The Electronic Library - Gateway to Information

The Shrinking Public Domain and the Unsustainable Library

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"Information and knowledge are the thermonuclear competitive weapons of our time. Knowledge is more valuable and more powerful than natural resources, big factories, or fat bankrolls. In industry after industry, success comes to the companies that have the best information or wield it most effectively-not necessarily the companies with the most muscle." |1|

Introduction: Globalization and the Shrinking Public Domain

There are two grand challenges facing academic librarians, especially librarians in less developed countries (LDC's), as our century draws to a close. The first is the well-recognized problem of how to preserve and sustain what is valuable in the traditional print-based library, while integrating it with a rapidly-changing technology which threatens to bypass the need for librarians altogether. The second challenge, on which this contribution will focus, is the discernible trend towards the commodification of information through the expansion of intellectual property rights, and of the Internet through commercialization. The decentralized and essentially subversive character of cross-border data transmission is in direct conflict with these trends: in other words, the technology allows us to do what we want, but the economics of the technology may prevent us from doing it.

As another paper presented at this conference by Jörgen Eriksson points out, the academic world has already "lost" the Internet to commercial interests over the past few years. On-line trade on the Internet is realistically projected to reach $24 billion in turnover this year, twice the amount generated in 1997.|2| Much of that turnover will be in key areas such as direct hardware sales, travel services, and specialized niche products. International Data Corporation predicts that the figure will

have grown to $95 billion by the year 2000, while the British weekly the Economist estimates that it will fall somewhere in the range of $60 to $160 billion.|3| Even though making large profits through Internet trading remains problematic for those who wish to do so, in this paper I argue that the mere prospect of this happening makes it unlikely that cheap networking technology will come to the rescue of resource-strapped LDC librarians in an unproblematic way. There are several reasons for this, but the main one remains the problem of affordable connectivity.

In the United States the telecomms market is deregulated. Relatively small specialist companies such as RCN (Residential Communications Network) are currently providing the three core services-Internet access, voice telephony and cable television-to new markets by connecting homes even in poorer areas such as Harlem for about $1,150 per dwelling |4|. This is highly profitable. Essentially it means that within the foreseeable future massive connectivity via fibre-optic cables will reach even into poorer homes in the wealthy Boston-Washington corridor, which covers four percent of the land area of the US, but contains 25 percent of the population. It is hard to see this model being extended even into relatively wealthy LDC's such as South Africa, with a dispersed population marked by huge divides in disposable income: how much less likely into the rest of the continent.

For one thing, while the Web expands and becomes more secure, and as its full commercial potential begins to be realized, the indebtedness of most African countries also continues to rise exponentially. Sub-Saharan Africa includes 33 of the 42 countries classified as 'highly indebted' by the World Bank. In 1962, the debt burden of sub-Saharan Africa amounted to $3 billion; by 1980, the amount was $142 billion; and in 1998, the total debt is estimated at $222 billion and growing |5|.

These trends have not emerged recently. The seminal work on the coming of the information age is widely considered to have been Daniel Bell's The coming of post-industrial society, first published in 1973 |6|. Bell's book had an enormous impact in the United States and elsewhere, predicting as it did that "intellectual technology" (computerized knowledge, universally distributed by telecommunications) was moving

the world into a "post-industrial" period. Information would become a key factor of production, manufacturing industry would be subordinate to service provision and people (in the North at least) would work in offices rather than in factories. Right from the start, there have been progressive critiques of the utopianism inherent in an unpoliticised acceptance by librarians and information workers of Bell's vision. These have included Braverman's Labor and monopoly capital, published in 1974 |7|, in which the author predicts the deskilling of the majority of workers and increasing centralization and authoritarianism in the workplace.

The quotation cited at the top of this paper shows us the nature of link between these various aspects of the post-industrial global economy at the end of the twentieth century. Information/knowledge, to expand Thomas Stewart's amazingly inappropriate yet revealing analogy, is as important as thermonuclear weapons to the hegemonic powers of the North. The commodification of information, the very stuff of the Internet, is already worth billions of dollars. And a new regime of international law to enforce Northern property rights and control over information has already quietly been put into place. For information workers and librarians in Africa and other parts of the Third World, this is not an encouraging prospect. For most of us in the South, the electronic library may turn out to be, not a gateway, but even less sustainable in the developing world than its traditional counterpart. As Paul Tiyambe Zeleza has written, "[...] in themselves the advanced technologies offer no magic solution to the challenges of information dissemination and scholarly communication facing Africa [...] critics have argued that electronic information service in Africa benefits only a small, already privileged elite."|8|

It is true that there has been exponential growth in Internet access within Africa over the last year and a half |9|. It may nevertheless be a mistake for librarians to assume that this represents anything more than its extension to the local membership of the Golden Billion, as the global middle-class has sometimes been dubbed.

The Internet-based electronic library-however conceived-does provide us in Africa, in the abstract, with the technological means to share resources

and serve users, as this conference's theme puts it. However, we are already finding out that this is most emphatically not accompanied by the necessary concrete economic or legal conditions that would allow us in the South to maximize the free flow of information in order to better people's lives.

The legal conditions referred to have found specific expression particularly since 1993. For many librarians and information professionals, the broad issue of intellectual property rights is normally seen through the narrow prism of the impact of copyright law on their daily activities. However, as John Frow, among others, has argued, the imposition of the present world trade regime at the conclusion of the Uruguay Round of the General Agreement on Tariffs and Trade, in December 1993 "marks a clear historical demarcation in the global control of information." |10| I believe that as a profession committed to the free flow of information, we must pay serious attention to the implications of this break with the past.

As Frow points out, a key Northern objective in 1993 was to extend intellectual property rights through patent, copyright and trademark law to such new areas as pharmaceuticals and agro-chemicals, whose products-medicine and food-are fundamental to human well being. The view of the United States and its allies was, and remains, that the knowledge-and-information components of these commodities are themselves private capital goods. A much more common view in the rest of the world, and especially among LDC's, is the traditional one that the basis of scientific method is full disclosure. This in turn makes information and knowledge broadly a public good, both in the sense that they are non-depletable, and in the legal sense that they cannot be commodified (that is, bought and sold).

It is not only on the left that concerns are being raised about the extension of intellectual property rights at the expense of the shrinking public domain. In a recent North American book on legal aspects of the information society, James Boyle has argued that the trend set at the 1993 GATT negotiations "[...] leads us to have too many intellectual property rights, to confer them on the wrong people, and dramatically to undervalue the interests of both the sources of and the audiences for the

information we commodify." |11|

The commodification of information in the global economy is a gloomy prospect for librarians who have been trained in the liberal tradition of the free flow of information, as well as for those of us who are further to the left. It seems that we will not be able to enter the electronic library of the future without a credit card. Nevertheless, the nature of the technology itself may offer a ray of hope. Copyright law protects the commercial interests of those producing fixed and printed texts, and is the basis for our highly individualistic idea of authorship. In an analogous manner, the fluid, non-linear and impermanent nature of the electronic text will probably change the way research is reported. In fact, a powerful case is already being made that the electronic revolution is changing the fundamental nature of scholarly discourse. Stanley Chodorow has correctly pointed out that the "current geography of information is the product of the seventeenth century doctrine of copyright". Its origins lie in the political interest of the state, and the commercial interests of publishers and booksellers, as well as in the fixed nature of the printed text. But because an electronic text is not fixed, and can be altered on the fly, Chodorow goes on to argue that in the foreseeable future

"[a] work of scholarship mounted on the Internet will belong to the field it serves and will be improved by many of its users. Scholar-users will add to the work, annotate it, and correct it, and share it with those with whom they are working. All the really important works of scholarship, the works we commonly call research tools, will quickly evolve into several subspecies in the hands of scholars." |12|

Some commentators have gone further, and have argued that the technology may eventually do away with the organizational base of higher education, the campus-based university, altogether. Eli M. Noam writes that the historical origin of the university is centred on the library: "[s]cholars came to the information-storage institution and produced collaboratively still more information there, and students came to the scholars." In this model, people had to come to the information: this is the basis of the organization we call the library. The Internet changes all that: information comes to the people instead, and Noam argues that the

economic basis of the organizations we know as universities and university libraries are and will be threatened by this fundamental change. |13|

All these symptoms are magnified in the South, where academic libraries are usually recent foundations and are always modeled on Northern exemplars. Libraries and information systems in African countries and in LDC's in other parts of the world have difficulty sustaining themselves financially and organizationally, and have been in that situation for some time, as we all know. As Agha and Akhtar have pointed out several years ago,

"[s]tudies indicate that information systems in developing countries usually thrive when assisted with external aid through the development of products and services, along with related infrastructural development. Unfortunately, however, once aid ceases, the information systems tend to function at a lower level of productivity, or on occasion, become inactive."|14|

But even aid to libraries, as Tiyambe Zeleza forcefully argues, is often a "dubious benefit": aid itself is a short-term solution, and sometimes "donations [to libraries] are irrelevant and inappropriate. In the process, the culture of silence and submission to imperialism, which is partly responsible for the African crisis in the first place, deepens." |15| The way forward is far from clear.

Two Parallel Universes

Where does all this leave us? At a training seminar held by the Cape Library Cooperative (CALICO) in March 1998, we opened the proceedings by presenting two alternative views of the future of library practice. These two alternatives were presented in terms of a literary conceit much beloved of certain science fiction writers, the idea of the parallel universe. Readers of the late British writer and SF buff Kingsley Amis may remember a work that he published in the 1970s, called The Alteration |16|. The story is set in a parallel universe in which the Reformation never happened, and Martin Luther, if memory serves, returned to the bosom of the Catholic Church. As a result, virtually no

scientific development has occurred by the twentieth century-there are no aeroplanes, and no computers. Schoolboys read "parallel universe literature" instead of SF.

The concept hinges on the idea of a split or divide in the flow of time as the result of the outcome of a particular decision or event. Thus in 1998, we as librarians and information workers in higher education have choices to make, and these choices may lead to dramatically different outcomes for our social and academic role over the next few decades. There is a pervading sense in our profession that if we do not adapt effectively to the new technological environment, in twenty years time we may have become all but extinct. Even if we do, as this paper has already argued, emerging economic and juridical trends around the "electronic library" may push us towards playing a quite different rolee-extinction, perhaps, in another guise.

Interestingly, most of the participants in the CALICO seminar misread our parallel universes as scenarios. It is necessary to avoid that misunderstanding here. The argument is that librarians and information workers are faced with a major organizational and political challenge, apart from the technological one, which if shirked or bungled will lead to an even greater marginalisation of African knowledge than exists at present.

Let us assume that the more or less economically self-supporting higher education sector in South Africa-unlike the rest of Africa-survives into the medium term future. Let us also assume that the much discussed massification of South African higher education does not occur, in the face of the student debt problem and a shrinking matric pass rate. Let us further assume that the rate of technological change continues to accelerate, with the technology becoming simultaneously and continuously more powerful and less expensive. Finally, let us assume that the broad trend towards a globalization of information resources will continue.

In one of these parallel universes, librarians and information workers have failed to engage effectively with either of the two challenges identified at the beginning of the paper. We have assumed that "business

as usual" is the watchword, that print materials will continue to be the dominant delivery mechanism for information; library schools have continued to teach traditional library skills. A rigid copyright and patent regime requires us to monitor and pay royalties on virtually all photocopying activity. Library users must pay for access to the Internet, on top of whatever document delivery charges they might incur when they actually download a document.

To put it bluntly, academic librarians will have been marginalised even further. Checking e-mail (itself already an old-fashioned technology) has become an irregular chore, on old keyboard-driven workstations shared with up to four other staff members. Most e-mail is administrative or personal, since the training model has not changed and librarians are outside the academic loop; they usually do not have degrees other than in LIS. For similar reasons, they do not have access to the Internet or the Web anymore, because academics have priority and connectivity is limited. Librarians' access was voted down in Senate.

The library has now been broken up and most books and periodicals are stored in facilities around the edge of campus - the old main library building is now used for urgently needed offices and classrooms. Very few print resources are purchased these days, since they mostly come from overseas, only one person can read them at a time, and the storage is costly. Only the short loan facilities are run centrally, and they are as noisy and stressful as ever, as hundreds of students, mainly first-years, clamour for the same printed materials, always in short supply.

Many academics don't use library facilities much. The Chemistry Department, for example, has access to Chemical Abstracts directly from its own workstations, and pays for a consortial subscription to a cluster of core on-line journals with the other chemistry departments in the region. They have discovered that it is more effective to conduct their own searches, as their familiarity with the knowledge domain is vastly greater than the librarians'. Most other disciplines are the same. They keep up with news via various electronic media, including old-fashioned listservs and news groups. The down side is that pretty much all they see is chemistry material, but by-and-large they don't need librarians.

Meanwhile, in another parallel universe, other information specialists are at work. Although we are no longer called librarians, this is a universe in which we decided early on that we really had to confront both the challenge of IT and its demand for new skills, as well as threats to free information flow head on. The "library" is a small wired building, centrally-located, a node on a busy network of information delivery systems of all types, many unimaginable now, 17| that stretches across the Western Cape, South Africa and the world. Collections of print and other materials are distributed according to demand, controlled by a sophisticated "fleet management" system.

Although we are few, librarians are typically highly trained specialists with qualifications in various academic disciplines as well as in education and information science. We manage information on behalf of users who are too busy and too specialized to be able to spend the time to do it for themselves; we are gatekeepers, to return to one of the keywords of this conference. Computer workstations are now tiny quantum-technology-based processors, vastly more powerful than the chips of the 1990s, driven by voice recognition, and with sophisticated OCR capability. Repetitive strain injury is a thing of the past. Most workstations, much more user-friendly than anything from the previous century, include sophisticated search engines that treat local storage and the rest of the global network according to the same principles.

The role of the information specialist is primarily to act as an interlocutor between the academics and exponentially expanding information resources. Doubling periods have become shorter and shorter, and specialization has increased dramatically, so the information specialist is the "generalist" in the discipline, paid to maintain an overview. Typically, such a "librarian" will subscribe to a range of lists on various topics. She will point users in the direction of relevant local and global networked resources, and maintain such products as networked FAQ files on using the Internet for particular research or teaching programmes. She will be responsible for the monthly updating of local disciplinary Web pages. Typically, these will include information on new local and global resources-courses, materials in areas of research interest, links to information that can be accessed via the Web. The library OPAC is an integrated element in this complex of possible

resources.

Of course, this is an exercise in imagination, and the real future will probably be dissimilar to both of these universes, but with features of both. The real point is that librarians and information workers-especially in the LDC's-need to seize the time, to become makers of history, subjects as well as objects, if we are to retain more than a residual role in the academy of the future.

Cooperation is a Panacea, But Worthwhile

There is scarcely an academic library left in the world that has the financial resources to purchase the monographs and journals it needs, let alone that it wants. Almost all library consortia therefore attempt to rationalize the building and use of information resource collections through sharing, through granting access (which is "better than ownership", as we all now know). To the extent that they attempt to solve the economic problems of sustaining adequate traditional comprehensive collections in traditional campus-based academic institutions by moving operations on to a larger scale, the library consortium is a panacea, which is bound to fail in the long run. Nevertheless, we will still build consortia because they solve short and medium-term problems to which we have no other answer.

Consortial library activity came late to South Africa, delayed by the decades of apartheid in higher education as in all other areas of society. Institutions duplicated and divided by race and language were not designed to work together: on the contrary, some were designed to fail. As a result, we are now in a position to experiment boldly. There are presently nine higher education consortia in South Africa, of which at least the two major ones-in Gauteng and the Western Cape-are library-led.

There are at least two key insights that have allowed South African library consortia to move forward rapidly. The first of these is that high-bandwidth connectivity at a low tariff is an essential pre-condition of success. Without it, while libraries may share union catalogues and work from the same software platform, they cannot achieve full and

seamless integration of computerized services across institutions. Users continue to see each library as a separate entity. The academic community has therefore engaged in negotiations with the political authorities and with the monopoly telecommunications corporation to achieve such connectivity. Because the South African telecommunications sector will be deregulated within the next four years, the corporation moved rapidly to accept the idea of a differential tariff for education. In the Western Cape, a new high-bandwidth higher education network, which carries all IP traffic between the five local institutions, began operation in early 1998.

The second insight has been the emphasis on large-scale information literacy training which becomes possible if based on consortial activity, and at its best allows us to "spread best practice" across institutions with concomitant savings in resources. Relatively little is known about the cultural specificity of the group of skills that constitute information literacy, and particularly what difficulties face learners whose first language is not English and who are not particularly at home with the technological commonplaces of the Northern world. However, we are beginning to find out. A pathbreaking study in the Western Cape indicates just how much work needs to be done in this area |18|. What is most interesting about information literacy work, when seen as more than just teaching people to use libraries and computers, is that it moves librarians and academics together into an exploration at the centre of the learning space.

The future of academic library consortia in South Africa is a rosy one. There is no doubt that they will be able to deliver information far more effectively and efficiently than individual libraries, and they bring additional benefits of partial redress through access for the inequities of the past. However, they remain essentially a tactical response to the organizational problems of the long term. It is likely that the organizational and financial basis of the South African academy itself will be questioned as we move towards such delivery systems as distance education, life-long learning, and resource-based education for adult learners.

Conclusion

It has not been (entirely) my intention in this paper to suggest that there is a sinister imperialist plot afoot, to replace traditional libraries with pay-as-you-enter Internet cafes, so that the innocent reader can be milked of her hard-earned cash. Indeed, close attention to the "signals" shows that they are mixed, to put it mildly. Last year, for example, it was widely reported that Bill Gates himself had set up a foundation in order to, in the words of the American Library Association, "invest" nearly half a billion dollars in libraries in low-income communities throughout the United States and Canada |19|. Similarly, the area of copyright is, at a certain tactical level, clearly seen as an area of struggle by North American librarians and educators, especially over such issues as "fair use" |20|

Despite this, it must be said that a careful reading of present trends in information delivery, especially in Africa, gives little cause for optimism. It is doubtful whether librarians and information workers in Africa, a marginalised profession in a marginalised continent, will be able by themselves to turn the tide. Nevertheless, there are three tactical steps which librarians can and should take to protect, not their own interests, but the interests of African people who do not have access to information. These are first, to resist the shrinking of the public domain; second, pay serious attention to the political economy of information in general; and third, to intervene to our own advantage in the coming deregulation of the telecommunications industry in African countries.

It may be that the North will continue to refuse to cooperate in the establishment of an equitable world information order, based on entrenched principles of full disclosure and free flow. Then it will be the worse for all of us, for, as South Africa's Minister for Posts, Telecommunications and Broadcasting, Jay Naidoo, put it in a speech in Malta recently

"The alternative is too ghastly to contemplate. Not even the fortress economies of the developed world will be able to withstand the overwhelming surge of a displaced majority of humanity."|21|

1. Thomas A. Stewart, Intellectual capital: the new wealth of organizations (London: Nicholas Brealey, 1997), p.ix.

2. Mark Tran, "Dash for online cash" Mail and Guardian [Johannesburg] (15-21 May 1998), p.30.

3. J. D. Wright, "Show me the money: payment servers deliver unified e-commerce processing" http://marketspace.altavista.digital.com/WebPort.asp?ArticleId=362, 1997.

4. Economist (18 April 1998), p.76.

5. Larry Elliott, "Why the poor are picking up the tab" Mail and Guardian [Johannesburg] (15-21 May 1998) p.19. Elliott's figures are based on the UN's latest Human development report.

6. Daniel Bell, The coming of post-industrial society: a venture in social forecasting (New York: Basic Books, 1973)

7. Harry Braverman, Labor and monopoly capital: the degradation of work in the twentieth century (New York: Monthly Review, 1974). For an excellent summary of the significance of this debate for librarians, see Stan A. Hannah and Michael H. Harris, "Information technology and the future of work" Progressive Librarian no.10/11 (Winter 1995-1996), p.23-42.

8. Paul Tiyambe Zeleza, "Manufacturing and consuming knowledge: African libraries and publishing" Development in Practice vol.6, no.4 (November 1996), p.296.

9. In May 1996, only 16 African countries had full access, from a total of 56. Now 44 countries are wired. See Mike Jensen, "The expansion of African webspace" " Mail and Guardian [Johannesburg] (15-21 May 1998) p.4-5.

10. John Frow, "Information as gift and commodity" New Left Review [London] no.219 (September-October 1996), p.89.

11. James Boyle, Shamans, software and spleens: law and the construction of the information society (Cambridge, Mass.: Harvard University Press, 1996), quoted in College and Research Libraries vol.59, no.2 (March 1998), p.193.

12. Stanley Chodorow, "The medieval future of intellectual culture: scholars and librarians in the age of the electron" Organization of American Historians Newsletter (November 1997), p.10.

13. Eli M. Noam, "Electronics and the dim future of the university" Science vol.270 (13 October 1995), p.247.

14. Syed Salim Agha and Shahid Akhtar, "The responsibility and the response: sustaining information systems in developing countries"

Journal of Information Science vol.18 (1992), p.284.

15. Tiyambe Zeleza, op.cit., p.295-296.

16. Now out of print, the novel was published in the United States by Carroll and Graf in September 1988 (ISBN: 0881844322).

17. "People often overestimate the impact of change in the short term, but they also underestimate it in the long term." Eli Noam, op.cit., p.249.

18. For a more detailed account of information literacy in the Western Cape, see Yusuf Sayed, The segregated information highway: information literacy in higher education (Cape Town: University of Cape Town Press, 1998), as well as the prolific writings of Cathy-Mae Karelse, presently director of the INFOLIT Project in Cape Town.

19. "Gates Foundation to invest $400 million in libraries" American Libraries (August 1997), p.14-15.

20. See, e.g. Robert L. Jacobson, "Fair use impasse: educators and copyright holders still at odds over guidelines for cyberspace" Chronicle of Higher Education (18 August 1995).

21. "Speech given by Jay Naidoo, Minister for Posts, Telecommunications and Broadcasting, at the World Telecommunications Development Conference, 1998" http://www.doc.org.za/docs/speeches/1998/sp980324.html (24 March 1998, Valetta, Malta).

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