Libraries in an age of technology

Colin Steele, ANU Librarian, looks ahead to a future that is already upon us

This is a much abridged version of a paper Colin presented in South Africa last September. The full paper has appeared in The Electronic Library, *Vol 11, No 6, December 1993, pp 393–402.*

Bruce Sterling, the science-fiction writer, was a guest at the American Library Association Conference in 1992. He has recently stated on the network:

'What's information really about? It seems to me there's something direly wrong with the Information Economy. It's not about data, it's about attention. In a few years you may be able to carry the Library of Congress around in your hip pocket. So? You're never gonna read the Library of Congress. You'll die long before you access one tenth of one percent of it. What's important—increasingly important—is the process by which you figure out what to look at. This is the beginning of the real and true economics of information. Not who owns the books, who prints the books, who has the holdings. The crux here is access, not holdings. And not even access itself, but the signposts that tell you what to access—what to pay attention to. In the Information Economy everything is plentiful—except attention.'

The moral here is that we need to evaluate and manage the process and what the role of the librarian or information synthesist is. No longer does the totality of libraries equal the totality of knowledge and neither do librarians have a stranglehold on ownership.

The current move into the electronic environment, even though it has an undoubted intellectual, commercial and technological life of its own, should not be accepted without question. The Australian National University Library, a leader in what might be called E-library provision, still buys around 25 000 monographs a year.

The network world is not, of course, the prerogative of the academic community and there are ever-widening ripples of accessibility by public and special libraries, certainly in Australia, following the American precedents. Local public nets are in the process of development. Five special libraries in Canberra, such as the Australian Institute of Sport Library, have joined AARnet (Australian Academic and Research Network) in the first six months of 1993. The issues they face are just as tumultuous for them in user choice and access and resource collection as for their academic counterparts, who have been much to the fore in the debates to date.

Gloria Steinem has been quoted as saying the public library is the 'last refuge of those without modems' but for public libraries not to be involved in the IT revolution, or to retreat by saying IT changes will lead to the death of the book, is foolish on several counts.

In a recent speech to the US Congress, introducing a bill for state-based electronic libraries Senator Bob Kerrey indicated that: 'While we were asleep, the late 20th century public library has been eclipsed by video stores, cable televisions and the ever-expanding world of entertainment ... For the sake of our culture, our democracy, and our economy, we urgently need to turn this around ...I believe the State Electronic Libraries could be the resource needed by communities grappling with this challenge'.

A need to rethink

As late as, say, 1987 few could have predicted the phenomenal impact of global interconnectivity, which along with the development of open system integrated library management systems and PC power has allowed the dramatic IT revolution of the last four years to occur. Professor Wilfred Lancaster did of course predict the paperless society in various books in the 1970s but at that time the infrastructure mentioned here was not in place. Several commentators made the now famous remark that the paperless library was as likely as the paperless toilet, but recent writers in the *Australian Author* have reminded us that the French invented the bidet and that this comment was strictly inaccurate!

The need for a fundamental rethinking of library operations and concepts has been superbly placed in an historical context by Professor Michael Buckland in his book *Redesigning Library Services: A Manifesto.* He concludes his analysis with the words:

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IT developments

The US HEIR Alliance Executive Strategy Report, issued in 1992 under the title *What Presidents Need to Know About the Integration of Information Technologies on Campus,* is a clear and cogent summary of the issues confronting the profession. These are:

- **increased generalisation of computing uses by faculty and students;**
- **increasing emergence of information exchanges by faculty, students and administrators through networks;**
- **widespread use of online bibliographic databases to identify the existence, content and whereabouts of information;**
- **emergence of limited full-text electronic resources and electronic imaging for non-character-based information resources;**
- **a plethora of network databases and independent protocols and applications, which are beginning to converge in common digital formats and processes and which respond to the evolution of national standards;**
- **continued reliance on labour-intensive distribution channels for the delivery of instruction and paper-based information resources;**
- **a perceived shortage of information management generalists to support faculty, librarians, administrators, information and media specialists, and students; various levels of competition and cooperation among organisational groups which are being drawn together by overlapping technology-based concerns—librarians, computer centre staff, faculty.**

' Hitherto library services have been dominated by local catalogues, local collections, and great inequalities in the geographical distribution of services. The constraints on library services are changing right now. None of this is an argument for abandoning paper and local collections. All of this requires us to think again about the mission of the library, the role of the library, and the means of providing service. For the first time in one hundred years we face the grand and difficult challenge of redesigning library services'.

Many of the speakers at the April 1993 *Changes in Scholarly Communication Conference: Australia and the Electronic Library* in Canberra indicated that libraries are now at another watershed era in history, comparable to the fifteenth century, in which their role and that of their users is changing dramatically.

Professor Peter Sheehan of Queensland University, the Chair of the Australian Joint Academies Steering Committee, has written in his recent Presidential Column for the Academy of the Social Sciences, in the context of IT changes, that:

'The issues are prodigious in their scope and complexity. What is the appropriate nature of the administrative and intellectual structures that are necessary to accommodate or adapt to technology? How can we manage efficiently the communication of information in an era when some would say libraries are losing their core identity? The new paradigm is forcing us into making difficult decisions about existing management and administrative structures.

'Further, there are radical new problems associated with security, cost, performance and equity ... The present age is an age of continuous change. To survive and cope well, we need not only to have good ideas about appropriate changes to University systems but we need to pay close attention to how change is implemented and managed ... a shared vision also means close consideration of the fit between the objectives accompanying that vision and the resources that are available. Finally, the gain in quality of decisions. and staff knowledge of intent behind change, must be balanced against the extra time and effort needed for participative involvement'.

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Library structures

What will the changes mean in terms of leadership, philosophies and structures? Structures will have to be flexible and almost certainly constantly changing within a decentralised environment responding to clear, overall goals. Communication will become faster in the 'wired' campuses, although it is not yet clear to me how the process of 'instant feedback' will settle down in a decision-making sense. Information overload is already becoming a factor in the current work environment.

Libraries in the electronic environment will become 'switching centres'. To do this their staffs will have to stand back and say 'What are we doing? Why are we doing it? Who are we serving? and How effectively are we doing it?' There is, thus, a need for a redefined mission, institutional prioritisation and strategic planning.

Too often—and to some extent this is understandable— library staff cannot comprehend the 'big picture' of their operational and institutional frameworks. This is no more evident than in the issues and actions embodied in the partial change from local storage to global access in information provision. Often the library staff, themselves 'hidden' behind the scenes in libraries, are unaware of the dramatic access changes that a portion (which will clearly rise) of their user population is involved in.

In the future the electronic library will be a seamless staffing one. Structures will be flatter, with less professionals at upper and middle levels. Teams will be flexible and project-oriented. The term 'technical services' will arguably be out- moded as in-house introspection changes to external value added services. For collection

development personnel to indicate that they are not responsible for online subject full-text databases but that they are for printed texts is illogical. The collection management future will be a varied one. What is clear is that the status quo cannot remain because of the forces impacting on libraries, as mentioned earlier.

Library structures and organisational fiefdoms need to be re-examined dramatically, rather than simply grafted onto existing structures. The need for 'knowledge navigators', i.e., librarians who can be more flexible in managing this information torrent, will be vital. This also raises the belief that librarians will somehow be superseded and made redundant by the present trends in electronic dissemination. While acknowledging the definite gap in conceptual and practical applicability from those 'on the net' and those who aren't, the skills of librarians in aiding users and knowledge managers are essential prerequisites for information provision management. If librarians possess people skills, flexibility and a willingness to explore the general or specialist interfaces relevant to their user clientele, they will survive.

Continuing training and development

Jerry Campbell is both University Librarian and Vice Provost for Computing at Duke University, an interesting combination. He sees a need for almost non-stop continuing education in libraries and believes:

'We must bring some coherence to the task of improving the level of technical proficiency of mid-career librarians. We must also reconsider certification for professional librarians. With specific reference to technology this certification must:

- establish appropriate levels of proficiency in information technology;
- require proficiency testing;
- define minimal requirements for continuing technical education.

'Doing this may be the only way to bring this great amorphous group together to deal with the impact of technology and to provide credibility for its continuing existence as the premier body of information professionals.'

Within this debate on qualifications for the profession in the electronic era is the need for flatter, more focused organisational structures. The distributions between professionals and para-professionals have to be broken down further to allow front line services to be undertaken by the latter and a more 'roving' role for the former. Career path progression based on performance appraisal for all categories of staff will reward ability. In the wider IT environment, moreover, there is a requirement for areas to create one 'job family' for all workers involved in the information process.

The one library concept

The one library concept is thus here. No longer can we argue that we are simply reference librarians or cataloguers. Libraries cannot even stand alone any more in the IT environment. So why are we continuing to ghettoise ourselves into particular categories? As librarians too we must meet in wider forums and come together with the other players in

Internet is growing...

...at a dizzying rate, according to *Win Treese* in the *Computer Underground Digest*

Sue Kosse has drawn our attention to the latest 'Internet Factoids', statistical trivia which add up to an impressive growth pattern with awesome prospects for our global future:

Annual rate of growth for Gopher traffic: 997%

Annual rate of growth for World-Wide Web traffic: 341 634%

Average time between new networks connecting to the Internet: 10 minutes

Number of newspaper and magazine articles about the Internet during the first nine months of 1993: over 2300

Date of first known Internet mail message sent by a head of state: 2 March 1993 (Sent by Bill Clinton, US President)

Number of mail messages carried by IBM's Internet gateways in January 1993: about 340 000

Number of mail messages carried by Digital's Internet gateways in June 1993: 0ver 700 000

Advertised network numbers in July 1993: 13 293 (Advertised network numbers in July 1992: 5 739)

Date after which more than half the registered networks were commercial: August 1991

Number of Internet hosts in July 1993: 1 776 000

Number of USENET articles posted on a typical day in February 1993: 35 000

Number of megabytes posted: 44

Number of users posting: 80 000

Number of sites represented: 25 000

Number of countries reachable by electronic mail: 137 (approx.)

Number of countries not reachable by electronic mail: 99 (approx.)

Number of countries on the Internet: 60

Amount of time it takes for Supreme Court decisions to become available on the Internet: less than one day.

the information process. Formal links with organisations like CAUSE, EDUCOM and CNI have been forged in Australia recently.

We need a new sort of librarian as an interface to the network. There is no way that we can become the subject specialist to the myriad of databases in any particular topic out on the net. We do need, however, people who can explain what databases can be pulled down and what items can be networked, and to provide that link to the gateway of the world of information.

We need to remove ourselves from the static environments of our libraries today. We have long known from the literature that only a certain proportion of our users ever come to a reference desk. If they do, the literature also indicates that they may or may not get the correct answer.

A major number of queries might well be locational. There is a residual belief by some in Australia that paraprofessionals cannot operate reference desks, yet the American discussions as revealed at the 1993 ACRL Conference indicate that scholars are not heavy users of general reference services, while Brandeis University Library management believes the reference desk is an actual impediment to user access.

At the Australian National University, a study in June 1993 indicated that student queries tied up 64.5% of information services professional desk time, in a predominantly research university with only 27% of academic staff using the services. Refocusing is thus essential for library management, particularly in the context of the electronic reference desk. Collection managers and developers face some of the greatest challenges in management as they realign from the simple buy-buy philosophies, even within restricted budgets, to manage the entirety of their operations from selection—in whatever form, for example print or electronic—to use of that material either by loan or registered network access. If they don't, then 'buy-buy' could well become 'bye-bye' instead!

ELISA, the Electronic Library Information Service of the Campus Wide Information System, at ANU has seen its growth rise in 1993 from around 10 000 remote queries per month in early 1993 to 90 000 queries per month in August. Extrapolate the growth and one can see the need to balance historical internal operations vis-à-vis new and counterbalancing access points.

The future

Where will the changes come? Head librarians who are already required to be a combination of PR mogul, budget cutter, IT facilitator and democrat or demagogue (depending on who you talk to) will be linked more than ever into the evolving structures of scholarly communication in a general sense. Librarians, or whatever they will be termed, can help facilitate the future more effectively than in the past. Access to the net from public, special or academic libraries is the key to that future.

The title of John Brunner's 1975 novel *Shockwave Rider* reminds us that if we ride the waves of the net there's bound to be some bumps, but if we stand at the edge of the global IT beach and don't get wet then a wipe-out of our profession is likely. ■

CONGRATULATIONS!

Thank you to all of the over six hundred Australian libraries which contribute holdings information to the National Bibliographic Database. A significant milestone in the history of the database was reached on 30 March with the addition of the twenty millionth holding statement.

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This major achievement is the result of over twelve years of cooperation between Australian libraries.

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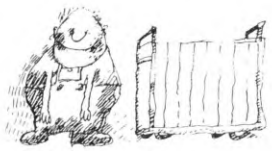

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