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Edited by Alan Ventress
Electronic mail has its undoubted advantages over snail mail, but the ease of communicating via email has increased the volume of messages we are all expected to read, absorb and reply to. While speed of communication can at times be essential, it can often lead a “shoot from the hip” mentality in replying. This is because once an email is electronically filed it is rarely ever consulted again. The volume of messages piling up behind each message makes it difficult to remember what went before and what needs to be replied to, hence the pressure to reply instantly. There is also an unspoken assumption that emails will be responded to immediately. E-mail is most certainly a double-edged sword. Leaving the office (and your mailbox) unattended for even a short time can lead to “e-shock” when you return! It is not unknown for my mailbox to start groaning at the seams, even after three days away. Some ways of dealing with this email communication overload are auto re-routing of regular messages and bulletins to save time re-directing messages, auto-deletion of unwanted messages that emanate from certain sources and not subscribing to too many listservs. One of my pet hates is email attachments. Invariably they require the recipient to print out the attachment, when the text included could readily be incorporated into the email. A great deal of paper would be saved if we all cut down on email attachments!

Another hazard of email in many office environments is the lack of archiving of messages, which will, over time gradually lead to an erosion of the institution’s corporate memory. Steps must be taken to ensure email is stored, saved and is searchable now and in the future. Finally it pays to remember that despite its apparent informality, email can be subpoenaed and used in the courts. Perhaps before you “shoot from the hip” the next time you reply to an email it may pay you and your organisation to sleep on that spontaneous reply!

In the last issue of LASIE Richard Neville, Curator of Pictures Research reported on the State Library of New South Wales’ PICMAN (Pictures and Manuscripts) database which has over 300,000 jpg images, which are fully searchable, available on the Internet via the State Library’s web site at http://www.slnsw.gov.au. Naturally the Library is very proud of this achievement, but browsing through Net News last week I noticed Bill Gates’ Corbis Corporation has purchased SYGMA a large French photo agency. Corbis says this will create the largest image database in the world with 65 million images, including 2.1 million online via http://www.corbis.com/press

Somehow this pales our modest effort into...
insignificance! How can we ever match this? Since taking over the editorship of LASIE at the beginning of the year, I have been trying to broaden its scope to include articles from the archives and museums sectors. If you work in either of these areas I would be very happy to discuss a possible contribution with you.

IN THIS ISSUE

Chua Seow Kie and Dr Abdus Sattar Chaudhry provide a very detailed overview of three special library systems namely Horizon, V-Lib and DRA with the pros and cons of each system evaluated in a clear and easy to follow manner. Each system's capabilities are clearly tracked and presented in tables. This is a most useful addition to library systems literature especially for those in the market place for a special library system.

Julie Hooke, this year’s runner up in the Jean Arnot Fellowship award provides an insight into “evidence based medicine” and the way it is used to sift through the vast quantities of medical literature both published and unpublished, to obtain a picture of the true impact of treatments and procedures. Leaping from medical literature to libraries Julie explores the possibilities of using this methodology as a fundamental tool of library management.

Robin Walsh from Macquarie University Library provides a detailed overview of the development of the electronic historical archive of Lachlan Macquarie, the Governor of New South Wales between 1810 and 1821.

John Read reports on the innovative use of new software compression methods to digitise and make available significant historical maps in full colour and Michael Ferres provides an overview of new directions for special libraries through the networks established by the Victorian Department of Natural Resources and the Environment.

JEAN ARNOT MEMORIAL FELLOWSHIP WINNER 1999

JUDITH HURST

The 1999 Jean Arnot Memorial Fellowship and a cheque for $1,000 was presented to Ms Judith Hurst at the annual Jean Arnot Luncheon held at New South Wales Parliament House in Sydney on 16 April 1999, by Mrs Jacqueline Samuels, wife of the Governor of New South Wales, for her paper “A Journey as a Teacher-Librarian through the Nineteen Nineties”.

The Fellowship is named in honour of the late Jean Fleming Arnot MBE, FLAA, a former staff member of the State Library of New South Wales, who retired as head cataloguer in 1968 after a distinguished career spanning 47 years. Miss Arnot was active in women’s organisations and a pioneer in the campaign for equal pay. The Jean Arnot Memorial Fellowship is funded by a generous donation from the National Council of Women of New South Wales and the Australian Federation of Business and Professional Women’s Associations as a memorial to Miss Arnot and her achievements.

Alan Ventress

July 1999
This paper reviews the capabilities of three library automation systems, ie. HORIZON, DRA and V-LIB, and is aimed at determining the suitability of the automation systems for computerisation of major functions in a special library environment. This study has also attempted to examine the level of utilisation of functional capabilities of these systems and ranked the systems in terms of their performance in an operational setting.

INTRODUCTION


DRA, developed by Data Research Associates, has achieved a sales figure of 55 for the year 1996 and the total number of installed and accepted systems worldwide is 982 (Library Systems Newsletter, 1997, p19). It has a web site (http://www.dra.com) which provides information and updates on latest system development. V-LIB is an Asian product developed by VTEC and based in Hong Kong. It has a sales office in Singapore and is known to support more than 35 libraries in the Asian region. Queries about V-LIB can be made via electronic mail to vtecsys@singnet.com.sg.

This review is aimed at determining the suitability of these automation systems for computerisation of major functions in a special library environment. This study has also attempted to examine the level of utilisation of functional capabilities of these systems. Systems assessed were ranked in terms of their performance in an operational setting.

METHODOLOGY

A literature review indicated that using a checklist to administer the evaluation is a popular method as noted in papers written by Meghabghab (1997), Chaudhry (1998), Fisher & Rowley (1994), Wright (1995), Lim
There are two main purposes for using checklists in system evaluation: to assess the comprehensiveness of features available in systems and to evaluate the effectiveness and efficiency of system in performing computerized operations. A scoring scheme is usually used to assess the performance against listed functional indicators in the checklist. The scoring scheme used by Boss (1993, 1995) and by Chaudhry (1998) was considered comprehensive. It is similar to the scoring scheme used in surveys conducted by Cibbarrelli (1993). While the former was designed to assess system's capabilities to handle the required features, the latter was used to assess system performance.

For this study, a functional checklist was developed making modifications to the checklists available in professional literature. The checklist is the product of compilation based on several published RFPs (Request for Proposals) developed by Boss (1994) and Meghabghab (1997), and relevant system functionalities described in publications. It has details at function; sub-function and feature level and consisted of nine main functions, 64 sub-functions and 442 features. The nine functions are circulation, cataloguing, acquisition, serials control, OPAC, management information, archival function, general essential features and vendor support. The first six functions are application modules and can be found in most library system functional module. Archival function is not a common library operational need and hence it is not expected that all library systems will have a module comprising archival functions. Instead, the archival functions are generally incorporated in other functional modules such as cataloguing and circulation. The last two functions are not modular system functions but are included in this checklist because of the importance attached to their availability in ensuring effective system support and performance.

The functional checklist was used to seek information from two groups of participants. The first group comprised the system vendors who provided input on system functional availability in the checklist. The second group was the library staff using the systems chosen for evaluation and feedback from the library staff reflected on system performance in operational setting. Input given by both groups of participants was tabulated using the scoring scheme described earlier. A scale of 0 to 10 where 0 depicted non-availability of features and 10 depicted feature availability with extensive coverage was used to assign the vendor score. The criteria used for assigning scores were: currently available, in testing, in development, and not available. Extent of coverage in the scoring scheme was depicted by: supports all data elements, covers important elements, can cover required elements, needs customization and cannot support the listed features. Likewise, the scoring scheme of the checklist administered to the library staff had a scale of 0 to 10 where 0 denoted inability of system to support listed features in the checklist and 10 meant that the system's capability to meet library's requirements had exceeded expectations.

Three libraries were visited for this system review and twelve library professionals participated in the review. All heads of departments in each library visited were consulted, starting from the Head Librarian's Office, to enlist his/her assistance to fill in the checklist. The checklist was filled in the
presence of the library staff using the system during the library visit. This provided an opportunity of seeking clarifications by library staff on the system features in the checklist. It also enabled the researchers to appraise the system performance, strengths and weaknesses from the user's perspective. Library staff were requested to provide input on system capabilities bearing in mind the following system performance criteria: response time in performing a function, ease of maneuver, flexibility to meet the library's requirements, functional comprehensiveness, ease of use and availability of documentation (i.e. printed manuals or online instructions).

There were three sets of scores collected for the checklist. The first set was given by system vendors who constituted the vendor or capability score. This score reflected the system capability in handling the specified functions in the checklist. To obtain the vendor score, add the vendor scores of the sub-functions and then divide by the number of sub-functions. The same formula is used for computation of each sub-function score, i.e., add the vendor scores of the sub-function component features and then divide it by the number of features for the sub-function. The second set of scores was gathered from input from library staff using the selected systems in an operational environment and this composed the user or performance score. The formula for computing the user score is to average all the performance scores of the component sub-functions. To obtain the sub-function score, add the user scores of the sub-function component features and then divide by the number of features for the sub-function. The aggregate of both vendor and user scores would reveal the third, i.e., composite score.

In addition to the three sets of scores, critical weights were assigned to the main system functions to measure the importance of the functional feature in the checklist as perceived by the evaluating library. To assess the suitability of the automated systems for special libraries, the critical weights given in this study were derived from participation of librarians working in a local special library. They were requested to assign critical weight to the main functions in the checklist bearing in mind the importance and impact of the items concerned on the operationality of library and service provided. A scoring scheme of 0 to 10 was used where 0 depicted a redundant requirement and 10 depicted utmost critical importance.

**SYSTEM CAPABILITIES**

The feedback from the vendors of automated systems showed that HORIZON was capable of supporting about 91.4% of the listed features in the checklist followed by DRA that supported 86% features and V-LIB with support for 71.7% listed features. Most of the features unavailable in HORIZON were in the area of serials control whereas DRA was found to have most features missing in serials control and management information while V-LIB had a comparatively lower provision of listed features in serials, management information and OPAC.

All the three systems were capable of supporting all the listed functions, i.e. circulation, cataloguing, acquisition, serials, OPAC, management information, archival function, general essential features and vendor support, with the exception of V-LIB which could not support archival requirements. Of the 442 features listed in the checklist, HORIZON reported that work was at the development
phase for 5.2% of the features not currently supported. The DRA vendor reported 10.4% of features currently not supported in developmental stage whereas V-LIB reported only 0.1% of features not supported presently under development. The feedback from system vendors also showed that they can provide support to system features unavailable presently and not in the developmental stage with HORIZON reportedly at 1.8%, DRA at 1.6% and V-LIB at 8.4% of the listed features. V-LIB reported 18.3% of listed system features, which it had no plans to support. In contrast, HORIZON indicated that it would not support 1% of listed features and DRA offered full support for all features. A summary of the varying level of support offered by the system vendors is given in Table 1.

Table 1: Summary of Scores Given by Vendors (Capabilities)

<table>
<thead>
<tr>
<th>Function/Sub-function</th>
<th>HORIZON</th>
<th>DRA</th>
<th>V-LIB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circulation</td>
<td>9.53</td>
<td>9.95</td>
<td>8.89</td>
</tr>
<tr>
<td>Circulation Policies</td>
<td>10.00</td>
<td>10.00</td>
<td>8.57</td>
</tr>
<tr>
<td>Checkin/Checkout</td>
<td>10.00</td>
<td>9.89</td>
<td>10.00</td>
</tr>
<tr>
<td>Items Inquiry</td>
<td>10.00</td>
<td>10.00</td>
<td>10.00</td>
</tr>
<tr>
<td>Reservation</td>
<td>10.00</td>
<td>10.00</td>
<td>8.56</td>
</tr>
<tr>
<td>Renewal</td>
<td>10.00</td>
<td>10.00</td>
<td>5.00</td>
</tr>
<tr>
<td>Inter-Library Loan</td>
<td>10.00</td>
<td>10.00</td>
<td>9.77</td>
</tr>
<tr>
<td>Patron Inquiry</td>
<td>9.33</td>
<td>10.00</td>
<td>9.14</td>
</tr>
<tr>
<td>Blocks</td>
<td>10.00</td>
<td>10.00</td>
<td>8.50</td>
</tr>
<tr>
<td>Operation Control</td>
<td>10.00</td>
<td>9.61</td>
<td>9.32</td>
</tr>
<tr>
<td>Stocktaking</td>
<td>6.00</td>
<td>10.00</td>
<td>10.00</td>
</tr>
<tr>
<td>Cataloguing</td>
<td>9.61</td>
<td>9.48</td>
<td>8.84</td>
</tr>
<tr>
<td>Cataloguing Operations</td>
<td>10.00</td>
<td>10.00</td>
<td>7.14</td>
</tr>
<tr>
<td>Bibliographic Records</td>
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<td>9.43</td>
<td>7.67</td>
</tr>
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<td>Original Cataloguing</td>
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<td>10.00</td>
<td>10.00</td>
</tr>
<tr>
<td>Editing</td>
<td>10.00</td>
<td>10.00</td>
<td>10.00</td>
</tr>
<tr>
<td>Search Capabilities</td>
<td>10.00</td>
<td>9.32</td>
<td>8.39</td>
</tr>
<tr>
<td>Authority File</td>
<td>9.53</td>
<td>9.37</td>
<td>8.70</td>
</tr>
<tr>
<td>Subject Analysis</td>
<td>8.25</td>
<td>8.25</td>
<td>10.00</td>
</tr>
<tr>
<td>Function/Sub-function</td>
<td>HORIZON</td>
<td>DRA</td>
<td>V-LIB</td>
</tr>
<tr>
<td>-----------------------</td>
<td>---------</td>
<td>-----</td>
<td>------</td>
</tr>
<tr>
<td><strong>Acquisition</strong></td>
<td>9.94</td>
<td>9.85</td>
<td>8.20</td>
</tr>
<tr>
<td>Selection</td>
<td>10.00</td>
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<td>7.78</td>
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<tr>
<td>Vendor Assignment</td>
<td>9.55</td>
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<td>8.75</td>
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<td>Ordering</td>
<td>10.00</td>
<td>9.83</td>
<td>9.36</td>
</tr>
<tr>
<td>Cancellation</td>
<td>10.00</td>
<td>10.00</td>
<td>5.61</td>
</tr>
<tr>
<td>Claiming</td>
<td>10.00</td>
<td>10.00</td>
<td>8.50</td>
</tr>
<tr>
<td>Receiving</td>
<td>10.00</td>
<td>10.00</td>
<td>7.43</td>
</tr>
<tr>
<td>Payment</td>
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<td>9.73</td>
<td>8.66</td>
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<tr>
<td>Funds Control</td>
<td>10.00</td>
<td>10.00</td>
<td>9.47</td>
</tr>
<tr>
<td><strong>Serials</strong></td>
<td>9.12</td>
<td>9.20</td>
<td>5.36</td>
</tr>
<tr>
<td>Checkin</td>
<td>10.00</td>
<td>10.00</td>
<td>9.47</td>
</tr>
<tr>
<td>Claiming</td>
<td>10.00</td>
<td>10.00</td>
<td>6.94</td>
</tr>
<tr>
<td>Binding</td>
<td>6.00</td>
<td>6.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Routing</td>
<td>10.00</td>
<td>10.00</td>
<td>6.96</td>
</tr>
<tr>
<td>Subscription Control</td>
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<td>4.17</td>
</tr>
<tr>
<td>Searching &amp; Editing</td>
<td>10.00</td>
<td>10.00</td>
<td>10.00</td>
</tr>
<tr>
<td>Journal Citation Access</td>
<td>7.86</td>
<td>8.42</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>OPAC</strong></td>
<td>8.95</td>
<td>9.42</td>
<td>6.95</td>
</tr>
<tr>
<td>Search Capabilities</td>
<td>8.63</td>
<td>9.76</td>
<td>8.22</td>
</tr>
<tr>
<td>Operations Control</td>
<td>9.69</td>
<td>9.40</td>
<td>7.54</td>
</tr>
<tr>
<td>Output Control1</td>
<td>0.00</td>
<td>9.22</td>
<td>7.72</td>
</tr>
<tr>
<td>User Assistance</td>
<td>7.46</td>
<td>9.31</td>
<td>4.32</td>
</tr>
<tr>
<td><strong>Management Information</strong></td>
<td>9.26</td>
<td>8.21</td>
<td>6.02</td>
</tr>
<tr>
<td>Circulation Statistics</td>
<td>9.59</td>
<td>10.00</td>
<td>10.00</td>
</tr>
</tbody>
</table>
None of the systems was capable of achieving a perfect score of 10 in functional availability for any of the major functions. Notwithstanding, the comprehensiveness of system functional coverage in both HORIZON and DRA was noted to be well spread, with a score of 9 and above, for most system features. Out of the nine functions listed in the checklist, HORIZON scored above 9 for eight functions with three functions close to 10 at acquisition (9.94), archival (9.92) and essential features (9.93). DRA too had eight functions where it scored 9 and above. In comparison to HORIZON, it only has one function with score above 9.9, i.e. circulation (9.95). The scores of V-LIB were lower in most functional areas as compared to the other two systems. It scored above 9 in only one functional aspect, i.e. support for general essential features, at 9.69.

The potential of HORIZON was at its best (10) for 88% of the listed sub-functions in the area of acquisition, 86% for vendor support, 80% for circulation, 73% for management information, 71% for serials, 57% for cataloguing, 67% for archival function and essential features support, and 25% for OPAC. Its average score was below 8 for 12.5% of the listed sub-functions, notably in the areas of serials and management information. The capabilities of DRA were at its highest level (10) for 80% of the listed sub-functions in the area of circulation, 71% for vendor support, 63% for acquisition, 53% for management information, 67% for archival function and essential features support and 43% for cataloguing. DRA recorded a score of 8 and below for 14% of the listed sub-functions, mostly in the area of serials and management information.

<table>
<thead>
<tr>
<th>Function/Sub-function</th>
<th>HORIZON</th>
<th>DRA</th>
<th>V-LIB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Archival Function</td>
<td>9.92</td>
<td>9.42</td>
<td>0.00</td>
</tr>
<tr>
<td>Cataloguing Operations</td>
<td>9.75</td>
<td>8.25</td>
<td>0.00</td>
</tr>
<tr>
<td>Search Capabilities</td>
<td>10.00</td>
<td>10.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Output Control</td>
<td>10.00</td>
<td>10.00</td>
<td>0.00</td>
</tr>
<tr>
<td>General Essential Features</td>
<td>9.93</td>
<td>9.82</td>
<td>9.69</td>
</tr>
<tr>
<td>Operations Control</td>
<td>9.79</td>
<td>9.47</td>
<td>9.56</td>
</tr>
<tr>
<td>User Access</td>
<td>10.00</td>
<td>10.00</td>
<td>9.50</td>
</tr>
<tr>
<td>Operations Processing</td>
<td>10.00</td>
<td>10.00</td>
<td>10.00</td>
</tr>
<tr>
<td>Vendor Support</td>
<td>9.14</td>
<td>9.00</td>
<td>7.51</td>
</tr>
<tr>
<td>Installation Support</td>
<td>10.00</td>
<td>10.00</td>
<td>8.55</td>
</tr>
<tr>
<td>Training</td>
<td>10.00</td>
<td>10.00</td>
<td>10.00</td>
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<td>Customer Support</td>
<td>10.00</td>
<td>9.00</td>
<td>10.00</td>
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<tr>
<td>Maintenance Support</td>
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<td>Upgrades</td>
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<tr>
<td>Information Gateway</td>
<td>10.00</td>
<td>10.00</td>
<td>10.00</td>
</tr>
<tr>
<td>Documentation</td>
<td>10.00</td>
<td>10.00</td>
<td>10.00</td>
</tr>
</tbody>
</table>
information. V-LIB performance was weaker with score of 10 in five sub-functional areas; namely vendor support (71%), cataloguing (43%), management information (33%), circulation (30%) and support for essential features (33%). It hit a high count of 44% of listed system sub-functions given score of 8 and below. Similar to HORIZON, most of these sub-functions were in the areas of serials and management information.

**SYSTEM PERFORMANCE**

The feedback from user libraries on system capabilities showed that none of the libraries had made full use of system features available. HORIZON and DRA users made use of all the nine functions listed in the checklist with varying degree of usage. The same, however, could not be said for the system capabilities at sub-functional level. For Horizon users, the only sub-functions with features reportedly fully utilized were at archival function and vendor support. Usage rate of features in sub-functions in the remaining seven functions fluctuated drastically with the lowest usage at management information where 23 out of 70 (i.e. 33%) features were unused followed by OPAC with 26 out of 82 (i.e. 31.7%) features unused. Highest rate of non-usage of sub-functions by DRA users was at management information where 50 out of 70 (i.e. 71%) features were unused followed by serials where 28.6% or 14 out of 49 features had not been used. As for V-LIB, the library staff used all functions except the archival function. The highest rate of non-usage at sub-functional level was at management information where 36 out of 70 (i.e. 51.4%) features were unused followed by serials where 24 out of 49 or 48.9% of features were under-utilized.

Using the unused percentage of 10% and below as an indication of good usage of sub-functions (and not taking into consideration those with total usage), HORIZON had three functions which library users made good use of. These were support for essential general features with 5% non-usage rate, circulation with 9.7% non-usage rate and acquisition with 8.5% non-usage rate. DRA only had one function, i.e. vendor support with 6.25% non-usage rate, that deserved to be considered good utilization. Likewise, V-LIB also had one function with below 10% non-usage rate at support for general essential features.

At the functional level, capabilities of HORIZON in meeting user’s requirements were rated higher than DRA and V-LIB in most library application modules as noted in circulation, cataloguing, acquisition, serials, management information and archival function. It was also given flying colours in the area of providing vendor support to library staff. DRA outshone both HORIZON and V-LIB in the area of OPAC capabilities whereas V-LIB was assessed to be more capable of meeting library staff’s needs for general essential features.

None of the three systems was rated by library staff at above 8 in any of the listed functions. HORIZON was given 7 and above in the areas of circulation, cataloguing, acquisition, archival function, support for general essential features and vendor support. The remaining three functions, i.e. serials, OPAC and management information, were given rating below 6. DRA was noticeably weak at the serials and management information functions with a low score of 5.6 and 2.45 respectively. Its forte lied in the areas of circulation, cataloguing, archival, support for general
essential features and vendor support, which were given scores of above 7. Scores awarded to V-LIB by library staff fluctuated drastically and ranged from 0 to 7.94. Functions given the score of 6 and above included cataloguing, circulation, support for general essential features and vendor support. Functions given the score of 5 and below were serials, management information and archival function.

At the sub-function level, only five areas in the three systems were given a rating of 9. Three of these were found in all three systems at editing (in the cataloguing function), items inquiry and renewal (both of which in the circulation main function). One was found in HORIZON and DRA at blocks (in the circulation function) and one in HORIZON at cataloguing operations in the cataloguing main function.

Scores within the range of 8 to 8.9 was given to 40.6% of the sub-functions in HORIZON, 28% in DRA and 25% in V-LIB. These sub-functions were found mainly in the circulation function for HORIZON and V-LIB, archival function for HORIZON and DRA, management information for HORIZON and general essential features and vendor support for all three systems.

At the features or activities level, HORIZON was rated above 9 for 20.4% of the listed features. It had 46.3% features rated within the range of 8 (i.e. 8 to 8.9). For DRA, it had 18.5% of features evaluated with score of 9 and above, followed by 50.7% of features given score within range of 8. As in the case of V-LIB, it was given the score of 9 and above for 19.7% of listed features and score of 8 to 8.9 for 38.7% of listed features. The scores given by library staff were summarized in Table 2.
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SYSTEM POTENTIAL

The capability and performance scores for each function were added and averaged to compute the composite score, which denoted the potential of providing support for computerization of library functions. A summary of the composite score is given in Table 3.

Table 3: Summary of Composite Scores

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<td>9.00</td>
<td>9.00</td>
<td>9.00</td>
</tr>
</tbody>
</table>
It can be concluded that HORIZON received an aggregate score of 8.21, DRA was not far behind with an aggregate performance score of 7.91, while V-LIB was given an aggregate score of 6.07. Looking at performance in the respective functional modules, HORIZON showed better potential in automating circulation, cataloguing, acquisition, archival function, support for general essential features and providing vendor support as these functions were given a performance score of 8 and above. DRA showed potential in the same functional areas as HORIZON with 6 functional areas given a score of 8 and above. V-LIB potential score was diverse with a sole score of 8 and above in provision of general essentials. At the sub-function level, HORIZON scored 9 and above for 71% and scored between 8 to 8.9 for 7% of the 442 component features in the sub-functions. DRA followed suit and showed a score of 63% for 9 and above and 3% for the range of 8. Potential score for V-LIB was recorded at 52% for scoring above 9 and 6% for scoring at the range of 8 to 8.9.

**Suitability for Special Libraries**

Using the critical weights assigned to each system function by library professionals in a local special library, the suitability of the three automated systems in performing the computerized functions in a special library environment is depicted in Table 4.

<table>
<thead>
<tr>
<th>Function/Sub-function</th>
<th>Critical Weight</th>
<th>HORIZON</th>
<th>DRA</th>
<th>V-LIB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circulation</td>
<td>8</td>
<td>8.50</td>
<td>8.62</td>
<td>7.85</td>
</tr>
<tr>
<td>Cataloguing</td>
<td>8</td>
<td>8.68</td>
<td>8.34</td>
<td>7.87</td>
</tr>
<tr>
<td>Acquisition</td>
<td>7</td>
<td>8.52</td>
<td>8.42</td>
<td>7.05</td>
</tr>
<tr>
<td>Serials</td>
<td>8</td>
<td>7.53</td>
<td>7.40</td>
<td>4.57</td>
</tr>
<tr>
<td>OPAC</td>
<td>7</td>
<td>7.27</td>
<td>7.67</td>
<td>6.24</td>
</tr>
<tr>
<td>Management Information</td>
<td>7</td>
<td>7.24</td>
<td>5.33</td>
<td>5.08</td>
</tr>
<tr>
<td>Archival</td>
<td>8</td>
<td>8.71</td>
<td>8.38</td>
<td>0.00</td>
</tr>
<tr>
<td>General Essential Features</td>
<td>8</td>
<td>8.88</td>
<td>8.87</td>
<td>8.82</td>
</tr>
<tr>
<td>Vendor Support</td>
<td>8</td>
<td>8.57</td>
<td>8.21</td>
<td>7.15</td>
</tr>
<tr>
<td>System Composite Score</td>
<td>7.7</td>
<td>8.21</td>
<td>7.91</td>
<td>6.07</td>
</tr>
</tbody>
</table>

Table 4: Summary of Scores with Critical Weights
It is evident from Table 4 that only HORIZON surpassed the landmark composite critical weight of 7.7 with a composite score of 8.21. Composite scores of both DRA and V-LIB, which were 7.91 and 6.07 respectively, could not equate the critical weight assigned. At the functional level, composite scores of all HORIZON functions exceeded the critical weights assigned with the exception of serials which was given a composite score of 7.53 (critical weight was 8). DRA had two functions that could not meet the critical weights assigned and these were serials (composite score of 7.40 versus critical weight of 8) and management information (composite score of 5.33 versus critical weight of 7). Of the nine functions listed in the checklist, only two in V-LIB had composite score higher than critical weights assigned. Those functions that could not meet the mark included circulation, cataloguing, serials, OPAC, management information, archival function and vendor support.

In view of the overall performance of the three systems, and taking into consideration the capability, performance and composite scores computed, HORIZON ranked first with a 8.21 score (from a scale of 1 to 10) followed by DRA with 7.91 and V-LIB 6.07. V-LIB was weak in overall system comprehensiveness and adequacy of capabilities whereas DRA showed good potential at comprehensive coverage of most system functionalities, especially at circulation, cataloguing and acquisition. The system was, however, weak in management information.

**DISCUSSION**

**Capabilities**

In terms of functional support, HORIZON was reported by its vendor to be able to support 91.4% of the 442 features listed in the checklist, followed by DRA with a coverage of 86% and V-LIB at 71.7% of the listed features. These figures contradict the results of surveys reported in earlier studies. For example, Boss’s survey reported in the July-August 1997 issue of Library Technology Reports (Boss, 1997) concluded that DRA was capable of giving 100% support to acquisition and serials features while another survey conducted by Boss in 1994 showed that HORIZON could support 100% of serials features, 99.04% of cataloguing features and 98.91% of acquisition features. The consolidated vendors’ replies to this study, however, showed that support of HORIZON was at 99.4% for acquisition and 91.2% for serials function. The replies also revealed that DRA support for acquisition and serials was at 98.5% and 92% respectively, and support of V-LIB acquisition and serials was at 82% and 53.6% respectively. With the exception of HORIZON acquisition function, which had been given scores of marginal difference as compared with earlier surveys, there were apparent stark deviations in scoring in functions when compared with results in earlier surveys.

There are several possibilities to account for these discrepancies. One of which, as highlighted by Chaudhry and Ashoor (1998), was that earlier reports gave full credits for availability of features irrespective of whether they were fully available or not while in development, planning or testing. On the
contrary, this study gave partial credit to system features in development and testing. Another possibility is that the system functional requirements spelt out in this checklist reflected the needs of a local special library. This possibly accounted for the deviation of results as compared with other surveys largely conducted in the United States. Boss' surveys, for example, were noted to be targeted at the general library user-groups mostly in the United States and system features assessed were suitable for most types of libraries, i.e. public, academic, special etc.

Previous user surveys, such as those conducted by Gibbarelli (1996a & 1996b), had accorded an average score of above 8 for both HORIZON and DRA. V-LIB is not known to have been assessed in published literature. These scores when compared with the user score given in this study were rather high. This is because a large number of features evaluated in this study had been given below average ratings. Such a situation could be resultant from the conduct of evaluation in this study at sub-functional and feature levels which demanded a review of the functions more objectively. In addition, previous user surveys were mainly conducted in the United States and users’ requirements and perceptions of system capabilities probably differed from that in this study.

**Utilisation**

Despite the claims by vendors for the high availability of system functions in the three library systems, the observation of staff using the three systems seems to suggest that none of the libraries could fully utilize all capabilities. Out of 442 features listed in the checklist, library staff feedback showed that 26.3% (or 116) were unused in DRA; 30.8% (or 136) unused in V-LIB and 19% (or 84) unused in HORIZON. These unused features were mostly found in the serials and management information application modules. There are several possibilities to account for the low usage. Firstly, it could be due to lack of interest in particular features as they might not be required in the library reporting the system performance. For example, an academic library may not be interested in all types of reports available in management information as its primary concern is on circulation and cataloguing. Secondly, unless a library acquires a specially customized automation system, it is inevitable that there are features in the system not required by the library. For example, inter-library loan function is found in most library systems but this function may appear redundant to some libraries. Another possible reason for low usage is due to lack of proper training. System vendors usually package training for staff to familiarize themselves with system operations when the library software is installed. However, subsequent training would be conducted at an added cost, which is usually high and may not be affordable for some libraries. As a result, it is common practice that existing staff take over the role of trainer for a new library staff. Problems arise when the trainer is unable to impart his/her system knowledge properly and wholly to the new staff who are often left to learn the new system alone. This has resulted in a widening information gap of knowledge acquisition and sometimes, in order to avoid glitches, library staff avoid using functional features unfamiliar to them. The phenomenon of low usage has raised the concerns of whether the systems acquired are in line with library requirements, and if not, this is suggesting that
pre-acquisition preparation was not properly done. This may warrant a re-evaluation of system capabilities in meeting library needs and requirements. Further research in this aspect (of low usage) would be desirable to establish the reasons for under-utilization of system functions.

**PERFORMANCE**

The performance scores in this study were indicative of the strengths and weaknesses of each system in an operational environment. An evaluating library’s perception of a system’s performance, however, would very much depend on its needs since some sub-functions may be regarded as more crucial to library operation than others. An academic library, for example, which handles heavy circulation transactions and places emphasis on circulation control is likely to select system with a higher score in this sub-function. In this instance, the evaluating library may wish to consider DRA which was given higher score in circulation performance (i.e. 8.62). In addition, it has been observed that DRA was able to give libraries great flexibility in setting up system parameters to suit library operations and policies. The system response in circulation activities was noticed to be prompt at within three seconds for processing checkin or checkout of a library item. These are attributes, which the evaluating library may wish to emphasize in system acquisition or evaluation.

If the evaluating library is a special library and looking for a system strong in serials control and management information, it may opt for HORIZON as this system was given higher scores in the serials (7.53) and management information (7.24) functions in this study.

HORIZON was observed in this study to be capable of giving library staff greater reliability in serials module notably with facilities like “send to” function (which allows library staff to swiftly send data from one serials function to another) and auto-activation of linked modules based on entering of user ID and password. The system was also observed to provide comprehensive coverage of management information found mainly in the administration, circulation and cataloguing modules.

For a small evaluating library, such as a school or company library, that requires good performance in inventory control, V-LIB would be a good consideration as it is the only system evaluated with a score of 9 and above in the stocktaking sub-function.

**SYSTEM RATING**

Differences have been found when comparing the system rankings which were analyzed based on the input from vendors (i.e. capability score) and assessment from the library staff (i.e. performance score). All the three systems had been noted to score higher based on vendors’ input at 9.49 for HORIZON, 9.37 for DRA and 6.83 for V-LIB. In contrast, the system rating computed from user scores showed that HORIZON was given 6.93, DRA 6.46 and V-LIB 5.31. The underlying reasons for these phenomena have not been established but assessed to be a consequence of these library systems being developed overseas where the main clientele base comprises mostly overseas libraries. It is, hence, a concern of how suitable were the systems in adapting to local environments and meeting individual library needs despite the excellent comprehensive provision of system
capabilities. Notwithstanding, this study endorses the results of an earlier study by Chaudhry and Ashoor which stressed that a combination of both functionality score and capability score should be “more representative of performance of systems in operational setting” (1998, p400).

CONCLUSIONS

Checklists filled out by library staff revealed that none of the participating libraries had fully exploited the potential of the system in automating library functional modules. Vendors had unanimously reported an extensive availability of system features checked against the items in the checklist with HORIZON supporting 91.4%, DRA 86% and V-LIB 71.7% of the listed features. Replies from library staff using the three systems showed that functional usage had never been total and use of system application modules was restricted to selected sub-functions notably in the circulation and cataloguing modules. Further research into the low usage of system capabilities would be useful, in particular to the vendors, to enhance development and marketing of their systems.

Libraries interested in acquiring any of the three systems evaluated may wish to take note of the differing levels of support to the respective sub-functions and features in the main functions. This is especially so when the sub-functions critical to their operating environment were given a low score in support. The impact of the low level of support on library's decision to acquire the automated system would very much depend on how much it could affect the sub-functions deemed critical to library operating environment.

This study has revealed that an objective and profound evaluation of system functional features can be achieved using a checklist with details at the functional, sub-functional and feature level. Items in the checklist developed for this study were described in detail, which left little room for misinterpretation or generalization. The detailed description of items also compelled the evaluator to assess each item objectively and not make generalizations. The evaluation results thus produced in this study were revealing and non-biased.

REFERENCES


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Evidence based medicine is used to sift through the vast store of medical literature, published and unpublished, to obtain a picture of the true impact of treatments and procedures. The gathering and analysis of comparable studies and clinical trials creates meta-analyses, from which the weight of evidence for or against the efficacy of the intervention can be ascertained. From this exercise, health libraries have learnt more about analysing their own professional resources, which share the same information technology. There is a natural flow-on to the operation of libraries in general, which is now being recognised as a major priority for the future, but more zealous research needs to be undertaken to create “Evidence-Based” decision making in Librarianship as a fundamental tool of library management.

EVIDENCE-BASED PRACTICE AND ITS RELEVANCE TO LIBRARY AND INFORMATION SERVICES

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HIGHLY COMMENDED IN THE JEAN ARNOT MEMORIAL FELLOWSHIP 1999

This article was highly commended by the judges in the 1999 Jean Arnot Memorial Fellowship. This annual award is made possible by a generous donation from the National Council of Women of New South Wales and the Australian Federation of Business and Professional Women’s Associations. The Fellowship, administered by the State Library of New South Wales, is awarded to a woman who is a librarian or student of Librarianship for an outstanding original paper on any aspect of Librarianship. The Fellowship is named in honour of Jean Fleming Arnot MBE FLAA, a former staff member of the State Library of New South Wales, who retired as Head Cataloguer in 1968 after a distinguished career spanning 47 years of service. Jean Arnot was active in women’s organisations and a pioneer in the campaign for equal pay.

“As chairman of the Research Committee of the Library and Information Commission, I am pleased to present Prospects - our Strategy for research, Development and innovation for library and information services in the United Kingdom. I believe it will enable us to take forward library and information services in the UK into the 21st century, using sound evidence as a basis for their future development. Library and Information Commission” (1998)

So wrote Mel Collier in “Prospects: a strategy for action”, published in June 1998. The promotion of evidence-based decision making is an important theme in this report, and...
indicates a willingness to look towards a more scientific approach to the practice of the library and information sciences. The example of the medical fraternity, whose evidence based medicine impinges so heavily on the work of health librarians, is being used as a logical model for improving decision making.

To eliminate the dross of the information explosion, controlled clinical trials and similar forms of research are the optimal way to find the required data. The library profession, however, is not known for its own research orientation. Librarians will usually be found helping other people with their research. Therefore, the LIC is breaking new ground by turning the serendipitous nature of library research into a formally recognised priority:

"Users of all types of library and information service expect good value for money and the benefits of relevant technology and other innovation. Continuous research and development are necessary not only to ensure that libraries and information services are as effective as possible in achieving those objectives, but also to exploit fully the roles they play for different users. These roles include; enhancing education and lifelong learning opportunities for children and adults; supporting training, employment and business; and fostering economic prosperity. Another increasingly recognised role of libraries is in promoting the growth of a politically and culturally informed society and in nurturing social cohesion. Library and Information Commission" (1998)

Dorothy Peake (1981) expressed the same hope when addressing the record of libraries adapting new technology to perform the same service better and more efficiently. But where is the research that backs this up? Over the intervening years some librarians have chosen to examine how they are providing their services, and match this against alternative methods. Very few librarians would have the luxury to devote themselves to extensive research, and comparatively few write articles for peer reviewed journals, let alone with the rigorous attention to detail that EBM meta-analyses require. In order to create a meta-analysis, it is first necessary to have a large number of papers dealing with the same topic, which may be very specific and succinct. As Peake points out, librarians are early adopters of new technology, which is seen as a more efficient tool to enable librarians to do a more efficient job. This should be a rich field for research.

Early adoption also has some costs:

• Actual costs may be higher before a reliable market is established
• Libraries with limited funding must choose systems carefully as they are unlikely to be able to implement another system until the next generation of software or hardware is released - if then
• Selecting systems before extensive beta testing may mean dealing with all the programming faults that extensive testing should have discovered
• Librarians with intensive use of only one system are unlikely to feel confident enough to adequately make comparative analyses with similar systems that use equivalent technology.

Both librarians and the value of the work they do in most sectors of the profession have never
been as much under threat as they are today. Therefore, librarians in general may have something to learn from their medical library colleagues and the health professions, where the necessary techniques to create a body of evidence-based literature have grown enormously in importance over the last few years. This is one of four decision-making tools, which must be used in combination for optimal effect:

1. Systematic reviews
2. Professional experience
3. Consumer Preference
4. Evidence based decision-making.

Creating aggregate success rates of specific procedures, is not "cookbook medicine" - it does not dictate which treatment must be used. Nor are sinister forces at work to undermine professional integrity if the above strategies are combined. But what is evidence-based medicine and how does it work? Sackett (1996)

**EVIDENCE-BASED MEDICINE**

Evidence-Based medicine can be defined as the conscientious and judicious use of current best evidence in making decisions about the care of individual patients.

The growth rate of medical literature is far too rapid for most practitioners, yet they still need to be able to digest enormous quantities of information to keep their knowledge up to date. In 1972, Archie Cochrane, a British epidemiologist, started a crusade to correct what he saw as a great ignorance about the effects of health care. He identified the absence of reliable reviews of the evidence of treatments as being critical to the making of informed decisions about health care. In 1979, he wrote:

“It is surely a great criticism of our profession that we have not organised a critical summary, by specialty or sub-specialty, adapted periodically, of all relevant randomised controlled trials.”

The Cochrane Collaboration (1999)

The four main types of study used are:

1. **Survey** - a representative sample of individuals is selected and data collected to describe how things are at a particular time. There is no separate control or comparison group.

2. **Cohort Study** - an exposed group is watched to find out what will happen to them, as time flows forwards. There may be a control group.

3. **Case-control study** - used to discover what makes a group of individuals different. A set of patients with a ‘defining characteristic’ is selected and matched against a control group without this characteristic. The examination of evidence then flows backward in time.

4. **Clinical trial** - the results of the random allocation of treatment to individuals suffering from the same diagnosed condition are examined to discover whether one treatment was superior to another. Elimination of bias is essential.

There is a hierarchy within the various kinds of studies that can be examined according to the strength of the evidence that each one is able to provide. From most significant to least significant they are:

I. Randomised Controlled Trials (RCTs)
II. Non-randomised Controlled Trials (CCTs)
III. Cohort or case-controlled studies
IV. Case-series
V. Opinions.
RCTs are known as the “gold standard” because they:
• actively test an intervention to look for an effect,
• always have a control group, and
• aim to eliminate bias in the choice of patients studied.

Learning to read and understand the evidence has become a new survival skill, which will have greater applicability as more data is studied and as the range of interventions increases. The Cochrane Collaboration was formed to get on with the work of making this happen, and calls on the skills of some 4,500 people in 70 countries to work on collecting and analysing the data and updating the database. Learning to use “Cochrane” has become a standard part of the undergraduate medical curriculum in the last 2 years or so. This responsibility has been taken up by the biomedical librarians, who now have to learn to master these skills to implement their training programmes for library users. The currency of this activity is indicated by the report of a Victorian health librarians’ meeting in August 1998 to learn about EBM. Delafosse (1998) In October 1998, 2 one-day Cochrane train-the-trainer workshops were held in Adelaide to help librarians with a fairly user-unfriendly database. Money from the Anne Harrison Fund (supporting library research projects) was used to assist a number of interstate librarians to attend and then pass on their new skills to others in their state groups.

Such a programme was instigated at the Primary Care Resource Center (PCRC) at the School of Medicine and Biomedical Sciences, State University of New York at Buffalo. The responsibility for the training programme was handed to the librarians. Use of Medline is taught through a variety of methods, along with critical appraisal of literature and the four basic questions of EBM:
1. Are the results of the study valid?
2. What were the results?
3. Will the results help me in caring for my patients?
4. Are the likely treatment benefits worth the potential harm and costs? Schwartz (1997)

Older graduates are having to catch up and hone their analytical and critical thinking skills to keep up. They are also discovering that some astute journal editors are rejecting articles on the grounds of omission of important papers relevant to the topic. Within the current scenario there is plenty of scope for librarians to get involved, as Stavri (1996) describes. Why are end-users missing essential papers? - inadequate searching methods? Who teaches them? - they teach themselves, because they can search Medline or Avicenna or other databases free over the Internet, and it’s easy. All you have to do is put in the word you want. This has been the librarian's recurrent end-user searching nightmare, and librarians have a lot of catch-up teaching to do with these clients. To create effective searches, special search strategies must be used that cover as many variants in the target information as possible.

**MEDICAL INFORMATICS**

Gray (1997) quotes suitable search strategies [p.236-7] for Medline searches on Asthma/Air pollutants RCTS, and the complexity of each is such that it is difficult to envisage anyone except the most experienced searcher devising such thorough strategies. It is only by using the full capabilities of Medline’s powerful search engine that the most relevant articles can be
found. Therefore, despite their confidence in their own abilities, the average doctors off the ward would be quite incapable of producing anything that approached an adequate search. Searching for EBM material is a highly specialised skill, in part because Medline records were never constructed to cope with this concept. Librarians must learn to find their way around this too.

This has been done with a series of filters and search strategies, which can be quite lengthy, but have been devised for optimal retrieval. Boynton (1998); Wentz (1997); Institute of Health Sciences Library (1998) the use of such devices would require some level of searching expertise.

Studies on the effectiveness of various teaching programmes in turning out competent searchers or the relative levels of knowledge or expertise necessary to successfully search PubMed, Internet Grateful Med, WinSPIRS, Ovid, etc. are useful areas of further study. Proficient searching skills have a bearing on the success of the searcher’s project. In this context, a suitable question for the librarian to investigate might be: Is there an economic benefit from having either properly trained medical staff or librarians to perform the initial literature survey? Bandemer (1998); Butros (1997); Efthimiadis (1996); Haynes (1986); Haynes (1985); Haynes (1995); Marshall (1997); Schoonbaert (1996)

Studies, however, tend to examine the external features of the information systems, rather than asking critical questions that have a bearing on the economic value as opposed to the “motherhood” values. Schoonbaert’s conclusion sounds like the usual SilverPlatter response to complaints of system inadequacies: “We know the software has problems, but haven’t we got a lot of databases?” Ultimately search engine preference is a matter of “customer preference”, although this preference cannot always be granted.

Suzanne O’Callaghan (1993) from Fairfield Hospital in Melbourne devised and implemented a user education programme for CD ROM data bases, to give her users greater searching skills, which she followed up with evaluation questionnaires. One factor it brought to light was the users’ surprise that there was so much more to producing a good search than they had imagined. The need for proper training is crucial for all health practitioners who are serious about their desire to perform good literature searches in support of their patient care or research.

Hersh (1998) concluded that the use of advanced searching methods was not greatly superior to text word methods, but that neither was particularly thorough. A comprehensive search from 1966 to January 1998 was performed and it was clear that further research needed to be done on improving system utility and performance. Many studies have been done on the comparative merits of databases and search engines, but as Hersh discovered, the heterogeneity of the studies prevents a meaningful analysis. Certainly the content is not sufficiently homogeneous to produce a useful meta-analysis.

Cook (1996) deals in part with the question of EBM from a specialist point of view, and provides some useful guidelines for busy clinicians. Their concern about the undue influence of drug company advertisements on the prescribing habits of physicians echoes the standard question in a lot of user surveys to
elicited whether information from the library influenced the choice of treatment for the patient. This may be a symptom of the need of physicians to be able to back up their decisions in some acceptable way, but that the advice used may be that first received, and not necessarily the best or the most comprehensive. Jordens (1998) also noted the readiness of neonatologists and obstetricians to use systematic reviews and change their practices accordingly. This situation creates the opportunity for healthcare workers to be influenced for the good by the best evidence - under the guidance of competent librarians.

The question of the value of the library product was tackled by a group of Rochester hospital librarians regarding the efficacy of performing Medline searches in conjunction with patient admissions. Joanne Gard Marshall (1992), the author of this study, has paved the way for the rest of us to analyse our services to ensure that they meet criteria which prove their value to the relevant stakeholders.

The outcome was very much an “I told you so” situation. At last there was a study which said that a library service (in this case a literature search) could in fact save the hospital money. This suddenly took libraries out of the realm of being a cost burden to being a cost saver, and with public funding stretched to its limit, this was what we all needed to hear. Patricia Scolaro (1995) has replicated this study, with exciting results, and it has been the intention of Australian health librarians to undertake a national project of this kind. As yet the project has not got off the ground, despite great general enthusiasm to be involved. Proper research (even in the library area) takes time and money - both of which are in short supply in most libraries. Other research studies on the value of library services have been written by Hamill (1997), Hardy (1985), King (1987), Marshall (1981), Michaud (1996), Miller (1995), Pifalo (1997), Scolaro (1997) and Urquhart (1996).

**INTER-LIBRARY LENDING**

Another economic issue dear to the heart of health librarians is the cost of inter-library loans. National studies are performed from time to time to ascertain how the prevailing system is working. The Australian Council of Libraries and Information Services (AC LIS) undertook the last one in July 1997. Jones (1997) A variety of different libraries, including some health libraries, were invited to participate in the study. Statistics had to be kept on the time and resources it took to produce a response to an inter-library loan request. This was matched against a variety of on-costs to achieve an approximate figure for the cost of the service. The average unit cost arrived at for each item supplied by a medical library was $3.75, which the author of the study, Roger Jones, seemed to want to exclude because it was out of kilter with the rest of the sectors studied. However, Stephen Due, the Librarian at Geelong Hospital, reported in June 1997 that his study of Victorian health libraries had yielded a figure under $5.00. Due (1997) Stephen's sample seems to have been larger than the ACLIS one, and may have had more validity and a narrower confidence interval. Further study of this phenomenon would be interesting, and proof that health libraries can provide a much more efficient service than the universities, which try to drive the payment into the realms of the commercial vendors. It could also be a deterrent to any proposal to outsource inter-library loans to a commercial supplier.
Document delivery services are now becoming increasingly automated, so that collecting statistics and analysis of costs should be getting simpler. While studies such as that of Budd et al are useful in their way, costs change over time. Budd (1991) Statistics on costings collected in 1991 will be more difficult to compare with parallel statistics collected in 1997 than data from studies of medical interventions over the same years. This type of study is very relevant when considering the costs of using commercial suppliers such as Uncover, BLDSC and Loansome Doc. All of these are now accessible via the Web, and users are asking the library to pay for them to use Loansome Doc. Evidence needs to be gathered about the financial impact that a change to a commercial supplier would have. Further research such as that described by Sekerak (1997) could have significant financial implications for future moves to online journal access or “just-in-time” access to literature identified as being essential. And where is the evidence for that?

This kind of approach is obviously in line with the LIC recommendation:

“It is an immediate priority to provide evidence on value, impact and economics, in order to support the specific requirements of national initiatives...” Library and Information Commission (1998)

Where research is concerned, one must spend money to save money. The ease of obtaining research money depends on who stands to benefit. As Prof. Guy Maddern (1998) points out in his editorial based on Solomon's excellent article, even with the best will in the world, randomised controlled trials come with a price. Solomon (1998) surgical trials have not enjoyed the same support as trials involving drugs, largely because of the input of the drug companies. Despite initial encouragement, the Commonwealth Government failed to fund a surgical trial to assess laparoscopic colorectal surgery for malignant disease. The Royal Australasian College of Surgeons, (RACS) has subsequently been successful in acquiring funding for a 3 year pilot programme for the Australian Safety and Efficacy Register of new Interventional Procedures-Surgical (ASERNIP-S). The group is based in Adelaide and will be collecting data on the safety and efficacy of new surgical techniques. Evidence-based practice in surgery is extremely complex, and the medical profession is trying to produce quality studies. The production of similarly thorough studies in library and information management is bedevilled by a history of imprecise survey-type professional literature and lack of research funds.

EVIDENCE-BASED LIBRARIANSHIP (EBL)

Resources to fund library research in Australia are very meagre. The Anne Harrison Award has been used by some health librarians over recent years to conduct research projects, but the value of the award is not particularly great, and really only pays for the incidentals. The clue to greater success in obtaining funds may lie in the multi-disciplinary approach suggested by the LIC:

“Work under these themes needs to be aimed at providing the tools and methodologies to help practitioners measure and develop their value and impact. Research will be encouraged
that draws upon the knowledge bases of other disciplines.” Library and Information Commission (1998)

The example is before us. The need for evidence-based library decision making has never been greater. However, it must still be tempered by systematic reviews, experience and customer preference. The library literature is littered with the attempts of individuals to address identifiable research needs. Unfortunately the heterogeneity of the resulting papers makes it difficult to draw any comprehensive conclusions. In some ways this may be a good thing. The professional library literature has not run rampant like medical literature, which produces a 500m stack each year. We have a chance at this point to deliberately create the kind of studies we need and document them properly, which will be of use in our own evidence-based practice.

As a result of the training now available in searching methods, the inadequacies of presentation of medical data are becoming a matter for concern. What health professionals want is to get at the essential facts quickly and not to have to chase after full articles. Burnham (1996); Florance (1996); Sievert (1996); Spath (1996); Verhoeven (1995) This should be an area where well researched solutions would be very much appreciated, and a rich opportunity for a new value-added library product.

“While technological issues will be at the heart of most research, survey methods such as use of focus groups will still be a valid way of stimulating ideas for further research projects of potential benefit to library users.” Canning (1995)

Andrew Booth and Margaret Haines pose the question “And what of ‘Evidence-Based Librarianship?’” Booth (1998) The Health Libraries Group in Britain is commissioning a feasibility study - a systematic review of end-user studies - with the intention of investigating the issue of library effectiveness.

We have seen that more can be done in the area of library research. Schneider (1995) spells out some of the areas in which this can be done by other librarians. Further possible areas for medical library research may be deduced from the contents of the Bulletin of the Medical Library Association. Repeating studies in a different environment may be useful when it comes to collecting data for meta-analysis. The most popular research instrument is the lowly questionnaire, but this too has its place in evaluation and analytical exercises.

In the promotion of evidence based practice, the RACS has shown the lead for Australian surgeons. The Library and Information Commission is backing British librarians. Will our professional association, the Library and Information Association (ALIA), be as supportive in pursuing the same goal? Hopefully we will one day be able to paraphrase Guy Maddern in the following way:

ALIA has certainly made a clear commitment to this [EBL] and recognises the need to redress the less-than-perfect evidence base of current library practice.

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The information supplied as course notes by the organisers of the Adelaide Cochrane workshop is gratefully acknowledged.
Journeys in Time 1809-1822 is a major research initiative undertaken by Macquarie University Library to create an electronic archive of selected writings by Lachlan and Elizabeth Macquarie. It forms part of the Accessible Lifelong Learning (ALL) Project, a joint partnership between Macquarie University and the State Library of New South Wales. Journeys in Time is designed to provide scholarly access to primary source texts describing early colonial life in Australia. It also seeks to commemorate some of the tangible links between Macquarie University and its namesake, Lachlan Macquarie, the fifth governor of the colony of New South Wales (1810-1822). This article traces the development of the Journeys in Time project and explores some of the technical and design challenges that had to be met in the preparation of the transcripts and hypertext versions of the original documents.

JOURNEYS IN TIME: DIGITISING THE PAST, EXPLORING THE FUTURE...
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INTRODUCTION
The Accessible Lifelong Learning (ALL) Project is a joint initiative of Macquarie University and the State Library of New South Wales to establish a ‘gateway’ web site for the provision of community-based information and lifelong learning opportunities. ALL was launched in May 1998 and it aims, in the first instance, to produce teaching and learning programs that can be made available to the people of New South Wales on electronic facilities accessible through the public libraries network. Secondly, it is designed to maximise upon the ubiquitous nature of the World Wide Web and allow much of this information and research to be freely available to students, researchers and scholars throughout the world.

There are currently 9 topic categories to select from:
- Australian Histories,
- Communications & Technology,
- Early Childhood,
- Education,
- Environment & Science,
- Indigenous Australia,
- Management Skills,
- Online Courses,
- Professional Development Courses.

One small, yet significant, component within the Australian Histories section of the ALL Project is Journeys in Time 1809 -1822: the journals of Lachlan and Elizabeth Macquarie.

http://www.lib.mq.edu.au/all/journeys/

This web site includes complete transcriptions of twelve (12) journals written in the period 1809-
1822: Elizabeth Macquarie's personal journal of her voyage from England to New South Wales (via Madeira, Rio de Janeiro, and Cape Town) in 1809; the ten (10) journals kept by Governor Lachlan Macquarie during his 'tours of inspection' in New South Wales and Van Diemen's Land (1810-1822), and his journal describing the return voyage that he and his family made to England via Cape Horn in 1822.

PROJECT AIMS
The aims of the Journeys in Time project are:

- to provide students, researchers and community groups with access to a selection of full text transcriptions of the writings of Lachlan and Elizabeth Macquarie;

- to contribute towards the documentation of historical research material relating to early Australian colonial history;

- to create a bibliography of primary and secondary source material relating to the Macquaries

PROJECT OUTLINE
The project is divided into three developmental stages:

Phase I (1998)
Web site design, copying, scanning and preparation of journal transcripts, text correction, historical research, selection and digitisation of images

Phase II (1999-2000)
Additional historical research, preparation of supplementary sections: Chronology, Maps, Related Topics

Phase III (2000-)
Ongoing historical research, investigation of the feasibility of establishing an electronic archival research project entitled the Lachlan Macquarie Historical Archive.

BEGINNINGS
I began work on the Journeys in Time in December 1997 with much enthusiasm and a large measure of technological naivety. I recognised that the task was a large undertaking, but one that contained an important degree of scholarly merit, and, in particular, a significance for researchers interested in investigating the history of early white settlement in Australia. The project would also provide a unique window into the lives and personalities of Lachlan and Elizabeth Macquarie and the circle of friends, acquaintances and associates with whom they had contact in the period 1809-1822.

The Mitchell Library, Sydney, is one of the pre-eminent international collections of manuscript material relating to Australia and the Pacific region; and it is now the repository for the remarkable collection of journals, letterbooks and personal papers kept by Lachlan Macquarie in the years 1787-1824. The collection, which includes 21 journals, 10 letterbooks, and at least 750 letters (with approximately 206 correspondents) has come to the Mitchell Library from many sources, either by purchase, donation or bequest. The principal documents were acquired in 1914 from two key individuals: Margaret, Viscountess Strathallan (January 1914) and Colonel Campbell (June 1914). Later additions and acquisitions have helped to consolidate the holdings of the Mitchell Library and these various items now form an
invaluable personal and historical archive. The bulk of these manuscripts are now also available for purchase on microfilm from the State Library of New South Wales - consisting of approximately 6000 frames of manuscript material on nine (9) rolls of microfilm.

**SELECTION**

The selection of the primary sources to be included in the Journeys in Time project was a relatively straightforward decision once it had to been determined to make available only those accounts kept by Lachlan and Elizabeth Macquarie that described their travels to and from Australia, as well as the corpus of ten (10) semi-official accounts kept by Governor Macquarie during his tours of inspection within NSW and Van Diemen’s Land. The value of these accounts lies not simply in their novelty but also their eyewitness value in describing places and landscapes that had only recently been ‘discovered’ by Europeans. The processes of investigating new parts of the colonies, ‘naming’ the landscape, and determining the order and configuration of new streets and townships were activities that Lachlan Macquarie showed a remarkable keenness to undertake. They also reveal a remarkable tendency for self-indulgence in his administrative style. Though it should be noted that Macquarie’s propensity to name places after himself, members of his family, friends and patrons was as much the behaviour of a Scottish laird managing his estate as it was that of the governor of two geographically isolated penal settlements in the South Pacific.

**CONTENT**

At the outset the preparation of the Journeys in Time transcripts was based upon two broad principles:

- Availability of the original source materials in the Mitchell Library, Sydney.
- Any transcripts that were prepared could be readily compared for accuracy with existing microfilm copies, or (where necessary) the original documents available at the State Library of New South Wales.

Macquarie University Library had already purchased (in 1997) a complete set of Macquarie’s papers on microfilm from the State Library of New South Wales, and it has progressively added to this collection any related primary source materials that provide a wider understanding of the life and times of the Macquaries. To date, additional materials have been acquired on microfilm through either the Australian Joint Copying Project, the National Library of Scotland or the Scottish Record Office, Edinburgh.

Availability of existing published versions In 1956 the Trustees of the Public Library of New South Wales published a transcription of Lachlan Macquarie’s ten journals describing his ‘tours of inspection’ in a work entitled: Lachlan Macquarie Governor of New South Wales; journals of his tours in New South Wales and Van Diemen’s Land 1810 -1822.

This publication made available in print for the first time a unique collection of documents by Lachlan Macquarie, and thereby provided historical researchers with the means to read transcripts of the original sources in their entirety. It was an invaluable contribution and one that continues to be cited in works on Australian history.

As a consequence, the task of preparing any transcripts could proceed from ready access to the original manuscript sources and the availability of a published ‘core’ of materials.
FUNDING

The Journeys in Time project was always seen as a contribution by Macquarie University Library towards the scholarly investigation of the life and times of Lachlan and Elizabeth Macquarie. The ALL Project could not provide funding commensurate to the level of activity required to support the whole project; nevertheless there was a belief by Library management that once the value and importance of such a digital initiative had been demonstrated, there might be the chance to gain research funding grants or to attract corporate sponsorship at a later date.

Funding was provided by the ALL Project Committee (to the value of $500.00) for the cost of employing a graphic designer to prepare a suitable Web site design. This would provide a viable design structure for the addition of all future content hypertext transcripts and research findings. All other costs would be absorbed by Macquarie University Library for the period of twelve months. This was seen as an opportunity for the development of additional IT skills by Library design staff. If there was a demonstrable level of success the project would then be reassessed at the end of this time period.

STAFFING AND FACILITIES

In 1998 the Library Design & Media Production Unit at Macquarie University had two staff members: manager/researcher, Robin Walsh, and graphic designer, Kate Orman. Once approval was given by the ALL Project coordinators for the Journeys in Time project to proceed there were a number of key issues to be resolved:

Copyright

Discussions between Macquarie University Library and the State Library resolved that the relevant sections of this publication Lachlan Macquarie Governor of New South Wales; journals of his tours in New South Wales and Van Diemen's Land 1810 -1822 could scanned and digitised to create a preliminary corpus of transcripts and historical notes. This would be supplemented by additional checking and research. In two instances there would also be the publication of original transcriptions of unpublished manuscripts material. For the purposes of the project, copyright would be jointly shared between the two institutions whereby the respective intellectual endeavours involved in the preparation of the texts and historical notes would be acknowledged and a distinction made between those derived from the original sources published in 1956 and those prepared specifically for the Journeys in Time project.

PROJECT DEVELOPMENT

Text Identification

The viability of any digital project must be based upon having a clearly defined set of parameters for the content and activity. In the case of primary source materials this should be always be an identifiable corpus of works that provide the ground bed upon which all other links are derived and interrelated.

Site Design and Navigation Principles

I discussed my design needs with my assistant, graphic designer Kate Orman and explained my desire for comprehensive navigation principles at all levels of the site and the need to be able to continuously 'see' the whole.
structure of the site on every page. The use of a 'side bar navigation' template offered the best solution. We mapped out the whole site on paper before any transcription work had been completed and resolved that the digitisation of the selected Macquarie papers would be kept as simple and flexible as possible:

- the design would be modular
- HTML tags would be used for the mark-up of the corrected text and associated historical notes and background information
- validation of the coding language and accessibility would be tested in web-based services such as WebLint and Bobby
- navigation of the content would allow access to all search categories of the site by providing a consistent 'sidebar' menu at all levels
- use of gifs and image maps would be kept to a minimum to ensure that download times were as efficient as possible

Transcription and Data Preparation

At the heart of a project such as Journeys in Time lies the question of the accuracy of the transcriptions. The best site design (web or database) in the world will be seriously compromised, if not utterly invalidated, by poor quality data. An important corollary to this is that having selected an appropriate data format you must ensure that a digital resource can be preserved without significant information loss.

There is no question that the task of preparing transcriptions is both immensely time-consuming and exacting. Rigorous attention to detail is required to ensure that the text is as error free as possible. Journeys in Time had the benefit of the existence of a published corpus of transcriptions; however a comparative analysis between the published text and the original documents indicated that a number of editorial decisions had been made in the published text to standardise the spelling and punctuation for the benefit of the general reader. While this may have helped to make the text more accessible, it had in many respects stripped the text of its early C19th characteristics and obscured the idiosyncratic character of Lachlan Macquarie's style and handwriting. The reintroduction of these elements into the web site version was one of the preliminary (and critical) decisions that were made regarding the 'new' transcription.

In addition, it was also decided to retain the original spellings, capitalisation and punctuation used by Lachlan and Elizabeth Macquarie, as well as the use of superscript characters in their abbreviations for official titles and ranks etc. At times this proved to be problematical - especially in the case of Elizabeth Macquarie who was a fluid and impulsive writer, little unconcerned about rigorous use of punctuation. And why should she be? Her 1809 journal of the voyage to New South Wales was a personal document that she kept as her personal 'aide-memoire'. She did not plan sharing her observations with others - unlike her fellow passengers on board the Dromedary, Deputy-Judge Advocate Ellis Bent and Captain Henry Colden Antill, who prepared their accounts for the entertainment and information of family members in England. Nor did Elizabeth have literary
intentions or aspirations to convert her travel experiences into a published account like some of her female contemporaries, such as Mary Anne Parker (in 1795) or Maria Graham (Lady Callcott) (1812 - 1824).

Journeys in Time reinstates most of these features in an attempt to recapture some of the 'flavour' of the original journal(s). In this way it is hoped that those incidents or observations that carried special meaning or importance to the original writer will become more apparent to us as readers and researchers.

Text Scanning

In the case of the ten (10) 'published' Macquarie journals appearing in the publication Lachlan Macquarie Governor of New South Wales; Journals of his Tours in New South Wales and Van Diemen's Land 1810 -1822 the text was photocopied and scanned on an EPSON GT-9000 flatbed scanner, and corrected using OmniPage Pro 6.0. OCR software.

Despite the sophistication of this software it was found that many of the font ligatures and layout of the (1956) published text created strange spelling and text variants and a good deal of time had to be spent examining these for correction before a basic file of transcripts could be worked upon.

Timetable

The task of determining the order in which specific journal transcripts would be prepared was subdivided and distributed across the months of the year 1998 according to the relative size and complexity of each account. Progressive publication was the primary objective thereby ensuring that the project maintained momentum and productivity. I harboured a strong fear that if publication was delayed until all the transcripts were complete there might be the danger that the results would never see the 'light of day.' Outcomes and the ability to see the project operating live were regarded as critical to the validity and outcome of the project.

For the ten (10) 'published' accounts approximately three (3) weeks was allocated for:

- scanning and digitisation of the published text,
- facsimile reproduction of the original text available on microfilm
- comparison and correction of the two versions - content, spelling, punctuation, capitalisation, abbreviations, superscript usage etc.
- HTML mark-up and formatting of the text for each journal - including provision of two text file versions: complete text and daily entries
- uploading of text
- creation of 'hot links' to additional historical research components of the site (People, Places, Ships, and Related Topics)

Additional Transcriptions

There were two journals that had not been published before: Elizabeth Macquarie’s 1809 Journal of the Voyage to New South Wales and Lachlan Macquarie’s Journal of the Voyage to England in 1822. It was recognised at the outset that the task of preparing these texts from the original sources would be a far more time-consuming task than that required for the published ‘tours of inspection.’ The reason for this was not simply one of ‘reading’ and ‘transcribing’ the text, but also involved
questions of familiarity with early C19th nautical terminology and the interpretation of geographical place names along the coasts of South America, Africa and southern England (and the Thames estuary), as well as various islands and shoals in the Atlantic, Indian and Pacific oceans. As a consequence, far more background research was required in the preparation of these transcripts.

Eight (8) weeks was set aside for the 1809 and 1822 sea voyage journals. This allowed for:
• facsimile reproduction of the original text (available on microfilm)
• transcription of the text
• proofing of content, spelling, punctuation, capitalisation, abbreviations, superscript usage etc.
• content clarification and historical research into relevant nautical terminology, geographical detail and biographical information
• HTML mark-up and formatting of the text - including provision of two text file versions: complete text and daily entries
• uploading of text
• creation of ‘hot links’ to additional historical research components of the site (People, Places, Ships, Related Topics)

Text Correction and Comparison

Lachlan Macquarie's handwriting is, on the whole, reasonably clear and straightforward to read - though there are certain abbreviations and punctuation 'conventions' that take time to become familiar with. His extensive use of exclamation marks for emphasis in regard to specific dates is distinctive and in many ways endearing; while Elizabeth's handwriting is much more problematical though compensated for by her more effusive spontaneous writing style recording a wider range of personal details and observations.

Hypertext Mark-up

Each text transcription was prepared in Adobe Pagemaker 6.5 as a fully wordprocessed document. After text corrections had been completed (including all punctuation and superscript features) a final version was printed off as well as a new file created using the editing program BBEdit Lite 4.0. This was marked up in HTML and in the proofing of this version all special features and characters were compared with the new printed version. This more time consuming approach, rather than the use of more sophisticated web editing tools such as HoTMetaL, HotDog, TextPad, FrontPage, Netscape Composer, DreamWeaver or software that can export text as HTML such as Pagemaker or Word, was adopted to ensure that no unnecessary code was generated in the preparation of the text. One of the useful corollaries was that this also allowed for a detailed examination of the content of the site, and streamlined the decision-making process about which additional 'hot links' were essential or necessary for the functionality of the site.

Images/ Graphics

The use of images in Phase I of the project was kept to a minimum. There is clearly a need on the entry pages of a site for good graphic design principles that create an sense of visual interest and professionalism. However there is always a danger that complex or sumptuous images and designs will become an end in themselves and not add to the value of the site. In particular, they can become a deterrent to
effective use. This can be a particular problem in the case of 'content rich' sites such as Journeys in Time; for if the research findings suggesting that web users are intolerant about slow download time and that they do not read text on the screen, it is imperative that the web site design minimises the tendency (or desire) to hit the BACK button and exit the site.

A secondary aspect that I had to consider was the vexed issue of digital copyright. There is a wealth of relevant and exciting images that could be used to enhance the content of Journeys in Time. However, the process of establishing copyright ownership and negotiating clearance fees and reproduction rights can be extremely time consuming as well as potentially expensive. I had to make a decision to focus upon the real project objectives - the provision of the transcripts for scholarly research. Only those images whose copyright ownership could be resolved quickly have been used. At a later stage, when the content has been consolidated, there will hopefully be an opportunity to enhance the site with more graphics and photographs.

ADDITIONAL RESEARCH

One of the 'value added' aspects of this web site is the provision of a detailed bibliography of primary and secondary source materials relating to the Macquaries and life in early C19th Australia. In the same way that 1956 publication of Macquarie's journals provided a service for historians and researchers the Bibliography section of Journeys in Time is designed to draw attention to the major advances that have taken place in Australian historiography. The Bibliography documents the many significant contributions that have been made in historical research in the last forty years including the publication of standard works of reference such as the Australian Dictionary of Biography.

Similarly the biographical and descriptive notes that had been such an important part of the original 1956 publication Lachlan Macquarie Governor of New South Wales; Journals of his Tours have now been enhanced by additional research findings inserted under four broad subject headings: People, Places, Ships, and Related Topics. There are 'hot links' to specific research findings from the relevant section in the transcripts, or alternatively, researchers can explore the subject heading materials independently.

PROJECT ASSESSMENT

Phase I of Journeys in Time was completed by the end of January 1999 - only one month later than planned. The development of Phase II has been proceeding slowly throughout this year - in part due to an opportunity I had to visit India and follow up some of Lachlan Macquarie's connections with the subcontinent in the period 1788-1807. These research findings will filter down into Journeys in Time in due course. Certainly there are similarities between the style of travel adopted by Macquarie in New South Wales and Van Diemen' Land and the manner in which he was accustomed to travelling in India. Similarly his administrative style was conditioned by his experiences and observations as an officer in the Bombay Army and military advisor to the governor of Bombay.
THE FUTURE

Lachlan Macquarie Historical @rchive

The development of the Journeys in Time project marks the beginnings of a larger, more ambitious project: the creation an archive of scholarly research materials to be known as the Lachlan Macquarie Historical @rchive.

This electronic archive would be based upon the extensive corpus of surviving manuscript sources written by Lachlan and Elizabeth Macquarie. It would seek to provide students, researchers and scholars with access to hypertext transcripts of the Macquaries' journals and letters as well as providing interpretive analysis into the lives and times of the Macquaries.

On the 15 December 1809 Elizabeth Macquarie recorded her arrival off the coast of Tasmania in the following terms:

“At half past 10 o’clock this morning we have with the mercy of God made the land; having a clear sight of the New Stone. Coll. M. immediately order’d the Band to play God save the King! When it struck up he felt himself particularly affected. We have made the land in the most favorable manner possible, our reckoning by timekeeper & observation being perfectly correct. We sounded & found a coral bottom at 80 Fathoms, right up & down, being 15 miles from the New Stone, which bore north of us. It blows a fine moderate gale at S. W. which if it continues to blow as fresh and as fair as it does at present, we shall probably see Port Jackson in three days. ——"

The Journeys in Time project is also still seeking to make landfall, though it would be premature at this stage to strike up the band. Nevertheless, I believe that a significant part of the digital voyage has been completed and hopefully the run down to the harbour will be achieved without too many unexpected storms or delays.

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See also the discussions available at:


HTML validation and accessibility services mentioned in text:
WebLint Gateway: http://www.cen.uiuc.edu/cgi-bin/weblint

Bobby: Centre for Advanced Special Technologies (CAST): http://www.cast.org /bobby/

ABOUT THE AUTHOR

Robin Walsh has been working at Macquarie University Library since 1980. He was Reader Education Librarian from 1982-1990 with responsibilities for the Library’s orientation and reader education programs, and the preparation and design of brochures, publications, and instructional videos. Since 1991 he has been Manager of the Library Design & Media Production Unit, responsible for desktop publishing and, more recently, web design for the Library. He is also exhibitions co-ordinator and curator of the ‘Lachlan Macquarie Room’ - the original parlour room from Macquarie’s home in Scotland - now located in the University Library. In 1996 he travelled to the UK to visit the estate and undertake further research, as well as visiting Paris to attend the Fifth International World Wide Web Conference. His current research interests include Lachlan Macquarie in India (1788-1807), having completed a study tour there (March 1999) retracing Macquarie’s activities in 1799. One of the outcomes has been the preparation the web site Seringapatam 1799 which includes a transcription of Macquarie’s 1799 Indian journal.
The Parish Map Preservation Project is providing access, in full colour, to an important historical archive in New South Wales in an innovative way using the most up to date technology and data compression techniques.

**PARISH MAP PRESERVATION PROJECT THE USE OF DIGITAL HOLOGRAPHY, CD’S AND COMPUTERS TO COPY, VIEW (AND PRESERVE) OLD MAPS**

John Read, New South Wales, Department of Land and Water Conservation, 23-33 Bridge St, Sydney, NSW 2000

phone:+61 2 92286111 fax:+61 2 9228 6140

**GENERAL OVERVIEW**

The Parish Map and other similar maps provide reference to Crown land dealings and to the basic fabric for land administration in New South Wales. The Parish Map Preservation Project is using the latest computer technology to help preserve over 35,000 of these valuable old maps from rapidly deteriorating and being lost as an historic record of land administration of the State. Colour photograph digital images of the remaining maps copied on CD's allow the District Office and Archives maps to be viewed in full colour at a number of locations for the first time. The availability of other copies on more permanent medium effectively eliminates the handling of the original maps thereby helping their preservation and their storage in archival conditions in the Government Archives at Kingswood.

The Land Information Centre at Bathurst is using two Dicomed Digital cameras to photograph the maps. A master image will be stored on long life CD's as a duplicate historic record and copies will be cut on CD's for viewing through computers at twenty or more locations throughout the State. The use of digital cameras and the compression of images on CD's to increase their capacity was not possible a few years ago.

In general, either one or, at the most two, of these maps exist and some have already been lost. The remaining maps will continue to deteriorate and valuable information underpinning the integrity of our land title system will be lost unless something is done now. The Project provides for this to be done and other advantages by:

- providing a permanent digital photographic record of the old maps;
- then “cancelling” the old maps and preserving them in archival conditions;
- providing a complete collection of District Office, Archives and other maps on CD;
- provision for copies of CD's for viewing maps at many locations; and,
- for the first time, facility for colour prints of the maps.
ADMINISTRATIVE MAPS

Administration of the “waste lands” or Crown land of New South Wales was undertaken by the Surveyor General’s Office from the first settlement (1788) to self Government (1856), then, by the Department of Lands until recently when Crown land administration became a function of the Department of Land and Water Conservation. The administrative function is the orderly management, conservation and disposition of Crown lands.

An administrative map is useful in providing reference to land dealings. However in the first 50 years of settlement, exploration, building roads and bridges, and trying to survey lands already granted took precedence over cadastral mapping by the small staff of surveyors. Following the 1819-1821 Bigge Inquiry, instructions were given to Governor Brisbane in 1825 to divide the colony into:
- Counties being “about forty miles square”; and,
- Hundreds, being an area of about 100 square miles (which were never implemented);
- Parishes being “about twenty-five” square miles.

Where possible, regard was to be given to natural boundaries such as rivers, stream, highlands, etc. in determining the administrative boundaries,

Initially Land titles (old-system written descriptions up until the 1863 Real Property Act) and associated survey plans referred to the administrative areas without the necessity for a cadastral map.

In 1828, on instructions from Governor Darling, Major Thomas Mitchell commenced the first purpose-intended cadastral map, using “topographical triangulation” of an area from Moruya River in the south then westwards to Yass, Cowra, Orange, Wellington and Liverpool Ranges then east to the Manning River in the north. In three sheets, and at a scale of 8 3/4 miles to an inch (i.e., about 1:554,000), the Nineteen Counties Map was completed in 1833 and etched on copper. At the same time Mitchell and his staff did more surveys in 6 1/2 years than their predecessors did in 40 years.

PASTORAL HOLDINGS

Attempts to retain settlement within Mitchell’s Nineteen Counties failed as squatters spread out beyond its boundaries in the 1820’s and 30’s. This was to affect land administration for the next 50 years. In 1835 grazing licences to manage “squatting” were introduced at a fee of ten pounds each but were difficult to enforce. In response to demands by “squatters” for more secure tenure, the 1847 Orders in Council allowed a Holder a pre-emptive right to purchase a homestead area with a pastoral licence of adjoining land in the settled districts (i.e. the Nineteen Counties) and pastoral leases with terms up to 8 years in intermediate districts and 14 years in unsettled districts.

There were 1277 Pastoral Holdings in the Eastern Division of the State, 907 in the Central Division and 357 in the Western Division, 2541 Runs in all. Maps of the State’s 141 counties were prepared, as required.

After the 1850’s Gold Rush there was a demand for land which was already taken up mainly by the “squatters”. As a result, the 1861 “Free selection before survey” Act allowed selection over leased areas. It also allowed Conditional purchase and pastoral leases for one year in settled districts and five years in second-class settled districts or unsettled districts.
On 22nd September, 1882 the Garden Palace Exhibition Building in the Botanic Gardens burnt down and with it nearly all the Crown land lease documents, plans and maps stored there while the Lands Department’s Bridge Street building was being built. In a concentrated effort, Departmental staff reconstituted records from secondary information with maps showing the runs divided into leased and unleased areas pursuant to the 1883 Morris and Rankine Royal Commission and the subsequent 1884 Crown Lands Act. Only one copy of these fragile maps on paper and linen exist, and these are being photographed as part of the Project.

COUNTY MAPS

County Maps usually cover an area of about 40 miles square at a scale of 4 miles to an inch (i.e. about 1:250,000). At such a small scale, they are only useful as a cadastral map for showing major physical features and large portions with their numbers. Because surveys preceded most Parish Maps, the survey plan reference commenced with the first letter of the county name and ended with the county small number. There are 141 counties.

PARISH AND TOWN MAPS

The 1884 Act established Land Districts, Land Boards and Land Board Offices for decentralised administration. As a result there was a concerted effort to prepare Parish Maps over the Central and Eastern Divisions of the State with a set kept at the local Lands Office and a duplicate copy at Head Office in Bridge Street. Prints were used by Crown Land Agents, Councils and other Government Departments. The Parish Maps were reproduced by lithography using flat bed printing on limestone slabs imported from Bavaria. Lithographic printing was believed to have commenced on a press imported into the Colony in 1821 and allotted to the Surveyor General’s Office in 1828. The process continued in use in the Department of Lands until probably after 1947 when it was reported that the Department held about 1100 lithographic stones.

As a testament to the value of the Parish Map, they have continued in production for over 110 years and will continue to be charted until replaced by the Crown Land Information Data Base (CLID). Over this time old editions were superseded as it became difficult to chart or note further information and were cancelled when new editions replaced them. It is these past editions and the current editions that will be recorded in the Parish Map Preservation Project.

There are 7459 parishes and 1143 towns in New South Wales. In general, Town Maps preceded Parish Maps in many counties. Parish Maps cover an area ranging from 15 to 25 square miles at a scale of 4 inches to a mile (i.e. about 1:16,000) to fit a manageable map size of about 1000 mm by 700 mm.

The Parish Map has title, scale, north point, place names, notes and boundaries by legend and line coding. Spatially, it shows physical features, roads, etc., and also, by colour tint and notation, reserves, National Parks, State Forests, freehold, incomplete purchases, acquired lands, etc., or, by edging and notation, many of the 50 land tenures of the past. It shows portions (numbered with a sequential parish number) with area and original grantee or tenure by abbreviation and the survey plan reference. It also has the following schedules:
“Reference to portions” being Portion No., survey plan reference, location and CT reference and, in later editions, also, the grantee or tenure details. The Survey Plans referred to on the maps usually recorded dealings as notation plans as well as survey dimensions and property details. The smaller survey plans have been microfilmed and portions/allotments are now lots in the Parish Deposited Plan.

“Reference Notes” refer to sequential encircled numbers shown on the map and lists notes in relation to them.

Mining Surveys schedule mineral leases reference numbers, plan, area and purpose.

Classified Areas showing land reference, purpose and Gazette reference.

Town Maps have similar detail to the Parish Map but at a larger scale and with “Reference to Allotments” listing details of allotments in Sections of the Parish instead of Portions. When and as it became difficult to record further information on the Parish/Town Maps, they were cancelled and new editions issued to replace them.

About 35,000 past and current editions are proposed to be photographed. Of these about 3/4 are in District Offices, 1/8 (being the Head Office copy) are in Archives and the remaining 1/8 (or about 4000 maps) are either believed missing, destroyed, or damaged beyond repair.

CROWN LAND INFORMATION DATA BASE

The current edition of the administrative map will be replaced by computerised Spatial Administration System (SAS). This is a further development of the Digital Cadastral Data Base (DCDB) showing a Crown land layer and other spatial information usually found on a Parish/Town Map. SAS uses the Genasys GIS package called GenaMap, runs from local servers at District Offices with data updated overnight by the Land Information Centre.

Integrated textual data with SAS are:
• Tenure Administration System (TAS) encompassing details of about 96,000 Crown holdings.
• Reserves Administration System (RAS) containing details of about 34,000 Reserves.
• Land Revenue System (LRS) processing all financial transactions involving 50 different account types and interfacing with the DLWC’s SAP financial system.

These Data Bases use Oracle RDBMS written in Oracle Forms 3.0 and run from a central production computer located in the DLWC’s Bridge Street, Sydney Office.

The Parish Map Preservation Project will digitally photograph the current Parish/Town Maps as the CLID system replaces them. They will then be able to be viewed on CD, as required, to verify CLID data. The maps will be placed in State Archives.

The CLID Oracle Data Base and viewing computer equipment is being used by the Parish Map Preservation Project.
PROJECT FORMATION AND ESTABLISHMENT

In 1995, with the appreciation that Pastoral Holding Maps and Parish/Town Maps refer to past administrative acts that extinguish native title pursuant to the Native Title Act (CTH) 1993, it was realised that, in addition to their historic context, these maps should be preserved for use in investigating native title claims. Initially, photo-transparencies, as then used by the Mitchell Library, were proposed by the Department of Land and Water Conservation in seeking and obtaining Treasury funding.

In September, 1995, a further investigation was undertaken with the knowledge that images could be compressed on CD to contain seven to ten times their previous capacity. This was found to be financially viable with the advantage of easier management compared to aperture cards and, once a master was cut, multiple copies on CD could be made.

In November, 1995, a large flat bed scanner was trialed but could not handle the size and thickness of the maps. A trial was then done with a digital camera and, although photo-copies at the time were poor, the computer screen image and photographic reproduction from the CD image was excellent.

A Steering Committee was established to run the Project under an Agreement made between State Land Services (now, part of the Department of Land and Water Conservation), the Archives Office (now, State Records Authority), and the Land Information Centre (now, part of the Department of Information Management and Technology). After further testing, approval was given in April, 1996, to proceed with the Project and purchase the cameras.

In the latter part of 1996 consideration was given to using a central server and optical disc, which was rejected mainly due to difficulty networking sizeable images. A database was established using the CLID Oracle database and Expressions of Interest called for Viewer Software driven by it. This was not viable and, having regard to the incidental, irregular and comparatively low user-access and the incapacity of the network to handle large images with other traffic, it was decided to return to the simpler system of indexed CD's and stand alone PC's. This is also a better option for other users such as Archives, Mitchell Library, etc.

PRODUCTION

Production commenced in mid 1997 with one camera and all the Pastoral Holding Maps in the Eastern and Central Division have been photographed. After the “Wik” High Court decision that Pastoral Holdings may no longer extinguish native title, priority in production switched to Parish Maps.

It is intended to progressively copy the past editions of Parish/Town maps first pending the commissioning of the CLID system, at which time the current maps will be copied. This will take an estimated three years.

The District Office maps contain information not recorded on Head Office versions and have priority for copying. Any Head Office copy of maps not held in the District Offices will be provided by the State Records Authority for copying. Inquiry will be made from Mitchell Library, Historical Societies, Universities etc. to find any maps not already collected. The
aim is to record a complete set of any and all maps that exist.

CD’s will be cut and made available to the State Records Authority, Head Office and District Offices immediately after capture. Maps will be given to the State Records Authority for preservation in archival condition. District Offices will then have a set of CD’s covering, firstly, historic maps and then the current maps.

Upon completion of the photography it is proposed to create a State set of about 200-300 CD’s. This will be in about three years time and, in the meantime, technological improvement in recording medium could result in use of higher capacity, double sided CD’s, thereby reducing the number of CD’s required.

It is also proposed to create an Index Map of Pastoral Holdings and Parish/Town Maps relative to the current map of N.S.W. to make it easier for the searcher to identify the relevant holding, map and CD.

TECHNICAL INFORMATION

The Parish Map Preservation Project would not have been possible in its present form two to three years ago. Scanners available at the time were comparatively costly and incapable of scanning large thick mounted maps. Digital cameras do not have these constraints and can provide high resolution images without the use of traditional film and transparencies.

It was also fortunate that computer and Compact Disk (CD) technology had advanced to the extent that the images could be viewed on and printed from the latest generation of PCs and printers. Also the computer software was available for processing the digital images and for viewing on computer. The deciding feature, however, was the use of JPEG (and subsequently, Mr.Sid.) for compressing (and uncompressing) images, so that the capacity of CD’s could increase seven to ten times. The Land Information Centre at Bathurst provided the camera lenses and infrastructure (vacuum frames, lights, etc). Project funds were used to purchase the two digital cameras, computer and associated equipment.

CAMERA

- Dicomed Digital 7520 camera.
- Trilinear scanning head with a 90 mm x 72 mm scanning magazine capable of recording 45 million pixels of information.
- Each pixel can have a range of about a million colours. However, tests show that 256 colours are sufficient to depict mapping colours, provide better contrast of linework and reduce the size of the image.
- The scanner is capable of capturing a 130 mega byte (Mb) image in approximately 150 seconds with a single pass. An A1 image (594mm x 841 mm) can be captured in one shot.
- There can be a small loss of resolution with increased compression/decompression of images. A trade-off was needed between the dpi of resolution, compression and capacity on CD. Viewer survey adopted 200 dpi as being more than adequate. With 256 colours and compression with JPEG or Mr. Sid of seven to ten times, 250 to 300 maps can be contained on a 650 Mb CD.
PROCESSING

- The camera comes complete with its own windows-based software and it uses a Macintosh computer to support that software. (It could alternatively be supported by an IBM computer).

The image is downloaded from the camera hard drive and opened into “Photoshop” software on the Macintosh 9500 computer. This computer has a 360 megahertz (MHz) dual processor and 512 Mb of RAM. The scanned image can be manipulated to any degree but, for accurate reproduction, the only adjustments made to the images are:
  - setting the maximum and minimum desired densities;
  - cropping to actual map image to reduce file size;
  - unsharp masking to make lettering and lines sharper;
  - saving the file as a PC Tiff image on DLT.

As it is intended that the maps will be photographed once only and copied on the CD at 225 dpi.

100 BASE T is used to transfer the very large files on the Land Information Centre’s computer network for editing and the cutting of CD’s.

The Land Information Centre can also process the digital image to produce quality coloured photocopies at a reasonable cost. Alternatively, a quality Colour Printer can be used.

COMPUTER DISKS

Currently 650 Mb CD’s are being used as manufacturers cannot guarantee the long life of a 9Gb CD (or 18Gb, double sided). Also, Optical Disk, another option, has a limited guaranteed life. If the longer life of higher capacity CD’s, DVD’s etc. can be guaranteed within 18 months, then it’s possible they may be used for the State-wide set of CD’s.

VIEWING COMPUTERS

The computers being used are modified DLWC computers minimum specification being:
  - IPEX P200 Desktop P.C. with Intel Pentium 200 MHz processor;
  - 32Mb RAM, 256Kb cache modified to 64Mb RAM;
  - 2.1 Gb HDD;
  - replacement of standard monitor with an Hitachi 20” monitor;
  - 12 x CD ROM;
  - 2Mb V RAM modified to 4Mb V RAM;
  - MS Windows ‘95 or upgrade to NT WORKSTATION.

VIEWING SOFTWARE

The software chosen for viewing images is Mr.Sid available from Resource Industry Associates, North Fitzroy, Victoria. It is on the first CD and features:
  - display of FULL MAP IMAGE by clicking the selected map on the index;
  - ZOOM capability from the image;
  - PAN to other parts of the image;
  - two WINDOWS on the screen;
  - PRINT with map-specific header and a footer statement;
  - COLOUR ENHANCEMENT is intended later.
VIEWING MAPS ON COMPUTERS

The Oracle database (or Hardcopy) can be used to identify the CD containing the map sought. Upon loading the CD, selection can be made from the index and viewed using the Mr. Sid program.

Like CLID, the use of computers to view administrative maps will require a change of culture. No longer will it be a relatively simple matter of getting the map and finding the information you want on it. It will require a computer and familiarity with computer processes. This will take a bit of getting used to.

However, there are advantages also. Multiple sets, computer technology and colour printers allow the maps to be viewed and copied in colour at a number of locations at any one time. And, the greater accessibility of the information on CD means that the past administrative maps can now be put away in archival conditions to be preserved for those rare occasions, if any, when they may be needed.

COSTS AND PRICE

The major project cost is photographing the maps which would be much the same for colour transparencies as for digital images. This can vary depending on the size of the map and the number of scans required. For instance, a map A1 size or larger can require two or more scans. Considering this, an average indicative production cost to copy a parish or town map is about A$30 (commercial rate) or about A$6,000 for a CD of about 200 maps. The price per CD would usually depend on the market for the product and the numbers of CD’s cut, which, in this instance, would be very limited. However, copies of CD’s may be purchased from the Land Information Centre at an estimated price of between A$30 to A$50 each.

THE FUTURE

The Project is a good example of adaptation of new technology for the future to solve an old problem from the past. There is little doubt that this technology will improve and there is already some indications that local servers and 9Gb CD’s will probably be used when the State set of maps become available. However, irrespective of technological change, the use of digital cameras and compression software will remain current for some time in the future, thereby justifying their use to copy the many maps that need preservation now.

ACKNOWLEDGEMENTS

The Parish Map Preservation Project is a joint project of Land NSW, Department of Land and Water Conservation, the Land Information Centre and the State Records Authority. Appreciation is given the senior officers and staff of these organisations that have recognised the need and supported the project by providing services at reduced, little or no cost and to those officers on the Steering Committee whose vision for the project, patience assessing new technology and spirit of co-operation has proven to be successful.
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ABOUT THE AUTHOR

John Read is the Project Manager of the Parish Map Preservation Project. He joined the NSW Department of Lands in 1965 as a Surveyor and has held the positions of Senior Surveyor and State Manager of Crown land sales. He also holds qualifications in town planning, valuation and public administration. John has a fascination about the little acknowledged role of surveying and crown land administration in the history of New South Wales. Much of this history is recorded in old survey plans and cadastral maps and he considers that the compact discs of the parish maps could make a useful inclusion in many libraries for those undertaking research into local history.
This article describes the strategies the NRE Library and Information Services have adopted to ensure continued relevance in a rapidly changing information environment. A key element of the NRE library strategy is the implementation of an integrated package of commercial and in-house produced alerting services and a professionally developed marketing and communications strategy. This reinforces the role of the service in “linking people with information” to over two hundred sites in Victoria.

DELIVERING LIBRARY SERVICES IN A WIDELY DISTRIBUTED ORGANISATION: AN OVERVIEW OF LIBRARY SERVICES IN THE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENT (VICTORIA)

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BACKGROUND

The Department of Natural Resources and Environment (NRE) was created in 1996 from a merger of seven Victorian government agencies including the Department of Conservation and Natural Resources, and the Department of Agriculture, Energy and Minerals. NRE is responsible for managing Victoria’s public lands and natural resources and assisting the development of Victoria’s primary industries.

The NRE Library and Information Services unit provides library services to more than 4000 NRE staff located at over 200 sites across Victoria from a network of 16 libraries. With the creation of the Department of Natural Resources and Environment, a strategy for delivery of library services to a widely distributed customer base was needed. Library and Information Services has responded to the opportunities presented by information technology by developing a range of innovative electronic information services. In a highly distributed organisation such as NRE, networked electronic information products provide the means to re-engineer the delivery of library services, particularly to remote units.

This paper discusses strategies used to deliver library services to staff at over 200 locations across Victoria. Options for future library service delivery are also discussed.

NRE INTRANET AND LIBWEB

Back in 1996, building a corporate identity
and culture was a challenge affecting all sectors in the new department. At the time that NRE was created, the agencies which made up the new department operated under a range of IT models and operating environments. Early in the establishment of NRE, the potential of a departmental Intranet was recognised by senior management. Since 1996, the NRE Intranet known as “ResourceWeb” has evolved as an essential information and service delivery tool accessible across all areas of the department.

To develop effective library and information services to NRE, Library and Information Services needed a solution, which would provide networked access to its electronic information services across the new department. Bibliographic CD-ROM databases had previously been available across a Novell network in the former Department of Agriculture, however that system was accessible to less than half of NRE’s locations. There was an immediate need to establish the credentials of the new library service and to deliver services effectively to our customers. Waiting a year or more for the full roll out to be completed was not an option. The development of ResourceWeb provided Library and Information Services with a means of delivering electronic library services to NRE staff irrespective of IT operating environment.

The objective of LibWeb was to develop an integrated electronic service providing seamless access to library services and information resources to all NRE staff regardless of location. This was achieved through the development of “LibWeb” by library staff as an electronic “one stop shop” for library service delivery. LibWeb provides the access point for the NRE library catalogue (Elixir), scientific research bibliographic databases, electronic library request forms, current awareness alerting services, Internet based information tools, library FAQs, library contact information, electronic journals, new publications, library usage statistics and a digitised photograph collection. LibWeb is also used by NRE librarians to share resources, promotional materials, procedures, policies and other information and has become the library “flagship” and a key marketing tool for delivery of consistent, professional services across the Department.

**LIBRARY CATALOGUE**

The NRE integrated library catalogue, Elixir, was created by merging records in various formats from the former Departments of Conservation and Natural Resources, Agriculture and Energy and Minerals catalogues using the Sirsi/Unicorn system which provides a web interface as part of its package. This catalogue data is also available on RMIT Publishing’s Heritage and Environment CD-ROM, a copy of which is provided to the few NRE units unable to access ResourceWeb. Internet access is also available via RMIT Publishing’s ERIN system.

The records on Elixir are not confined to library book and journal holdings. The catalogue is being developed as a hybrid database which includes substantial analytical entries for articles of interest to the Department, particularly from material which not indexed in the major bibliographic databases. It also provides a record of all published output of NRE staff, including papers published in the scientific literature. The catalogue also contains hyperlinks to electronic full text publications and digitised photographs.
ROLE OF THE LIBRARIAN

Innovation and refocusing of library service delivery has required NRE librarians to review their activities and priorities and to work towards a redefined role. Where our past service delivery was largely built around library resources which were purchased and managed as a physical collection, librarians and library customers now rely less on in-house collections, instead sourcing information from overseas libraries and document supply services, including the British Library, CABI, UnCover and the US National Agricultural Library.

While the quality of library holdings remains an important factor in effective service delivery, more important is the skill of the librarian in sourcing information from a wide variety of external sources. Libraries cannot hold all of the material potentially relevant to their customer base, however they have the skills and networks to provide access to the global literature. In NRE, librarians are placing less emphasis on the collection custodian role, preferring to market themselves as information navigators and research consultants. This message is reinforced across the Department with a professionally designed library promotional package emphasising our access to the global literature and based around the theme “linking people with information”.

A distributed library network “on the ground” across the organisation allows NRE librarians to develop effective local knowledge, networking, research consultancy and to specialise in information tools and sources most relevant to their customer profile.

ALERTING SERVICES

NRE staff have limited time to keep up to date with new developments in the scientific, technical and management literature. Traditionally staff would regularly browse a display of new journal issues in the library to keep abreast of new information. Obviously this approach is limited by: the number of titles received on site and time constraints on staff. NRE can never acquire all relevant titles, let alone have them available at each site; consequently it is essential that access be provided in another way.

The implementation of improved alerting services is a key value adding opportunity for Library and Information Services. Our objectives are to introduce push technology to automatically deliver updated, customised information to the individual’s desktop via email, and to integrate commercial and in-house services to provide an alerting services package to market to the department. The strategy is expected to be fully implemented later in the year. At present the alerting services consist of

- electronic table of contents service providing weekly emailed updates to the desktop - based on individual profiles using Current Contents(r)
- discipline based electronic current awareness alerting bulletins developed in-house (weekly notification of new bulletins are emailed to subscribers with icon access to a Lotus Notes database)
- ANBAR Management Abstracts offering emailed updates based on profiles for individual users
There is considerable library staff input required in establishing individual profiles and maintaining and developing these products however, they are seen within NRE as a substantial contribution to the productivity and knowledge base of the department and they maintain the library profile by demonstrating that the library service is focused on delivery of relevant, tangible services.

**DOCUMENT SUPPLY VS SUBSCRIPTION**

Purchase of journal subscriptions has been the traditional means of collection development for research libraries. For NRE this has resulted in collections which rapidly expand, can develop self perpetuating rationale (a substantial back run of a title may result in thinking that “we cant break continuity”) and can be inflexible in responding to changing priorities within the organisation. Even a casual survey of current subscriptions indicates that only a fraction of the contents of many current journal subscriptions are relevant to the work of the organisation.

Faced with a choice between maintaining our current level of journal subscriptions or relying more extensively on electronic bibliographic databases and alerting services (such as Current Contents(r)) it is unlikely that the current journal subscription levels will be maintained in the longer term. Funding constraints will inevitably require a choice between journal subscriptions (electronic or print) and electronic information services, which can deliver comprehensive, targeted, access to the international literature to staff across our organisation. Increasing reliance on commercial document supply services is anticipated in the future. A business case for each title is needed to assess the cost benefit of purchasing the whole rather than relevant individual articles delivered when required by NRE staff. Obviously purchase of key titles will remain cost effective where usage outweighs the cost of individual article purchase.

**PRINT VS ELECTRONIC**

The past year has seen substantial increase in the number of scientific and technical publications available electronically, bringing the potential to implement full electronic service delivery closer. However, despite the availability of e-journals and other electronic publications, barriers remain to a fully electronic service. For NRE these include slow response times particularly when downloading large files, publishers’ licensing restrictions, pricing, continuing uncertainty regarding long term access and archiving of electronic material and variable users’ skills. Based on trials in house, library customers report that accessing journals in electronic format is feasible if slow response time (in-house) can be overcome, as most papers are relatively brief and can be transmitted as a smaller electronic file. However, electronic books are of less value due to their file size and the inconvenience of reading from a screen or printing/handling an unbound print out.

While more journals are now becoming available electronically, back numbers are not usually converted to an electronic format. This means that there will be an ongoing requirement for NRE to manage print collections consisting of both retrospective print material and new material in print form.
COLLECTION MANAGEMENT

Existing print collections held by Library and Information Services are a key component of the intellectual capital of the department, a core component of which is the library archive which holds copies of the published work of NRE and its former agencies. Collecting, cataloguing and making accessible the published, semi published or unpublished grey literature of NRE and former its agencies has been highlighted as a vital role for the library service in preserving the department’s corporate memory. This is becoming a greater challenge as more NRE material is produced only in digital form.

Over the next two to three years, NRE will undertake a further process of rationalisation of its CBD offices which will require the relocation of substantial library collections. Various options are under consideration with a view to re-engineering library collection management and service delivery in a networked electronic environment. One option for a library network such as that in NRE is to establish a library “clearing house” which would allow the storage and rationalisation of hard copy collections, reducing the overall collection size and collection management costs across the library network. Smaller core collections might remain in existing libraries while the clearinghouse would be a repository of the main consolidated print collection. Librarians would have more time to develop their research consultancy and information navigation roles with document supply provided from the consolidated collection and external sources “just in time”. For this model to succeed proven implementation of fully electronic library service delivery and acceptance by library customers of the viability of this approach is needed.

PURCHASING CONSORTIUM

In partnership with other state government departments of primary industries and agriculture, NRE is seeking to establish a purchasing consortium (InfoShare) to collectively negotiate the purchase of electronic information products. Membership of the consortium is open to government agencies concerned with the agriculture, conservation, natural resources and the environment. Not for profit non-government organisations with similar discipline interests are also eligible to participate.

CONCLUSION

In common with other libraries, NRE Library and Information Services is grappling with the opportunities and uncertainties presented by the digital era. While special librarians now have the tools to deliver targeted, relevant, timely library information services to the individual’s desktop, it also essential to package and market library services to our internal customers if libraries are to be strategically positioned within organisations. This is largely achieved in NRE through the departmental Intranet by the development of the LibWeb electronic “one stop shop” for library services. A key element of the NRE library strategy is the implementation of an integrated package of commercial and in-house produced alerting services. A professionally developed marketing and communications strategy reinforces our role as “linking people with information”.
ABOUT THE AUTHOR

Michael Ferres was appointed as Manager, Library and Information Services with the Department of Natural Resources and Environment in 1996. At present he is on extended leave from the Department, undertaking a consultancy in Indonesia as Environmental Information Centre Adviser to the Environmental Management Systems Project, a program of the BAPEDAL Regional Network. His email address is mkeferres@hotmail.com
Buddy is a web based service, developed and operated in-house by the University of Melbourne Library, that complements the Library's Innopac catalogue by providing access to electronic products. These products include bibliographic databases (networked and standalone), full text electronic journals and books, exam papers and selected web sites. As at July 1999, Library users have direct point-and-click access to over 4000 individual electronic titles via the Buddy service.

Buddy was developed to provide a solution for the Library's access problems created by the massive growth in the number of electronic purchases, and the need for simple point-and-click access to these resources irrespective of format or location. This was a particular concern at Melbourne due to the distributed network of over 20 libraries across 8 campuses. Buddy first appeared in 1996 as a Visual Basic application loaded onto dedicated public access PCs within 5 of the main University libraries. By 1998 the service had been rewritten as a web application and is now accessible through an expanded network of dedicated library PCs, as well as from anywhere on the web.

Resources listed on the Buddy service meet the selection criteria outlined by the collection development policy. Titles are added to the Buddy database, either manually using web based forms, or in the case of publisher's packages of full text journals, such as Expanded Academic ASAP or ABI/Inform, imported directly from the publisher's lists available on the web. This has proved to be a very cost-effective method for keeping large, and often volatile, lists of titles up-to-date on the database. Regular processes are now run as part of the Buddy suite of programs to collect title lists from publisher's sites and then run them against the database, updating the database wherever necessary.

One of the key features of Buddy is the customisation of subject lists using titles from the database. Each faculty library is responsible for maintaining its own Profile. Selected titles are listed under subject Menus chosen by the site profilers. This allows subject librarians to have control over what resources are presented to users, and how they are described.
Using the ‘map once, use many’ approach the profilers simply search or browse the database to find titles they wish to present to users, then simply link them to their Menus.

Clickable lists of resources are created dynamically each time a Menu is selected thus ensuring the latest information about the title, including its relevant licence, location or supplier properties is included from the up-to-date database. One of the main advantages of this approach is the transparency for user and profiler if a supplier or method of delivery changes. Properties included in the database will ensure connection to the title without need to make changes to the Menus.

Descriptors for titles on the database are provided at point-of-entry by cataloguing staff based on a natural language thesaurus developed by the profilers. Allocated descriptors, plus Standard Subdivisions of publication type, are combined on the screen to provide users with a brief indication of what the resource covers. Additional information about the product is also available for each title via a button that produces a supplementary record containing descriptions, publishers, coverage and notes.

Profilers may also add Local Descriptors and notes to each record that will only show at their Site. This means that the same title can be described using different terminology depending on where it is being delivered. This level of subject customisation has proved particularly popular with information services librarians at branch sites who can now tailor their lists and descriptions, based on a centrally held record, to the needs and language of their local users.

The aim of Buddy is to provide users with a select list of resources that will get them started, thus mapping the substantial subject knowledge of our information librarians. This means that not every title appears on a Menu. Users wanting to create their own subject lists can do so using the Search facility. Customised lists can be created using keywords or descriptors from the Buddy record and if necessary, limited by Standard Subdivisions. A complete list of all resources and a specific list of Electronic Journals are also available using the Browse facility.

The Buddy service is now an established product for accessing electronic resources. Current usage shows that over 20,000 links to individual Buddy titles are made each week, with around 25% of these coming from outside the Library PCs. These PCs also provide general internet access for University of Melbourne staff and students. They complement PCs and Macs provided in student computer laboratories on campus, and the Library is seen as one of the main places for internet access in the University. Ongoing dialogue with users is maintained through the Comments pages and this is used to maintain the responsiveness of Buddy to the user population.

Buddy has always been regarded as a short-term response to the rapid shift to electronic resources. Parallel to the development and maintenance of Buddy as a delivery mechanism has been ongoing planning for more sustainable and responsive cataloguing solutions. As Buddy has developed as a successful means of managing electronic resources it has become apparent that Buddy will be part of this sustainable solution. This will occur in three key areas of electronic
resource delivery: fast track cataloguing, authentication of users, and customisation of resource delivery.

Fast track cataloguing: One of the features of the Buddy database has been the speed at which records can be created by importing bulk and individual records from the web or from any existing MARC record. In addition, the automatic maintenance of publisher's full text title lists, for example, has provided a responsive means of keeping up-to-date with a volatile set of bibliographic records. The Buddy database records have also been created directly by cataloguing staff using simple web based forms. One of the unexpected outcomes of building and maintaining the database in this way has been the opportunity to map fairly easily a partial MARC record that can then be imported into our main catalogue using an appropriate Load Table. By doing this we have developed a sustainable method for fast track cataloguing of electronic resources. Once the complete set of Buddy records are in the catalogue, with live links from the MARC 856 field, we will consider decommissioning the Buddy service but continue to operate the Buddy programmes to allow us to continue this fast track cataloguing.

Authentication of users: The Buddy programs allow simple authentication procedures for remote users. These protocols complement the existing University network authentication mechanisms that allow IP filtering for licensed suppliers. Buddy also enables the delivery of individual passwords to authorised users for those instances where IP filtering is not possible; thus reducing the load on service staff who otherwise would need to deal with each user on a case-by-case basis. These authentication protocols, already used by Buddy, can be easily incorporated into links from the Web OPAC thus allowing access to licensed products to be made available only to bona fide users.

Customisation of access: Current Buddy Sites can be regarded as customised subject guides to electronic products. At present these are faculty-based, with additional mapping of more specific subjects contained in the Menus created by information services staff at each of the Sites. At present these are packaged as a single Buddy service. As the number of electronic resources continues to increase the intention is to extend the number of site profiles, using the same Buddy principle of 'map once, use many' to provide even greater customisation to specific subject levels. These profiles can be maintained by subject librarians and integrated into local web sites as part of a broader subject guide. In this way, even though the visible Buddy service may not have a presence, the Buddy programmes will continue to provide the customisation necessary to support the Library's information literacy programme.

Buddy is a truly responsive set of programs, designed and built using standard Perl scripting, cgi's and basic web authoring codes. Developed to meet an immediate need, Buddy has done so whilst at the same time providing an effective tool for mapping the subject knowledge of our expert information staff, allowing authorised users to access licensed resources 24 hours and 7 days a week anywhere on the web. Buddy has also enabled the creation of a sustainable, fast track cataloguing process that will continue to use the Buddy programs to supplement the delivery of all our resources via the main Catalogue. It will continue to be used to authenticate Web
OPAC users for our licensed products, and perhaps most importantly, it will allow for customised subject listings of all our resources to be maintained in a sustainable way by frontline information staff who are involved daily in the intensely human activity of information transfer.

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The Digital Dialectic: New Essays on New Media contributes to contemporary debates circulating around the social and pedagogical impacts of new technologies on teaching and learning. It is distinguished from scores of theoretical discourses by intersecting theory with references to practising multimedia artists and their work. The art might be said to temper the theory and vice-versa. The combination offers some useful insights to some increasingly complex debates - including the flood of information now available about new technologies. Thus, the collection lives up to its title, offering logical and practical insertions to theoretical claims about the shifting paradigms of information transfer.

The collection stresses the 'newness' of the field while acknowledging that definitions and descriptions about 'new technologies' are themselves problematic. The editor, Peter Lunenfeld argues "In the end, the phrase 'new media' turns out to be yet another placeholder, this time for whatever we eventually agree to name these cultural productions." (xvi) Thus the use of the term 'the digital dialectic' refers to ambitious attempts by the contributors at "thinking or acting through . . . the thesis and the antithesis to reach a synthesis." (xvii)

Those of us working in hypertext have become wary of 'hype'. The suspicious may regard this collection as yet another example of the rush by academics to stake their claim upon the fertile landscapes of new media theories. But this collection can be read with confidence and enjoyment by neophyte and technocrat alike. It offers students, in particular, a useful set of celebrations and disputations about the claims for new technologies around which they may care to frame their own contributions to this ever widening 'dialectic'.

While the collection of essays was selected from a 1995 conference held at Art Center College of Design in Pasadena, California, the content is up-to-date. Lunenfeld demonstrates this effectively by offering a helpful reading list of recommended texts in what he terms 'new media theory'. Again, this is particularly useful for students trying to work their way around the labyrinth of theoretical materials available. Of particular interest is the essay by George P. Landow whose influential studies, Hypertext 2.0: The convergence of contemporary critical theory and technology and Hyper/Text/ Theory have become almost mandatory reading for budding new media theorists.

If I were to find one word to describe this collection I would say that it is accessible. This makes it inviting as a contemporary starting point for those intrigued by new media theories and the ways in which these theories might be evoked to 'read' multimedia/hypertext. This collection of essays will help students by offering reference points against which theoretical claims might be tested. It will also help students to read beyond the associated hype which continues to circulate around theoretical debates, clouding the issues...
which this collection makes a little clearer through its clever juxtaposition of theory and practice.

Kym McCauley

Picturesque Atlas of Australasia on CDROM Published by vG Productions (http://www.vgproductions.com), 1999. Available from E & I CDs, P O Box 247, Ashburton Vic 3147 (or email vgpro@alphalink.com.au). $49.95 on two CDs including postage and packing.

Just before writing this review I chanced to be waiting at the copy service counter in the Mitchell Library. The person in front of me was ordering a photographic print from the original hard copy of the Picturesque Atlas. Not wanting to ruin his day I nevertheless enquired if he was aware the publication had recently been issued on CD-ROM, and happily lent him the flyer to take details.

Access to the more than 800 illustrations in the Atlas for a shade under $50 is certainly a better proposition than paying $15 or $20 each for photo prints. Not only does this ‘digital facsimilie [sic]’ version open up this priceless resource to a new generation of researchers, but it also presents new graphic design possibilities.

Written by experts, the books also contained more than 800 illustrations from the work of some of Australia’s leading artists under the direction of American art editor Frederic B Schell.

Tranter commented that this assemblage of talented illustrators was significant for the development of black-and-white art, and contributed to the high standards of the early Bulletin which commenced publication in 1880. The publishers of the Atlas used photographic reproduction of the artists’ drawings onto the woodblock to allow direct engraving without destroying the original drawings.

The Atlas shows us a different Australia, as must be expected. The countryside was far more populous than today, with many country towns growing apace and industry of all kinds thriving. Progress and development are the twin themes of the Atlas’s description of the colonies whose union was still more than a decade away.

Volumes 1 and 2 of the Atlas have now been reissued on CD-ROM. It follows the original format with sections headed Preface, Early Discoverers, Australia, New Zealand, Islands of the South Pacific, Australasia: Resources and Development, and Australasia: Peoples.

The Picturesque Atlas of Australasia in its original form was a two-volume folio publication issued in 1886-1889. As Robin Tranter noted in an article in History No 54, the publication aimed to catch the mood of optimism and achievement surrounding Australia’s centennial celebrations, and consisted of an outline of the discovery, geography and development of Australia.
although the ‘find’ facility does partly overcome this problem.

Other drawbacks have also arisen in this attempt to transfer the latest technology of the 1880s to that of the 1990s. I could not find a Macintosh which could read the disk, and even a networked PC failed to operate the music files which have been added to the CD-ROM version.

Perhaps the instant-click mentality of the Internet has raised our expectations of computer packages, but this one seems unnecessarily difficult to operate even when you find a computer which can read the CD. Clicking on default.htm does not seem an obvious way to start up a programme but the packaging is devoid of instructions.

The need to change disks is also a hindrance to the modern gadfly, and equally to the reviewer attempting to sample without lengthy study of each section.

As well as the complete pages of the Atlas, each illustration is provided as a separate file, so that they can be copied, printed or used as a graphic. In theory. In fact the same networked PC failed to open the image files selected as samples.

Patience would probably overcome most of these perceived difficulties, but it may be worth enquiring (before purchase) what other software is required to enable this CD-ROM set to be fully operational.

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Information Seeking in the Online Age, Andrew Large, Lucy A. Tedd, and R.J. Hartley.

When approaching this book it is quite clear from the outset that it is aimed at undergraduate students of information and library studies. The academic presentation style is so spartan and unimaginative, that students will immediately recognise it as a required text when they next enter their favourite educational bookshop. Written by Hartley, Large and Tedd, the book follows on from their initial offering Online Searching: principals and practice, which was published in 1990 by Bowker-Saur. It is surprising that it has taken so long for the authors to catch up with the Internet, whilst in the meantime there has been a plethora of Internet related books published for mass consumer consumption.

Their first book was based on scholarly and technical bibliographic databases that were generally accessed in libraries and information centres. Therefore a major advantage for this book is that it still targets a select audience that has had to grapple with the changes that technology access has brought about over the last 10 years. For those library science professionals who recognise they need to come in from the “cold” and feel the warmth of a computer screen this book is an ideal introduction to the current state of information seeking technology and strategies. The book duly recognises the revolution that has taken place in the information industry, where the power to search or browse large information sources has been largely given to the end-user. Interestingly, the authors believe that intermediaries cannot often do a better job than the end-user they used to serve. The book makes use of the term “information
seeking” to describe the art of endeavouring to attain relevant data from information sources. They use this term in preference to browsing or searching, as people tend to actually do both or either of these whilst trying to locate what they desire. The authors recognise that they are unable to fully flesh out all of the ideas, technology and issues surrounding information seeking, but certainly cover a lot of ground in such a compact book. They instead promise to offer advice and give examples, which they do, in abundance. Is this approach their way of admitting that information seeking is more of an art than an exact science?

The Internet appears in a number of places in the book, but the authors have not allowed it to dictate the format and aim of the book. Hence no single chapter is dedicated to it. Instead, the Internet is seen as just another alternative information source and possibly a source of last resort when concerns about credibility are raised. However, third party databases have been finding their way onto the Internet over the last three years. Credible information media empires are emerging from the quagmire of information chaos that was typical of the Internet’s pioneering days.

The first few chapters look at who information seekers are and how they work, and what electronic resources are accessible them. The book then looks at language and information retrieval, before moving onto the important topic of information organisation. I found the section on metadata disappointingly brief. The Dublin Core metadata model is discussed and promoted, while very little mention is made of the alternative efforts in this area.

The chapters on searching and browsing are well worth reading, and should be made compulsory reading for any one approaching the search/browse interface of a system for the first time, especially search engines on the Internet. The authors emphasise that browsing and searching work well together and that most information systems should provide access to both these strategies. The reputation of an information system often rests on the success of the interface design. It was therefore encouraging to see the next (and largest) chapter is dedicated to role of interfaces, interface design and the technology currently employed in enabling them.

The final two chapters call for the analysis of issues surrounding information seeking and evaluation of the search process. There is an interesting section that specifically discusses the impact end-user searching will have on Library and Information Systems (LIS) staff. Quoting various studies they recognise that LIS staff need to be equipped with appropriate IT and training skills to support and educate the end-user population. They must also point the way for end-users, to quality information through a process of information source evaluation. It appears that Library and Information Systems staff will remain quite valuable in an age of information overload.

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The economics of information in the networked environment


“The economics of information in the networked environment * was originally
published by the Association of Research Libraries as conference proceedings in 1996.

Since 1996 the Internet has undergone change of such dramatic dimensions I doubt that any of us could have foreseen what was to come. Funding the knowledge infrastructure has and will always continue to be a headache for all of us be it at any level of the library world.

This conference was targeted at academic and research university libraries and the challenges facing these American Libraries with the enormous changes in delivery methods and increasing costs and the need for economic rationalism. It explored the role higher education can play in the public policy debates on the economics of information access and delivery.

The Keynote address “Costs and benefits of investments in technology: How can technology serve the public interest?” focussed on several issues including change where as it was described ‘every day on the sideline is one more day of obsolescence.’

Hal Varian’s ‘the economics of the Internet and Academia’ provides a useful historical review of the development of the Internet. What was disappointing with this paper was a reference to a web site that I was unable to find on the Internet, apparently no longer in existence. It would have been of value for the publishers to verify that the URL was still in existence. His paper then looks at several issues that in 1996 were of concerns to the academic community as the Internet became privatised and the proliferation of standards in audio and visual services and applications began to multiply.

Hiram L Davis’ provides an interesting background on initiatives by the Library of Congress in creating a national digital library and how this project was funded. Other papers cover issues including measuring the costs and benefits of learning. The need for collaboration to build a knowledge infrastructure and the economics of university investments in information resources.

Heavily American in emphasis the publication may have some value to the Australian Library community for its “looking back value”. Significant change has occurred with the Internet and technology since this conference was held in 1996 which may have dated much of what is in this publication.

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HIV/AIDS Internet Information sources and resources is the second monograph, to come from the Healthcare on the Internet journal series, the other focusing on cancer resources on the Internet. This resource is simultaneously published as Healthcare on the Internet Vol.2 no.2/3. The content of the two publications is identical with the monograph adding an index to what is essentially a collection of journal articles on accessing the AIDS /HIV resources on the Internet.

This resource provides more than just a list of AIDS/HIV Internet sites. It attempts to provide a brief commentary on the changing
issues associated with this disease and why the resources now available, predominantly on the Internet, reflect this change. General AIDS information sites, discussion groups, service directories, government sites, alternative medicine, AIDS drug sites and other related disease sites such as cancer are reviewed. Evaluations of specific sites as well as general subject areas information concerns are provided.

The collection of articles published in this monograph successfully reflect the breadth and depth of information on AIDS and HIV which is available on the Internet. The deliberate inclusion of articles which review a range of broadly focussed AIDS/HIV Internet sites as well as those which focus on information particular to a specific target groups such as children, adolescents, women or ethnic groups provide a well balanced, non-discriminating resource for those in search of United States based information. It is this attempt to encompass issues for specific target groups which perhaps limits the use of this resource from an Australian perspective. Differences between the United States and Australia in major risk groups, epidemiological considerations, treatment programs and research initiatives means that the more targeted and local sites reviewed are less useful although probably not less interesting to Australian communities.

Overall this resource provides clear direction on the use of the World Wide Web for both providing and accessing AIDS/HIV related information. HIV/AIDS Internet Information sources and resources would be a worthwhile addition to the collection of any researcher, carer, sufferer, physician, health library, counsellor or support group involved or interested in AIDS/HIV in any way.

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I was once a reference librarian in a large metropolitan public library. Access and use are what public lending libraries are all about. All the books, pamphlets, spoken word cassettes and other material we had were there to be used, usually in the person’s own home. People were so used to this that they could become upset when they found that reference books had to be consulted on the premises. Now that I am an archivist I sometimes have to explain to readers that not only must they view everything in the building, there are some items which, for a variety of reasons, may not be available to them.

This book deals with some of the real differences between libraries and archives which have an impact on reference services. The fourteen articles were simultaneously published in The Reference Librarian no. 56 1997. The authors discuss some of the classic issues in archival reference work including providing public access while protecting the privacy of individuals, ensuring the security and preservation of irreplaceable documents, and providing services which meet the different needs of researchers and record creators.
In his state of the art review James Cross provides an excellent overview of current writing in the archival reference field, a good bibliography and a discussion of the way in which archival reference may develop in the future. Cross discusses the differences in approach of American (he means US) archivists who tend towards the library model of viewing use by researchers as the paramount reason for keeping archives, comparing this with the Canadian view that archives have other equally important functions including use by the agencies which created the records.

One of the challenges of our era is the question of what to do with electronic records. There are two articles on this issue which complement each other. It is no surprise to see that one is written by an Australian. Australian archivists have been influential in international archival thinking through the development of the series system of archival control and are now making their mark in the field of electronic recordkeeping. Greg O’Shea, of National Archives of Australia, provides a refreshingly well written, clear explanation of the challenges posed by electronic records. Greg’s paper is followed by an article by Theodore Hull of the Center for Electronic Records in Maryland. These two archivists are from national archives bodies which have made different decisions about whether to collect records in a central place or leave them with the government agency which created them (the ‘custody’ debate in archival terminology). Decisions made about these issues have important consequences for access by researchers.

The Internet revolution is the main focus of a case study of the New York State Archives and Records Administration and is discussed briefly in several articles. What is immediately apparent is that the web world has moved so fast since 1997 that some of the more specific information is already out of date. We have witnessed these rapid changes with the State Library of NSW PICMAN (pictures and manuscripts) database which has now grown to hold 10,000 records for manuscript and pictorial collections and over 300,000 digital images and is one of the Library’s most visited web sites and generates a large number of reference requests.

The book is of interest to practising archivists, although many of the issues have been well canvassed in archival journals. The article by Fredric Miller would be particularly valuable to a library manager with an archival section among his or her responsibilities or for a reference librarian trying to understand some of the issues which relate especially to archives. In compilations such as this there are some articles which are weak or of lesser interest. I hope the LASIE editor appreciates that I soldiered on through an article about marketing which I thought had far too much missionary zeal and I was forced to break my rule about not reading anything with the word ‘paradigm’ in the title.

What the book does best is to provide an overview of policies, trends and attitudes in institutions responsible for archives which impact on the archivist and the researcher. These underlying issues substantially define what the reference archivist can say when a researcher inevitably asks may I see it, borrow it, copy it, quote it, download it, reproduce it?

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NEWS

JEAN ARNOT MEMORIAL FELLOWSHIP WINNER 1999

JUDITH HURST

The 1999 Jean Arnot Memorial Fellowship and a cheque for $1,000 was presented to Ms Judith Hurst at the annual Jean Arnot Luncheon held at New South Wales Parliament House in Sydney on 16 April 1999, by Mrs Jacqueline Samuels, wife of the Governor of New South Wales, and Alan Ventress, Mitchell Librarian, State Library of New South Wales for her paper “A Journey as a Teacher-Librarian through the Nineteen Nineties”.

The Fellowship is named in honour of the late Jean Fleming Arnot MBE, FLAA, a former staff member of the State Library of New South Wales, who retired as head cataloguer in 1968 after a distinguished career spanning 47 years. Miss Arnot was active in women’s organisations and a pioneer in the campaign for equal pay. The Jean Arnot Memorial Fellowship is funded by a generous donation from the National Council of Women of New South Wales and the Australian Federation of Business and Professional Women’s Associations as a memorial to Miss Arnot and her achievements.

From left, Alan Ventress, Judith Hurst and Mrs Jacqueline Samuels at the award presentation.
THE LASIE ADVISORY BOARD

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