaps the latter is a very wise strategy. I wonder should the knowledge which results from such strategies be then projected back from the depositories into the collection management strategies of participating libraries as they set about realising a fully digital environment for the delivery of this form of academic communication. Should the repositories become the collection managers for library print collections across regional and national landscapes and by so doing take control of and direct the process of moving totally from a print to a digital supply line for journal articles?

A Museum Science

By taking control of all of the physical aspects of closing down print based operations for serials and allowing librarians to move cleanly to a digital paradigm unburdened by the residues of print technology, this could leave the Depository Managers as the

custodians of the print heritage and of all its associated technologies, theories, practices and artefacts. Is this where a museology of print heritage and of the particular configuration of knowledge it carried, might be written?

A Concluding Conjecture

Will the print block be totally replaced by the digital cylinder and will this see the disposal of that 300 cubic metres of paper? There is no definitive answer to this question as yet. Is continuing to invest in a print based future, through depository storage a wise policy? Perhaps it is realistic to say that whatever we may do in terms of abandoning the print block we should try not to replicate the same costly problem of surplus needs when building the digital cylinder. Otherwise we could be faced with the digital archiving/warehousing of less used, obsolete, un-required articles resulting from cancelled or defunct subscriptions.

If this happens are we not, in terms of remote stores, reinventing the wheel except that this time the setting is a digital landscape? If we choose not to archive low demand, print or digital, journal resources then the tradition of local possession of these artefacts of knowledge transmission could become a thing of the past.

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