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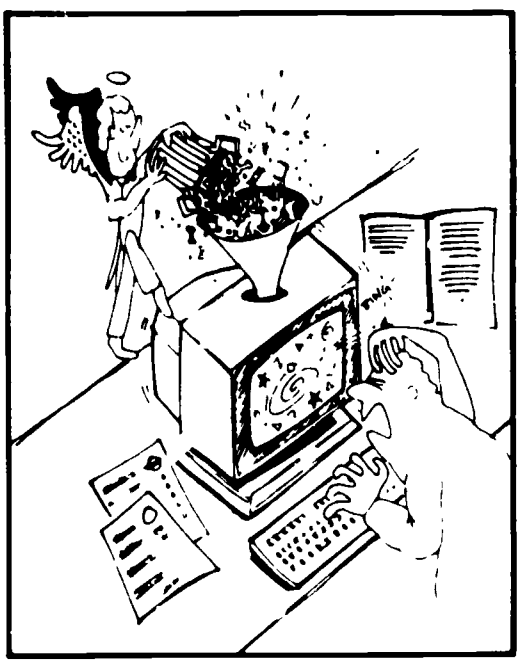
ABSTRACT

The 17 papers in this collection address aspects of quality data and quality of service to clients and the links between the two. Two keynote addresses are included: "A Plea for Quality Cataloguing with a Consideration of the Audience for Our Product" and "Rare Book Cataloging with the Audience Again Considered" (both by J. B. Thomas III). The remaining papers are: (1) "Towards the Extended Catalogue: Views from a User-Oriented Employer" (E. Wainwright); (2) "Quality versus Quantity: Cataloguing Standards in Times of Economic Constraint" (H. Hoffmann); (3) "The Use of ABN Cataloguing Data in the Supersearch Retrieval Subsystem" (L. Groom); (4) "New Opportunities with Local Systems" (J. Churches and E. Richardson); (5) "An Analysis of User Failure in Subject Searching an Online Catalog" (B. Barrett and M. Maticka); (6) "Quality In, Quality Out...It Is Possible" (H. Thurlow); (7) "Retrospective Conversion of Rare Book Records at the National Library of Australia" (P. Haddad and E. Jovanovic); (8) "Retrospective Conversion: Garbage In--Gold Out" (R. Hancock); (9) "Library Collections, Conversions, and the Whole **** Thing" (M. Nicholas); (10) "Planning for Retrospective Conversion" (G. Villaume); (11) "Retrospective Conversion: Options and Guidelines" (M. Nicholas); (12) "Retrospective Conversion: Is It a Con Job?" (P. Haddad); (13) "Designing Information Retrieval Systems with the Client in Mind" (L. Allen); (14) "Faster Than a Speeding Bullet: Cataloging in the Age of Computers" (C. Schauder); and (15) "Garbage Out? The Quality of Library School Graduates" (C. Richardson and M. Exon). The program of the conference is provided, and a list of conference participants is appended. (GL)

Australian Library
and Information Association

8th National Cataloguing Conference
GARBAGE IN - GARBAGE OUT
The need for quality in the age of automation



14 - 16 September 1989
Hotel Adelaide
North Adelaide, South Australia

CONFERENCE PAPERS

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GARBAGE IN — GARBAGE OUT

The need for quality in the age of automation

Conference Papers

Editors: Alan and Judith Bundy

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With the 8th National Cataloguing Conference held in the early weeks of the commercial air pilots' dispute, there were almost as many answers to the question "How did you get here?" as there were delegates. The Conference Committee appreciated the efforts made by so many to attend. I am sure that the travel stories will be told for some time.

The Conference considered many aspects of quality data and quality of service to clients, and the links between the two. There was discussion on the need for accuracy of data in catalogue records; of the need for uniformity and standards in the production of this data; on the standards thus established, and of the definition of quality of entire databases. There were examples of 'quick and easy' solutions. Also discussed in a number of papers was the level of data in records particularly in databases derived from retrospective conversions.
The last session dealing with education in librarianship, challenged practitioners to define what they expect of their educational institutions.

In addition to being encouraged to strive for accuracy and quality, delegates were further urged to become involved in their local or national professional bodies, to let themselves be heard and to take on work for various task forces.

The Conference set a new style in cataloguing conferences in being more widely publicised nationally, in gaining the assistance of professional conference consultants, of distributing the draft papers to delegates on registration, and of publishing the complete set of papers following the Conference.

On behalf of the Conference Committee, I wish to thank *Elizabeth Eaton* and *Jenny Davies* of Festival City Conventions for their efforts and untiring support over many months. I wish also to thank *Alan Bundy* for his generosity in distributing the Conference Programme and registration details to every library in Australia. My thanks also to Alan for his help in preparing the draft papers and supplying these to the Conference, and for the publication of these Proceedings.
I wish to thank the speakers who put so much effort into the preparation of their papers.

Lastly, I wish to heartily thank the Conference Committee for their many efforts that made the Conference possible.

Philip Keane
Conference Convener

8th National Cataloguing Conference Committee. Left to right: Lee Brauer, Secretary, Merlene Ralph, Treasurer, Philip Keane, President, Adele Green, John B. Thomas III, keynote speaker, Margareta Nicholas, Jay Douglas, Robyn Walden and Sandy Gray

8th National Cataloguing Conference.
Left to right, John B Thomas III, Rare Book Librarian, Humanities Research Center, University of Texas at Austin *(Keynote speaker)* Dr Warwick Cathro, National President of the ALIA Cataloguers' Section, and Philip Keane, President of the SA Group

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8th National Cataloguing Conference

Adelaide, South Australia ✻14-16 September 1989

"Garbage in, garbage out : the need for quality in the age of automation"

PROGRAM

Thursday, 14 September

7.00 pm - 9.00 pm Welcome and registration - Foyer, Hotel Adelaide

Friday, 15 September

8.00 -	9.15	Registration
9.15 -	9.30	Welcome and opening remarks
9.30 -	10.30	Keynote address: **John B. Thomas, III, University of Texas at Austin**
10.30 -	11.00	Morning tea
11.00 -	12.30	Papers: **Eric Wainwright (NLA)** **Helen Hoffmann (La Trobe)**
12.30 -	2.00	Lunch - Hotel Adelaide
2.00 -	2.45	Paper: **Linda Groom (NLA)**
2.45 -	3.15	Afternoon tea
3.15 -	4.45	Papers: **Elizabeth Richardson/Judy Churches (ANU), Beverley Barrett/Margaret Maticka (UNE), Helen Thurlow (QSL)**
5.00 -	5.45	Annual General Meeting -- National Cataloguers' Section
7.00		Buses depart to Middlebrook Winery
8.00 -	11.00	Conference Dinner : Middlebrook Winery, McLaren Vale.

Saturday, 16 September

7.00 -	8.00	Early morning North Adelaide walk
8.30 -	9.15	Registration
9.15 -	10.30	Keynote address: **John B. Thomas, III, University of Texas at Austin**
10.30 -	11.00	Morning tea
11.00 -	12.30	Panel: Retrospective conversions **Peter Haddad (NLA) , Roy Hancock (AMARC), Margareta Nicholas (SACAE), Gayle Villaume (SAZTEC).**
12.30 -	1.30	Lunch - Hotel Adelaide
1.30 -	2.30	Paper: **Lynn Allen (SLSWA)**
2.30 -	3.00	Afternoon tea
3.00 -	4.15	Papers: **Cherryl Schauder (RMIT), Maggie Exon/Christine Richardson (Curtin)**
4.15 -	4.30	Closing remarks and farewell.
Evening		Warrawong Sanctuary tour

A PLEA FOR QUALITY CATALOGUING WITH A CONSIDERATION OF THE AUDIENCE FOR OUR PRODUCT

John B Thomas III *University of Texas at Austin*

Abstract *An examination of issues involved in the governance by good standards of cataloguing, and in meeting the needs of the audience for the product. Cataloguers are encouraged to participate in the creation of standards, and to consider not only who is the audience for the product, but also who is not*

GIVEN OUR theme — *Garbage in, garbage out* -- I thought of developing an extended simile of cataloguing as sanitary engineering, or waste disposal, or trash management and using the simile as part of this paper's title. But since my last paper (in *Library trends* two years ago) was found by Philip Keane and his colleagues through a sophisticated keyword search of titles, and that led to my being invited to speak to you this morning, I was apprehensive about the nature of the next conference I might be asked to address. So I will keep it simple, and plain. I am going to talk about cataloguing; about the need for its quality, by which I mean, in my comments, its governance by good standards; and finally about the audience for our product, that product being the catalogue record.

Two limits should be mentioned immediately. Firstly, although I will be talking specifically about book cataloguing, I mean this in its generic sense. The principles, I hope, are the same for processing any materials. Secondly, while I will be talking primarily about work done in research and academic libraries, I hope that many of the things that I have to say will apply as well to public libraries and even to school libraries.

Creating a package

In any type of library, cataloguing is creating a package. The package consists of two parts: a description, and the access to the description. The two put together make the package. The description identifies the object; usually in book cataloguing this includes a transcription of the title page or some relevant parts of it (the imprint in some form is always included). To that is added a collation, and since I am sometimes old fashioned, I will talk about such things as collations, instead of 'extents of item'. The collation can vary from the barest mention of extent to a complete accounting. To all of the above are added notes, which of course can vary a great deal, depending on the age, type, and complexity of the material with which you are dealing, and also the latitude allowed to the cataloguer and his experience. When you put these elements together — the transcription, the collation, and the notes — you get the description. The reason why we create it is so that people will know what we have — what object we have. However, keep in mind that the record can either serve as a gateway to the item, or, as happens more and more in computerised cataloguing, can be used in lieu of the item. This last point gets into a consideration of the audience which will be developed later.

Access points

To this description are added access points, which enable people to find the description, or, going all the way back to Cutter's principles of the last century, the class to which the book described belongs. Common types of access are by names of people or entities associated with the work or its manifestation. In the case of the work this would include authors, editors, translators, illustrators, and, in rare books, dedicatees. For manifestations (editions, printings, transference to other media etc) we have such things as printers, publishers or book designers of particular editions. And we can even get copy-specific: a person or corporate body associated with the book such as a binder, an extra-illustrator or its former owner. Other types of access would be by topical subject or form of the work (novels, travel books, Indian captivity narratives). Yet another type of access would be by classification, which reveals not only the book's location, but also, frequently, its subject. We also can get to the description through citations: for example, in rare books, citations to the first *Short-title catalogue*, its continuation, Wing, or Foxon's bibliography of early eighteenth verse. Finally, we have many miscellaneous access points: by date, country of publication, or language, for example.

This then is the package: description plus supplied access. I am rather low-tech, but I did bring two visual aids. Here is the first: a week's work of cataloguing slips from the University of Texas — these are the little packages I have just described — description plus access — before they are presented to the campus and the world.

Presentation

You see, the package means nothing without presentation (and we encounter very confusing presentation nowadays, especially with shared databases) because the presentation is where you actually put the package together with other ones, and make all accessible; and once accessible the public comes in, and the audience peers at us once again. So I will go on to the next step, the presentation, in which we integrate descriptions with others, according to one or more orders that we librarians impose by the assignment of access points. Which is to say that the integration is made possible by the access points that we supply. The presentation historically has been, and still is, quite important inhouse. At one time that was all you had to worry about.

The presentation would consist of a series of files of access points, each file arranged according to its own logic, usually by alphabets and subalphabets, or sometimes in other ways, such as by date. Something I think you will all be familiar with (it has quite a long history) is a union list, which is frequently a next step after the inhouse presentation of the package. With such a list, with more than one institution contributing, some of the access points we have been providing inhouse may not be used — certainly it is usually a less full presentation than that afforded inhouse. Often there is only one way of arranging a union list, which is by author or main entry (union lists are usually constructed to allow you to find the object, not the class). In any case, the arrangement is determined by the institution or person who maintains the union lists. Databases can be seen as an extension of such lists, and they, too, may only use some of the access points that we have furnished. They may, and will, require others that we have not been providing inhouse, and the way in which you can see and retrieve the descriptions may coincide only slightly with whatever inhouse principles you have. So we are creating records meant for two or three different presentation levels, and the presentation will not be the same. So what do we have? We have the package, and then we have the presentation; and without a presentation — here is my second and last visual aid, card sets that were produced from the work slips I showed you — with no presentation we have that (*noise of cards falling to the floor)* which is just a series of descriptions and access points.

From what I have said up to this point, I hope that you can see that there are various ways of describing something, various tags or access points that can be attached, and various ways of presenting the resulting package. We, as cataloguers, must choose which of these various approaches to take, and then do so consistently. Collocation, the bringing together of like material, depends on uniformity of access. We have always tried to do this inhouse: problems began to appear when we attempted the integration of records involving multiple institutions with multiple needs (happens with a union list). To achieve this integration, and to make sure that the descriptions are understandable, compatible and findable, we have standards — a uniform way of doing something.

Standards

Standards guarantee that the description is clear and understandable and that the descriptions will be able to be brought together in one of more meaningful ways. Given that standards may help us to locate and identify records, and thus usually objects, more easily, and to share records with others, what do have in the way of standards?

In description, the first thing I mentioned, we have a number, but before I get to these, I would like to offer a few personal caveats about standardising description. First I do not think we will ever be able to standardise descriptions unless the objects we are describing are also standardised. An example of such standardisation of the object is the ISBN, which is simply transcribed from the book as part of the description. It is the only thing I am aware of in descriptive cataloguing that is completely standardised. Second, I admit a bias: I am a firm believer that cataloguing is an art and not a science. I think that if you train cataloguers, no matter what standards you use, no matter what descriptive rules you use, and then hand them the same object and ask each to come

up with a description, the descriptions are not going to be exactly the same. A little personal style can be good. I know some of you may disagree with that vehemently — I certainly know people who do — but that is my bias.

That aside, what standards do we have? For description we have International Standard Bibliographic Description (ISBD) and its various offshoots: ISBD-A (for Alt, Antiquarian, Ancien), for example, which is for older books, and other offshoots for serials, for nonbook media etc. Then, of course, we have our old friend AACR2, and quite recently AACR2 1/2, as we have been calling it. We have other descriptive rules that are in wide use, many of them for special materials. AACR2 prescribes levels of cataloguing — as I recall three. For that matter there are levels of AACR2: there is a concise version, and Michael Gorman's concise concise AACR2, issued as a bookmark. This last has all of the main points of the larger work except — Gorman too has his bias — any reference to the concept of main entry.

We have quite a few more instructions, or standards, for formulating and using access points. The general guide is AACR2 again: things it says to do, and how to do them, and some guidance in what not to do. Other standards are frequently limited to some types of the access points I mentioned earlier, and I will now give examples for each type (there are many other examples). For people or entities, we have national authority files such as Library of Congress name authority file or LCNAF. These national authority files are frequently mounted on major, especially national, utilities, such as your ABN, or our RLIN or OCLC. For genre terms, or forms of books, we have a publication called *Genre terms* which I will discuss in my next paper. (Although specifically designed for rare books, it can be used for other materials.) We also, unfortunately, have many genre terms in the Library of Congress subject heading list. They are completely intermixed with topical terms and sometimes a single term can be used either way. For topical subjects, we have PRECIS (Preserved Context Indexing System) which many British libraries use (it was developed at the BND with automation very much in mind) and the Library of Congress subject headings, which I have just mentioned. For smaller libraries, we have Sears; and there are other topical lists for specialised libraries (for example, there is a list of Catholic subjects prepared by the Catholic Library Association of America). For classification we have UDC (Universal Decimal Classification), Dewey, LC, Bliss, and even Cutter's expansive classification scheme. For citations to bibliographies, we have the bibliographies themselves, with their numbering or lettering schemes, and to control their method of citation *Standard citation forms*, which lists frequently cited bibliographies. A book's place of publication, language, and date of publication are recorded by means of codes or elements in the fixed field of MARC format. These standardised codes or elements can then be retrieved.

Thus description and access so far. What standards do we have for presentation? Inhouse we really have none. If you are presenting the package inhouse, the method is up to you, your department or institution, and you usually do it in anticipation of what you perceive to be the demand. In other words, the presentation you think will be useful governs the access you provide. Of course, there are also things such as financial constraints that keep us from doing some things we would like to, but essentially the things we do are what we think might be wanted. After having mentioned union lists in a couple of contexts up to now, they are going to disappear from further reference on my part — they are, I believe, going away, except in databases, and that is a special case. So I will not mention standards in presentation of union lists.

Standards for databases

Within databases we have MARC. If we did not have MARC, the records that we create would be just like the cards I dropped. MARC is a structure, it is a guide for the computer to the record's constituent parts; in other words a framework. In presentation, we also have standards or instructions for when to prepare a new record in a database formed of master records with holdings attached. The fact that all such databases have many duplicates reinforces my observations: first on the problem of unclear identity, second on the importance of access as a means of collocation, and third on cataloguing as an art. I saw some duplicate records yesterday in ABN. In fact I was shown them quite specifically to show that they exist here as well, so I felt right at home — OCLC has thousands. Another standard in many databases is that which

prescribes one or more minimal levels of cataloguing. Unfortunately, these levels usually do not coincide with any of the levels of cataloguing in rules such as AACR2. Finally, as a type of standard for presentation in databases, we have retroconversion standards, and I have a feeling in this case that such standards have political ramifications; all databases like to enrich themselves, and I think that many of them are quite open to substandard cataloguing of all sorts, if the result is a larger and more varied pool of records. There is a lot to trash in shared databases because of this.

I would like to amplify my comments on the purpose of standards within a database. There are two primary purposes: one is to facilitate the exchange of cataloguing data of all kinds, and the second is to ensure a uniform posting to a master record. You can neither exchange cataloguing data, nor can you post, if you cannot find the record; so access points are best standardised. And you may not be able to recognise the record you do find, unless its identification is clear to you. For that reason we need standards for description. Keep in mind that the way in which cataloguing data is shared may not be obvious in an online system. Although the description is only shared for an item, or a manifestation of an item, the authority work, for example, may apply to the work, and possibly to many others. In preparing this paper, I spent some time doing research on the archives and manuscripts format. I found that some writers on the subject, and a number of people I spoke to, were of the opinion that records in this format had little or no place in a database, since such records describe unique items — so why bother with it — it is not shared cataloguing. But as a matter of fact, if you create one authority record (or, in a lot of cases, do substantial authority work) to accompany some manuscript description, this could not only be used by other people having different manuscripts, but other people having books or other material. So the authority work can be quite useful, even if the item that you describe is unique.

Another point I want to make is that the quality of records in a database will not only help you find and identify them, but will affect many other things with which cataloguers and other librarians have to do. For example, interlibrary loan: if you do not have the book, and you cannot find it because of poor standards, then interlibrary loan ceases to work effectively. Also, preservation work demands standards within a database, so that you can find and identify the same or similar objects. You may not want to spend as much money on preservation for items or a collection if you are aware that there are many other copies or similar collections elsewhere. But if you find that what you have is unique or extremely rare, you might put more work into conservation, and one way to find out how rare your item or collection is, is to consult databases and find records. Finding and identifying records is also very useful, as I am sure you know from the RLIN prospectus that you are going through now, in collection development. This is one way of knowing what other people have, by author, subject, classification, or other criteria. So I am not just talking about cataloguing here.

The consequences of lack of standards

What happens when standards are not present, or are inadequate, or are incompatible? Let me give a few examples. The first is a case of unclear identity. We have cataloguing rules that ask for numbers of leaves or pages or plates; we have other ones that do not. We have ones that do not ask you to specify plates in the collation at all.

Especially if you are cataloguing older materials, you cannot be sure if the same object is being described if we have different rules for this part of the description. A second example (again of unclear identity) would involve order information. AACR2 says to give the first named place of publication, and then your country's place of publication following that. So, for example, you have an American record in ABN, and it gives 'London. New York'. You may not be aware that it is also published in Sydney, because in America we would not transcribe that part. So cataloguing rules can affect order information.

I could give numerous examples of how unclear (to the user) access points added to descriptions impede finding records. My first example is one of incompatible access involving uniform titles; again, this seems to be a special problem with other books. We have many useful bibliographies of incunabula that use such titles, but modern library cataloguing largely eschews them; so you can have a great deal of trouble finding records for incunabula, because you do not know if its title

has been taken from the title page or some uniform title or what (and if you are working from a bibliography you may have no idea what the title page title is). Another example involves the British Library catalogue, which though entertainingly informative to the adept, can be terribly confusing to the novice. 'Smith, John, rector of Maldon' is just buried among many other John Smiths. They use their own rules for headings, so far as I know, and I am not sure how we can be expected to know them. I certainly do not. If they have ever been written up, I have never found them. They are unique to that catalogue and thus not very helpful to the cataloguer searching in many sources. But I am not here to carp at the British and so I will furnish a good American example of unclear access points: Pre-56 NUC, the *National Union Catalog of Pre-1956 Imprints* — I hope some of you have that massive compilation. The form of entry there is based on the 1949 ALA rules for choice and form of entry. Since I have been working in libraries long enough to have catalogued using those, I remember their main points, but a lot of people new to the field have no idea what they are, and searching for bibliographic information in Pre-1956 NUC must be very aggravating to them. Explaining the philosophy f - the arrangement of Pre-1956 NUC takes a while, and of course the searcher must shift gears when going from there to the British Library catalogue if further information is sought in the latter source. In the case of NUC, I am sure that many of you used to today's cataloguing have noticed just one example of unclear access points: a distinction was made in the 1949 rules, and before that, between institutions and societies. Institutions were put under place, and societies were put under their own name. Who would know the distinction nowadays, even within the cataloguing department? The casual user must be quite at sea. So you have 'Paris. Opera', and you just have to know that, but it certainly can be an impediment to finding information. Pre-56 NUC is very generous with specific cross references, but not generic, nor could we ask it to be. And I do not want to be critical of Pre-56 NUC either: I think it is as a fine a tool as the British Library catalogue, in spite of many, many things you must know before you use it well. I think everything that they have done, considering the age of the records that they were working with, is understandable. It is governed by standards not now used, but we must be aware of them to use this source.

Creating standards

This concludes my brief survey of the cataloguing standards we do or do not have, and the ways they can help or hinder us. Let me turn to something that might, and I hope will, involve you more immediately. I would like to talk about how such standards, such as bibliographic description, access points, record construction, are created, and what you can do it if you are interested. And by the way it is interesting work — I have participated, and it *is* very rewarding.

Standards are created inhouse in the way I have already mentioned, after a perception of what the audience is, and what it might want. This step of standards creation is gradually disappearing because it is either hard or impossible to import, and very labour intensive.

Although few people outside of your institution will be interested in precisely the sort of access you want to give to materials, and we all can benefit from a group approach to questions such as access, some still prefer the home-grown variety. I was reading a very interesting recent article on the plane about a lady whom I will not name, from an unnamed (by me) part of Africa. She had written a lengthy article about the fact that the faculty in her university wanted form access to materials on English language and literature — in other words they wanted the travel books, sermons, histories, diaries etc identified. After what I considered to be a rather cursory examination of indexing services she decided that no one had written or done anything about what she wanted, and so she started *ab ovo*, and created her own thesaurus. Well, having worked on a thesaurus of genre terms for literary materials, which was published in 1982, I was sorry she missed it. I mean the work had been done. As a matter of fact, all the examples she gave in her paper were in the thesaurus that I had worked on. Significantly, not the same terms: hers were different, which means hers will not mesh with the ones in the thesaurus I helped prepared. But she started from the beginning, and you see a lot of that.

Another way that standards are created is by national or international bodies. One of the latter, IFLA, is responsible for the creation end revision of the various ISBDs. It works actively with national groups on this process. MARC, the structure I mentioned earlier, was created by a national body, the Library of Congress, but its adaption and revision is largely carried out in

countries where it has found a home. At present, the most active standards-creating bodies at this level are to be found in library associations and subgroups such as this. If you are interested in participation, do it at this level.

Sometimes standards are created by databases, and sometimes, the results are quite unfortunate because the standards are incompatible with those created by other databases or at other levels. You seem to have avoided this problem in Australia, but in the United States our various databases have grown, in spite of using records adhering to the same standard, MARC, farther and farther apart over the years, so that any two databases are not linked at all. You cannot get on to OCLC and look at RLIN records, or vice versa. Nor once in either database can you see records in the Western Library Network, UTLAS, or other utilities used in the country. What we have done after the fact, at a tremendous cost of money, person-hours and confusion, is come up with something called the Linked Systems Project (developed at the Library of Congress) to enable each database to transmit its information on cataloguing, on name authority, on subject authority, whatever, to the Library of Congress. That overworked body then functions much like UNIMARC does within the MARC system, and retranslates it back into something that can be used by another bibliographic utility. It is too bad that we have come to this, and I hope that it can be prevented in other countries. The Linked Systems Project has been talked about for at least nine years, and is still not operational. It is hoped that it will be soon.

Participating in standards creation

How exactly do you participate in standards-making, especially at the level of library associations and groups within library associations? I would like to offer a real-life experience in letting yourself be heard at this level: my own. I was for four years a member, and for four years chairman of the Standards Committee of the Rare Books Manuscripts Section of the American Library Association — and I will talk about this group in my second paper because it concerns itself with rare book issues. I became interested in it, and I let my interest be known to the chairman at that time, and was appointed to the Committee, and was eager to work on a lot of things they were developing. And as a matter of fact, right at the beginning, because I was 'the new dog on the block', I volunteered for those that people obviously did not want to work on. I found out an awful lot about such topics as bindings; a lot more than I ever wanted to know. But I noticed that as I became more familiar with the workings of the Committee, which can be very confusing to a newcomer, people always were asking me, especially after I became chairman, how do I become involved? And they were almost afraid that they did not have anything to offer. Most committees very much welcome your help, and the way you can become involved is this: if something is going on that you are interested in, just be there. If it is a committee meeting, it is usually going to be open to the public. If you are in the audience, if you raise your hand and ask a question — if the committee functions in the way, which I would hope it would — your question becomes valued if it sheds some light on a committee project. If you are there, if you participated in discussions, if you have something to say that is of interest, if you have an expertise in any area that is being talked about, or think that you can develop some expertise, if you have some energy and enthusiasm, your work will probably be welcomed. This is true of your participation on all levels. But it is especially valuable for you to do this on the level of library associations and subgroups, so I would suggest to those of you who are interested that you participate this way, and start by simply attending meetings.

There are also many committees that correspond between meeting times (some international groups meet only once every two years, for example). Some of their ballots, discussion papers, drafts, go out by mail, and are considered or acted on by mail between meetings: this is to save time at the actual meetings. Some of these committees maintain mailing lists, and a number of them are open to putting you on such lists, even though you are not a member of the committee. They will send you correspondence (or some of it) that members receive. That way you can write back if you notice, in the correspondence, that some difficulty has arisen, or that they cannot find someone to work on something — you can write saying — 'I'd love to work on this, I know something about it.' Even if you do not know as much as you think you should, perhaps you can read up on it quickly and be helpful.

I have presented a rather rosy picture up to this point. Is everything going as it should be? I think you know the answer: not at all. I hope that I am not the Cassandra of cataloguing and that you will believe me when I say that there is too much in all that we do that is unquestioned as to purpose, including, at this time, too much replication of the card catalogue.

Replication

I would like to take up the least important thing first: replication. This is an almost unavoidable mistake, especially for people who are converting from a manual catalogue to some other form, usually an automated one, and although the replication is understandable, it is too bad that it happens. Why so? Well, why would you even want to do it? It you want to do it you are treating your computer, or database, like a fancy typewriter and if you are going to do that, why not save yourself some money and buy a fancy typewriter — that will 'convert' it just fine. That aside, why not replicate the card catalogue? Because there are ways of searching an automated catalogue that are not possible with a card catalogue, and you must make provision for that. In order to allow for new ways of searching, you have to take a fresh look at descriptions, access points (or just allowed access), formats, and display. The nature of access itself has changed. We have now encoded, as in the fixed field; normalised, as in references; and we have the same free text data that we ever had: all of this is now searchable. That was never true in the card catalogue, so why have the same product?

Online catalogues

There is a different nature to the online catalogue, and I have seen this where I work, because our online catalogue has just come up within the last six months. It has been an amazing, and amusing, thing to see. There is a feeling with an online catalogue that the catalogue is all of ours, it belongs to everybody. There was a definite feeling with the card catalogue, and I speak as a champion of that edifice, that the card catalogue belonged to technical services or to the cataloguing department. People were afraid of it; they were intimidated by it in many cases; the filing rules were complicated; even physically, they had to go to a specific place and use it there, it could not be moved to where it was convenient for them; they usually had to stand up; frequently there was no one to ask about it; they could not change it around in any way; they had to use it as was. The online catalogue is a different thing: there is a feeling of intimacy with it to many users, they can use it their way, when they feel like it, in the place where it is convenient for them. They can construct a search that is not intimidating to them; if they get something confusing, they can just erase it and start again with another thing. It is a whole other way of doing things, and it is a very nice way of doing things. They are both fine, but where we are going now is the online catalogue.

Questioning purpose

The larger issue is unquestioned purpose. While I was preparing this speech in my apartment in Austin, Texas, I was looking around my room and there were many books (I am a book collector, as well as a librarian). I began to think of myself as a user in the context of my own book collections with no intervening library or technical services. I was the selector of books, I am the arranger of the books, I am the audience for my arrangement, and for the books as positioned. My arrangement is done with clear understanding of the needs of the audience, the audience being me. What I came up with, what is convenient for me in arranging my own collections, would be nonsense to a lot of people. But you see, here I am the selector, I am the arranger, I am the audience, I am the one who determines the needs of users; they are mine. And I wish we put more thought into that for the users of our product. It is important to keep in mind what they want, and see if we can provide it for them. Not give them what we want to, or what some set of cataloguing rules says that we can give them, but think, actually, what would be useful to them.

I also want to mention, as a second aside, my recent experience in a staff-sharing position. After years of professional activity centred on cataloguing, I asked to be associated with our research librarian with the understanding that I would help to answer questions about our collections. We receive a lot of mail, we have telephone calls, and some people just walk in: most have questions. But mail questions predominate and I started to tackle these. I have been working at that for six months now, at ten hours a week. And it has been an eye-opener. The questions that people actually ask — I realise that the sampling is poor, because I am dealing primarily with letters —

but what they actually want to know is, in almost every case, not what I provide in cataloguing, and I think that I am a fairly good cataloguer. I am going to mention two questions I answered while in this position in detail in my next paper, so I will draw this aside to a close, but believe me, if you tailored cataloguing to what people want you probably would not be cataloguing as you are now.

The audience

So think about your audience, who or what your audience is. The audience has changed with automation, it is broader and it is different. For that matter, the catalogue itself has changed. Cataloguing for cataloguers, which is often criticised in very derogatory terms, is a factor, and it must be kept in mind when sharing your cataloguing. A cataloguer using someone else's product is part of the audience too. Research has also changed with automation and thus the audience to some extent. Research has changed with the questions that can be asked. I have noticed in *Factotum*, which is the periodical put out by the ESTC project, that there are more quantitative studies (ie identifying the number of printers in a provincial town during a certain period). That article can be written now; it could not have been written twenty years ago, because the information was not there. Information of that sort could have been found, but it would have been very, very tedious. So sometimes the research has changed because of the information that can be obtained: a good researcher will to some extent gear his research to the tools available, and as the tools change, so, sometimes, does the research.

Besides a changed audience, there are also a few examples of a new audience that comes in with computerised databases. There is a hoped-for audience for political reasons, or for national or language prestige. Another article I read recently described current French contributions to OCLC. French librarians and administrators interviewed by OCLC, hoped such contributions would heighten the awareness of the availability of French materials by author searches, subject searches etc. They hoped, *inter alia*, that continuing French contributions to world culture would be recognised. This was political; it was not done primarily to enhance shared cataloguing. It is a valid reason for contributing to a database, but it is one I had never considered before. Current Australian contributions to OCLC could be considered in the same light: they demonstrate what work you are doing in various fields, what authors you are publishing, to a wider audience than that which uses your national bibliographic database. A very valid reason, but something I had not considered.

Institutional prestige

Some people appear to have institutional prestige in mind when contributing retrospective conversion records to shared databases. Do you know about our library? Our holdings? Our expert cataloguing? they seem to ask. If not, perhaps these records we have added will show you, they seem to say. We have a very large collection of older Catholic books at the University of Texas, and I discovered in cataloguing them that many records for them had been contributed to OCLC by Emory University in Atlanta. I had heard little of the institution, but their cataloguing was so good and so useful (it had everything *I* was looking for), that I now think that Emory must be one of the finest libraries in the country. I would actually like to visit. Again: we have two collections of Aldines (books produced by Aldus Manutius or his family) at the University of Texas. We put records for these into OCLC, quite good records. I soon heard from a librarian at the University of California at Los Angeles who had found our records and said how wonderful they were and that they did not know we had Aldines. These are just two examples out of many that I could give.

Who is not the audience

You have to consider not only who is the audience, but also who is not the audience for your product. An example: we are aware at the University of Texas that all of our rare book records for Pope or Defoe are in with records for books by the same authors in our general circulating library in our local online catalogue. Records for the circulating copies may only represent 15-20 modern titles. Records for our huge collection of Defoe original editions just swallow up the records for the few that someone would like to check out — they cannot check out any of the rare books, of course. We are doing a disservice to people, we are impeding an audience that we have imperfectly identified. We have messed things up, because we have not thought who might or

might not be using the records. Users should have a suppression button which says 'I do not want to look at rare book records', and they do not. We have not even been thinking about that.

The critical questions

So always try to consider these questions: who out there would like whatever information you have? what would they like? how are they likely to try to find it? and how are they going to use it? Try to investigate what is truly wanted by all of your various audiences, and then try to provide that so far as you can. I again encourage you to 'plug into' the creation of the standards process that I have mentioned, if this is something you would like to do. Help is needed. Please think very carefully about an examination of your product and the way that you make it, and the way that you distribute it. I think that that, more than anything, is what I would like to emphasis today. *Identify the audience, and cater to it.*

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TOWARDS THE EXTENDED CATALOGUE: VIEWS FROM A USER-ORIENTED EMPLOYER

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Abstract *In an online retrieval environment the overwhelming concern with the quality of records is misplaced. The important question is the quality of the retrieval system being presented to our library users. The primary role of the cataloguer today is to interface the users with the retrieval system, not to create bibliographic data, much of which will be obtained elsewhere*

THE GENERAL THEME of this conference is the question of quality in catalogues. I must therefore address the question of what we mean by quality in a catalogue. In my view, the question of quality has generally been addressed far too narrowly - in the area of records, ie whether the records contained in a catalogue have accuracy and consistency, and how can one ensure this through various forms of control. Clearly, in a manual catalogue these matters are crucial to successful retrieval, and while in an automated system retrieval may be more possible with lower quality records (although this issue is one that the Conference will no doubt wish to debate strongly), the questions of accuracy and consistency remain significant regardless of the form of cataloguing system.

But I would argue that in an online retrieval environment, this overwhelming concern with the quality of *records* is misplaced, and that the more important question today is the quality of the *retrieval system* being presented to our library users. Why? Primarily because the record-centred view results in the major problems being seen as deriving from the catalogue — rather the problem should be looked at from the user end, and the problems associated with *use* of the catalogue. What *is* a quality system from the viewpoint of the user? To me, it is a system that delivers that information and only that information that best meets the user's need. This definition actually incorporates two concepts (as Orr[1] pointed out in his classic article on measuring the goodness of library services) — those of quality and value.

Orr defined quality in terms of the question 'how good is the service?' ie what is the capability of the service for meeting the users' needs it is intended to serve: and value in terms of the question 'how much good does the service do?' ie what are the beneficial effects resulting from use?

Quality in a catalogue therefore is crucially related to its capability to deliver the services it is intended to provide. But what is the catalogue intended to provide? This is in fact not a simple question to answer, even for what might be called the traditional catalogue. The classic statement of what a traditional catalogue is supposed to do is that of Cutter[2]:

1 To enable a person to find a book of which the author, title or subject is known
2 To show what the library has by a given author or on a given subject or in a given kind of literature

But do our catalogues do this? Patrick Wilson, in my view the foremost current conceptual thinker on bibliography and cataloguing, has pointed out some difficulties even in conceptual terms.[3] Do users really want to find a *book* (even if the word is taken to represent the 'meta-book', ie recordings, manuscripts, etc)? Users really want *texts*, ie the *contents* of books, and the same text can appear in different books and in different formats. This introduces a whole degree of complexity, because we have in our libraries both texts and related texts - versions and derivatives such as editions, revisions, critical editions, translations. All or some of these may meet the user's need for a particular text. Basically, a catalogue is supposed to enable users to find copies of texts. A short trip into any library demonstrates very quickly that none of our current catalogues do this. A typical large library catalogue probably contains separate entries for each edition of each monograph not published as part of a series. It may contain entry points for individual monographs in series. Sometimes (but unusually) there may be entry points for texts which form part of a collected work or titles in microform collections. Almost never are there separate entries for articles in journals, papers and conference proceedings, chapters in books.. Nor, often, are there entry points in the main catalogue for many nonbook items — maps, manuscripts, music scores etc. Our catalogues clearly *do not* meet users requirements in their

searching for texts which exist as separate bibliographic entities, that is they are incapable of leading potential users directly to the majority of texts *in* a library, let alone those available *through* the library. I shall return to this point.

Even in terms of the narrower definition of the purpose of the catalogue — to find a book of which the author or title is known, the traditional catalogue often fails. The actual purpose of most catalogues is not to find the book, but to provide the theoretical shelf location at which that book may sometimes be found. In practice many books are not there. They are for example on loan, in process, known to be lost, missing, at a secondary storage location, or in use inhouse. Clearly, a retrieval system will never solve all these problems when it has to deal with separate (and movable) physical items, as opposed to stored electronic text, but Cutter's concepts can be achieved more fully today with the technology available.

An integrated stock control system can relatively easily track the locations of physical items[4] from the time that they are ordered, through the acquisitions and cataloguing processes, through the various relocations that occur, particularly in academic libraries with both high use and remote storage collections, as well as recording such changes as 'at binding', 'known missing', 'on loan', 'reserved'. Clearly this represents an improvement in the quality of the retrieval system from the user viewpoint. That this is very important has been clearly demonstrated by the extensive research on reasons for users' failure to find items known to have been purchased by a library. For example, the series of studies in the 1970s by Schofield[5] and by Kantor and Saracevic[6,7] suggested that a user of an academic library has a 40-50% chance of *not* finding an item purchased for the library's collection. While there are, of course, 'good' (though not acceptable to the user) reasons for failure, the most common being that the item is in use inside or outside the library, there is a high rate of failure between the catalogue and the shelf. Anything a catalogue can do to assist with this problem is therefore significant. For example, in the library of the Apple company[8], the user of hypertext technology in conjunction with the Apple MacIntosh workstations allows the searcher to proceed from the call number of an item to a plan of the library indicating the precise shelf location for the item — and if this help is inadequate, to a photo, brief resume and location of the librarian responsible for the area concerned.

One of the reasons that locating items physically in many libraries has proved to be difficult is that we have tended to take a format based approach to the physical organisation of materials. While there are good reasons for this (such as the need for special shelving systems), the result has been to scatter items on a subject in a way that cataloguers of earlier times, dealing overwhelmingly with printed books, could hardly imagine. While some users *do* require material only in a specific format for a specific purpose, the majority simply require the best information available for their purpose, regardless of format, and the modern library provides a formidable barrier to this intent, unless the catalogue can provide a good deal of assistance.

To return to the general theme, I suggest that we should not look at the catalogue itself. Rather we should look at what the user wants and the system that can meet these needs. It is clear that there have been a number of developments which affect the answers to the question of what we should provide as a retrieval system to our library users. Important changes in recent years include:

- The capacity of systems to access remote data
- The capacity of systems to access remote (but often immediately accessible) text
- Remote user access to the retrieval system
- Changes in user expectations of library catalogues because of the use of other online systems

Basically users want either:

- A known text OR
- A selection of the best available material on a topic

both within a reasonable time.

The capacity of a library's retrieval system to deliver these functions effectively has been dramatically increased in recent years. Indeed, a few systems are capable of delivering not only the location of a text but the text itself, if it is held in machine readable form. This has become common with optical disk developments, particularly for visual images or shorter texts such as journal articles. It is clear that we are going to have to design our retrieval systems to cope with text and images delivered at the same workstation or, at the very least, workstations closely linked to those used to access the bibliographic system.

To come back to known item searching, this can now be extended beyond the monograph work/serial title level. For example there is no reason why a library cannot integrate major databases into its extended catalogue, and indicate whether titles or articles are locally held by passing files through a local serials list as a sorting sieve. To do this in anything but the crudest manner of having several databases side by side, each searchable using different search terminology and methods, requires a degree of sophistication in the 'catalogue' that only some of the most advanced retrieval hosts such as DIALOG can provide at present, and then only in part. But library users will become increasingly accustomed to accessing such services over the next decade, and will demand from our catalogues the kinds of facility most commonly available through such services.[9,10,11]

This brings us to the question of the catalogue's capacity and role for providing the user with the best selection of available material on a topic. By available material we can today reasonably include all texts in all formats held by a library, texts in accessible adjacent libraries which may be visited personally, texts available nationally through the interlibrary lending process, and texts held in machine readable form which are accessible directly through communication networks. Increasingly our users are not going to care about the physical location of texts. When a machine readable text is available immediately online, will this not often be preferable to delayed access through the library, particularly if the user is accessing the 'catalogue' from a workstation in his or her own office or home?

Once there is a breakdown between the idea of immediacy of access and close physical location, we must redefine the catalogue's function. My own thoughts about this question were reinforced by a recent article[12] by Michael Buckland on 'Bibliography, library records and the redefinition of the library catalogue' in which Buckland came to essentially the same conclusions as I have done myself, ie that 'the modern library catalogue (is) fundamentally obsolescent in an online world'. Why is this so? As Buckland points out, there has been traditionally a total dichotomy between the development of bibliographies which are concerned with the listing of titles or works on a topic, and the development of library records needed for library operations concerned with individual copies of documents; such records as those used for circulation, acquisitions and serials control.

Library catalogues contain both information about specific editions of works, and information about individual copies held in a particular library. Because bibliographies, library catalogues and other library records are, or soon will be, almost all available in electronic form, the technology is now available[13,14] to provide our users with a system which essentially combines the purposes of bibliographies, library catalogues, and other library records (together with increasing number of the texts themselves). The user can reasonably expect to carry out searches in which the decision on the type of search to be conducted is a function of the depth of retrieval that the user is seeking.

For example, a researcher based at the University of Adelaide seeking material on recent work on a new superconductive effect, might well wish to search the universe of available documents first. The preferred search would be against a combination of the national bibliographic database plus *Physics abstracts* plus *Solid-state abstracts*. It is reasonable to expect that the same search formulation could be used to search across all three databases (and others if necessary), and then, based no doubt on the number of references retrieved from that search, the user could decide to pass the references against a 'sieve' of his or her home library's available holdings of books and journals, to obtain a sub set of those items believed to be immediately available on the shelf.

On the other hand, a first year student faced with the completion of an essay on Barton's role in the formation of the Australian Constitution, might well want the catalogue to deliver only the call

number: of a small range of books on Australian history and politics not already out on loan or missing. He or she has no interest whatsoever in hierarchical searching into other data bases or regional/national catalogues. Time is the critical factor limiting the search.

These two extreme examples illustrate the difficulty that we have in devising systems for effective subject searching. The improvement of subject searching in our libraries has now become an urgent problem. There is evidence that many known items searches are in fact a technique devised to overcome the problems of subject searching, ie users employ an item known to be of some use as a way of finding the call, numbers and subject headings for material on the same topic. The introduction of online public access catalogues appears to have led to much more subject searching than was generally undertaken through card catalogues, presumably because of the facility of keyword searching. But computers offer many ways in which subject searching may be improved, from simple keyword searching, through Boolean logic, delimiters and truncation, automatic spelling and authority checkers, browsable heading lists and search trees, additional access points such as chapter headings, through to the work on weighted terms and relevance matching facilities now starting to appear in a few commercial systems, such as LIBERTAS[15-21].

We are faced with building local interfaces which allow these varying needs to be accommodated in our retrieval systems. To enable our users to reach, *if required:*

- The information stored in a range of bibliographies, both those externally compiled and those which often exist separately within a library, eg staff reference files
- The information contained in the library's operating records, such as acquisitions, serials receipt, circulation, binding
- Details of where items are held — either in the local library, in nearby collections which are publicly accessible, or via online text

In this environment, as Buckland[22] has stressed, the library catalogue as we know it becomes unnecessary. The 'catalogue' is simply a system for identifying bibliographic records, identifying the locations of copies, and assisting the user to obtain access to those items, whether in physical or electronic form.

Achieving such a system will not be easy. While getting there, we must be conscious of how complex our current systems must seem to library users. 'Quality' is a *perceived* virtue for the user, and users in practice constrain their retrieval strategies to those that they think the system can cope with (as any experienced reference librarian knows in the complex process of query formulation). Our current systems are doubly complex because most of our libraries are still in transition from manual to automated systems. Many libraries still have at least two, and often three or four, retrieval systems, which reflect the move from cards, through microfiche, to online catalogues, and the change to AACR2 cataloguing rules. Rarely is it clear to users exactly what each file contains.

In a recent article 'The computer as mask', Azubuike[23] outlines in a salutary way the many reasons why our users are not able to harness the potential of our OPACs, even the basic ones that we have currently available. We need to examine some of these problems. They are basically of two types:

1 Problems of the user in interacting with the system. These include:
   - *Formulation of the search*
   - *Transformation of the search into appropriate system terminology.*
   - *Development of search strategy in terms of the appropriate search level, eg local versus regional versus universal*
   - *Local knowledge of the system's capabilities, eg coverage, Boolean facilities, truncation*

2 Problems with the system. These include:
   - *Errors of description in cataloguing, often through lack of expertise on part of the cataloguers*
   - *Errors in records, particularly in searchable fields*
   - *Inadequate description*

- *Inadequate depth of indexing*
- *Incomprehensible error messages*
- *Lack of appropriate help messages*
- *No printing facilities*

What does all this mean for the role of the 'cataloguer'? It is tragic that most library administrators seized on the large and still growing proportion of available copy cataloguing to make staff savings in technical processing areas, or to move staff to direct reader service areas. It seems very likely that the need for original cataloguing of the traditional type will continue to fall. Sources of copy cataloguing are gradually becoming greater, while the cataloguing process itself may well become more productive through the use of expert systems assistance.[24-25] At least some of this productivity gain should be redirected to overcoming the problems outlined above. The primary role of the cataloguer today is to interface successfully the users with the retrieval system they have built, not to create bibliographic data, an increasing proportion of which will be obtained from elsewhere. The cataloguers' tasks are to ensure that the retrieval system works, and then to devise within it processes of assistance to users so that their search strategies are effective in relation to the capacities of the system.

Until relatively recently, performing this role was difficult. Many first generation automated systems were inflexible and capable only of marginal local modification. But most systems today are highly parameter driven and the systems are increasingly capable of handling several different databases and linking through local wide area networks into remote database services. Many commercial suppliers have user groups through which ideas for improving facilities may be channelled. Cataloguers now *do* have the opportunity to design local interfaces which can provide the capabilities that I have been describing. For this to be done requires a changed view of the task of cataloguer. It requires a major investment in staff development to provide the skills needed for this to occur. The potential benefits are huge. If we do it right, for the first time users of our larger libraries might, just might, obtain the *best* information they need to solve their problems.

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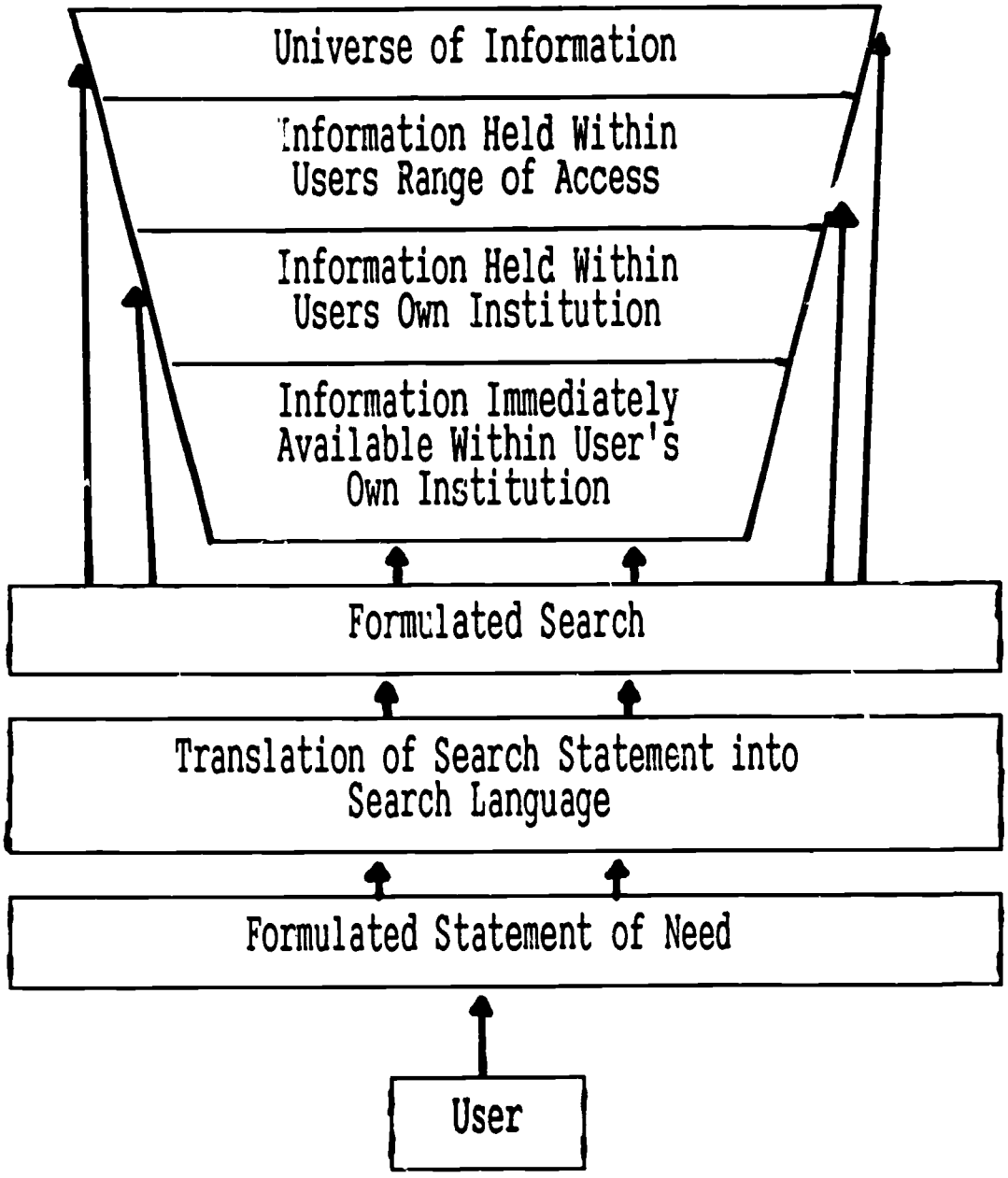
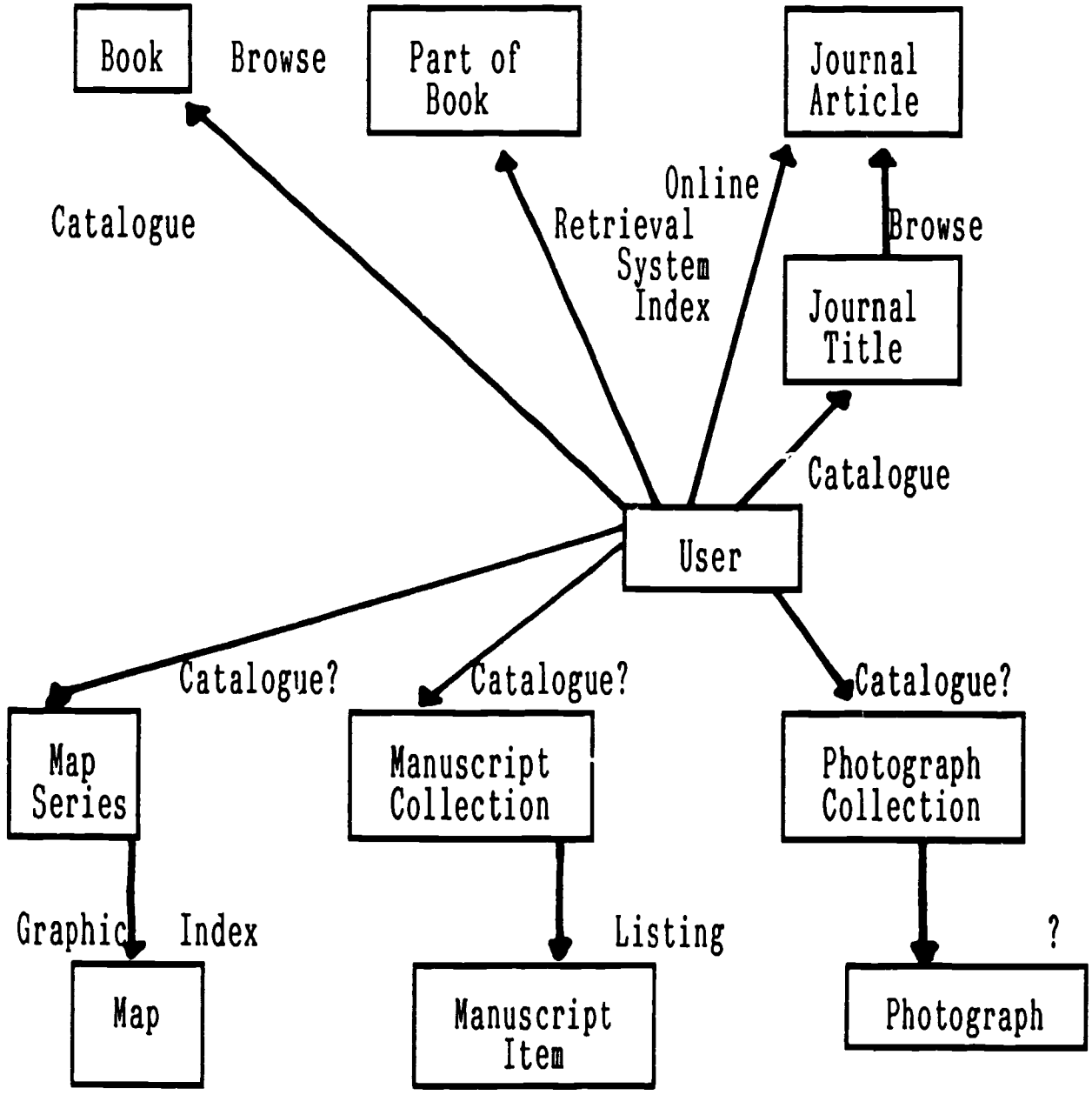
THE ROLE OF THE "CATALOGUE"



CATALOGUE/BIBLIOGRAPHY/INDEX/LIST INTERACTION



QUALITY VERSUS QUANTITY: CATALOGUING STANDARDS IN TIMES OF ECONOMIC CONSTRAINT

Helen Hoffmann *Divisional Librarian, Cataloguing, La Trobe University*

Abstract *How can productivity be increased while complying with high cataloguing standards? Lower standards are acceptable to administrators if productivity improves. There is pressure on cataloguers to increase throughput with fewer, less qualified, staff and to accept copy cataloguing records and omit authority work. Pressures can be minimised by an improved workflow, effective use of support staff and elimination of rechecking. Professional staff can concentrate on original cataloguing and authority work if clerical staff do the preliminary checking and edit and input records online. Cataloguing departments need to convince administrators and gain users' support to retain professional staff for quality cataloguing*

THE BASIC ISSUE that faces all cataloguing managers is: how do we resolve the conflict between the budgetary requirements of the institution and the need for quality cataloguing by professional staff? How do we increase productivity and yet simultaneously comply with high cataloguing standards?

Most libraries are now suffering from financial constraints. Not only are budgets not being increased in line with inflation and fluctuations in the value of the dollar, but in many cases the actual number of dollars being allocated to library services has declined. As a result, staff numbers are being reduced, particularly in the technical services areas, and replacements for staff who have resigned are deliberately delayed to make some salary savings. When the value of the Australian dollar falls, funds are transferred, where possible, from the staffing budget to the book vote. Bulk purchases might be made or gift collections solicited to stretch the budget dollar further without a commensurate number of staff to process the material.

Reduced budgets also lead to an increased pressure to drop professional positions and replace them with technicians, or preferably with technicians in training or even untrained junior clerks. Equipment funds have also been cut leading to an insufficient number of computer terminals being available and/or slow response times which mean that computerisation of library processes is not being carried out in the most effective manner. Lack of funds for ergonomic furniture combined with reduced staff numbers result in cases of Repetitive Strain Injury (RSI) and related disorders, leading to further pressure on remaining staff. In tertiary institution libraries, amalgamations have added further pressures on cataloguing staff as work is centralised and positions cut while the amount of material to be processed increases and many hours are spent on reconciling differing work practices, duplicate bibliographic records and conflicting name, subject and series authority records.

Budgetary constraints force library administrators to increase pressure on cataloguing managers to manage with fewer staff so that funds can be transferred from the hiring of processing staff to building up the library's collections. As growing cataloguing backlogs are anathema to staff and readers alike, pressure is brought to bear on the cataloguing department to make compromises and lower cataloguing standards. After all, so long as the material reaches the shelves, who cares how inaccurate the bibliographic records are, or how many conflicting headings exist or how many linking references are lacking? Fortunately some, at least, of our users do care.

Several years ago at La Trobe, as a result of an unprecedented influx of material combined with the loss of half the professional staff in the Cataloguing Division at the same time as AACR 2 was being implemented, a large backlog of 17 000 titles was created. A special 'rush' cataloguing project was undertaken to reduce the backlog of 17 000 titles to a manageable level. The first suggestion for solving the backlog involved a proposal to create brief author and title records for material without cataloguing copy, providing no series or subject access points. This suggestion I rejected as being totally unsatisfactory for the Library's users, as I knew that there would never be time to go back and upgrade those records. The second proposal was not totally satisfactory either, but I felt is was preferable to the first one. In this case, all material with full MARC records on our inhouse database was to be rushed through by the cataloguers who would only

check the main entry and/or the first words of the title, add a class number and send the material through at a rate of thirty titles per hour. No authority work would be done at all. The project was certainly effective; the backlog was reduced to 10 000 within a year (not all cataloguers participated, nor did they work on the project all day — it might have led to bad habits, or at least RSI!). However, we are still living with the effects of the project due to incorrect headings and lack of related references on the database and inaccuracies in the records that went through unchecked. Other staff soon forgot about the project and could not understand how cataloguers could be so careless, inconsistent, and so on when they found one of these problems. (Cataloguers know if a problem arises as a result of the project due to the shelf list cards being specially annotated but this information is not readily available to other staff, as it does not appear on in the online record).

Similarly, after the first part of a retrospective conversion project was carried out, users demanded that the Library upgrade the incomplete bibliographical records to full records. In the initial period, as time was short, and as there was no extra staff to help with the implementation of a new inhouse automated system, 200 000 brief records were created for those items in the Library's collection which did not have machine readable records. As these items constituted nearly half of the total collection, and as the circulation module was to be implemented first, a rush project had to be attempted to prevent total chaos at the loans desk. This project involved the creation of short records consisting of author, short title, call number and locations only with no subject or series access. Due to sustained pressure from readers, the Library sought funds to upgrade the records as soon as possible. As it had become a political issue by this stage, a special grant was allocated to the Library by the University in the following year to complete the records by having the rest of the data on the shelflist cards keypunched by AMARC Data International.

These two examples show that some of our readers do care and demand a quality catalogue. What can we do to help them and yet satisfy the demand for high throughput? Administrators would prefer all material with copy to bypass the cataloguers but as we found from our 'rush' project, the readers would soon complain. What compromises can we make? Can we lower some standards and not others? How much time should catalogue spend on authority control, or checking MARC records?

At La Trobe we have tried to strike a reasonable balance between the demand for quality and the pressures for quantity by streamlining operations as much as possible, and not losing any information found or checking done from selecting through to shelving the material. After titles have been selected by either teaching or library staff and a holdings check made, bibliographic records are requested by tape from ABN. When the tapes return from the National Library they are loaded on to the URICA system, orders information and suppliers are added, and orders are printed by computer printer using the information in the MARC record. Titles without MARC records are searched in the National Union Catalog and other relevant tools. If copy is found, it is used to create a record on URICA prior to placing the order. All information is keyed in, including subject headings if available. by clerical staff in Cataloguing, and therefore is available to readers with the holdings note displaying as 'On order'. In this way, all information found at the preordering stage is retained and made available to readers and library staff.

When material arrives from the suppliers, accessioning is carried out online and the 'On order' display is changed to 'In process'. At this stage, while the item is matched with the bibliographic record, a hard copy of the record is made on the slave printer in MARC format and folded in to the items. This avoids carrying out a matching process at the cataloguing stage. Access points on the record are checked by clerical staff in the Pre Cataloguing Section in the online authority file and, if there is no match online, in *Library of Congress name authorities* and *ABN authorities*, and any problems or conflicts noted. Six professional staff and one technician (who does English language copy cataloguing) check all records and add class numbers. The accuracy of the class number is particularly important in a tertiary institution library where students and staff regularly browse the shelves for related material. Additional subject headings are often added to aid subject searching. The professional staff do all the original cataloguing and editing of MARC records on the printouts. Authority work is done online for copy and original cataloguing. If additional or

new access points are required for the catalogue entry, the new headings can be established and references added before the bibliographic record is edited.

The printouts and items proceed to shelf listing, acquire unique call numbers and pass on to End Processes. There clerical staff edit the bibliographic records online from the drafts while computer printers print out book and spine labels which can be requested while editing the record, and label, stamp and tattle tape the items. Proofreading and checking of cataloguing is done from the shelf list cards which are produced at the same time as the labels.

By following these procedures, bibliographic information is entered online as soon as possible and there is no duplication of effort. Cataloguers concentrate on establishing a reasonable catalogue entry without wasting time on typing and possibly getting RSI from spending too long at the terminal. ABN high level standards are followed in most areas as La Trobe adds records to the COOLCAT regional database currently and hopes to add records to ABN at some stage. By following these procedures, seven cataloguers can put through over 26 000 titles per year, with approximately 25% being original cataloguing, much of it being audiovisual material or government publications or in foreign languages such as Greek, Sanskrit, Spanish, Japanese and Chinese.

By following these procedures, by streamlining the workflow as much as possible and by training all the clerical staff in a range of activities to prevent bottlenecks in any area, a reasonable level in both quality and quantity can be achieved. These measures alone, however, are not sufficient to allow time for cataloguers to add extra information to records, such as contents and index terms, analytics or other information that has been requested by users in American surveys carried out recently.

There is a continuing need to convince administrators, perhaps by carrying out local surveys of users, of the necessity for a sufficient number of professional staff to carry out quality cataloguing and related authority work. Cataloguers need to be more active politically and gain support within and outside the institution. Readers using OPACs are much more critical of the catalogue than they were when they were consulting card catalogues and are more conscious of failure. Teaching staff are even more aware of incomplete or inaccurate records when they access the OPAC via the local area network using their personal computers and load records onto their disks, manipulate them and create bibliographies for their research, or reading lists for the students. This awareness led to support for the Library enabling it to obtain a special grant to complete retrospective conversion. Such support for cataloguing activities needs to be encouraged!

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THE USE OF ABN CATALOGUING DATA IN THE SUPERSEARCH RETRIEVAL SUBSYSTEM

Linda Groom *Systems Development Librarian, ABN Office, National Library of Australia*

Abstract *Supersearch applies the STAIRS information retrieval software to the database of the Australian Bibliographic Network. Supersearch is expected to be available in the first quarter of 1990. The relationship of a Supersearch record to its source MARC record on ABN is described. Supersearch uses cataloguing data that was previously unsearchable on ABN, including fixed field data. Supersearch will highlight errors and absences in cataloguing data and will provide an incentive for fuller cataloguing. The Supersearch project can be seen as a test of the MARC format; the MARC format has coped well with this encounter with information retrieval software, with the exception of MARC coded data*

SUPERSEARCH applies the STAIRS information retrieval software to the ABN database. STAIRS has been around since 1974, and the ABN database since 1980, but the *combination* is exciting and unique. Many local systems have retrieval power similar to STAIRS, but contain considerably smaller databases than ABN's six million records. Many information retrieval systems, such as DIALOG, have large databases and powerful search software; but they contain data of a different type. The designers of their search software did not have to cope with the *variety* of data elements of ABN records.

When I was preparing this paper, the nearest thing I could find to Supersearch was a subset of the OCLC database, which could be accessed through the OCLC Easi Reference Service using a search software similar to STAIRS.[1] OCLC Easi Reference, however, gives you access to a 'mere' one million records, without holdings information.

So the combination of STAIRS and the ABN database is unique because of the size and variety in the database. It is also unique because of the holdings information on the database. With the benefit of hindsight, it seems obvious that a nation's libraries should be able to use a very powerful information retrieval system to search the national union catalogue — to find a list of items and in the same session find where those items are held. But to my knowledge only Australia is close to having this facility. (New Zealand is not far behind.) On that note of blatant patriotism, I will move on to the history of the Supersearch project.

History of Supersearch: how did it begin?

Like all projects, it began with a sigh. One of the first people to write down the sigh was Robert Boot, in an article in *Cataloguing Australia* in 1982, in which he wistfully compared the retrieval capabilities of ABN inquiry with those of STAIRS.[2] Reference librarians took up the call. Why could you not narrow ABN searches by date of publication or type or material; why could you not do keyword searches on subject? And as the database grew, cataloguers saw the need for short title searching and other improvements.

In response to this nationwide sighing, ABN in true bureaucratic fashion responded by writing it all down, in the Enhancements Register. By 1986 the Enhancements Register contained twenty-two separate inquiry enhancements. The National Library made the decision in late 1986 to go for broke and add an entire new retrieval module to ABN, a module which would provide most if not all of the twenty two inquiry enhancements.

This was a watershed decision. Supersearch is the first ABN project which has not been done as an enhancement intertwined with the WLN software, but as a complete new module. Supersearch talks directly to the database management system Adabas, and to the Communications software CICS; it has very few links with the WLN software. This type of modular development may well become the pattern for redevelopment of the ABN software through the 1990s.

The decision to add an entire new retrieval module to ABN involved, like most ABN decisions, a lot of people — mostly people on committees. The committees were the ABN Enhancements Subcommittee, the Network Committee, and an interral National Library committee that

combined ABN, ADP and reference expertise. People often ask 'Why STAIRS'? The internal NLA committee looked at a number of options: BRS, the DIALOG software, Medlars 3, TRS (a retrieval package especially designed for Adabas databases), Status and STAIRS. These were compared on cost, functionality, reliability, and availability. STAIRS came out ahead, particularly on cost.

Real work on the project began in March 1988 with the specification of the record structure. Programming began shortly thereafter. The project has now reached the stage where the core programs — which create the indexes, process the searches and display the results — are all finished. We have a test database of 150,000 records which works well. The work left to be done includes the offline print module, the link to the ABN billing subsystem, a maintenance module and volume and load testing. The likely implementation date is first quarter of 1990.

How Supersearch uses ABN data

How does Supersearch work? How is ABN cataloguing data actually used in Supersearch?

To start at the source - with a typical ABN record (Figure 1). Many of you will be familiar with this record structure. Those who are not should note

- its MARC format, with mnemonic not numeric tags
- the leader line, which tells you whether it is a book, nonbook or serial, and whether it is a full record, an interim, a CIP or other level
- its main entry field
- the fixed fields, which correspond to the 008 field in USMARC and AUSMARC

Figure 2 is the same record displayed on Supersearch. The Supersearch record can be divided into four parts. The first part is called, in STAIRS language, the formatted fields. Formatted fields are used to narrow down the results of a initial search. For instance,to narrow by date of publication you would select on the formatted field DATE which comes from the ABN fixed field DATE. Or to narrow by performance time of a sound recording you would select on the formatted field SCAL/TIME which comes from the ABN field DSR (306).

The second part of the record begins just below the formatted fields. This is real AACR3 record structure! We have abandoned main entry. The body of the record begins with description. The first paragraph of description is labelled CITATION, and contains the title, edition, imprint, and physical description of the item. NOTES is another descriptive paragraph.

From there down, in the third part of the record, are the access points. So there is a dividing line here between description and access points. But it is a dividing line in concept only, because *all* these paragraphs are keyword searchable.

The functions of these access point paragraphs are mostly self evident.

AUTHORS
TITLES
SHORT TITLE
SUBJECTS
NUMBERS — contains ISBNs, publisher numbers of music etc
CLASS NUMBERS (not shown in example 2)
PLACE OF PUBLICATION
ITEM DATA
CODED DATA
REFERENCES

I will explain the functions of these last three paragraphs later.

```
COLLECTION ID:  3                                   BIBLIOGRAPHIC DISPLAY

  om   abn85-276625  db   12/06/85  12/06/85  08/23/88  ABN:SN        WLB
    MEPS       |a    |Kent, Howard.
    TILAO      |ahc  |Executive yoga|(aound recording) /|Howard Kent.
    IMP        |abc  |London :|Anemone, |p1978.
    COL        |ab   |1 aound caaaette (60 min.) : |1 7/8 ipa. atereo,
                     Dolby proceaaed.
    DSR        |a    |006000
    SET-O      |a    |Yoga for health
    NOG        |a    |"An Anemome production in aaaociation with the Yoga for Health
                      Foundation" - Container label.
    NOG        |a    |Anemone: YH 111.
    SUT-L      |a    |Yoga, Ha*tha.
    SUT-LO     |a    |Executivea.
    AECNA      |a    |Yoga for Health Foundation.
    DFF        |a    |aaulanjlcmnnc
    CAS        |ac   |WLB|WLB
    LON        |a    |(atABN)4106136
    IMM        |a    |abn85276356
    FFD   LENGTH=      TY MAT= 1       TECH= n    ME IN B= x
        INTEL LV=     DATE KY= a     DATE 1= 1978 DATE2=       LAN= end
           CNTRY= enk  MODREC=        CAT S= d  GOV PUB=  CAT FORM= a
```

Figure 1: A typical ABN record

```
abn85-276625 DOCUMENT=       1 OF     1   PAGE =     1 OF    1

WORDS = 2, DATE = 1978, DATE2 =  , DOCDATE = 851206, SCAL/TIM = 006000
HOLDING = Y, ACT = N, NSW = N, NT = N, QLD = N, SA = N, TAS = N, VIC = N, WA = Y
UN = N
CI       Executive yoga (aound recording) / Howard Kent.  London : Anemone, p1978, 1 aound
         caaaette (60 min.) : 1 7/8 ipa. atereo., Dolby proceaaed.
SE       Yoga for health.
NO       "An Anemone production in aaaocation with the Yoga for Health Foundation" -
         Container label.  Anemone: YH 111.
AU       Kent, Howard.  Yoga for Health Foundation.
TI       Executive yoga.
SH       Executive yoga.
SU       Yoga, Ha-tha.  Executivea.
NU       IMMUT4106136 RIDabn85-276625
PL       England.  Great Britain.
IT       Sound recording.  English.
RE       Yoga exercisea. Ha-tha yoga. Businesa executivea. Corporation executivea.
         Managera.
WA       WLB   613.7046 (104156)
```

Figure 2: The aame record aa it appeara on Superaearch

```
COLLECTION ID:  3                                   BIBLIOGRAPHIC DISPLAY

  am   abn85-53637   db   03/08/85   05/22/85  --/--/--  SU          SU
    MEPS        |aq     |Phelps, W. May|(William May)
    TILA4       |abc    |The life and life-work of Samuel Phelps :|with three portraits and
                         copies of letters from men of eminence and other original documents
                         of interest to play-goers /|by W. May Phelps and
                         John Forbes-Robertson.
    IMP         |abc    |London :|S. Low, Marston, Searle, & Rivington, |1886.
    COL         |abc    |x, 436 p., (3) leaves of plates : |ill., ports. :|23 cm.
    NOG         |a      |Includes index.
    SUPSL       |ad     |Phelps, Samuel.|1804-1878.
    SUT-LO      |azx    |Actors|England|Biography.
    AEPMA       |a      |Forbes-Robertson, John.
    DDCA        |A2     |792.028/0924|19
    CAS         |ac     |SU|SU
    LON         |a      |(atABN)3301005
    LCDN        |x      |3
    IMM         |a      |abn84172745
    FFD      CONF=          FEST=     INDEX= x    ME IN B= x
          INTEL LV=          FIC=      BIOG= b    DAT KY= a      LAN= eng
             DATE1= 1886  DATE2=      CNTRY= enk   ILLUS= acf   REPRO=
          CONTENTS=          MODRC=    CAT S= d   GOV PUB=     CAT FORM= a
```

Figure 3: Data not used in Supersearch

```
abn85-230034 DOCUMENT=       1 OF      1   PAGE =     1 OF     1

WORDS =    . DATE = 1976. DATE2 =    . DOCDATE = 851212. SCAL/TIM = 999999
HOLDING = Y. ACT = Y. NSW = N. NT = N. QLD = N. SA = N. TAS = N. VIC = N. WA = N
UN = N
CI       International workshop of secondary service producers / edited by Peter M Ketley.
         Wetherby, West Yorkshire : British Library, 1976.  80p. : ill. :30 cm.
SE       Research & development reports (British Library. Research and Development Dept.).
NO       Includes bibliographical references.
AU       Ketley, Peter M.  British Library. Research and Development Dept.
TI       International workshop of secondary service producers /.
NU       IMMUT4111145 RIDabn85-230034
PL       England.  Great Britain.
IT       Bibliographies.  Conference publication.  English.
CO       AREA: e-uk---.
RE       British Library. Research and Development Department.  Great Britain. Office for
         Scientific and Technical Information.
AC       AIAC    025.04 KET
------- END OF DOCUMENT -----------
```

Figure 4: Supersearch record, showing the converted form of coded data

The fourth section of the record contains the holdings paragraphs. These are arranged by state. The holdings paragraphs are purely descriptive: they are not keyword searchable. STAIRS allows you to choose which paragraphs you want to display, and a common choice would be to display

CITATION

and the holdings paragraph for your state.

This Supersearch record relates back to the ABN MARC record in three ways. Firstly you will notice that the MARC fields are grouped; grouped into what STAIRS calls paragraphs. The CITATION paragraph contains several MARC fields. AUTHORS contains personal and corporate authors, main and added entries. TITLES contains main title, uniform titles, title added entries and variant titles. In some ways this grouping is a bad thing. It means your search is less precise. For example, you can tell Supersearch to look for certain title keywords, but you can not tell it to look for them as just title *added entry* keywords.

But in another way this grouping is a good thing. Most reference staff do not know whether the title they are searching for is a main title, an added title or a uniform title. It is not just that they do not know, they do not want to know. In fact they would view any system which *required* them to know as a bit of a disaster. So although this grouping into paragraphs loses some precision, it more than compensates for this by making the system easier to search. This was the sort of thing we had to consider when we were deciding what to put into which paragraph. STAIRS imposes a limit of 24 paragraphs, but within that limit we had complete freedom to choose.

The second way that this Supersearch record relates back to its MARC record is that it is both more and less than its source record. It is more because it contains extra data; holdings data from the ABN Holdings File, and reference data from the ABN Authority File. The Authority File data appears here, in the REFERENCES paragraph. Searchers can choose to extend their search into this paragraph if they are unsure of their search item or if they receive too few hits.

This Supersearch record is also less than its source bibliographic record, because some of the data has been left out. In Figure 3 I have highlighted the data that is *not* used in the Supersearch record. As you can see it is mostly data that relates to the *record* itself eg date of latest bibliographic change, cataloguing source.

The third aspect of the relationship of this Supersearch record to its source MARC record is that much of the coded MARC data has been converted into English. In the example in Figure 4

- the code 'enk' in CNTRY (008/15-17) has been converted to 'England. Great Britain'
- the code 'b' in CONTENTS (008/24-27) has been converted to 'Bibliographies'
- the code 'x' in CONF (008/29) has been converted to 'Conference publication'
- and the code 'eng' in LAN (008/35-37) has been converted to 'English'

In Figure 5

- the word 'Serial' has come from the Bibliographic Level code (the 's' in 'as')
- the word 'newspaper' has come from the code 'n' in TYP SER (008/21)
- and 'microfilm' has come from REPRO (008/23)

Not all the coded MARC data has been converted. What we could not convert we put into the paragraph called CODED DATA. This was not just laziness on our part. For certain types of coded data the conversion process can destroy some of its meaning. Geographic area codes, for instance, have a hierarchical structure:

e------ for Europe
e-uk--- for United Kingdom
e-uk-en for England

```
abn86-30773  DOCUMENT=     1 OF     1   PAGE =    1 OF        1

WORDS = 2. DATE = 1850. DATE2 = 1859. DOCDATE = 860211. SCAL/TIM = 999999
HOLDING = Y. ACT = N. NSW = N. NT = N. QLD = N. SA = N. TAS = N. VIC = Y. WA = N
UN = N
CI       The Leader (microform).  No.1 (Mar. 30. 1850)-no.510 (Dec. 31. 1859). Brighton.
         England : Harvester Press Microform Publications. 1979.  11 microfilm reels : 35
         mm.
SE       Rare radical and labour periodicals of Great Britain. Part 2.
NO       Weekly. Masthead title. Microreproduction. Originally published weekly: London
         : Joseph Clayton. Rare radical and labour periodicals of Great Britain. Part 2.
         Leader and Saturday analyst.
TI       The Leader. Leader (London. England) (Microform.).
SH       The Leader.
SU       Great Britain - Politics and government - 19th century - Periodicals.
         Great Britain - Social conditions - 19th century - Periodicals.
NU       IMMUT4237271 RIDabn86-30773
PL       England.  Great Britain.
IT       Serial.  Newspaper.  Microfilm.  English.
CO       AREA: e-uk---.
VI       VMOU     No.1-no.510   Mar.30. 1850-Dec. 31. 1859 M V MICROFILM 5328
```

Figure 5: Supersearch record, showing the converted form of coded data

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```
nun00-471454 DOCUMENT=      1 OF      2    PAGE =    1 OF     1

WORDS =  . DATE = 1531. DATE2 = 1971. DOCDATE = 851211. SCAL/TIM = 999999
HOLDING = Y. ACT = N. NSW = Y. NT = N. QLD = N. SA = N. TAS = N. VIC = N. WA = N
UN = N
CI       Marbodei galli poetae vetustissimi de lapidus pretiosis encheridion : cum
         scholijs Pictorij Villingensis. Eivsdem Pictorii de lapide molari carmen.
         Friburgum Briagoviae. 1531 ; (N.Y. : Readex Microprints. 1971.  2 microcards.
SE       Landmarks of science.
AU       Marbod. Bishop of Rennes. 1035-1123.  Pictorius. Georg.
TI       Marbodei galli poetae vetustissimi de lapidus pretiosis encheridion : cum
         scholijs Pictorij Villingensis. Eivsdem Pictorii de lapide molari carmen.
SU       Gems and precious stones - Early Works to 1800.
NU       IMMUT4164942 RIDnun00-471454
PL       Queensland. Australia.
IT       Latin.
NS       NUN:S    MCL/26   (D71454)
--------END OF DOCUMENT --------
```

Figure 6: Effect of a cataloguing error (code qea in CNTRY) on a Supersearch record

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These codes can be truncated for searching, for example to e-uk$, which will retrieve all items coded e-uk---, or e-uk-en, or e-uk-st etc.

So to sum up what happens to the ABN record as it is transformed into a Supersearch record:

- some data is dropped
- some data is added (from the holdings and authority files)
- some data is grouped into paragraphs
- some coded data is converted into English

It is this record structure, combined with STAIRS retrieval capabilities, that gives Supersearch its power. To demonstrate this power I have listed some examples of the kind of searches that can be done on Supersearch. The first line contains the STAIRS syntax, and the second shows what it means in English.

00001 astaire and biography.IT
= Find biographies of Astaire

00002 handel and overtures.IT
= Find overtures by Handel

00003 agriculture.SU and u-at-tm.CO
= Find items with 'agriculture' as subject keyword and the geographic area code for Tasmania

00004 (greenhouse.TI,NO,SU) and (canada.PL) and (government.IT)
= Find Canadian government publications with the keyword 'greenhouse' mentioned in their titles, notes or subjects

The next examples are of sequences of searches, where the user does an initial search and then narrows it down.

00005 education.SU and videorecording.IT.
= Find videos on educational subjects

00006 5 scal/tim lt 30
= From a hit list of number 5, select those videos with running times of less than (lt) 30 minutes

00007 barrier adj reef
= Find records containing the phrase 'barrier reef'

00008 7 nsw eq y
= From hit list number 7, select those records with NSW holdings

00009 contact.SH
= Find records with the short-title keyword 'contact'

00010 9 words eq 1
= From hit list number 9, select those records which contain only the single word 'contact' in their titles

This section of the paper has concentrated on how ABN cataloguing data is used in Supersearch. The following sections consist of some 'philosophising' based on this information. This philosophising covers two topics:

- firstly the effect of Supersearch on ABN cataloguing standards
- and secondly what the Supersearch project says about the MARC format.

Supersearch and cataloguing standards

A retrieval system is only as good as its data. Supersearch will dramatically highlight errors and absences in ABN cataloguing data. Even on our small test database we have found some glaring examples of errors. Here is one (Figure 5)

These errors have lain dormant on the database for years and now will be made very obvious. Supersearch packs cataloguing garbage in clear plastic bags and puts it out on the street where people cannot fail to trip over it.

But I am not suggesting that cataloguers lie awake at night in a cold sweat about this. Human errors are just that, and nothing more. They are easy to make and easy to fix. Supersearch will do the database a service by pinpointing those errors. ABN full service users can fix them if they wish; the changes to fix them would generally be very quick and simple.

Rather more insidious are the absences of data. These are insidious because the searchers will not know what they are missing. When a searcher tries to limit a subject search on 'Air pollution' to 'Conferences on air pollution', they will miss all the records in which a cataloguer has failed to put the necessary code in the ABN fixed field CONF. When a searcher asks for a list of all the government publications published in South Australia in 1989, they will miss the ones with nothing in their GOV PUB fixed field. The list goes on and on. Searches on Dewey numbers will depend on the presence of the DDC (082) field. Searches on map scale will depend on the CMD (034) field.

These absences are generally not the result of errors. They are the result of the policy of the cataloguing institution. And those policies represent the institution's careful judgement on the usefulness of that piece of data. If the usefulness changes, these policies are brought into question.

It remains to be seen what influence Supersearch will have on Australian libraries that contribute to ABN; contribute either by file loads or by the online creation and upgrading of records. Although most libraries will agree that the existence of Supersearch makes detailed cataloguing on ABN much more useful, I expect they will pause to ask: Useful for whom? For their own immediate clientele?

Part of the answer comes back to the tradition of cooperation that has nurtured ABN. Many of the end users of Supersearch will be clients who turn up at the reference desks of your libraries wanting bibliographies. To get good bibliographies they need good cataloguing. A cooperative effort in good cataloguing on ABN will eventually benefit the users of *your* library.

The only problem with this logic is that one has to insert words like 'eventually' or 'indirectly'. This logic, and the difficulties in it, will be familiar to any library managers that have joined or have considered joining ABN. Supersearch will not change the nature of this dilemma, but will bring about a shift in its degree. It will increase incentives to contribute high level cataloguing to ABN because it makes the value of high level cataloguing so visible and multiplies the productivity of one cataloguer many times.

For those who prefer a more pragmatic incentive, there is the likelihood that Supersearch could become a defacto method of searching your local catalogue. A number of local systems offer, or soon will offer, retrieval power similar to that of Supersearch. But where local systems do not offer that power, or where libraries have chosen to index only a limited number of fields in their local system, Supersearch may become a second resort for searches requiring more precision or more data than local systems offer. It will of course never be a first resort, and there is no facility on Supersearch to restrict searches to 'my library's holdings only', although the ability to restrict searches to 'my state only' approximates this.

ABN minimum level standard

When I demonstrate Supersearch to ABN users, I am usually asked: Should we not raise the ABN minimum level cataloguing standard? This is really a question for the ABN Standards Committee, and I do not want to pre empt their debate, but there are some personal thoughts I would like to throw into the arena.

If you look at the existing ABN minimum level standards for full records you will see they are very low. None of the standards require subject access or series access. Subjects and series are two vital forms of access, and are searchable on the existing ABN inquiry system. I would conclude from that, that the rationale behind ABN's minimum level cataloguing standards is not one of ensuring that minimum level *access* is provided.

What *is* the rationale then? The minimum standards emphasise the *descriptive* fields not the access points. This suggests that the function of the minimum standard is meant to allow records on the database to be distinguishable from each other, and to be unambiguously matched with the item they describe.

In other words it is a minimum standard needed for a working database: it is not the minimum standard needed by users of the database.

Should it be? This is a broad question in which Supersearch plays a fairly incidental part. I know there are people in this audience who are concerned at the quality of cataloguing on ABN and see an increase in the minimum standard as one way of improving that quality. But it seems to me that standards needed by users are best set by the people closest to those users, in a *flexible* way; flexible because users' needs vary. The needs of a database can be standardised, but the needs of users cannot. The best judges of those needs are the individual libraries doing the cataloguing. If you leave the standards as they are, you leave the control, and the responsibility of responding to user needs, where it ought to be; with the cataloguing institutions.

Supersearch does have a role to play in this, but again it is purely one of incentive. Once the usefulness of high quality cataloguing is made clear and visible, many people will decide to do high quality cataloguing. But this decision will not be made in an impersonal cataloguing manual, but in the cataloguing institutions where the decision, and the responsibility, belongs.

Some of you may be looking at this issue from a very practical level and wondering if there are any fields that you habitually exclude and would be useful in Supersearch. This question would apply not only to ABN full service users but to all libraries who hope one day to contribute their data to the National Bibliographic Database (NBD). To answer this question I have prepared a list of all the tags and subfields that Supersearch uses. Copies are available from the ABN Office.

That ends that bit of philosophising on Supersearch and cataloguing standards. The next bit of philosophising covers what Supersearch says about the MARC format.

Supersearch and the MARC format

The development of Supersearch could be seen as a test of the MARC format, and in particular of the USMARC format. MARC was originally designed as a machine readable version of the catalogue card, with some additional features such as coded data which were an attempt to predict future uses of the MARC record. MARC is a portly straight laced gentleman, born longer ago than he cares to remember, and loaded down by the baggage of national institutions and international committees. How did this gentleman cope with a younger generation retrieval system, and with keyword indexes which could pry into his most private subfields?

The answer is, with one exception, very well. One feature of the MARC format is its precision in labelling data elements. This precision served us very well. At first glance you might think that Supersearch did not need this precision, because it *groups* data into paragraphs. But we did need it, because it was this precision that gave us control over which data elements went into which paragraphs. In author-title added entries, for example, the subfield allowed us to split off the

titles and put them into the TITLES paragraph. Another example: the subfielding within the title field (TIL,245) allowed us to construct the SHORT TITLE paragraph by telling the programs to count the number of words in *subfield a* of the main title.

So the MARC format served us well because it was precise. It also served us well because it was adaptable. USMARC and its derivatives still enshrine the AACR2 concepts of main entry and the AACR2 emphasis on extensive description. To most information retrieval systems, main entry is irrelevant and description need not be extensive. But these major differences between MARC and STAIRS caused us very few problems. We were even able to do things like take place of publication, which is allocated only a few characters within the MARC 008 field, and elevate it to the status of a complete STAIRS paragraph, without any resistance from MARC or any complaints from STAIRS.

When I said that the MARC format had coped well with its conversion into STAIRS, I said there was one exception. The exception is the coded data. MARC records contain a significant amount of data that is in code rather than in English - codes for languages, serial frequencies, nature of contents etc. The Supersearch programs deal with most of this coded data by converting it into English.

So what happens, for instance, is this. A cataloguer spends his or her time looking up the language code for Italian and keying in 'ita'. Supersearch spends its time looking up 'ita' and converting it back to the word 'Italian'. This seems a little circular.

The designers of MARC did have reasons for asking cataloguers to do this coding. Firstly, coded data consumes fewer characters, and so less computer storage than real words. Secondly coded data is fixed length, and occurs in fixed positions within a field; this makes it easier for programs to find.

But Supersearch has brought both these reasons for the existence of coded data into question. We do incur some additional costs by converting the codes to words and storing them in the STAIRS indexes as words. But these additional costs are tiny compared to the cost of writing programs that would read the user's request for 'Italian': convert that to 'ita' for searching, and then format the resulting hit list so that 'ita' displayed as 'Italian', all this while response time ticks away.

The programming advantage of coded data being a fixed length in a fixed position is irrelevant to STAIRS. The STAIRS software indexing module *expects* data to be in the form of words of variable length.

I realise that there are more reasons than I have so far mentioned for the existence of coded data in the MARC record. It would be useful in systems which search directly on the MARC record, rather than via indexes. Since codes are independent of language they would be useful when MARC records are exchanged internationally. And, as I mentioned earlier, *some* codes are more useful than text because their hierarchical structure allows truncation.

But is seems to me that a major function of the codes is to facilitate access. And it is interesting that in a project which is totally about access, we found most of the 'codedness' of the data a hindrance not a help. I am wondering whether the early designers of MARC saw codes as a way of making the data accommodate itself to inflexible searching systems. Perhaps future versions of MARC will be able to rely on more flexible systems, and will not need to be so accommodating.

Conclusion

Supersearch is not perfect. It is not very 'user friendly', and you cannot use Supersearch for direct thesaurus searching, in the way you can now search directly on the ABN vocabulary file.

But it is my opinion that Supersearch is the best thing ABN has ever done. When you interpret that statement you should make a certain allowance for parental pride.

But I can advance a reason for making that sort of glowing statement. ABN's greatest asset is its data; the National Bibliographic Database. Supersearch capitalises on this asset. It takes the entire database and makes it infinitely more useful. And the basis of all this is, of course, the cataloguing data. (I sometimes think we should define a new subfield in CAS (040), so cataloguers can add their name and take the credit; you could call up the record in thirty years time and show it to your grandchildren... The subfield would be optional, of co' :).

Before I finish this talk I want to show four slides of the people behind this project — the programmers, who have done most of the work but never seem to get a share of the limelight.

This is Peter Coonan, the team leader. A walking encyclopedia on Adabas, and as you can see, a little bashful at having his photograph taken.

This is John Evershed, a contract programmer. His feet are normally rather more firmly on the ground than that. Every time you call up a record on Supersearch, it will be John's programs that get it out of Adabas and display it on your screen.

And this is Kelso King, who is bright, young (or so it seems to me), and addicted to chocolate. I once gave him a difficult programming problem that I thought would take several weeks to fix. He did it in two hours but it took six Toblerone.

There was a fourth member of the programming team — Marjatta Asa — whom I could not pin down to be photographed. Marjatta did the difficult job of getting Supersearch to talk to CICS (the communication software).

But there is one last person without whom all this would not have been possible. This is .... the unknown cataloguer, one of the creators of ABN's six million records.

For every cataloguer who ever asked 'Why do I have to put in these funny subfields, these crazy codes?', Supersearch is an answer, and a vindication.

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Linda Groom is the inaugural occupant of a position at the National Library called 'ABN Systems Development Librarian'. Her duties include talking to programmers about the meaning of MARC, Adabas, commands, error messages, screen layouts and (occasionally) life. She also discusses the meaning of life with ABN users, especially the ways in which life could be enhanced. Before becoming Systems Development Librarian, she spent two years as a Voice on the ABN help desk and has catalogued at the ANU, CSIRO Forest Research and University of Sydney libraries Address: National Library of Australia Parkes Place Canberra ACT 2600

NEW OPPORTUNITIES WITH LOCAL SYSTEMS

Judy Churches and Elizabeth Richardson *Australian National University Library*

Abstract *Local automated systems such as URICA at the Australian National University can now provide a much better service than was previously possible. However in providing a good local system libraries should be aware of economic realities and should not be restricted by the conventions appropriate to a card catalogue. What is needed is a new set of standards appropriate to the new forms of catalogues*

HAVE YOU ever been to a veteran and vintage car rally? Remember the 'horseless carriage' type of motor car? Manufacturers were still building carriages for people to sit in but adding an engine at the front instead of a horse. Gradually the manufacturers realised that the changing technology meant that the passenger and driver compartments could be altered to better meet the basic purpose of transporting people.

The same is happening with the library catalogue. At the Australian National University (ANU) we have been adjusting to the automated technology for some years and will doubtless be continuing to do so for many years to come. The basic purpose of the catalogue probably has not changed much from Cutter's time. What has changed is the way we provide that access.

To start with, at ANU we had a card catalogue. To be more precise, we had a full union catalogue in one of our thirteen buildings only, a partial union catalogue in another, with every other building having a card catalogue for their own holdings only. In 1976 we started to automate. The Libramatics COM catalogue provided a catalogue for library holdings for material (excluding that in Chinese, Japanese and Korean) catalogued after the introduction of Libramatics cataloguing for each subject area (eg 1976 Science, 1978 Social Science and Humanities, 1982 Law and Serials). The COM catalogue consisted of an annual cumulatation plus a cumulating supplement produced at roughly six weekly intervals. We also had a file of pre automated order flimsies and an orders fiche. The fiches, being produced on a batch system, were of course always out of date, so a reference file had to be kept of items catalogued but not yet appearing in the COM catalogue.

Then, in July 1984 we installed the URICA integrated library system.

The bulk of our records were loaded onto URICA in the first ten months after its introduction, making it possible, for the first time, to give access to our catalogue from all Library buildings including the North Australian Research Unit in Darwin. We now also provide access via the University's network to our database. One academic wrote saying how much he used the OPAC in his office for assisting students as well as for his own purposes, although his initial reaction had been that it would be 'a nice toy' which he would not use much. 12% of all OPAC searches come through the University network.

It is true that some of our records do contain garbage (see figure 1). There are punching errors, data in the wrong files (eg title in the personal author file) or part of the statement of responsibility in the title proper field because of the limitations of format recognition programs; and we do not have all the data properly MARC coded.

Figure 1
The following examples appeared in our staff bulletin in the months following the loading of old data.

MOUSE TRAPS URGENTLY NEEDED IN MENZIES!
You will realise the urgency of this call when you do a title search:

Leader		am p 09 JUL 85 OCAT
001	$a	479315
008		n und $n OLC
050	$a	L101.A2/W6
110 40	$a	World of Learning
245 10	$a	Latent mice kept in Reference area, record latent in Associate librarian's wom. $dX479315
500	$a	#OLD RECORD#
		There is 1 copy of this title

HOLDINGS: (BRN 479315)
AA XX18054 L101.A W6

Also recently seen prowling the database: a Ms Chinese, Pottery in the Author Authority File.

Smelling a rat?
One of our OLDCAT records caught the attention of cataloguing staff. It had as a personal author: Theodorus, Bp. of mopsuestis, d. ca. 428. Was it the smell of the long dead Theodorus?

Nevertheless we can now provide a much better service than was previously available, and with the correct searching techniques many of our data problems can be overcome (eg always proceed to a keyword search if a direct hit is not made; always try an alternative search strategy if the first one is not successful). Of course it costs us more in reader education time to teach users the various searching techniques needed to make full use of the OPAC. But against this cost must be weighed the benefit to users of having access to the full catalogue from many locations. If fact, the interim stage of card catalogue plus COM fiche was difficult for users, and the Review of the Library Committee in its Report in May, 1982 stated that the 'Library should aim to make available a computer output microfiche listing by the end of 1984. This version may be limited in its data elements'.[1] It also recommended that there should be a union serials list. As a result we were given money to start the retrospective conversion.

The use of our local system has raised the questions of what data should be contained in the bibliographical record, to what standard it should be, and at what stage of the acquisitions/ cataloguing process it should be inserted.

Orders are punched into the system from proposal forms. As soon as the punching is complete the information that the item is on order can be found at all terminals. Owing to the need to place orders quickly this is a fairly brief bibliographical record, containing the necessary information for the supplier to identify the item and for library staff to avoid duplication should the item be proposed by another user. Headings are not verified as it is not possible to do this against our database which contains ALA 1949, AACR1 and AACR2 headings from different loads of catalogue data plus unverified headings for items on order, gift records and records for Short Loan photocopies and private copies. We do not believe that it is worth spending time verifying headings on records which will be deleted if the item is not supplied, or which will, 60% of the

time, be bumped by ABN records after items are received. The records are retrievable; the history of the order can be traced through the order record attached to the bibliographical record. However, order details are not available on OPACS as some of the information is regarded as confidential between suppliers and the Library, although library staff can access the order record and pass suitable information on to readers.

Once an item has been received and barcoded a request for an ABN record is automatically (ie by a program which scans the file for newly received items) put into the ABN record request file if there is a control number in the record. Control numbers are inserted into the record as soon as they are found for the use of suppliers, or, if not available at the time of order, as soon as the book is received if an ISBN or LC card number appears on the publication. A tape is sent to the National Library of Australia each week. On its return the records are loaded into our database and a Bumping Report giving the old record and the new is produced. This is checked to ensure that the correct record has been received. The order record is restored if wrong records have arrived. We now have full catalogue records for a considerable number of the items which have not yet been through the Cataloguing Unit. These records are obtained with an absolute minimum amount of intervention by staff. Author, title, subject and classification access is available, with all items received being available for loan as soon as they have been barcoded and shelved, in our New Books Collection, which is housed in accession number order. Subject browsing on the shelves is the only access not available. Some users in fact enjoy the random subject access. By browsing the New Book Collection regularly, they find books which they would not otherwise have seen and therefore enjoy a wider range of reading.

As the result of a major study by Margaret Henty[2] into user needs and priorities, which reinforced earlier recommendations of the Library Committee, monograph cataloguing at the ANU has lower priority than acquiring material. So cataloguers helped process Short Loan lists during the introduction of the URCIA Closed Reserve Module, formed a team to assist in the cancellation of serials in 1986, helped check proposal forms, provided staff for the Astronomy Library etc. There has been an inevitable effect on the number of items waiting to be catalogued but this has been alleviated by the fact that, as explained, bibliographical data for all items received is online, with full access available once an ABN record has been loaded and with the books themselves on open access, except of course for special material such as rare books and theses. Uncatalogued monographs can even go into Short Loan Collections, while items which the proposer has asked to see on receipt go straight to that person, bypassing the Cataloguing Unit. Until July this year all uncatalogued books were in the Menzies Building of the Library. Since then they have been split according to the building where they are most likely to end up. Thus, anything bought for the Medical Sciences Library goes there; anything bought on an economics budget goes to the Chifley building, and so on. This rapid availability of newly received 'uncatalogued' material has been warmly acclaimed by the academic community.

Finally, the Cataloguing Unit gets into the act. As we have already said, for 60% of our Western language material we get a record from ABN. (This paper does not consider the 20% of the Library's intake which is in Asian languages.) Of the ABN records, those which have a full LC classification number are passed to clerical staff who check the bibliographical description online against the book and add the local information before the book goes to its final location. Librarians supply classification numbers for those without a full LC class number and clerks update the record. Librarians handle those without ABN records. But even they have a head start over what was done in manual days. In most cases, although the headings have to be amended to the verified form, the bibliographic description needs little or no change. What has to be added or amended is done online by the cataloguer. So you see that instead of creating first an order record and later, and quite separately, a catalogue record, the first grows into the second. In fact, it is no longer easy to say at what point an item is 'catalogued' especially when you consider the range of levels of cataloguing traditionally done in most large libraries from rare book cataloguing to that of more ephemeral material.

What other access can a local system give? At ANU we are in the process of adding serial issue information to the OPACs. Library staff have had it for some time. Loans from one of our

buildings and from Short Loan are now showing online and all monograph loans (except for Korean, Chinese, and Japanese) will show once we have finished automating circulation. ADFA has demonstrated[3] that it is possible to utilise selected words and phrases from contents lists and indexes in order to give enhanced subject access.

In a local system printouts or fiche can be produced to meet user needs. For example, we produce serials listings, both print and hardcopy as a quick reference tool. We also produce Short Loan lists for the same purpose. These take some pressure off the terminals although the online system is of course always the most up to date list. We produce 'picking lists' of books wanted for Short Loan, arranged by building and call number for easy retrieval from the shelves.

To summarise, figure 2 shows the types of access available when the card catalogue was used compared with the types of access which are available with the use of the OPAC.

Warwick Cathro says[4] that ABN should be a database engine especially for data 'that libraries would end up *duplicating* if they were left entirely to themselves...' We believe that this principle should be applied to the content of bibliographic records.

How much bibliographic data is really necessary? If left entirely to themselves, how many libraries would create records at level 3 or even 2? With local systems we need a different approach to the matter.

On URICA, users first obtain a very brief author, title, date and call number browsing record. How many users take the option to display the medium or full forms of records offered? It would appear to be a fairly small number. Margaret Henty says[5] that, in her observation, the major use of the full records is by research assistants verifying details for bibliographies. Alan Seal reported[6] on a major UK study which showed that almost half the users of a library where an experimental short entry catalogue had been introduced did not even notice the difference. Seal also quoted Hildreth as saying that at Ohio State University the move from the very brief browsing entry to the display of the full record occured in perhaps less than 3% of searches.

Can we afford to create detailed entries, the vast majority of which are never used? To revert to the veteran cars. It is fine to spend many hours lovingly stripping down, cleaning, polishing and rebuilding such a car as a hobby, but no commercial firm would own a fleet of veteran cars for city transportation. Similarly we may want to lavish extra attention on major special collections which we do not believe is warranted for the bulk of the library.

We believe that in providing a good local system we should not be restricted by the conventions appropriate to a card catalogue. We must be aware of the economic realities. We have a reducing staff budget and a sophisticated user group who expect our library to be up there with the world's best in the provision of a variety of the latest electronic information sources. The library staff cannot do everything and we definitely cannot afford to provide services which no one wants to use.

This is not to say that our catalogue is ideal. Far from it. In 1984, when we were asked by our users, through the Library Committee, to clear the cataloguing backlog we introduced what we called Interim Cataloguing. We added a call number and subjects to the order record, without amending it at all, unless actual spelling errors were noticed. For example, if there were two authors of a work, but one only was entered in the record, we did not add the second author. We continued to establish all entries on records received from AMRS, until after the introduction of URICA when we ceased establishing personal or corporate authors and established subjects for our interim records only. We also ceased attempting to introduce consistency in our database. This decision was made as part of the effort to increase the rate of cataloguing, but also partly because of the amount of cleaning up necessary once authority work started on a heading. Also, while our loads continued we introduced old headings back into the catalogue after we had 'cleaned' a heading. There have, of course, been various suggestions over recent years to the

effect that author authority work may not be necessary. However, we have now started doing authority work again because we found that the lack of it was a problem for our users and library staff. We know from Margaret Henty's study[7] that users are frustrated because the loading of our old data, representing a variety of cataloguing practices from the late 1940s on, together with the recent lack of authority control, has resulted in multiple entries for the same author and other problems. But at least we have all our Western language and quite a bit of our South East Asian material online — altogether 725,000 records.

We can use the computer to assist in identifying the problem records and in cleaning them up. Sometimes global changes can correct dozens of records at a time. We are systematically cleaning key sections of records in the more heavily used areas of the collection as part of our project to barcode books for automated circulation.

A problem which exercises us frequently is whether or not, to join ABN as a full participant and if so when. We get roughly a 40% hit on our Western language material from the Tapes Only Service. But 20% of the Library's orders are for items in Asian languages. We classify by LC, Harvard Yenching and DDC16 modified for Law. When we cannot obtain an ABN record for Russian material, covering mainly political science, history, geology and literature, we use RLIN screen prints for subjects and classification. But where we do original cataloguing. although we have abandoned Interim Records, we do not meet ABN standards. Nevertheless, what we do, we endeavour to do well. We use LCNA and LCSH; making heavy use of LC Rule Interpretations and the LC Subject Manual. We avoid 'local' subjects — ABN variations to LC do cause us some problems.

We recognise the need for consistency in records on a national utility. The costs both for the utility and for individual libraries searching it rise when there are multiple and varying records for the same title on a very large database.

But are the utilities right in expecting that libraries should contribute and maintain high level records? Marion Reid[8] has recently asked American academic libraries to say whether they are finding fewer records on their utility than in the past for recently published books. There are suggestions that a number of libraries are preferring to catalogue on their local system and have delayed uploading these records to the utility. The traditional wisdom has been that different libraries need different subsets of a full record, but is that really so? If most people using an OPAC do not bother to look at the full record, then they apparently do not want collations or contents and other notes. Once a library has its own local system, how can that library justify the expense of providing to the utility, this information which is not needed on their local system and presumably not needed on the local system of other libraries copying the record or using it for ILL?

What we need is a new set of standards appropriate to the new forms of catalogues. Standards which can be met by our dwindling numbers of cataloguers. Such standards should be international so that the coming OSI links can be used to benefit us all. Then we can all have a quality product which provides the information our users want and our local systems can provide more of that information than our card catalogues ever could.

Figure 2

	Card catalogue	Online catalogue
Access by author/title/subject series in the main or branch library for items in that building	✓	✓
Access by author/title/subject/series to entire collection from any library point	1 building only	✓
Access by author/title/subject/series from academic departments	X	✓
Access to serial holdings information in location during office hours	✓	✓
Access to serial holdings information of any location in and out of office hours	X	✓
Loan status introduced	X	Partially
Keyword access for author/title/series/subject	X	✓
Access by classification number, ISBN, ISSN	X	✓
Items on Short Loan	Separate catalogue in Short Loan	✓
Printed listings of subsets of the database as required eg bibliographies, serials lists	X	✓

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AN ANALYSIS OF USER FAILURE IN SUBJECT SEARCHING AN ONLINE CATALOGUE

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Abstract *A study of failed subject searches on OPACs at the Dixson Library, University of New England was undertaken. The main reason for failure was that user searches did not match the controlled vocabulary of the database. Other reasons for failure were identified and discussed. The success of keyword searching these alternative terms was assessed*

IN DECEMBER 1984, the University Librarian formed a committee to consider various aspects of subject access to the collections of the University of New England's Dixson Library. The Subject Access Committee, of which the writers were members, recommended that

- LCSH headings continue to be used
- LCSH 'see' references from synonyms and alternative spellings be provided
- LCSH 'see also' references not be provided
- Keyword searching be introduced in stages
- Enhanced' subject headings not be introduced

While the report of the Committee was accepted in principle, various factors have prevented full implementation of its recommendations. In particular, while 'see' references are added as needed, the full set of LCSH 'see' references is still to be loaded; and keyword searching is as yet only available on terminals at the Information Desk. This experience, however, began a continuing interest in the broad question of subject access, an interest which we have continued to pursue.

The study

The purpose of the present study was to analyse failed subject searches in the online public access catalogue (OPAC) at the Dixson Library. The understanding gained from the identification of reasons for failure will assist in planning improvements to the OPAC and increase user ability to access information from it.

Since the introduction of OPACs a new, unobtrusive research method, transaction log analysis, has been used to assist in understanding user behaviour by monitoring the actual use of OPACs. This method has enabled researchers to draw conclusions about user expectations of OPACs. The preponderance of subject searching and the number of searches which fail are two examples. The high number of failed searches has concerned researchers, particularly in the light of studies which have shown such high acceptance of, and preference for, OPACs.

Subject searches on OPACs cause difficulties for users. The main difficulties occur because the user is unable to match the search term which she or he has in mind, and the term used in the OPAC. Controlled vocabularies such as LCSH, particularly if references are not available online, are especially difficult for users. A recurring theme in the studies on OPACs has been the popularity of subject searching, and the difficulties users have with subject access.

The Council on Library Resources (CLR) sponsored the Online Patron Access Project in 1981/83. Five organisations — the Library of Congress; the Online Computer Library Center (OCLC); the University of California; the Research Libraries Group; and J Matthews and Associates — participated in the project. Data was gathered from twenty nine libraries throughout the United States.

The CLR study is the most extensive and important research on OPACs thus far. Other studies have related their findings to it, comparing and contrasting user attitudes across different libraries.

The CLR study found that respondents were conducting more subject searches than librarians anticipated, and more than card catalogue use studies had shown. Subject searching proved difficult for respondents, particularly finding the correct search strategy and terminology. Difficulties with subject searching was the most important factor in user satisfaction. In suggesting improvements to OPACs respondents mentioned enhanced subject access such as keyword searching and searching terms from tables of contents and indexes.

Dixson Library has two catalogues, the card catalogue and the computer catalogue. The card catalogue, which was closed in 1975, includes records from approximately one third of the collection. Gradually the card catalogue is being reduced with the conversion of records to MARC format.

The computer catalogue has two formats, microfiche and online (called PAC). It includes MARC records for all items acquired since 1975, plus recatalogued items gradually being transferred from the card catalogue. The computer catalogue includes the holdings of the Armidale College of Advanced Education Library as well as the Dixson Library. With the exception of some serial records (approximately 600 records), and brief circulation records from approximately 10,000 books which have full records in the card catalogue, the holdings of both catalogues are separate, roughly according to date.

The computer uses VTLS (Virginia Tech Library System), developed by the Virginia Polytechnic Institute and State University, USA, with some local modifications implemented by the Library's Systems Analyst. The system was installed in 1976, and in 1989 includes cataloguing, loans and acquisitions in an integrated system. One OPAC terminal was introduced in March 1984, increasing to four in 1985. OPAC terminals are also located in the Armidale College of Advanced Education Library, and in the Lewis Library, a branch library of Dixson. Users on campus may also access the catalogue from terminals in academic departments and, with appropriate equipment, from home.

The OPAC can be searched by author, title, subject, and call number using A/, T/, S/ and C/ commands respectively. Subject access is provided through the use of LCSH and FLASH. Other searches are available, such as ISSN, ISBN and unique system number; however those searches are considered more appropriate for library staff and are not included in the brochures or help screens. The system provides keyword access to all fields of entries, but this access point has not been made available through OPAC because of computer limitations.

The database has full authority control for authors including references from non preferred terms and to earlier or later names. Subject authority control is available for 'see' references only, and is not a complete LCSH file. 'Red Books' are available near the OPACs to help users to find the correct subject term.

Methodology

The study analysed transaction logs of subject searches which did not proceed beyond the initial computer response. Some of these searches were 'hits' which were not continued by the user (and were not considered in this study); but the majority can be considered 'failed searches'. A sample of transaction logs from five days of OPAC use were examined.

The transaction log includes data from each OPAC terminal (four in the Dixson Library and one each in the Armidale College of Advanced Education and the Lewis Libraries) and from two terminals at the Information Desk. The log records for each terminal the time, the search and a code of the response from the system. The two responses to searches which fail are:

NO EXACT MATCH — TRY AGAIN BEING LESS SPECIFIC

which indicates that the system recognises some of the search; and secondly:

NO QUALIFYING ENTRIES FOUND — PLEASE ENTER NEW COMMAND

which indicates that the first word of the search has not been recognised.

Analysis of the transaction logs began with the categorisation of spelling/keyboard errors. The Macquarie Dictionary and various scientific dictionaries were consulted as appropriate. Similarly, searches which used an initial article, or truncated or abbreviated terms were noted.

Each remaining search was checked against LCSH and/or FLASH. Various categories of search were established as a result of these checks. As shown in Table 1, some categories of search were checked in the OPAC to see if, for example, the preferred term, or plural term, were included. This analysis resulted in all terms which matched LCSH and FLASH thesauri being categorised.

Table 1 Subject headings checks

LCSH term not in database	
LCSH see reference	Preferred term checked
FLASH term not in database	
FLASH see reference	Preferred term checked
Single term	Plural term checked
Plural term	Single term checked
Single term with plural reference	Plural reference checked
Plural term with single reference	Single reference checked
English spelling	American spelling checked
English spelling with American spelling reference	American spelling reference checked
Name heading	Correct form checked

The searches which remained fell into three categories:

- One or two natural language terms
- Three or more word natural language phrases
- Unidentified terms

The second stage of analysis used the OPACs keyword searching facility to check the database. All failed searches except spelling/keyboard errors and truncated or abbreviated terms were searched.

The aim of the keyword searches was to analyse the hit rate of a free text search, so that comparisons of success rates could be made between searching and controlled vocabulary searching. When the search included two words, a Boolean 'and' search was conducted. For phrases the search was considered successful if the combination of keywords was found.

The study analysed individual searches, not user sessions. The transaction logs include only those searches which did not proceed beyond the initial computer response. The study therefore can draw no firm conclusions about whether or not users found the information they were seeking.

Results

Over the five selected days, 3,215 subject search commands were entered, or which 1,030 (32%) failed to match a subject heading in use, or a cross reference (Table 2).

Table 2 All subject searches

Date	Subject searches	Selected headings	Cross reference	No exact match	No qualifying entry
7/9/88	257	175	10	41	31
14/9/88	758	504	14	77	163
15/9/88	831	521	27	127	156
17/9/88	537	330	14	88	105
22/9/89	832	556	34	104	138
Total	3,215	2,086	99	437	593
		(64.9%)	(3.1%)	(13.6%)	(18.4%)

Table 3. Categories of Failure

Category	No.	%
1-2 word, natural language terms not in LCSH or FLASH	376	36.5
Spelling/keyboard errors	163	15.8
Phrase, not in LCSH or FLASH	147	14.3
Truncations	91	8.8
LCSH see reference, preferred term in database	81	7.9
LCSH term not in database	51	4.9
Unidentified terms	41	4.0
Single term, plural LCSH term in database	11	1.1
Plural term, single LCSH term in database	10	1.0
LCSH see reference, preferred term not in database	9	0.9
FLASH term not in database	8	0.8
Inverted name, not in database	8	0.8
Term beginning with an article	6	0.6
Name not inverted, name in database	3	0.3
Name not inverted, name not in database	3	0.3
Single term, plural LCSH term, not in database	3	0.3
Plural term, single LCSH term, not in database	3	0.3
Single term, LCSH reference from plural term, not in database	3	0.3
One word term, 2 word LCSH term, no reference, in database	3	0.3
Two word term, 1 word LCSH term, no reference, not in database	3	0.3
English spelling, LCSH American spelling, no reference, in database	3	0.3
Single term, LCSH reference from plural term, in database	2	0.2
Plural term, LCSH reference from single term, in database	2	0.2
Total	1030	100.2

Of all subject searches, 437 (13.6%) elicited the response

NO EXACT MATCH TRY AGAIN BEING LESS SPECIFIC

For example, the search

S/GAMES FOR ADULTS

If the user had then entered a less specific term, such as

S/GAMES

a match with a subject heading would have occurred. A majority of failed subject searches (593,18.4%) did not match a heading in use, nor would a less specific term have matched a heading in use. For example, the search

S/AERIALS

produced the response:

NO QUALIFYING ENTRIES FOUND — PLEASE ENTER NEW COMMAND

Failed subject searches fell into three main areas:

1 Search arguments which did not match a subject term or reference in use: 723 (70.2%)
2 Spelling/keyboard errors: 163 (15.8%)
3 Incorrect or inappropriate search strategies: 103 (10.0%)

In addition, the cause of failure for 41 terms (4.0%) could not be definitely identified (Table 3).

1 Non matching terms

Search arguments which did not match a subject term or reference in use accounted for most failed searches. Slightly more than half (523, 50.8%) of all failed searches were terms which reasonably described subjects, but were not valid LCSH terms, with 376 (36.5%) being one or two word terms, while 147 (14.3%) were longer, natural language phrases. Other significant causes of failure were: terms from which LSCH had provided a reference, but the reference was not in our catalogue (81, 7.9%); and valid LCSH terms for which the Library had no holdings (51, 4.9%).

a) 1-2 word natural language, non LCSH terms

The most significant cause of failure was the entry of a one or two word term which was not an LCSH preferred term, and from which there was no reference. This problem accounted for 376 (36.5%) failed subject searches. Terms tried were often reasonable, and which might have been chosen as LCSH terms, for example,

AERIALS
BOWEL FUNCTION
HAZARDS
RULING CLASS
TIMBER INDUSTRY
TOXIC PLANTS

Users could be quite persistent in their searches, for example:

CONSTRUCTIONS
CONSTRUCTIONS — UNDERGROUND
BUILDING CONSTRUCTIONS
UNDERGROUND CONSTRUCTIONS
CONSTRUCTIONAL ENGINEERING

Of these, only

CONSTRUCTIONS

was successful as a keyword search, yielding four hits.

UNDERGROUND CONSTRUCTION

is an LCSH heading, under which the Dixson Library has two entries.

Another user searched for something on Australian composers, by entering:

AUSTRALIAN COMPOSERS
AUSTRALIAN MUSIC
AUSTRALIA MUSIC
COMPOSERS AUSTRIALIAN (sic).

Keyword searching yielded seven hits for

AUSTRALIAN COMPOSERS

and 94 hits for

AUSTRALIAN MUSIC

(AUSTRALIA MUSIC could not be searched as AUSTRALIA is a stop word).

The LCSH heading

COMPOSERS — AUSTRALIA

was used for 14 items in the Dixson Library.

b) 3+ word phrase, non LCSH term.

Some users expected the computer to search for phrases of three or more words; this type of search accounted for 147 (14.3%) failed searches. Although LCSH does allow phrases, such as:

BANKS AND BANKING
BOWEL AND BLADDER TRAINING
CAST-IRON IMPLEMENT SEATS
SEWAGE SLUDGE AS FEED
SOCIAL WORK WITH DELINQUENTS AND CRIMINALS,

the much more common form of heading is a term alone, or with subheadings. Nevertheless, users attempted such searches as:

AFFECT OF MANGANESE ON PLANTS
AUSTRALIAN SCIENTIFIC JOURNALS
ENGLISH INFLUENCE ON ASIA
HOST SELECTION PRINCIPLE
PLANTS OF THE WORLD
REST AREAS IN SHOPPING CENTRES
TEACHERS AND THE LAW
WEST TROPICAL AFRICA

Once again, users showed considerable persistence with such strategies, for example this sequence:

THERMO REGULATION AND FLEECE LENGTH
TEMPERATURE REGULATION AND FLEECE
FLEECE LENGTH AND TEMPERATURE

Keyword searching on these words was fruitless. If only a librarian had been at this user's elbow to suggest a search of the journal literature instead!

c) Terms for which LCSH provides references
The Dixson Library catalogue has some, but by no means all, references from non preferred to preferred terms. These references include LCSH and FLASH references, and some from locally used terms, for example

LAND RIGHTS (AUSTRALIAN ABORIGINES)

see

ABORIGINES, AUSTRALIAN — LAND TENURE.

On the days studied only 99 (3.1%) of all subject searches matched cross references in the catalogue (Table 2). If all LCSH references were in our catalogue, 81 (7.9%) failed subject searches would have at least revealed a reference to a heading under which the Library had material listed. A further nine (0.9%) failed searches used terms from which LCSH provides a reference, but for which the Library has no holdings under the preferred term.

d) Valid terms, no holdings
Valid LCSH terms for which the Library held no items accounted for 51 (4.9%) failures; another eight (0.8%) used valid FLASH headings, for which there were no holdings.

e) Singular-plural terms
The use of singular terms, when LSCH has preferred the plural form, and vice-versa, was a small but irritating cause of failure, as LCSH does not always provide references from the non preferred to the preferred term. Unsuccessful searches of this type included:

APPLES
KIDNEY BEANS
KIMONO
POLIOVIRUSES
TRANSPARENCY
WHEEL

Of failed searches, 14 (1.4%) saw the entry of singular terms, for which the LCSH preferred term is plural, and 13(1.3%) were the reverse. Seven searches (0.7%) were singular or plural terms for which LCSH provides a reference from the opposite term to a third, preferred term. Of all such searches, 25 (2.4%) missed headings under which the Library had material listed.

f) Hyphenated/split words
Some terms are commonly written in three ways: as one word, as two hyphenated words; and as two separate words. LCSH does not always provide references from the non preferred versions of these words. Six searches (0.6%) failed when non preferred forms of such terms were entered, for example,

FOODWEBS
THERMO REGULATION

g) English versus American spellings
Only three (0.3%) subject searches were attempted which used an English spelling, and for which LCSH does not provide for a reference from the English, to the American spelling. They were:

HOSPITALISATION
DECENTRALISATION

2 Spelling/keyboard errors

Spelling or keyboard errors accounted for 163 (15.8%) failed subject searches. The struggle with the keyboard is often intense:

OBSTERTRICS
OBSTERTRICS
GUMECOLOGY
PAEDITRICS,

and another:

ANALISING BOOKS
BOOK REVIES

Occasionally, words were run together:

FIRSTWORLDWAR

3 Inappropriate search strategies

Three inappropriate search strategies were used:

a) The use of an initial article, for example,

THE GOOD
THE CHILD

This error occurred six (0.6%) times.

b) Truncations, for example the following sequence of subject searches:

COMMUNITY LANG
COM LANG
POV ECON
POVERTY EC
ECON POV

Truncations accounted for 91 (8.8%) failed searches.

The number of failures due to truncation is high. This problem may be system specific. The VTLS system automatically truncates title searches. Users may assume that the system will also automatically truncate subject searches.

c) Incorrectly formulated name searches. Names caused few problems; only six searches (0.6%) failed to formulate name searches correctly (by entering the family name first); half of these, if formulated correctly, would have matched subject headings in the catalogue. A further eight (0.8%) were correctly formulated names, but the Library had no holdings.

Keyword searching

At the time of the study, keyword searching was not available on OPAC terminals. In order to assess the value of keyword searching in Dixson's system, a keyword search was attempted for all unsuccessful searches, except for spelling/keyboard errors and truncations. In all, 778 (78.5%) failed subject searches were attempted as keyword searches. The number of hits for each search term was as follows:

Table 4 Keyword searching

No of hits	No of searches	%
0	312	40.1
1-5	177	22.8
6-50	168	21.6
51-200	50	6.4
201+	19	2.4
stop words	52	6.7
Total	778	100.0

The following terms all recorded more than 400 hits:

1914	992
ABORIGINAL	862
EXPLORATION (entered twice)	567
BUSINESS MANAGEMENT	547
ACTIVITIES	510
DISCOVERY	449
STATISTICAL METHODS	456

As expected, keyword searching yielded confusing results at times. For example, the user who entered this sequence:

SARSAPARILLA
SOFTDRINKS
FLAVOURINGS
FLAVOUR

may not have been helped by keyword searching, as SARSAPARILLA yielded two items:

Four plays / Patrick White
Patrick White. Collected plays. Vol 1.

Similarly, WILD OATS yielded:

The Wild oats of man / Katherine Susannah Pritchard.

Unidentified terms

After assigning search terms to the categories discussed above, 41 (4.0%) remained which could not be firmly categorised, even after checking in dictionaries and other reference tools. Some appear to be botanical terms (students enrolled in a Botany course were engaged in a library assignment at the time):

EUPOMATIACEAE
AQUIFOLIACEAE
GASTROLOBIUM
HYCANTHUS

and may be legitimate terms or spelling errors. Others may have been attempts to search for names:

HATTY
YEWINS

But what are NORGINE, FANT and KRIJING?

The absence of terms of a sexual nature was noticeable; perhaps PETROPHILE was an attempt by a poor speller!

Although we are not able to establish the intention of the users who entered these searches, we suspect that most are misspellings or attempts to find subjects which students have misheard in lectures and tutorials.

CONCLUSIONS

Transaction logs have been produced since the introduction of OPACs in the Dixson Library in 1984. One noticeable change has been the reduction in the incidence of terms of an explicit sexual nature, and in expressions of frustration with the system. The transaction logs used in this study did not include such searches. It appears that our readers now use the OPAC as they would use a traditional form of catalogue. Perhaps they now have enough experience in using the OPAC to not need to 'practise' with terms which are of interest to them, but are not for information retrieval. A side effect of the analysis has been the easy identification of gaps in the collection.

It is clear that the success rate for users attempting subject searches in the Dixson Library's OPAC can be improved. In particular, the inclusion of LCSH and FLASH 'see' references would have ensured success for a number of users. The Dixson Library will soon load all relevant LCSH 'see' references.

The inclusion of references from singular and plural terms (when the LCSH preferred term is the opposite) and from English to American spellings, although not provided by LCSH, would have been useful. It is perhaps understandable that LCSH has lagged behind need in these respects as traditional forms of catalogue more readily facilitate browsing. The computer, being totally literal, will only reveal exact matches of entered terms.

The Dixson Library Subject Access Committee acknowledged the value of keyword searching in its 1985 report. The present study appears to indicate that the introduction of keyword searching for OPAC users will lead to great success.

The reasons for introducing keyword searching have been discussed at length in the literature. The desirability of picking up material by using a selection of significant natural language terms as an alternative or complementary strategy to searching the structured subject headings system, is beyond argument. Rather, every library needs to decide if keyword searching is desirable enough to its readers and staff to make the necessary investment in additional computer hardware. The introduction of such a facility must be weighed against the loss of an acceptable response time for many Boolean searches. In the VTLS system, with its present hardware, searches of such combinations as

AUSTRALIAN + MUSIC

take an unacceptable length of time to process. Improvements to the software will soon enable VTLS to run in native mode; keyword searching with an acceptable response time will then be made available. However, the incidence of false drops, and large numbers of hits may still be unacceptably high.

Implications for library policy

It was gratifying to find that the results of this study support the recommendations made by the Subject Access Committee, which were based mainly on other early studies of OPAC use, and only limited examination of our users' behaviour.

While the Committee's support for the continuing use of LCSH may seem conservative, it is important to establish that current practice is appropriate. It is clear the LCSH's controlled vocabulary is accepted and used well by our library users; 64.9% of all subject searches matched a subject term in use (and the vast majority of those in our database are standard LCSH terms). As well, 3.1% of searches matched a cross reference already in the database, 2.5% tried terms which LCSH uses as 'see' references which we had not added, and 1.9% used LCSH terms or 'see' references to terms under which no material had been entered. In all, 72.4% of subject searches used LCSH terms.

While the lack of a complete set of LSCH 'see' references only accounted for a relatively small percentage of failure (7.9% of failed searches, of 2.5% of all searches) the addition of these to the database is a relatively straightforward process, and has been underway for some time. Regular monitoring of the transaction logs has led to the identification of terms or subjects which our users find troublesome, and to the immediate addition of the relevant 'see' references.

Failed searches which involved singular/plural, English/American spellings and hyphenated/split words have been fully established, even when LCSH does not give relevant references. 'See' references not provided by LCSH have been added where a particular term has been frequently used; for example we now have the reference

DOS (Computer operating system)

to the LCSH headings

PC DOS (Computer operating system) and
MS-DOS (Computer operating system)

Terms with less than seven characters have received particular attention. VTLS allows truncation only after the seventh character, so that the entry of

MOSS

will not retrieve

MOSSES

although

ANTIBIOTIC

will retrieve the plural form

ANTIBIOTICS

The recent purchase of LCSH on CD ROM will considerably simplify the processing of adding 'see' references to all subject headings.

While this study did not look directly at the question of 'see also' references, we have found no reason to question the Committee's recommendation that 'see also' references should not be added to the database.

The value of keyword searching, and its pitfalls, were amply demonstrated; 40.2% of failed searches (12.9% of all subject searches) would have matched at least one item if searched using the VTLS keyword and Boolean searching facility, which allows searching on any designated MARC field. Following our migration to native mode (planned to be completed before the beginning of 1990 academic year) the system limitations which now prevent keyword searching on our OPACs will be overcome. This will pose a particular challenge to our reader education team, for, while VTLS keyword searching is very powerful, it requires a degree of user sophistication to exploit fully.

Despite the fairly high failure rate due to the entry of reasonable terms or phrases which are not used by LCSH (52.3% of failed searches, or 16.3% of all searches), we remain unconvinced that enhancing subject access by adding terms drawn from outside the LCSH controlled vocabulary is cost effective. Many of these terms, particularly the one and two word terms, would have been successful as keyword searches; longer terms were less successful. Paradoxically, the one and two word phrases could be fairly readily identified as useful 'enhanced' terms, while it would be much harder to 'second guess' the longer phrases. It is difficult to see how, short of adding artificial intelligence to our systems, our computers could be made to successfully interpret complex terms such as 'thermo regulation and fleece length'. Where a good keyword searching facility is available, the labour cost and the increase in the size of the database which are the consequences of enhancing subject access in this way, are difficult to justify.

When looking at failed subject searches, it is easy to conclude that the OPAC is letting our users down. However, 64.9% (Table 2) of subject searches in this sample were hits. This study concentrated on individual searches rather than complete user sessions, so overall success or failure cannot be judged. The Dixson Library will continue to monitor the use of its OPACs so that access to the collections can continue to be improved. This study has amply demonstrated the value of transaction log analysis in this process.

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QUALITY IN, QUALITY OUT... IT IS POSSIBLE

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Abstract *The notion that quality cataloguing is not attainable in the age of automation is disputed. This is achieved in the context of a discussion about facilities offered by ORACLE (Online Retrieval for Acquisitions, Cataloguing and Circulation Details for Library Enquiries), a local system designed and maintained by the State Library of Queensland. The quality of ORACLE's cataloguing facilities indicates that local systems do not have to be constrained by system design, MARC coding or any other variables. Several enhancements which have improved the Library's service have been possible because of the quality of the catalogue*

Constraints in automated systems

Some characteristics of automated systems are often considered threats to a quality catalogue. Potential constraints discussed in this paper are: system design, the use of MARC format and the concept of the integrated system.

1 System design

The most significant characteristic to impact any automated system is its design. The design of a turnkey system generally lies with the vendor, but in a local system those who are to use the system should have the opportunity to design it.

- *Reasons for developing a local system*

  In 1974, approximately 72,000 books belonging to the State Library's Public Libraries Service were destroyed by Brisbane's cyclonic floods. After the floods, the immediate priority was to replace the book collection and reestablish lending services. Although this was undertaken manually, it soon became apparent that automation should improve the efficiency of the service.

  After consideration of various alternatives, it was decided to develop an in-house online system. The system, code named ORACLE, comprises five fully integrated modules: enquiry, cataloguing, circulation, acquisitions and serials control.

  Development of the system commenced in 1977 as a joint project between the State Government Insurance Office (SGIO) and the Library Board of Queensland. SGIO supplied programming and computer resources. In 1983, the Library Board acquired its own mainframe computer and a Computer Systems Branch was established within the State Library.

  ORACLE is designed to be used as a multi library network and presently supports six libraries: State Reference Library, John Oxley Library, State Children's Library, Public Libraries Division (all within the State Library of Queensland), the Queensland Department of Primary Industries and the Queensland Performing Arts Trust. There are approximately 150 terminals in the Network.

- *Liaison*

  When development began, a librarian was seconded to the position of Systems Coordinator. The Coordinator was responsible for specifying and documenting the Library's requirements and liaising with the Systems Project Team. Programming for the cataloguing and circulation modules proceeded simultaneously. Relevant library staff were given the opportunity to contribute to the design of their module and this staff involvement has been essential to ORACLE's success.

  ORACLE is now managed by the State Library's Computer Systems Division which is staffed by a Director, Systems Librarian, four programmers and two operators. Its main task is to support and maintain all ORACLE development, programming, operations and documentation.

The ORACLE Users' Group meets every month to discuss policies, enhancements and problems. All libraries participating in the Network are represented at meetings. The Group discusses enhancement requests and allocates priority ratings. All staff are encouraged to submit enhancement requests.

In most instances, alterations can be made to running systems as no software packages are used. Consequently, ORACLE has evolved into a dynamic yet reliable system.

- *Design of the cataloguing module*

In an integrated system such as ORACLE, the catalogue is the base from which all other modules operate. The cataloguing module provides online cataloguing facilities, including automated authority control. Records can be created by copying the records of another ORACLE Library user, purchasing records from external sources such as ABN or creating original catalogue records online.

ORACLE automatically stores requests for MARC records when items are accessioned. Requests are batched by the system and regularly sent to ABN's Magnetic Tape Service. When records are received, they are verified by the system and added to the cataloguing database. Records can be edited online or via system generated worksheets. All data input from any source is validated against the relevant AUSMARC specification and fields which do not meet the validation requirements are flagged as invalid.

Each bibliographic record in the OPACLE base is linked to an authority file of authorised forms of the headings (names, subjects, series, uniform titles) which appear on the record. This file also contains relevant notes, cross references and variant headings.

The system carries out authority file checks to decide whether to link a new catalogue record to existing headings in the authority file, alter headings in the new record to match those already in the file or create a new authority. The authority updating function allows global changes to establish headings. Each heading has only one entry in the authority file. Therefore, only one transaction is needed to change every occurrence of the heading in the union catalogue. Associated cross references are also updated automatically.

Authority files can be searched online. The response to a search can be a display of the full authority record or a list of bibliographic records in which the heading appears. The machine readable Library of Congress Subject Headings file is also loaded within the authority files. It is updated via weekly tapes from the Library of Congress.

An indexing sub system is also supported within the cataloguing module. Index records are attached to a bibliographic record and can be searched in the same way as a catalogue record. The screen display of the search results is similar to the traditional 'in' analytic entry.

The cataloguing module was designed with substantial input from cataloguers. This, coupled with the notion that the cataloguing facility belongs to cataloguers, not programmers, has resulted in an effective end product.

Use of AUSMARC

Use of a standard format for cataloguing input has not been considered a disadvantage. Australian MARC(AUSMARC) format was chosen, this being the accepted Australian standard for exchanging bibliographic data. The State Library has been able to code most of its materials in the AUSMARC format, including music, rare books and manuscripts. ORACLE's MARC based indexing system also utilises the full range of fields used in local coding.

Some local adaptations have been made. For instance, ORACLE does not use the 940-945 reference structure fields. Also, a unique holdings field has been created. The 'HLD' field (ie Holdings field) has three subfields which store a collection code, classification number and copy details. This field also creates item labels and circulation records.

The 554 field, specified in AUSMARC as a 'local data' field, is used to store notes relating to specific copies and library holdings. For instance, in the network two libraries may hold the same multi volume work. Library A may hold all volumes; Library B may hold volumes 1 and 3 only. This information is entered in a 554 field and is displayed only to the relevant library.

ORACLE validates all cataloguing transactions against the relevant AUSMARC specification. The system will not accept data until it meets the validation requirements. Tags, subfields and authority data are all checked and specific error messages are reported.

There is no doubt that coded data, in whatever format, is more easily manipulated than free text data. Coded data saves storage space and provides standard terminology for machine recognition but it does not have to result in a coded display; it is still possible to have a free text display. Figure 1 illustrates a coded catalogue record as used by cataloguers. Figure 2 is the same record as seen by the Library's OPAC users.

Integrated systems

ORACLE is a fully integrated system. A single bibliographic record serves the needs of all libraries holding the title, regardless of the number of copies. The record is used in all processing routines, thus avoiding costly re input and duplicated storage. Data entered on the order record forms the basis of the catalogue record. Consequently, a title can be searched in the catalogue from the time it is ordered. Reservations can be placed on titles on order and the acquisition record is transformed into the cataloguing record at the time of receipt.

Integration also means all ORACLE functions are available at every terminal. All staff have access to basic acquisition details and circulation status information, but a password is needed to access updating tasks.

A further benefit of integration has been the removal of some of the 'mystique' of the catalogue. The State Library's cataloguers have a detailed understanding of how the online catalogue is created. To use this to advantage, they are now being rostered on the Information Counter and reference staff and patrons alike are benefiting from their knowledge. Also, with flexible screen displays and multiple access points, traditional cataloguing concepts such as 'main entry' are no longer significant. Most staff have constant interaction with the online catalogue; it is no longer the exclusive domain of cataloguers.

Improved library services

Automation is only a means to an end; it is not an end in itself. An automated library system should improve processing routines and offer potential for expanding library services. The effectiveness of certain enhancements to ORACLE has been directly dependent upon the quality of the data stored in the catalogue. These enhancements have included a menu driven OPAC, an automated stack retrieval system and the ability to produce abbreviated catalogues on request.

OPAC (Online Public Access Catalogue)

The initial design of ORACLE incorporated command driven searching only. With the advent of OPACs in the 1980s, it was decided to develop menu driven searching for public access. Therefore, the OPAC had to utilise the structure of the existing online catalogue which had been designed some seven years earlier. The fact that no additional work was needed to adapt the catalogue for OPAC is indicative of sound initial design.

ORACLE's OPAC searching utilises the online reference structure maintained in the authority files. If a variant heading is entered as a search term, the system will automatically display the established heading. Therefore, patrons do not have to reexecute their search. Searching for **lawrence david** will retrieve **Lawrence, D H (David Herbert). 1885-1930,** the established form of the name.

When searching subjects, patrons are first shown a , headings which match their search term. Searching for **libraries** will retrieve all headings, whether variant or established, which begin

with 'Libraries' (See Figure 3). After displaying matches with the search term, the system displays scope notes and related headings (see Figure 4). Then the heading with subdivisions will be displayed (Figure 5), followed by citations for records with that subject heading (Figure 6).

This sometimes appears to be an elaborate way to reach a catalogue record. However, experienced patrons can bypass the reference structure if necessary. Such access to the online thesaurus helps inexperienced patrons define their searches. All subject displays are numbered and patrons have the option of searching any displayed subject at any time by typing its number. By following the reference structure, they are able to be more precise in their searching.

Patrons can further pursue related headings at the full catalogue record display (as appears in Figure 2). Subjects appear on the record a. d are numbered. Typing the number of a subject will lead the patron to the reference structure for that subject and to resulting citations. By following the predetermined pathways through the catalogue, the patron need only enter a search term once.

There is no doubt that maintaining an authority control system can be the most time consuming, labour intensive part of cataloguing. However, a quality authority file is warranted when system output indicates patrons make heavy use of subject searching. The ORACLE OPAC does have keyword searching across most fields on the catalogue record and descriptors are added to records when appropriate. However, patrons do not always find keyword searching easy to understand, particularly as the concept of keywords varies from system to system.

In a system without authority control, the patron cannot know when to end an unsuccessful search. The tendency is to assume that if one has retrieved a number of like items, but not the one sought, this is so because it does not exist. Hence, patrons can be misled. If a patron wanted a book about D H Lawrence, without control there could be entries under **Lawrence, D H Lawrence, David or Lawrence, David H.** The user cannot know if these names represent the same author or if all variations have been located?

Patrons know what to expect when there is a known structure and consistency imposed on the catalogue. Establishing one authoritative form for each heading with linkages to and from related terms ensures all manifestations of a name or subject are brought together. The patron should be confident that everything relating to that person or subject will be found under that heading.

2 STARS (Stack Retrieval System)

An automated stack retrieval system operates as a subsystem of ORACLE in the State Reference Library. The Library stores many items in closed access areas and requests for these items can be initiated by staff or by patrons at OPAC terminals. The success of this system depends on the maintenance of certain cataloguing standards.

STARS is parameter driven. As stated earlier, ORACLE has a 'holdings' field which stores a collection code, call number and copy details. The coding in this field supplies the data for the retrieval system. A parameter file is set up for every collection code in the catalogue. These codes can be subdivided by the first digit in the Dewey number and/or year of publication.

ABCATS

ABCATS (ie Abbreviated catalogues) are printed catalogues of specific records in ORACLE. ABCAT entries are determined according to criteria nominated by the person requesting the ABCAT. The entries can be as brief or full as desired, depending on the number of AUSMARC fields requested.

Due to the integrated nature of ORACLE it is possible to select criteria from Acquisition, Circulation, Binding, Holdings, Cataloguing, and Indexing options. A sample 'ABCAT REQUEST' form is attached in Figure 7 and a sample page from a printed ABCAT is attached in Figure 8. Using a variety of options, it would be possible to request a catalogue of donated monthly serials, bound regularly, catalogued within the Dewey range of 650 to 658 and published in New South Wales. A wide variety of catalogues are produced: accession lists, lists of

government publication, lists of specific materials (eg videos, maps), subject lists and shelf lists for stocktakes.

Most of the information needed to fulfil request options is stored on the catalogue record. Data stored in the 008 field is most useful and supplies date, type and place of publication as well as the language code. Some of this information is stored in free text in other areas of the catalogue record, but the specific coding in the 008 field allows the information to be easily retrieved.

On occasions, the usefulness of some MARC fields has been weighed against the cost of their maintenance, especially when retrospective conversions were being undertaken. In the conversion of the Public Libraries Service catalogue (ten years ago), the 008 field was not maintained for fiction and foreign language records. This decision has, at times, been regretted as the options for producing abbreviated catalogues are limited.

More recently, the value of maintaining the 023 and 024 fields was questioned. Soon after, the State Reference Library was asked to supply a list of its current newspaper holdings. As could be expected, the fields being questioned were the fields which could easily supply the requested information.

The programs which produce ABCATS are based on those used to produce the State Library's microfiche catalogues. Consequently, ABCATS can only manipulate existing data. The information to be selected and sorted must be contained within ORACLE. (It is not possible to use 'all the blue books' as a selection criterion.) When deciding which fields to maintain, the policy of 'more is better' applies.

Conclusion

The familiar adage 'garbage in, garbage out' is very true in an automated library system. Surely the onus is on librarians to ensure 'garbage' is not entered in the first place. System designers must be responsive to user needs, but librarians must ensure they know what they want from their automated catalogue.

Automation should not signal the end of quality cataloguing, but be seen as an opportunity to maintain standards and expand the concept of the catalogue. The justification of a quality catalogue is an improved library service.

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FIGURE 1.

```
 MARC RECORD DUMP DISPLAY          User-id SL          ORACLE No. 02223487
Record Created on 17/07/84                    Record Last Altered on 23/07/84
                                                                    Page  1
        Tag  Lv Ind  MARC Data
    1   HLD          \ag\b025.52$1982\dc1
    2   LDR          *****PAM
    3   001          0918212502
    4   008          820322s1982****nyua*****a***o0011**eng*1
    5   010      00  \a82-006320
    6   050      00  \aZ674.4\b.C47 1982
    7   082      00  \a025.5\b2\z 19
    8   100  00  10  \aChen\hChing-chih\c1937-
    9   245  00  10  \aInformation seeking\bassessing and anticipating user
                     needs\dChing-chih Chen, Peter Hernon
   10   260  00  00  \aNew York, NY\bNeal-Schuman Publishers\cc1982
   11   300  00  00  \axv, 205 p.\bill.\c21 cm.
   12   440  00  00  \aApplications in information management and technology
                     series
   13   504  00  00  \aIncludes bibliographical references and index
   14   595  00  00  \a0918212502\bpbk.\dUS$19.95 (est.)
Please press 'ENTER' to continue

 MARC RECORD DUMP DISPLAY          User-id SL          ORACLE No. 02223487
Record Created on 17/07/84                    Record Last Altered on 23/07/84
                                                                    Page  2
        Tag  Lv Ind  MARC Data
   15   650  00  00  \aInformation services
   16   650  00  00  \aLibraries
   17   700  00  10  \aHernon\hPeter
End of MARC Record
```

FIGURE 2.

```
 Searching for LIBRARIES                                    USER SL
                                                            PAGE  1

Call Number:    G 025.52 1982
Author:         Chen, Ching-chih, 1937-
Title:          Information seeking : assessing and anticipating user needs /
                Ching-chih Chen, Peter Hernon
Published:      New York, NY : Neal-Schuman Publishers, c1982
Description:    xv, 205 p. : ill. ; 21 cm.
Series:         Applications in information management and technology series
Notes:          Includes bibliographical references and index
ISBN:           0-9182-1250-2
Subjects:       1. Information services

                                                        OR02723487

To see related works you may type a Subject's number,
OR   p ==> Previous page      h ==> Help      x ==> Exit
```

FIGURE 3.

```
 1  LIBRARIES

    For general works type '1' otherwise select a number from the list below.

 2  LIBRARIES - Accidents - Bibliography

 3  LIBRARIES - Addresses, essays, lectures

 4  LIBRARIES - Africa

 5  LIBRARIES - Africa - Bibliography

 6  LIBRARIES - Africa - Directories

 7  LIBRARIES - Africa - Periodicals

 8  LIBRARIES - Africa, West

Type the number of the subject you prefer,
     OR
c ==> Continue Searching      p ==> Previous page      h ==> Help      x ==> Exit
```

FIGURE 4.

```
Searching for LIBRARIES

Total Found  55

  1 How to form a library / by Henry B. Wheatley, London : Elliot Stock, , GR
    021.6 n.d.

  2 Escape with a book! <poster> : libraries are great mate, <Brisbane :
    Queensland Library Promotion Council, , QPT c00407

  3 Information seeking : assessing and anticipating user needs / Ching-chih
    Chen, Peter Hernon, New York, NY : Ne, 1982, G 025.52 1982

  4 Library leadership : visualizing the future / edited by Donald E. Riggs,
    Phoenix, Ariz : Oryx Press, 1982, G 020 1982

  5 The end of libraries / James Thompson, London : Bingley, 1982, G 025.56 1982

IF YOU SEE THE BOOK YOU WANT TYPE ITS NUMBER,
     OR
c ==> Continue Searching      p ==> Previous page      h ==> Help      x ==> Exit
```

FIGURE 5.

Searching for LIBRARIES

1 LIBRARIES

2 LIBRARIES, ACADEMIC

3 LIBRARIES - Accession department

4 LIBRARIES - Accounting

5 LIBRARIES - Administration

6 LIBRARIES - Advertising

7 LIBRARIES AND ADULT EDUCATION

8 LIBRARIES AND BOOKSELLERS

Type the number of the subject you prefer,
OR
c ==> Continue Searching p ==> Previous page h ==> Help x ==> Exit

FIGURE 6.

1 LIBRARIES

Type '1' unless one of the related subjects below is of more interest.

subdivision Library under names of individual persons, families, and corporate bodies; also subdivision Libraries under names of individual corporate bodies; also headings beginnning with the word Library; and names of individual libraries

2 AFRO-AMERICANS AND LIBRARIES
3 AUDIO-VISUAL LIBRARY SERVICE
4 FICTION IN LIBRARIES
5 LIBRARIANS
6 LIBRARIES, INTERNATIONAL
7 LIBRARIES, PRIVATE
8 LIBRARIES, SPECIAL
9 LIBRARIES, SUBSCRIPTION
10 LIBRARIES, UNIVERSITY AND COLLEGE

Type the number of the subject you prefer,
OR
c == Continue Searching p ==> Previous page h ==> Help x ==> Exit

TO : Systems Librarian

FROM :

DATE :

ABCAT (ABBREVIATED CATALOGUE) REQUEST

Please BLOCK PRINT when filling out this request.

1. User Id _ _ (?? for UNION Catalogue)

Acquisition Option

2. Acquisition modes _____, _____, _____, _____

3. Subscription status _ ('O'pen or 'C'losed)

4. Date accessioned From _ _/_ _/_ _ To _ _/_ _/_ _
dd mm yy dd mm yy

5. Serial frequency _____, _____, _____,
_____, _____, _____
OR From _____ To _____

Binding Options

6. Bound irregular _ ('Y'es or 'N'o)

7. Binding profiles _____, _____, _____

Circulation Options

8. Borrower numbers _ _ _ _ _ _ _ _ _ _ _ _ _ _,
_ _ _ _ _ _ _ _ _ _ _ _ _ _, _ _ _ _ _ _ _ _ _ _ _ _ _ _
_ _ _ _ _ _ _ _ _ _ _ _ _ _

Holdings Options

9. Collection codes _____, _____, _____,
_____, _____, _____, _____, _____

10. Dewey number ranges

From ___ . ___ To ___ . ___ From ___ . ___ to ___ . ___

From ___ . ___ To ___ . ___ From ___ . ___. to ___. ___

Cataloguing Options

11. Date catalogued From _ _/_ _/_ _ To _ _/_ _/_ _
dd mm yy dd mm yy

12. Medium codes _ , _ , _ , _ , _ , _

13. Bibliographic level _ ('M'onograph or 'S'erial)

14. Publication date From _ _ _ _ To _ _ _ _
year year

15. Publication places _ _ _ , _ _ _ , _ _ _, _ _ _

16. Publication types _ , _ , _ , _ , _ , _

17. Language code _ _ _

18. Serial types _ , _ , _ ('P'eriodicals 'M'onographic-serials
'N'ewspapers 'O'thers)

19. Retrospectively catalogued status (Tag 040) (Please circle appropriate answer)

ONLY retro. items NO retro. items

20. Fields/MARC tags to be printed in Catalogue
_ _ _ , _ _ _ , _ _ _ , _ _ _ , _ _ _ , _ _ _ , _ _ _ ,
_ _ _ , _ _ _ , _ _ _

N.B. HLD must be included if Collection Codes and/or Dewey numbers are to be optioned above, sorted on or printed.

21. Authority references are to be Included / Suppressed
(Delete whichever is inapplicable)

22. Spelling references are to be Included / Suppressed
(Delete whichever is inapplicable)

Indexing Options

23. Index records to be included as:

_ Separate entries
_ Alphabetical entries under parent record
(Tick one)

24. If index records included, do you want:

_ Index records only
_ Index records and their parents
_ All records
(Tick one)

25. Date index record created

From _ _/_ _/_ _ To _ _/_ _/_ _
dd mm yy dd mm yy

General Options (must be completed)

26. Tick which type of Abbreviated Catalogue is to be printed

_ Author/Title catalogue
_ Publication date catalogue
_ Shelf list catalogue
_ Subject catalogue

27. Title of catalogue (50 characters maximum)

_____

28. Number of copies of catalogue to be printed _____

29. Print quality

_ for publication
_ for internal use
(Tick one)

Issued July, 1988

FIGURE 8.

QAC 152 ECC 01339698
The human brain <sound recording> / <Sir John Eccles .
1 cassette (55 min.) : mono.
1 COPY

QAC 153.852 RAY 01447170
The power to persuade <sound recording>.
1 cassette (22 min.) : stereo.
1 COPY

QAC 154.22 COX 01440433
Guilt <sound recording> : the psychic censor : the most personal of emotions is considered from different standpoints / Harvey Cox, Margaret Mead... <et al.>.
1 cassette (50 min.) : stereo.
1 COPY

QAC 155 TIM 01595116
Time - and now we experience it <sound recording> / Colin Pittendrigh... <et al.>.
4 cassettes (205 min.) : mono.
VOL. 1-3, 1 COPY

QAC 155.3 SEX 01458708
Sexuality <sound recording> : the human heritage.
1 cassette (57 min.) : mono.
1 COPY

QAC 155.413 BAB 02672689
Baby Talk <sound recording >.
3 cassettes .
VOL. 1-3 1 COPY

QAC 156.4 LOR 01307953
The animal kingdom <sound recording> : Konrad Lorenz discusses man as a member of the animal world.
1 cassette (28 min.) : mono.
1 COPY

QAC 157.25 DEP 01458566 *
Depression <sound recording> : the shadowed valley : doctors discuss America's No. 1 mental health problem.
1 cassette (51 min.) : mono.
1 COPY

RARE BOOK CATALOGUING, WITH THE AUDIENCE AGAIN CONSIDERED

John B Thomas III *University of Texas at Austin*

Abstract *The development of national and international cataloguing rules and editions of those rules is reviewed, with a focus on AACR2 and its applicability to rare book cataloguing. Also discussed are automation; the ESTC project; ISBDA; serials cataloguing; archival manuscript cataloguing; OCLC; RLIN; and the author's considerable experience with BDRB (Bibliographic description of rare books). It is argued that standards are very important, as is the relevance of rare book cataloguing to real user needs. To assess this relevance cataloguers need to involve themselves in public services and initiate research on how their product is used*

I AM A rare book cataloguer, and I am very interested in its theory as well as its practice. I would like to second, immediately, observations on inadequate education for librarians; that, however, is an entirely different speech from the one I have already prepared. We have the same problem in the US, especially in rare book work. People get courses wherever they can find them, and a great deal of learning is done by working with an experienced rare book librarian for some years. I will put in a 'plug' for Terry Belanger, and his rare book school at Columbia University, which has been very inspirational for all of us in the field in America. Every summer he has two sessions at Columbia, at a very reasonable price, which are devoted to topics of interest to rare book librarians, and these are taught by experts in the field. So at least that is a step in the right direction. Otherwise we have very little.

Cataloguing rules and principles

In talking about rare book cataloguing, I would like to give a little background on general cataloguing rules and principles, because they are usually the framework for more specialised rules, and because they sometimes mention rare book approaches. In the US, so far as general cataloguing goes, we had Cutter's rules for a dictionary catalogue in 1876 (I am very pleased that Cutter's name has come up a number of times in these sessions; he was a very important theoretician). They, of course, mention nothing about rare books, but they give a general structure which is still followed in many ways. Exemplars of practice began to appear not long after when the Library of Congress began to distribute its cards to libraries that wanted them (they still do this, by the way). I believe that started in 1897. And people were a bit confused about what they received: what rules were used to prepare these new records? The answer came in 1908 when the American Library Association published a set of general American cataloguing rules. LC got in the door immediately, and by invitation. Their printed interpretations and asides overwhelmed the text on many pages of that publication. That was a very early trend, and it has continued.

My favourite edition of the cataloguing rules, and only a cataloguer could say something like that, is that appearing in 1941. There had been nothing since 1908; the Library of Congress card distribution service had continued and they had changed their cataloguing in many ways, although the basic principles they followed were the same. So people were eager to have updated rules, if possible reflecting LC practice. The British and Americans got together and worked on this before 1941; the British, however, dropped out some time in the late 30s or very early 40s because the two approaches could not be reconciled; World War II may have also been a factor. And so revised rules were published as an American venture, in what is called on the title paper 'A preliminary edition', which is to say it was sort of a trial balloon — see it you like this. Well, people did not. It was very complicated; it was many, many times the size of the 1908 rules; and it was never adopted. There was only the preliminary edition, and it was never officially sanctioned, although many people used it. I need not add, really, for you rare book cataloguers, that many rare book librarians absolutely love these rules, and, as a matter of fact, they are still used in American libraries today in the few cases where people are doing non-ISBD cataloguing. I use them occasionally at the University of Texas, and used them before that at Yale. So there was a void, seeing as they were not approved, and the Library of Congress and the American Library Association came out with sets of rules at the same time, in 1949. LC did descriptive

rules; and the American Library Association did rules for entries that came out in the same year; the two publications were meant to be used together. Finally, in 1967, we had the Anglo-American cataloguing rules, and, in spite of some received opinion, as I think it could be called, I think that this, and its revision AACR2, is neither national nor international, but for some prominent nations of the English-speaking world. My own point of view is that it will remain this way, in spite of translations: there are just too many language and cultural biases in the work for it to ever become a worldwide cataloguing manual. It came out in British and American texts, which were close, but not the same. Very recently AACR2 1/2, in its wonderful greenish-mauve boards, has graced some of our shelves. This is a much condensed general history of cataloguing rules in the US.

British rules

I have a problem with purely British rules. I cannot find a lot about them, but I will go ahead, although I am bound to make some mistakes. I am not aware of Britain having a national standard for cataloguing until 1967, which was when AACR2 in the British version was published (a revised standard being AACR2 in the combined text for North America, Britain and Australia). As far as I can tell, previous to this time the weight of British Museum practice, whatever that may have been, seems to have influenced many British libraries. Panizzi's rules, the very famous 91 rules, had appeared in 1841, incorporated into the first volume of the British Museum catalogue (no other volumes of this edition appeared). And, evidently, the British Museum also published its cataloguing rules, which were apparently the same as the 91 rules, early in this century, and probably at other times. As far as other rules, I am not aware of any, until fairly recently. These I will get to shortly.

Other countries

To turn to other countries, if there are any general rules at the Bibliothèque Nationale I have never found them ; or if there are any other general rules for either France or Francophone countries, I have not found them — that certainly is not to say that none exist. I will not attempt, with this audience, any other national surveys since I think that the British and American rules will be of the most interest.

Finally (and I do leave this until last because it came last, nor because it is least important) we have international rules. IFLA published ISBD, International Standard Bibliographic Description, and shortly thereafter its various and dependent appendages. Unlike recent American and British rules, these are limited to description only, and they have to be used with something else for access. I will not be going into these, because this is a rare book talk, but I will be discussing its rare book offshoot, ISBDA; the A standing for Alt, Ancien, Antiquarian, or anything else you like that starts with an A.

Rules for rare books

Now,turning to rules for rare books up until about the mid 1970s, everything I will be saying is about description, not access. (Access is still governed by general rules, except for some guidance found in several recent specialised publications I will mention.) In the 1908 ALA rules, there was a note on incunabula. I think it said something like incunabula may have to be treated specially. That was it. In the general rules between 1941 and 1967 there were rules for incunabula — they are not very well developed but they are there, and it is more than a note. However, general rare book rules were not furnished, nor was any suggestion made that if you like these rules for incunabula, you might want to apply them to other older or special collections material — they are simply rules for incunabula. Finally, in AACR2 there was a section of rare book rules with some examples dealing with incunabula. I was very confused by these rules when I first saw them. They seemed very cursory, not very useful and constricted. They had no theoretical framework; they were just a section in a chapter of that publication which mentioned that if you have rare books you may want to give them these few sorts of special treatment. (Michael Gorman — his name comes up again — visited the University of Texas a number of years ago to lecture on general cataloguing principles. I asked him after that meeting, for whom these rules were intended because they seemed rather sketchy. He said they were not intended for any medium to large rare book library at all; they were written for those libraries that had a very small collection of rare material that they did not know how to describe. And they were especially

for people not trained in rare book work. Of course I was looking for some rules for a rare book library, not a case or closet within a library. He confirmed that they were not for that purpose.)

That is American rare book rules, up to the mid 1970s; as far as British rules again I am not aware of any. They do have the *Eighteenth-century short title catalogue* or ESTC rules from the mid 1970s on, in a way. But these are not really British, although they were developed there, and I will cover these in my remarks on the more recent history of rare book rules. I am not aware of any other such rules through the mid 1970s besides a monograph by Paul Dunkin called *How to catalog a rare book*, which came out, I believe, in 1951, and which was never approved, as far as I know, as a manual of practice.

ESTC project

The advent of automation has finally led to the development of rules specifically designed for rare books. The ESTC project has been most influential in altering the way we cataloguers think about rare books. (By the way, before I came here I read three or four very informative and interesting articles in Australian library publications about your participation in the ESTC project, and your Early Imprints Program. One article was about contributions from Queensland, where they got country libraries, and even private owners, to report their books being donated to the library — that is a nice side effect. You seem to have done a most thorough job of reporting to the project.) The project started at the British Library as an attempt to extend Wing (a short-title catalogue of books published 1641-1700) through the 18th century; to record all editions, printings, and variants printed in English, or England or her colonies. To records for books catalogued or recatalogued at that library were added other British, Scottish, Irish and Welsh titles or holdings, and then the same canvas was made in North America, South Africa, Australia and anywhere else; they are still adding records. The last time I saw a count of the titles in the database it was 220,000, and there is quite a bit more to process. The fact that so many people, in so many parts of the world, have become involved in a single, and singly-directed, effort has made this a very influential project. This is especially true in the case of the theory and practice of rare book cataloguing, since the rules they devised for description were the first to appear for that class of materials.

ISBDA

Besides the ESTC project and its rules we have ISBDA, which was developed at about the same time as the next set of rules I will mention, BDRB. ISBDA is that part of the ISBD family which is devoted to older books. It was published in the late 70s, and it was for anyone to use, especially, it seems, as a basis for national rare book cataloguing rules. It has been used that way, both in America and France, but it does not seem to be a set of cataloguing rules to be used as it stands. ISBDA is now being revised for a second edition. They must regret it, but they sent a draft of the revision to the American Library Association and got 75 pages, at least, of comments, especially on their examples. They said they appreciated the comments. I look for a new edition of ISBDA within a year or two.

BDRB

And then we have *Bibliographic description of rare books*. (An index has been separately published recently, for those who feel the need of any index to a rather slim volume.) BDRB is a followup to a suggestion made in the 1979 report of the Independent Research Libraries Association or IRLA. I will be getting this report shortly, because it had a very important impact on the American rare book community and an item in its report was the impetus for BDRB. The rules were developed at the Library of Congress, following IRLA's suggestion, and published not long after the report. LC sent a draft to a number of libraries, and one party in particular (the Athenaeum Group in New England) sent back very detailed criticisms, including a suggested treatment of single sheet publications. These and other criticisms were taken to heart, and resulted in a much better second draft, which was then published. It says for whom it is intended in the introduction, and that is too often overlooked in such documents. What was said, rather carefully, was that LC would use it for some things, time and funds permitting; that, generally speaking, if a book was published before 1801, they would use the rules, although they might not. And that other libraries, especially other American libraries might want to use it, for whatever subset of their books they thought warranted special treatment; and that such libraries

might or might not want to follow their cutoff date. In other words, here is something, and if you like it, go ahead and use it. As a matter of fact, the Library of Congress has used it, but not a lot. It does not have a very large rare book cataloguing operation and so output using BDRB is rather small. Other American libraries, though, have used it quite extensively. In my opinion, after having worked with it for nine years, it is a very good manual. It says in the introduction — and this is partly for political reasons — that it is to be used in conjunction with AACR2; as a matter of fact many things in it are not in accordance with AACR2, and they were aware of that when they wrote it. Everyone I know who uses it, uses it by itself, without reference to AACR2 for description, although AACR2 still has to be used for everything but the description. A revision is proceeding now, undertaken by the Standards Committee within the Rare Books and Manuscripts Section of the American Library Association, after that Committee asked the Library of Congress if it would mind if the Committee revised it — it is an official Library of Congress publication, not an ALA one. As a member of the subcommittee undertaking the revision I can tell you that the main things that are being considered in the revision are whether, first of all, we should tend toward a simplified, basic, rare book approach, or whether we should get closer to the Greg-Bowers formula. Second, we have to consider, and this applies to so many rules and documents that we have now, how closely it should be tied to other things to which it is related. To give but one example: as AACR2 is mentioned in the introduction, and the whole set-up of the rules is like AACR2, when AACR2 is revised, should we revise BDRB? I do not know the answer to that. If it is tied to two, or three, or four different documents, it will be revised all the time, so in that way I can suggest an answer.

A side-product of BDRB is the rare serials rules, which were never published separately — they are very short. They came out in *College & research libraries news*, and essentially instructed that rare serials should be catalogued like rare books, except where serials cataloguing demands that you have to take a different approach. I really like the rare serials rules, although I am not aware of anyone who use uses them. They are a nice, elegant set of rules.

Other rare book rules

There are only a few other rare book rules that I have come across. The French have some, which I found shortly before I came on my trip: *Manuel de catalogage automatisé des livres anciens en format Intermarc*. They are specifically for the Bibliothèque Nationale; they have led to, as it says in the introduction, and do not lead from, rules prepared by the Association Française de Normalisation (AFNOR), the French standards association. I have never found a copy of these general French rules, but the introduction does say they exist. It is extremely interesting to note — and I will not say anything nasty about the French — that they make no mention of any other rare book rules in this introduction; it is as if they had thought them up themselves, as they probably had. BDRB had been published for years; ISBDA had been published, but here are theirs, just out of the blue. It is a good set of rules by itself, although it does not relate to other rules.

I also came across a wonderful title from Taiwan; they have put out descriptive cataloguing rules for Chinese rare books and rubbings. I have not seen these.

Rules for archives and manuscripts

We also have rules for cataloguing archives and manuscripts, and they are used a lot for rare materials. I would like to talk about these for just a minute, although I cannot speak as a manuscript cataloguer. The archives and manuscripts rules came out because the provisions for this type of treatment in AACR and AACR2 were felt by the community for whom they were written (manuscript and archive cataloguers) to be biased towards individual-item cataloguing, especially the cataloguing of individual literary manuscripts. More simply put, they did not reflect an archival approach. Archivists, of course, were very unhappy with this. (The grouping of manuscript librarians and archivists is a strange one; they seem — I speak as an outsider — to fight with each other constantly about their different approaches.) Because they were not satisfied with AACR2, they came up with their own set of rules, which were developed by Steve Hensen. These were much more archivally oriented than what was prescribed by AACR2, and followed the archival practice in the US. It has been emphasised to me many times that cataloguing archives is not something which necessarily has to do with material. Rather it is an approach

taken — you can catalogue archives of books; of computer databases; of manuscripts, of course, of anything: so it is an approach. After the rules were issued, the AMC format was developed to house the record. It has been rather difficult for American archivists and manuscript cataloguers to adopt a new set of cataloguing rules and a format at almost the same time: this is not something that rare book specialists had to do. One thing that has helped them a great deal is the fact the one of the American utilities, RLIN (Research Libraries Information Network), has taken a great interest in adding records for archives and manuscripts to its database: it has taken much more of an interest in accommodating such records than OCLC has, and so people who are interested in cataloguing such material using MARC in a shared database have flocked to RLIN.

Access points

As far as access points in rare book cataloguing (believe it or not, I have only discussed description until now), there was no specific guidance until fairly recently. So far as I know, the only lists of rare book access points, the only theory of their usage, the only MARC accommodation, have been developed in the US. Before I progress, let me eliminate types of access points that are not rare book specific, and that are therefore outside the scope of this paper. The first is personal and corporate names — although I would like to at least mention the rare book contributions to the online LCNAF. People working on Wing and STC microfilm projects, and other large projects such as ESTC, have contributed many name authority records to the LCNAF, but these are not really rare book specific. Further, I will not be considering topical subjects or classification as access points, because they really have little or nothing specifically to do with rare books.

The IRLA report

To start with access points, I now need to reprise the IRLA report and its results. It came out in 1979: the interim and final documents both came out in the same year. The Independent Research Libraries Association, its author, is an American group of, as the name implies, independent research libraries: its members are not affiliated with public libraries, universities, larger entities; they are simply independent. Some of them are quite large, and most of them are on the East Coast. What they discovered in each institution was that as automation came in, many things that they had been providing in their manual cataloguing were no longer possible with MARC as it then existed. They particularly noticed that they were not able to trace things they wanted because the existing formats had no place for the tracings to go. Many of them tried to work around this limitation, and within the MARC format, but what they really wanted was to have a unified, and, if you will, sanctioned approach. So experts from those libraries got together and came out with a report that had a number of suggestions for automated rare book cataloguing, and many of these concerned access points. Their first suggestion was that descriptive cataloguing rules for rare books be prepared: this I have already mentioned. They also suggested the formation of a standards committee, which was to concern itself with rare book cataloguing standards. And they made recommendations for specialised access to rare materials which was at that time customary in American libraries (for example: by place of publication; printer; binder or binding design; references). If you are interested in a complete list or recommended access points, I refer you to my article in *Library trends*, in which I take each one of the Report's suggestions and tell what happened to it. To summarise: two of them died, one of them is in abeyance, but most of then have gone through in one way or another. They further suggested that the national group they had already recommended be in charge of implementing their suggestions about access points. Such a group was quickly formed as the Standards Committee of the Rare Books and Manuscripts Section of the American Library Association. This Committee was supposed to press for the recommendations (including those for access points), if they saw fit, and they did.

Standards Committee

This aside on the IRLA report has already side-tracked me from my consideration of access points, and I hope that you will indulge me while I say a few words about the Standards Committee. Its creation was a bit difficult politically, in that there was already a very strong committee within the American Library Association which concerned itself with cataloguing issues, this being the CCDA (Committee on Cataloguing: Description and Access). For this reason we did not think it wise to set up a committee which dealt with cataloguing matters for rare books, but we did it. We got around our dilemma by writing an extremely broad charge. It went

on and on about facilitating interchange between various interested people, supporting rare book library work, symposia contributions from members, and publications; but what we really wanted to do was to facilitate the cataloguing to rare books. That charge has now been revised, but it is one we had to live with for a long time, and got us into some trouble. So we set right about doing what we really wanted to do, and what we mainly wanted to do was to look at the IRLA Report, and see whether or not we thought we should follow its recommendations. Essentially we said 'Yes, we should' and we started to work on the proposals. What we have done over the past nine years is put out a series of publications (entirely the work of the Committee; occasionally with outside help) and since most of these publications concern access points of interest to rare book librarians I will return to my theme.

Relator terms

I believe our first publication was *Relator terms*. It was a list of terms that could be used after headings, such as translator, illustrator, editor, joint translator. Some libraries felt these were necessary to maintain files that regarded the role of the name represented by the heading. This can be seen as an instance of an attempt to replicate the card catalogue. Perhaps some of those libraries now have thought of other ways to accomplish this arrangement by function, if they need to do it at all; but at the time they felt such a list was necessary. *Relator terms* was published in *College & research library news*, and has been revised twice.

Genre terms

I believe the second Standards Committee document was *Genre terms*. Significantly it was second of all the access point lists that we did, not because it was the next most important, not because of the expertise of the Committee, but because a number of people on the Committee were interested in it, and volunteered for it. Most rare book librarians in the US come from a background in liberal arts, especially English, or history and this second document consists of forms for literary and historical works (for example propaganda, prospectuses, proverbs, psalters, publisher's advertisements).

Standard citation forms

After *Genre terms* was *Standard citation forms*, although that ended by being a Library of Congress publication. When people cite things such as Wing, Foxon, STC, ESTC or any author bibliography in a note, they often use different forms of citation. Some might note: 'Foxon, David. English verse'; some might prefer 'Foxon, D. Engl. verse', some might say 'Foxon'. If we want to bring together all Wing citations or all Foxon citations in our database, or in a shared database, we must have standardised references. *Standard citation forms* was published for that purpose, and it was fun to work on.

Printing and publishing evidence was next: it consists of lists of terms relating to printing and publishing practice (for example: dummies, perfecting errors, pen facsimiles, pagination errors). If people want to keep track of such things, here is a list that they can use. By the way, I was delighted at our dinner last night, to find an exemplar of one of the terms in *Printing and publishing evidence*. I show you our menu in red, which states what we were actually offered, and I also show you a menu evidently mistakenly printed up, which is exactly the same except that one entree is different. This is cancellation, which as you can see, is not a process confined to older books.

Others

Finally, briefly, from last year *Provenance evidence*: bookplates, autographs, or however it is that people establish provenance; and something that I worked on for three year *Binding terms*, which lists terms for styles and techniques of binding. The last two that the Standards Committee have underway concern paper, and type and type evidence.

RLIN interest and standards

The Standards Committee has not been the only one interested in rare book access points. One unfortunate document came out at about the same time as some of the lists I just mentioned. It was published by RLIN, about which I had very nice things to say a while back, but in this case I

think they made a mistake. They were quite eager to accommodate rare book access points in their database, and our lists of thesauri had just started to come out. So they decided they wanted to get all the terms for printing, publishing, binding, provenance, you name it, established quickly to enable their members to use them right away. They came up with a combined list with almost all the types of rare book access points I have just mentioned in one publication, with no introduction, no background, no cross references, no see-also references, no definitions, no imprimatur or sanction — just a list. Unfortunately, it was allowed by the Library of Congress as a source for terms to be used in the MARC format. Many terms listed were not the same as their counterparts in thesauri put out by the Standards Committee. I doubt if anyone is using it anymore, but for a number of years some RLIN libraries did. This reinforces a number of my comments about the importance of standards. If different libraries use different terms for the same concept, and there is no cross-reference structure, terms and thus examples cannot be collocated in a search.

New approaches to access allowed are possible with automated cataloguing: you might consider those things that the machine can do easily, but that the card catalogue never could do, or never could do well. To give just one example, it would be quite easy to devise a program that spewed out things that were *not* in a bibliography. You could define an indicator in the citation field to identify this (one indicator in that field now means a book is in a bibliography; you could make another indicator mean: we looked in the bibliography and it was not there). For anyone compiling a bibliography, or revising a bibliography, this would be extremely useful information, and it is something we never did with the card catalogue. It is important, always, not just to replicate the card catalogue; continue access you must have that you provided in the card catalogue, and find a slot or a similar slot in the MARC format if you can, from a fresh look at the description, access, and the audience for the records.

Presentation

This is the rare book package, description plus access. As you can see, I am following loosely the structure of my first paper. It should come as no surprise, then, that I next consider presentation. I will make no comments on an inhouse presentation which does not involve a shared database, since the few general remarks I might have on that phenomenon I made in the first paper. As promised, I also have nothing further to say about non automated union lists. That leaves for our consideration presentation within an inhouse shared database and presentation within all other kinds of shared databases.

Presentation in an inhouse database

First let us turn to the integration of rare book cataloguing in a general inhouse database. There is the problem of suppression or highlighting of locations. It is a major problem, if people in an institution with both general and rare book libraries either want to look at only rare books, or, as would be much more usual, only want to see records for books that circulate. Some way should be devised to include all, or exclude all, of some types of records, but only a few libraries have been able to do this. Another issue with such databases is the accommodation of all parts of the rare book cataloguing record. My experience in Texas is that the last thing that the programmers are going to work on are the things that rare book librarians want. For example, we maintain a printer/press file and a provenance file; the headings needed to generate these files will not appear except on card sets at the moment, perhaps because the programmers have too many other things to do for what they must consider to be more important libraries (or the perceived users of those libraries). It is hard to convince them that these special files are needed if there is only a certain amount of time or money. So that, too, is an issue in an inhouse shared database, and there must be many others.

Presentation in shared databases

Presentation within other types of shared databases is also problematic. One type is familiar to us all: the sort maintained by major bibliographic utilities. I should mention that in my remarks about such databases I will talk mainly about OCLC, because it is the one I know best. It began in 1972 and is the largest North American database. It has over six thousand user-contributors, and over 20 million records. It is founded on the master record concept, and a large number of the records

have holdings attached. But most of my remarks will be valid for any other large bibliographic database: RLIN, for example, whose software and database is the basis of ABN.

In such a context there is always too much information in a record for some people, and too little for others. This must be balanced, whether by common sense on the part of contributors — and I think that is the best way to do it — or by instruction from those who oversee the database itself. For example, and there are a number of examples of the problems of integration of rare book records in such a shared database, we have the cataloguing or printings, which is of interest, of course, to rare book people, versus the cataloguing of editions, which is of interest to the general population, everyone assumes. The latter is mandated by AACR2, and, for example, OCLC. Neither want you to catalogue individual printings as such, and do not want their existence to be noted on a general record for the edition. There is a good way to get around this, if that is what you want to do. If you are dealing with books from the hand-printing period, keep in mind that Gaskell defines, in his *New introduction to bibliography*, an edition as being anything in which over half of the text has been reset in type. Since the great majority of hand-set books were, after printing, not reprinted from the same setting of type — the type was distributed after printing and if another printing was called for it was put back together again, although there are exceptions to that — I think the assumption can be made that any printing you have from this period has over half of the type reset, in which case it is an edition (according to Gaskell), in which case it can have a separate record. At least that is the assumption that many of us have made, and, so far as I know, we have not been criticised (or probably even noticed) by those other schools of thought.

Another issue in the integration of rare book records in a shared database is that such records, such an approach, may not be wanted by some users, or, especially, by some other contributors. OCLC contemplated, and I am glad to say has let drop, the idea of determining when a rare book record could go into, or could not go into, the database. This was a confusing prospect: they seemed to think that people objected to fancy cataloguing, especially for modern materials, and I asked them a number of times: have people written you? have you received complaints? And the answer was no, but it seems to be something that *would* bother people, something that had to be guarded against. What they planned to do — following the statement by the Library of Congress in the introduction to BDRB — was to mandate that any original cataloguing for a book published after 1800 could not adhere to rare book rules (they wanted cataloguing to follow LC practice, you see). And many people pointed out to them that this was very prejudicial to newer smaller libraries that were trying to build collections in non traditional fields. Libraries with limited budgets can no longer acquire and catalogue significant collections of incunabula, or 17th century Spanish printing, or 18th century English literature. Many rare book libraries, and this is a good thing, have interested themselves in fields such as early photography, the American Civil War, World War I poetry, apartheid, the 1890s, or the alternative press. Even a few of these are rather tired fields for collecting, but there are always new ideas for rare book collections. If such collections are the pride of the institution; if the institution wants to take special care in their cataloguing, and bring out printers and publishers, former owners, genres, or the like; if it is useful for the faulty to have specialised access in some way then because the collections contain or consist of books published after 1801 should not make any difference in the cataloguing approach. This was pointed out to OCLC. Whether this influenced them it is hard to say, but after many adverse comments they have not implemented the contemplated restriction; I hope they have been steered away.

A related issue in OCLC has been that of the use of the Enhance function. Enhance, in OCLC, is where you come across a record that you consider substandard (some of them are actually labeled as such) and you have the option of bringing that record up to standard. If you are improving a record for yourself anyhow, it is nice to be able to replace it with a better one, instead of having it go back into the database the way it was. So replacing a substandard record with one that adheres to some standard is allowed. A rare book librarian *can* take a record for some early edition of Tom Sawyer, or a Henry James novel, and enhance it to where it would not be recognised. At Texas we do not go that far, but OCLC was afraid some, at least, were going to, and they considered issuing Enhance guidelines that would discourage rare book approaches to enhancing records. In the event, they did not. I think a survey is needed, if they are concerned about this, or if RLIN is concerned about it, or ABN, or anyone, concerned that such an approach, such

power given, would 'gum up the works', and would not be wanted. Whether this fear is justified or not needs to be tested; perceptions are not enough. Other issues, problems, and quandries arise when rare book records are added to shared databases that are not the general type operated by major bibliographic utilities. Issues with specific, even rare book, databases come immediately to mind, as do issues with contributing rare serials records, say, or archival records to a general database.

Development and promulgation of rare book cataloguing rules

Let me take a larger view and mention a few issues in the development and promulgation of rare book cataloguing rules. First, how simple or complex should they be? This brings up the old question of whether we are cataloguers or bibliographers. Most of us would insist that we are cataloguers, although we admire bibliographers a lot. This question comes up constantly; in fact, I just mentioned it in the context of revising BDRB, where bibliography pulls us one way, and simplified cataloguing the other. Another issue with the development and promulgating of rare book cataloguing rules is who is the issuing agency, and what authority does it have? In the case of BDRB, the Library of Congress stands behind it, but keep in mind that the ESTC rules have just had that project as their authority, and the project will be over one day. Then what happens to the rules? Who continues to develop them or issue them; who brings them up to date? I would be very careful of anything to do with general rare book cataloguing rules or any parts of them that had just come out of a project or a database. You must think, even ahead of time, how rare book cataloguing rules or other tools for rare book work are to adapted, revised, and by whom. With *Standard citation forms*, and with BDRB, the revision can be done by the Library of Congress; with Standards Committee publications, they can be revised by that Committee. These are ongoing organisations, and the latter has review groups above it to approve (or disapprove) its promulgations. Yet another issue: who is responsible for MARC coding to accommodate any set of rules, any embellishment of description or access? It is not sufficient to create a list of terms for provenance evidence, even if such a list is approved, endorsed, or allowed by reputable bodies: we have to have a slot in the MARC format for them, in order for them to display. In the US a powerful ALA Committee called MARBI dictates changes to the USMARC format, but they must be made aware (and convinced) that such changes are needed.

Coordination

Finally, I would like to mention coordination. It is very important to have coordination when you are working on any sort of rare book approach. What happens when coordination is lacking? The RLIN genre terms list is an example. RLIN came out with them by itself, without consultation: it has never revised them; and it probably never will. This is very poor planning. I could also mention the French rules, except I do not know much about them. Obviously they were done without reference to other things in existence.

Conclusion

All of these points and others have led me to question the identification, provided access and presentation of rare book information in libraries. I questioned even more after I commenced reference work at the University of Texas six months ago. At Texas we have a large number of files that we think are useful to people interested in rare books; we maintain a printer/press file, a binding file, a chronology file, a file of former owners, and others, besides all of the usual ones. When I started working in reference, and the questions started coming in, I used almost none of these: I used the chronology file once, I believe. I have never used our binding file, and I spent a lot of time creating it, I have rarely used our printer/press file, I have occasionally used our provenance file. But we are spending a lot of effort on this supplied access, and I am not sure that it is very useful at all. It should be. There should be people out there who want it, but in the real world, as I finally encountered it, that usually is not so. I think of an analogy: a merchant who puts out a product that does not sell. Why keep making the product? No businessman would do that, and yet we do. Although we are service organisations, not profit-driven companies, the analogy does stay in mind. If we put a lot of time into doing something — in description, access, presentation — that is either not used at all or used very infrequently, it must be questioned. It is amazing we have gotten away with what we have. Perhaps it is because people do not understand what we are doing.

I will close with a few words of advice and a few reflections. I hope that you will always keep in mind your audience, and how much, or how little it expects, and what you are able to do to fulfill these expectations. Please also consider *what* is used — again, to give the ESTC example: ESTC uses records, not books; other people are interested in the books, not records. That will help determine how you create and, dare I say, market your product. I would hope all of you will be in touch with reference and public services librarians (unless you are also those people). If there is a division in your library, take on some of their duties and responsibilities if you can, even informally. Volunteer for it if you have not done it, or have not done it recently: I hope it will be as much an eye-opener for you as it was for me. Press for accommodations and changes that you, or a group of you, think are important, once you have come to conclusions from analysing your audience, and considering how records are used, and looking at what exactly is used. If you decide that something needs to be provided, or eliminated, suggest doing so within your organisation, within your library group, or wherever you can. Organise and lobby, and as a great service to all of us, help to identify our audience, and how our product is used, by surveys, studies, questionnaires, and even going into online searches when people are doing them to see if they are finding what they want. Any or all of this will help us to better identify and understand the audience that we serve.

JOHN B. THOMAS III
SATURDAY MORNING SESSION

In cataloguing a rare book, the cataloguer is being asked to come to grips with the book as a physical object, as well as the book as a vehicle for textual information. Quite often the rare book is also a book printed before 1800, and belongs to the category of hand-produced book, with all the non standard attributes this implies. The closer one gets to 1455, the non standard the book is likely to be, approaching the unique status of a manuscript. Modern private press or limited edition publications may have equivalent quirks, being bound in the leather of a famous explorer's old boots, or having holes cut in the pages to simulate what the butler saw.

The more non standard the object described, the more important it is that the description itself follows accepted standard guidelines for terminology and procedure, so that those who refer to the description can have confidence both in its authority and in their interpretation of it.

Cataloguers are often understandably intimidated by the problems of describing such items, and may also, less understandably, be hostile to the idea that these problems must be confronted. Two ways of helping to mitigate this are educating librarians in the history and production of books, and producing thesauri of terms used in the more esoteric areas of bibliographic description.

John Thomas was invited to address this conference on the strength of his article in *Library trends* v.36 (1) Summer 1987 on the importance of standards in rare book cataloguing. The value of his work in helping to establish such standards can be seen from his thesaurus of binding terms, published by the Association of College and Research Libraries in 1987. The Rare Books and Manuscripts section of this active and influential body has produced other thesauri, on printing and publishing evidence, and on genre terms, and others are in preparation. Those at the conference had the opportunity to appreciate them at first hand.

The potentialities for searching offered by the scope of machine-readable cataloguing are very exciting. The scholar may discover, in an hour's searching of an imprint field, information which might otherwise have taken him twenty years to compile. This makes the cataloguer a key figure in the development of scholarship.

RETROSPECTIVE CONVERSION OF RARE BOOK RECORDS AT THE NATIONAL LIBRARY OF AUSTRALIA

Peter Haddad *Chief Librarian, Control, National Library of Australia*
Elizabeth Jovanovic *Senior Librarian, Card Catalogue Conversion Unit, National Library of Australia*

AT THE National Library of Australia, the conversion of manual catalogue records for rare books and other non traditional materials to machine readable form has taken place in the framework of the complete retrospective conversion of one of the Library's several catalogues.

Users of the Library have long found the number of separate files and catalogues requiring consultation to be both bewildering and frustrating. For its part, the National Library has been aware of the need to consolidate its files, particularly if an online public access catalogue was to be introduced. During the 1980s a long investigation into the best way of planning for the retrospective conversions necessary and the introduction of an OPAC, was conducted, and made a number of recommendations. One of the decisions was that the first steps in retrospective conversion would concentrate on the monograph and serials catalogues spanning the years 1967-1980 ie the years immediately preceding the period of machine readable cataloguing which had begun with the advent of the ABN system (or WLN as it was then), in 1980. Serials would be converted inhouse using a project team working directly on ABN, while the larger monograph portion of the catalogue would be converted using the services of a data conversion firm.

During 1987 test batches of data for monographs were converted in this way, and the Library called for tenders for the conversion of its 370,000 title catalogue. The successful tenderer was AMARC Data International Pty Ltd of Sydney. Work on the conversion began at the end of 1987. Rare books and non monographic materials were not given any special consideration in the decision, as the overriding aim of the project was to convert the entire file. The quality of the cataloguing data on the file was consistently high for all forms of material, and it was thought that this would be reflected in the end result.

Stage one of the conversion consisted of the complete microfilming of the main shelflist corresponding to the catalogue being converted, and arranged in Dewey Decimal Classification order. Few of the Library's rare books were involved in this phase, and almost no editing work was undertaken before conversion (the result of having a 'clean' file to work from). The only items represented in the rare books collections were reference tools (not themselves rare) and a small number of items held in the collection at 655.442 and representing examples of fine printing from such presses as the Golden Cockerell Press, Folio Society, and Nonesuch Press.

Stage two of the conversion involved the microfilming of a number of supplementary shelflists for items represented in the catalogue, but not held in Dewey Decimal classified order. These included the bulk of the rare books, microforms, theses, and monographs in series held at a common series classification number and subarranged by the volume's number in the series. Unlike the previous segment of the shelflist, these files could not be filmed without extensive preparation. Work began on preparing these files for micro-filming in May 1988, and the files were sent to Sydney to be filmed on the 18th November. In this stage of the project 49,008 cards were filmed. In this stage of the conversion, it was estimated that over 20,000 rare book titles would be converted.

The main rare book collections which were converted are:

Clifford Collection This family library of the Clifford family of Ugbrook Park, Devon was acquired by the National Library in 1963. It consists of some 10,000 books dating from the 16th century onwards, and includes many rare works. It is particularly strong in 17th and 18th century material.

Nichol Smith Collection A Collection of 18th century English literature acquired by the National Library in 1962. It was the working collection of the late Professor David Nichol Smith of Merton College, Oxford. It consists of 8,000 books and 1,500 pamphlets, about half of which were published before 1800. The main strength of the collection is its great range of first and early editions of all prominent and minor writers of the Restoration period and the eighteenth century.

Cameron Collection The Cameron collection complements the Nichol Smith Collection. The bibliographer William J Cameron of the University of Ontario identified the gaps in the Nichol Smith Collection, and the National Library gradually acquired the missing items. The collection consists of 500 books.

De Vesci Collection This collection is the family library assembled by John Vesey (1638-1716), Archbishop of Triam in Ireland, and his son Sir Thomas Vesey, Lord Knapton (d. 1730) and their descendants. It was acquired in 1966 and includes numerous 16th and 17th century imprints. The collection covers a wide range of subjects with its greatest strength in religion and classics.

James Collection of Livres condamnés Named for its vendors, the Libraire Paul James, this collection consists of 135 items printed in the 18th century and banned in France for religious, philosophical and political reasons.

Onions Collection Dr C T Onions (1873-1965) was one of the four editors of the *New English dictionary on historical principles* (1888-1928) which was later reissued as the *Oxford English Dictionary* in 1933. In 1966, the National Library of Australia acquired the collection of books assembled and used by Dr Onions for his work on the dictionary. Approximately 130 of these are pre1801 imprints which were taken into the Library's rare book collection.

Pelli Collection In 1968 the National Library acquired part of the library of the Florentine scholar and writer Guiseppe Pelli (1729-1808) and the items published before 1800 are held in the rare book collection.

Kashnor Collection The Kashnor Collection on the political economy of Great Britain and Ireland was purchased by the National Library in 1953. It consists of about 5,000 books and some 6,000 pamphlets. It was formed as a personal collection over a period of forty years by the late Leon Kashnor, the proprietor of the Museum Bookstore in London.

As well as these collections all shelved in running number order with a prefix denoting the collection, the rest of the rare book collection has been shelved in running number order with the prefix RB MISC since the late 1960s.

In general, the same procedures were followed for this supplementary project as for the main part of the conversion. One complicating factor was that some of the records in the Clifford, Kashnor and RB MISC collections were not only in the catalogue being converted, but in an earlier card catalogue, closed in 1967. It was not practicable to exclude these cards from the conversion as there was no quick way of telling which cards related to which catalogue. The decision to convert all items in these collections has meant that some very incomplete records, often lacking collation details and tracings will be converted and will produce a number of records of considerably lower standard than most of the rest of the conversion.

Unlike the main shelflist which was for monographs only, the rare book shelflists include records for individual issues of serials and sets of serials. Very little preliminary work had been necessary to prepare the main shelflist for filming, but the filming of the rare book shelflists had to be preceded by a labour of intensive examination of each card. Cards for serials, marker cards, and temporary cards were all stamped as such, and the bureau was requested to ignore these records after filming.

The most noticeable difference between the rare book records and the modern printed materials records is the presence in the former of lengthy institution specific information. This has been keyed in the note area and is consequently in the shared data area. If a National Library retrospective record does not match an existing database record, this information will appear as shared data, but, as we become aware of the affected records, the information can be moved to the institution specific area. In cases where the retrospective record matches an existing database record, the information is lost, and will not appear online. It is however, recorded on the shelflist card and can be added to the database record at a later date if desired. Like so many of the areas of difficulty in the retrospective conversion of non traditional printed materials, this is not really an insoluble problem, but a matter of policy. Should the National Library have considered it important enough, and been prepared to pay for it, special instructions could have been incorporated into the specification, and the information preserved. Much retrospective conversion planning hinges on the tension between the desire for high quality, and the limitations of availability of finance.

Problems in the cataloguing data, especially with old or out of date standards also occurred. The microform records for conversion were prepared according to AACR I provisions, and records for microform reproductions of printed works carry the same collation as the printed work. It does not become obvious that the record is for a microform until the note area is reached. To avoid confusing the record for the microform with the record for the original, perhaps leading to the accidental removal of one as a duplicate, the bureau was requested to insert the general material designation 'microform' after the title proper during the keying of these records. This they readily agreed to do.

At the time of writing, the retrospective conversion is in its final phase, with most of the NONMARC tapes added to ABN, and the cataloguing staff engaged in reviewing records from the load of the FULLMARC tapes. However, very few of the rare book and other records have yet been sighted, as these were done last.

RETROSPECTIVE CONVERSION: GARBAGE IN — GOLD OUT

Roy Hancock *General Manager, Amarc Data International*

Abstract *Each library needs to determine what its own standards are to be to more easily define what quality in its database means to it. It should ensure that the quality of the data is not compromised during the conversion stage by insisting on choosing validation methods that protect the data. High quality conversion services are available and should be demanded by all suppliers*

I WOULD LIKE to talk to you not as a professional librarian, for I am not, but rather as the General Manager of Amarc, as a manager of conversion services.

I have been mulling over the theme of this conference for some time, and have been feeling quite concerned about the implications that it has. We chuckle knowingly at the statement 'garbage in — garbage out' because it strikes an all too familiar chord with us all. NO ONE WOULD LIKE TO ADMIT IT, but all too often we tacitly accept that garbage is here to stay and excellence is a thing of the past.

I believe that this is something that we do not have to accept. If is for this reason that we have called this paper 'Garbage in — *Gold* out'.

We have all come a long way since the ancient scribes meticulously handcrafted all entries, character by character in their quest for the perfect transcription of their data. Both their society and profession demanded nothing less than perfection. Their whole lives were prompted by a quest for perfection and excellence.

The computer age is now upon us. It affects all aspects of living, from the weekly supermarket scramble to the creation of the tax file number, and in between these is the use of Library Data.

Computers have given us many advantages — quick retrieval of data, efficient storage of data, the ability to network and the cost efficiencies that come with these advantages.

We have been so excited by how 'clever' computers are that the individual entry lost some of its value. The fact that things are so easy to change has made us preoccupied with the overall concept of data rather than the data itself. The machine is king and will solve all our problems.

Computers made it easy for us to 'fix' things, so, while we cared, a bit, if it was wrong, it was quick to fix. But now, with your type of data, there is only one real chance to get it right. NOW. With the new emerging technologies, we are again seeing ourselves as more like the ancient scribes. Meticulously inscribing our data into the surface of tablets. Only this time we inscribe our data into exotic magnetic or optical substrates from which we make laser disks and we call this new papyrus computer storage.

With this new CD type of storage there is only one chance to get it right, now. It cannot be fixed unless, like a book, it is republished. That is why we are looking more and more to offering services that can enhance your data, now is your last chance to turn Garbage into Gold.

There is no doubt that the potential of even the modest library package is remarkable. However, even the most sophisticated machine is not going to make good from bad. Automation is therefore a perfect opportunity to begin practising a new philosophy. Do it right, do it well. *Turn Garbage into Gold.*

Perhaps we should give some thought to the definition of quality?

And there are two current schools of thought:

- Where quality is defined as absolute excellence of quality
- Where quality is making a product or service that is adequate for the job at hand

In cataloguing, absolute excellence can mean rigid adherence to specific standards, or for an adequate job, it can mean the use of modern technology allowing access to information which has been encoded to briefer standards. It is the *ability* to access data that becomes the criterion for measuring the quality of records, *not* the complexity of the record.

Each individual library needs to be free to define what quality means to them, within the broader confines of conventional practices. However, with this philosophy, the advantages of compatibility of library records across institutions must be considered. A library can achieve high quality within their own definition and this definition should always be based on the needs of the user group of that library.

Once having defined our standards, we should be content with them, even though they may be seen to differ from conventional standards. Provided a library meets its own criteria, it is achieving high quality records.

The integrity of data is paramount to the efficient functioning of any automated library system. An inaccurately keyed word may not be accessed in a search. This means that all data encoded must be of high quality. Having a title on the system, but be unable to access it, simply because there is a typing mistake in the title is useless. Within the context of retrospective conversions the quality of the data entry is paramount.

However, whilst we can strive to reproduce your existing records as accurately as possible, by such methods as double entry, ie verification and by applying as much online validation as possible, normal data entry practices cannot enhance the data being entered.

If the catalogue has inconsistencies which have built up over the years or it contains the inevitable errors or missing data elements, accurate encoding of your records will only serve to accurately reproduce its shortcomings. We can only get it exactly wrong.

So, to improve on this, we must look elsewhere, to more intelligent supplementary methods of conversion.

Where are the retrospective conversions going?

Services are becoming more sophisticated due to the increased demands of libraries. Not so long ago, most libraries would consider a fairly straight forward conversion of their existing catalogue or shelf list as sufficient for their needs.

However, with the more sophisticated hardware and software that is now at our fingertips, libraries often look seriously at using complex records that incorporate many aspects of FULLMARC records. So the expectation of what is to occur during the automation period is increasing. Service bureaux are also striving to offer libraries improved facilities and services and this serves to increase the expectations of their clients.

Such additional services include:

Standardisation of formats ie AARC1/AARC2

Standardisation of name headings

- Here we must start the process during the initial keying stage and further checking and enhancement is carried out by our cataloguers as part of the post processing stage.

Subject heading allocation of standardisation

- Where not already on card or where another standard has been used to the one that you would now prefer to use. An example would be where a public library has used Sears but now decides to use ABN records. Amarc can convert Sears into LCSH.

Enhancement of records

- For instance a record might only contain Author and Title. From this the statement of responsibility can often be constructed.
- From quite brief information, a fuller standardised MARC record can be constructed.

Location and removal of duplicate records

- Some *very* sophisticated software has evolved that can assist with the location and removal of duplicate records. This, together with the applied skill of the librarian, can enable us to rapidly locate and remove most duplicate records, even quite obscure ones.

Standardisation and validation of authority records

- Authority records can be processed and checked against the headings in the converted file. Where they do not conform, the computer will signal a discrepancy. This gives our librarians a chance to investigate the record and make a decision on which form of heading to adopt.
- Improved software tools have also been developed by Amarc to facilitate conversions. They assist with such things as:

Allocation of subject headings

- By enabling Amarc to efficiently allocate subject headings, based on a combination of the Dewey Number, Author Title and other information from the record. And, of course, the experience and skills built up by librarians.

We have watched over an interesting phenomenon. An elite section of the library work force has developed.

It is becoming very skilled at carrying out these tasks of enhancement. Its skills have been focused in this direction because of the demands and expectations placed on us by our clients. These unique skills have developed as an extension of the conversion industry.

Other methods onversion

We have recently seen the emergence of large and varied data bases on CD ROM and Amarc is able to offer a number of these which cover a wide variety of subjects. It is rather like having your own bibliographic database. The data can be searched either by the library or by the bureau for the items required. If a record is located, either a full or partial record can be retrieved. The full record can be edited to add local information and to suit local requirements, or a brief record selected to use as a search key to retrieve the full record from the parent database.

Summary

First each library needs to determine what its own standards are to be, based on their own environment. It will then be able to more easily define what quality means to it. It should ensure that the quality of the data is not compromised during the conversion stage by insisting on choosing methods of validation that protects its data.

Make use of conversion tools that suppliers can provide to enhance the data during conversion. Use an approach that places a very strong emphasis on providing the very fine quality that does justice to the importance of the data being converted.

As powerful as current software is, it cannot make good of bad database. High quality conversion services are available and should be demanded of all suppliers. Consciously make the decision to press hard for a solution that will give a quality result and turn any *garbage* into *gold.*

LIBRARY COLLECTIONS, CONVERSIONS AND THE WHOLE ****** THING

Margareta Nicholas *Database Manager, South Australian College of Advanced Education Library*

Abstract *Retrospective conversions are disruptive, time consuming and a drain on staffing resources. Amalgamations of library collections and cataloguing practice result in inconsistencies in catalogues. Implementing an integrated system for a five site library from this melange is a challenge. The process of retrospective conversion highlights the need for quality and relevant quantity in cataloguing practice and adequate staffing resources. The following paper deals with all of these issues as they pertain to the South Australian College of Advanced Education*

THE SOUTH AUSTRALIAN College of Advanced Education Library began the retrospective conversion of its collections in the Christmas break of 1984/85 when the collections at its Underdale site were barcoded during a stocktake. Four years later, City and Magill sites, the last two sites to convert, began their conversion process.

The project has been a complex one from the start.

The College Library is now a composite of six libraries which operated as separate college libraries in the 1960s and 70s. Automated library systems were in their infancy or nonexistent during those two decades and, lacking funds and incentive, the libraries continued to offer their users the traditional card catalogue as the main access point to their collections.

In 1979 amalgamation of four colleges of advanced education into two, caused the new libraries to re-examine the service they were providing to users in the form of the card catalogue. Hartley College of Advanced Education, one of the amalgamated libraries, chose to integrate the card catalogues into one; the other, Adelaide College of Advanced Education, chose to automate its catalogue product soon after the merger took place.

Though not the ultimate in retrieval tools, the fiche catalogue which the Adelaide College of Advanced Education Library began to produce for its users had the advantage of being easily transportable and for the first time showed holdings for both sites of the Library in one product.

The Library purchased MARC records from the Australian MARC Record Service run by the National Library of Australia and produced the catalogues using the services of Libramatic Pty Ltd in Melbourne. To maximise the benefits of resource sharing the Adelaide College of Advanced Education joined with the South Australian Institute of Technology and the Salisbury College of Advanced Education to form the library section of SAENET(South Australian Education Network). The computer facilities, and personnel who ran the network, were stationed at The Levels campus of the Institute.

The fiche catalogue of the Adelaide College of Advanced Education Library did not represent the total collections of the Library. There was no program at that time to retrospectively convert the card catalogue.

In 1982 an amalgamation of Adelaide, Sturt, Salisbury and Hartley Colleges of Advanced Education to form the South Australian College of Advanced Education resulted in the centralisation of all technical services operations at the Underdale site. Since three of its sites had already been producing fiche catalogues, it was only logical that the other two sites, Magill and Sturt, should begin also. However the off site batch mode production of the fiche was proving to be cumbersome and too slow, so it was extremely propitious that the Australian Bibliographic Network (ABN) emerged as an alternative at that time.

The Library was already purchasing records from AMRS, and it appeared that all that was needed was to load the holdings for Adelaide and Salisbury Colleges collections onto ABN to enable the

new Library to begin the production of a five site union fiche catalogue. The Library joined ABN in 1982. A magnetic tape of 54 000 MARC records from Libramatic was loaded, and the first fiche appeared soon after. Library users could now see what was held on all five sites. But what were they really seeing?

The fiche catalogue represented only the cataloguing effort of two or three years using Libramatic Pty Ltd. There were still five card catalogues on five separate sites, the contents of which were unknown to the other sites. Also users now had to check in two places to get a complete picture of what the Library held. To complicate matters further, the same item could be held at different sites and classified at five different locations!

Certainly cataloguers know that to get consistent quality in a catalogue they either update it every time rules change or a new edition of DDC or LCSH comes out, or abide by the old rules forever. The former is prohibitive in terms of staff time and costs; the latter is counter productive in today's climate where data sharing is the name of the game. It has always been a dilemma for Cataloguing Sections whether to stay with old practice or update to current rules and classification practices. A compromise is inevitably reached. Changes are made if there is no or little conflict with inhouse practice. No changes are made if the change will result in conflicts in catalogues and resultant confusion for users. Experience has shown that names and subject headings tend to be altered, classifications are not.

Compromising on quality, whether intentionally or not, leaves a library catalogue with inconsistent data.

We must be honest with ourselves and admit that we have all compromised at some stage in the quality of the information we provide for users in our catalogues. Only libraries which have started from scratch or those with enough staffing resources to alter every entry when a rule or heading changes, every book when a classification number changes or every description when rules for descriptive cataloguing change, will have quality catalogues for their collections.

So the Cataloguing Section of the newly formed Library devised, in consultation with the five sites, a set of standards for the cataloguing and classification of all materials in its collections. For the first time a consistent set of practices would apply to all cataloguing. This quality was further enhanced by the standards required by the ABN and its Standards Committee. However there was still the problem of all those unconverted records reflecting the compromises mentioned above. Further, ABN already had inconsistent holdings information for items catalogued when most incarnations of the Library were contributing separate holdings to Libramatics Pty Ltd.

At this time it was becoming increasingly clear that services to users were being compromised by an inefficient circulation system. The solution to that problem and the cumbersome catalogues, was to purchase an automated circulation system. Recognising the benefits of integrating acquisitions, cataloguing, circulation and OPAC, the Library decided to opt for an integrated system to enable it to circulate material across the five sites. As only about 60 000 records were available as basis for the local database, the obvious solution was to retrospectively convert the collections. The Underdale site was chosen as the first one to convert, chiefly because technical services were on site to assist with problem solving.

The conversion

The retrospective process can be relatively simple if MARC records are available for the whole collection or a nightmare if no records are available. Neither situation is common. Most collections contain a mixture of commercially produced material and unique items which are held in no other library. The most important decision a library makes when deciding to retrospectively convert its collections is whether to do it inhouse or engage a commercial bureau to undertake the project.

Inhouse conversion gives complete control of the project, but requires intensive use of staffing resources -- a rare luxury in libraries. Bureau conversion allows for a quick job but with the resultant compromise with consistency of practice, especially if the library has extensive

collections built up over a period of many years. Rule and classification change problems predominate in collections of old libraries.

SACAE library chose to convert using a bureau, Saztec (Australia) Pty Ltd. Staffing resources were not available to complete the job in the required time and still maintain levels of current cataloguing. The collections were scattered across five sites and there was no union shelf list for the material on ABN.

Saztec takes the library's shelflist or public catalogue, films it and creates search keys based on data found on the card. A utility such as ABN, OCLC or UTLAS is chosen to search for records using an LC number or ISBN. Successful matches are flagged with the library's holdings and unsuccessful searches can be converted to MARC records created by Saztec to the library's specifications. Sounds simple enough, doesn't it?

SACAE chose the shelflist as its source of data. Shelflist cards were never considered important from the general library user's point of view, so in terms of clarity and completeness, they left a lot to be desired. Saztec had to sift the following information:

1 Design of cards varied from year to year, and system to system; handwritten, typed, stencilled, printed by ABN, LC or HW Wilson Co in many different colours and designs
2 Information relating to cataloguing practice varied; AACR 1 and 2, physical description, subject headings obsolete, new or none at all!
3 Information relating to acquisitions was included; order numbers, accession numbers, date received, supplier, price
4 Information relating to stock control was included; missing, withdrawn, transferred, etc notes
5 Information relating to classifications was included; obsolete location information, obsolete DDC numbers
6 Information relating to copies was included; other copies, other editions and where they are held all on one card
7 Information relating to editions was included; different editions on the one card, or different publishers. These examples were recatalogued if the stocktaker recognised the inappropriateness of this procedure for retrospective conversion

To successfully convert a shelflist such as this requires a detailed and intimate knowledge of the cataloguing practice in all of the Library's previous cataloguing sections going back to the turn of the century! Undaunted by the vastness of the task, the process was begun in 1984 with the barcoding of the Underdale shelflist and stock during a stocktake. At the same time items were scrutinised for LC and ISBN numbers which were to provide the matching key.

This, in hindsight, was not a wise move. Stocktakes are difficult at the best of times. To add barcodes and write LC or ISBN numbers on shelflist cards at the same time adds a burden which caused errors. Some common mistakes were:

1 Shelflists not barcoded for missing items but left in the shelflist
2 Barcodes overlapping to such an extent that numbers were obscured
3 Barcodes sticking to the next card behind either through the hole or somehow bending backwards and joining two cards together. This turned out to be a real headache as mismatches frequently occurred
4 LC and ISBN numbers were transcribed incorrectly. This mistake resulted in the acquisition of the wrong record
5 LC and ISBN numbers were transcribed from CIP data which were in the book but actually belonged to an earlier manifestation of the book, usually by a different publisher
6 LC numbers were added for a series record not for the title in the series. It was not possible to tell this at a glance

7 Numbers which looked like LC and ISBN numbers but were actually other publisher's numbers were nevertheless diligently added by stocktakers
8 Numbers which were correct but either written in haste or in the stocktaker's particular style which was later misinterpreted, resulting in the purchase of wrong records

The barcoding and search key numbers should be added to shelflist cards in a totally separate procedure by staff familiar with numbers and with good handwriting.

The barcoding/stocktake procedure was repeated for the other four site libraries over a period of four years. Some mistakes made at the first were repeated to a lesser degree at the other sites, mainly errors of transcription of numbers.

Once barcoding has been completed, the shelflist is filmed in situ. Saztec films both sides of all cards in the drawer at once and can process a large shelflist of about 120 000 cards in a day with little inconvenience to the library. Cards written in pencil, biro or printed are all readable in the microfilmed copy as long as the information is not blurred, faint or incomplete. Saztec then takes the microfilmed data and creates search key records which contain the LC number or ISBN as the control number. Other data captured include call number, barcode and as much of the cataloguing entry as is necessary to identify the item for a 'title, place, date' search at a later time.

Those shelflist cards lacking such numbers, or containing invalid or multiple numbers are not included in this stage of the process. SACAE chose to recatalogue those cards which lacked LC and ISBN numbers *and* also had no subject headings or carried data referring to different editions or publishers on the same card. Some 6 500 items were recatalogued in this way for the Underdale collections before filming commenced.

It is also important to weed collections before retrospective conversions commence, if time allows. Since weeding takes time and sometimes librarians need to consult with lecturing staff to make the final decisions, this part of the conversion tends to be overlooked. It is wasteful of both time and money if unnecessary items are included in the process.

The next step is to use the LC and ISBN numbers added to the shelflist card to check databases for records. The first choice of most libraries is the Australian Bibliographic Network database, which facilitates this type of search.

Records exist on ABN for monographs, serials and nonbook materials. However the nonbook format used on ABN is a composite of various nonbook formats superimposed on the films format. This could cause difficulties if a library had the capacity to exploit all seven searches by format specific tags and subfields is highly desirable to OPAC users. To have all seven formats available with the relevant data in place is a strong argument for using USMARC format. Libraries which collect extensively in nonbook areas should consider using USMARC format for their records.

ABN does have the option of obtaining records in AUSMARC or a converted USMARC format.

A hit rate of 60% was obtained from ABN searches on search keys created by Saztec. The rate was lower than expected. Reasons for this were:

1 age of SACAE collections — many older imprints lacking LC and ISBN numbers
2 few nonbook items have LC and ISBN numbers and a significant percentage of records were nonbook
3 failure of staff at stocktake to find the LC or ISBN number on the item and subsequent processing picked up a number in house

On the whole the quality of records on ABN was good, but the match resulted in records loaded onto the local system which were obtained in a fixed time framework. We received full records, interims, CIP records, etc. which would need further work locally on a case by case basis.

Other sources of records are OCLC and UTLAS. SACAE used the latter for a group of unsuccessful keys from the ABN search. Nursing materials and older titles were searched and a hit rate of 38% was the result. The quality of the records was good overall and consistent with ABN quality. These records were not added to ABN.

The remaining items were tagged and keyed by Saztec from the data supplied on the shelflist card. To get a consistent MARC record for these items, a specification was necessary at this stage. Since most of the shelflist cards left represented older material and consequently old cataloguing practices, the standard set needed to consist of the minimum set of mandatory tags necessary to be compatible with the ABN/UTLAS source records. The information required was:

Author (if available)
Title (mandatory)
Collation (as much as was on the card)
Notes (if available)
Subject headings
Added entries
Series

The cards without legible data in the title area were not keyed and other illegible data were not converted but reported.

Where a card lacked any subject headings at all, a special code was entered onto the MARC record. This code was to serve as a pointer to records which needed enhancing on SACAE's local system. TRC items in particular had been given subject headings since standard cataloguing policy had been implemented in 1982. The code served as a pointer to cataloguing practice when subject headings were not assigned to juvenile fiction.

Other items lacking subject headings were also flagged to pick up cards missed in the recataloguing process. The code enabled us to pick up 6 500 records which will need enhancing on the local system. SACAE decided that the tagged and keyed records would not be added to ABN for the following reasons:

1 we had already paid for their creation and adding them to ABN would result in some bumping of records
2 some cataloguing standards would not be met as set up by Standards Committee for retrospective records

The tagged and keyed records from Saztec were as good as the shelflist cards from which they were created. If data is not on the card, it can not be made up! However, a lot of information can be gathered into MARC record. Saztec offer an authority control service through Blackwell North America in UTLAS. SACAE chose not to use the service for the following reasons:

1 costs
2 tagged and keyed records represented a small portion of the total conversion and we felt that we could do the required authority work locally

In hindsight, the extra costs would have been justified. Although our local system allows for quick and easy authority work, staffing resources are not available to carry it out on a consistent enough basis. However, we are able to instruct Saztec to make minor alterations to subject headings to make them compatible with current practice. For example:

a Abbreviations such as US, Gt Brit, Aust 20thCent were expanded
b Obsolete subdivisions were ignored eg Addresses, essays, lectures
c Headings completely recorded in upper case were corrected
d Uniform titles eg Bible OT and variations were standardised

For nonbook materials, a passable record was created including the correct GMD and the 007 tag.

At the end of this stage, SACAE had 32 000 records which were tagged and keyed, 171 000 records on ABN and no local system!

All changes to the shelflists for Underdale, Salisbury and Sturt sites (those sites already converted) had to be manually recorded and stored. All barcodes added to items catalogued after the filming of each site had to be stored manually. At the time of installing the local system, the Cataloguing Section had on hand some 20 000 barcodes and countless records of changes to be made to holdings once they were loaded onto a local system.

The system

In November 1987, the Library installed an integrated library system using Ultimate hardware and Dynix software.

The database of 171 000 records was extracted from ABN and loaded onto LIBRIS (the SACAE system). These records had no holdings attached to them suitable for circulation purposes as the barcodes were part of the Saztec holding record and not part of the MARC record. Consequently Dynix personnel and SACAE staff spent most of 1988 designing strategies to match MARC records and barcodes. Matching data included:

1 ABN RID or Immutable number
2 ISBN
3 Title, place, date
4 Title
5 Call number

As the matching progressed down the list, the successful match ratio dropped until with the call number match, we were not sure if the right record had the right barcode.

At the end of this stage, we were left with a number of large lists of errors, mismatches, negative barcodes etc which staff will have to solve. As Sturt and Salisbury shelflists are housed at those sites, problem solving is tedious, slow and demanding on their staff time.

The Cataloguing Module is the core of the LIBRIS system and the database is its heart. Cataloguing records are in USMARC format and represent the seven formats: book, film, manuscript, map, music, serial and data files. At this stage, no authority records have been loaded onto the system. Data in LIBRIS can be accessed via the following indexes:

- Title keyword and alphabetical
- Subject keyword and authority
- Series keyword and authority
- Author keyword and authority
- Contents/Summary keyword
- Title authority (Uniform title)
- Barcode
- ISBN
- ISSN
- LC
- ABN RID/Immutable no

A call number index is to be added at a later date.

Circulation became automated at Underdale site on 24 February 1989 and OPAC terminals were installed a month later. Already users prefer online access to the fiche and card catalogues which still exist. Until all five sites of the library are converted, fiche and card catalogues will have to

serve users on the other four sites. Understandably there is a growing desire for these sites to install OPAC terminals as soon as possible.

The problems

1 In an online environment, users have the benefits of being able to retrieve information quickly and easily, as long as it is consistent and actually available in the system. Studies have shown that users prefer subject access, but until the headings in the subject authority file are corrected, users will have multiple headings to search. The same, of course, applied to author and series authority files to a lesser extent.

2 Users finding the title they wish to borrow on the OPAC are frustrated by the lack of holdings on the screen. This is largely due to the problems of matching records to barcodes that I have already outlined.

3 Users find the title they want and the call number leads them to a totally different item — a result of miscoding on the LC or ISBN number in the search key stage.

4 Users find duplicate records on the system — a result of converting sites from *their* own shelflists without recourse to other site shelflists. This problem would not exist in single site, unamalgamated libraries.

5 Library staff at the Circulation desk have to create 'fast adds' for items going out on loan where the barcode does not exist on the system. The reasons for this situation are extremely varied. Cataloguing staff deal with the problem when the item is returned.

6 Acquisitions staff using the database to search for titles before placing orders frequently find duplicate records, or may fail to find the title, create a new record and subsequently discover there was one on the database already under a variant title.

All this may sound as if the project has been a nightmare. It has not. Countless records are on our system, complete and fully retrievable with correct holdings in place. What we are seeing in the mopping up process is the material which would have been difficult to convert anyway.

Unsolved stocktaking problems compound the problems. Lack of staff to deal with problems means priorities have to be assigned and day to day work juggled with retrospective problem solving. Inevitably there is some recataloguing necessary as a final part of this problem solving.

The present

City and Magill sites were microfilmed in January, 1989. We have learned a great deal since the filming of the Underdale site in 1985. We now have our local system and a weekly tape load of records from ABN.

There will be problems resulting from the City/Magill conversion, but they will not be new ones. We have avoided the mistakes of the past and we know we have not created any new ones!

At the end of 1989, the Library will have a database of 400 000 records accessible to all library users, and we will be able to discard our fiche and card catalogues.

Conclusion

If a library has the staffing resources and the time, and wants a top quality database the course to follow would be total inhouse conversion. Control of the project at a local level allows a library to scrutinise the data and make decisions on a case by case basis.

Conversion by a bureau means some loss of control as computer systems cannot examine incorrect LC or ISBN numbers and lead to the correct record. Staff in the bureau do not know the full history of a library's collections. However, if staffing resources are scarce and the library needs a database quickly for an integrated system, a bureau is the answer.

The complexity of any retrospective conversion is directly proportional to the age of the collections and the number of amalgamations those collections have endured.

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PLANNING FOR RETROSPECTIVE CONVERSION

Gayle Villaume *Senior Library Consultant SAZTEC Information Services*

Abstract *Librarians, in contemplating the automation of their libraries, find the prospect of a retrospective conversion even more of a challenge than choosing suitable hardware and software. The librarian may well be faced with a catalogue and shelflist which has been developed over a long period, perhaps has been created in part by amalgamating several previously independent libraries with different cataloguing practices, and overall shows significant variations from currently accepted standards. In preparing for the conversion certain objectives and tools need to be considered*

THE CURRENT GENERATION of library systems not only offers libraries more effective control over their own resources, but also, and more importantly, provides the opportunity and challenge to offer better access to those resources for that sometime forgotten person, the library user.

Library automation does not alter the professional duties of the librarian nor reduce the cost of operating the library. Automation is designed to improve the effectiveness of operation of the library's function and to provide greater control over that operation. In any library automation project, there exists an element of conversion.

Which leads to those vexed questions of retrospective conversion. WHY you should bother and HOW you might go about it.

The answers to WHY and HOW will assist in planning your conversion objectives. Three possible areas to explore for WHY encompass *service, control,* and *cost effectiveness.*

1 Service

The briefest possible answer to the WHY question is *better service* to provide a better service to the users of the library's resources.

Remember many of our current cataloguing problems have in fact been created by professional librarians in the past. Often, of course, making the best decision at the time, but in reality too often frustrating staff and users in attempts to access information. The advent of integrated library systems enables wider access to the rich array of information that has been assiduously acquired over the years and stored on shelves and in cabinets. This access is no longer limited to the author/title/subject headings, nor is it as tedious as searching through card drawers or the ubiquitous set of fiche.

2 Control

The integrated system provides for greater control of the collection, through management of acquisitions, circulation control, online cataloguing, and upgrading of cataloguing by global changes. Control will only be effective, of course, if the library has adopted and adhered to certain standards in the preparation of its data.

3 Cost effectiveness

Many library users prefer to access information themselves and not rely on library staff for help in battling with an idiosyncratic catalogue. One of the objectives of conversion then, is to remove as many of the inherited idiosyncrasies as possible in order to encourage use of the new system by the users themselves. This must be seen as a cost effective measure because it frees a portion of staff time which previously was used to support the users' access to the catalogue.

To answer the question of HOW you might go about a retrospective conversion, you might start with a blank page. Then look very carefully at what tools you have to assist you. Three come immediately to your mind, *your automated system,* the *standards available*, and *your knowledge of past practices.*

1 System

What can your new system do? Librarians should inform themselves of the possibilities of their chosen system. A thorough knowledge will ensure the system is being utilised to its full potential.

2 Standards

Consider the record standards that you adopt for the future. The current trend is toward using complete MARC records instead of abbreviated records. The use of a full record certainly means that the potential is there to enable software to provide users with flexible access to the library's data — via author, title, series, classification, number, subject heading, publication date etc. As the effectiveness of the library's automated system will depend on the quality and completeness of the data used, the standard of data produced in the retrospective conversion is of major importance.

'Complete' records these days generally means adherence to one of the national MARC standard formats, such as AUSMARC, UK MARC or US MARC. While the physical structure of these records may appear unnecessarily cumbersome, the value of retaining records in a form compatible with this structure lies in the possibility of exchange within shared cataloguing networks; in the reception of records from national agencies and bibliographic utilities; and in the exchange of records with other computer systems.

The philosophy of maintaining compatibility with the MARC format may imply that substantial upgrading of the existing cataloguing records is necessary to conform with AACR2. To some of you, whose predecessors did not catalogue to the same high standards which you maintain, this necessary upgrading may appear to be a significant problem. However, it is possible to alleviate this somewhat through your method of conversion making maintenance much less painful in the future. The consistent use of standards will make service and access easier for all.

Librarians often ask why they should consider loading full MARC bibliographic records when they have no intention of displaying all of that information and confronting users with a screen full of bibliographic information. Even if you envisage a one line or brief display, you may still like to provide the ability to qualify or refine a search. For example, a user may want to qualify a search by date of publication, the presence of a bibliography, or by publisher. Although the results of the search may be displayed in a brief one or two line format, many elements are needed to provide the searching precision required.

Another of the reasons for maintaining full records, is the cost of storage devices. The larger the disk drive, the lower the cost per million characters stored.

3 Knowledge of past practices

Remember, the purpose of the conversion is to recapture the bibliographic data, currently printed, typed or handwritten in your existing catalogue file, into a machine readable form.

This current file may be in a variety of forms due to the previous cataloguing practices and any resultant problems are carried over into the automated file.

A thorough knowledge of past cataloguing practices will assist you in standardising the data from the card catalogue into the automated form. This knowledge of course may not be your own but that of a long standing member of the library staff; failing this, staff will need to study the existing data to inform themselves of its characteristics.

Whilst all libraries will have these tools to assist in their conversion, it does not stop there. **Planning is essential.** In this regard, the development of a collection profile will assist in making informed decisions. Profile headings might include;

- size of collection
- mix of collection (monograph, serial, A/V)

- age/currency of collection
- language mix of collection
- degree of uniqueness
- existence of ISBNs etc on cards
- degree of conformity to current standards
- legibility of card data
- past practices/future needs
    * type of use
    * type of user population
- available budget

Armed with this profile and these tools, library staff will be in a position to consider the parameters of their conversion with as much attention as given to choosing their system.

Do not defer decisions on retrospective conversion until financial or staffing resources become available at some fortuitous time in the future, and the project is hurriedly carried out. While computer systems may come and go, a library's most valuable asset is its resources, and its means of access to those resources. Your new system simply cannot run without data.

Gayle Villaume BA(LS) AALIA is the Senior Library Consultant at SAZTEC Information Services, where she is responsible for marketing and customer support, specialising in retrospective conversions for libraries

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RETROSPECTIVE CONVERSION: OPTIONS AND GUIDELINES

Margareta Nicholas *Database Manager, SA College of Advanced Education Library*

Abstract *Guidelines and options for retrospective conversion based on the author's experience in a major conversion in an academic library*

I HAVE a Wizard of Id cartoon over my desk which goes like this. Rodney is talking to Yodi the stable boy who is perched at the top of a ladder with a load of bricks, building a wall.
Rodney says: 'You are now at this, aren't you?'
Yodi says: 'How did you know?'
and Rodney replies: 'The pros start at the bottom'

Every time I look at this cartoon I remind myself that every new venture has its risks and retrospective conversions are no different.

My main paper, as you might read it, is a bit like Yodi's experience I think.

In that paper I detail the history of the conversion at SACAE, the problems we faced, and the solutions we found. The conversion is still not finished and my optimistic time lines for the completion of the project by the end of this year have slipped.

Today, I would like to offer some guidelines based on experiences I have had in the hope that they may help people contemplating a similar project.

- Recognise the task as a complex one and have your management recognise this as well. It is important to have their support.
- Appoint a manager to oversee the project and give that person overall responsibility for the project.
- Allocate sufficient resources, staff and money to the project. If this is not possible, realise that it well be a long time drain on current resources.
- The Manager of the project must assess the following:

  — staff needed to undertake the project
  — funds needed for staffing and processing
  — standards needed
  — impact on user services, circulation and collection development during the project
  — impact on library automated systems if internal
  — quality of data dealt with • external sources
    • internal sources

- Each library situation is unique. The manager of the project should be fully aware of the history of cataloguing practice throughout the collections in order to make correct decisions about data to be included. Where past practice has not been adequately documented, it becomes a guessing game as to what style of data is likely to be found on shelflist cards, if that is the method of conversion.

- The manager needs to look at the purpose of the conversion; it is usually to consolidate all data into one file. Typically libraries have some MARC records, especially if they are ABN members and the majority of their collections are unconverted or in non MARC format.

- Also they may have an automated system or are about to embark on the automation of one or most aspects of library operation either circulation, OPAC, acquisitions, serials or all of the above! Whichever priority is the highest, it is a fact that a good quality database is essential in today's integrated systems.

- Problems arise when assessing past cataloguing practice where standards perhaps were not so important. Current practice in most libraries requires higher standards. Therefore conflicts arise.

Possible conversion options

- If a bureau is used because there are few staff, no time but good data on the shelf list cards, then the manager needs to decide what data should be included in the conversion record, bearing in mind the MARC formats for book, nonbook and serial records.

- If inhouse conversion is decided upon because staff are available and time is not an issue but data on shelf list cards is poor, then the manager needs to assess best sources for data eg ABN, Bibliofile, OCLC, RLIN, UTLAS etc.

However the manager still needs to assess what data will be accepted in the conversion record.

Most libraries will end up using both methods.

- Regardless of the methods used, the resultant records will become part of the current database. They have to be compatible at the access point, physical description and classification levels. Why?

In an online catalogue these three levels are important for data compatibility.

- *Access points*
  Indexes created from MARC records which are authority controlled, from the cataloguing point of view, are usually the Author, Subject, Series and Uniform title indexes or combinations of them.
  Obsolete, altered and amended headings abound in conversion records. They end up in these indexes and cause conflicts in the authority files, confusion for users and meaningless results in ad hoc reports generated by researchers using the system.

- *Physical description*
  Description of the item using ISBD conventions allows for isolation of data elements within the MARC record for retrieval purposes. Although not a crucial issue for compatibility with current records, a similar layout does assists users of Opacs utilising the retrieval methods which incorporate these data elements.

- *Classification*
  The most important area of compatibility in a database is that of subject access. Library of Congress headings (including childrens'), MESH, National Library of Medicine (NLM), and local practice have to be accommodated in an authority index as source records may contain a variety of these. If the library system can strip the unwanted headings out before loading the record, then the problems of authority work lessen. However, if this is not possible or desirable, then methods have to be devised to accommodate the various thesauri and their relevant reference structures.

- The manager must also consider the database in relation to the library system as a whole. There is no point in providing data no one needs! Or is there? What appears to be irrelevant today, could prove useful in the future. Here I am referring to unused MARC tags as well as data in the subfields of those tags. eg 066 Character Sets Present tag is not usually added or used by cataloguers. Many also disregard the importance of the 008 tag. The folly of not including or upgrading this tag can now be seen as Supersearch on ABN becomes a reality.

- The manager needs to see the conversion as part of a larger database. ie regional gateways, national (ABN) and overseas databases and plan accordingly. Here standards

become very important. Cooperation in shared cataloguing is completely thwarted by variations and disregard of standards.

- Reciprocal borrowing, even catalogue look up is messy and confusing when unsuspecting users expect to find the same access points and the same data in those access points when the search is successful. Few users would appreciate that each library collection is a law unto itself. Similarities are only now being appreciated when users know the same integrated system is in use in their region.

- The lowest common data denominator should be the highest possible. A contradiction? No. You need to include the basics: the author, title, description, the access points, eg subjects and if any of these are missing, accept what you have in the record and provide a code for the missing data. Then later use ad hoc recall reports to produce lists of records which require upgrading locally.

- Cataloguing Sections of libraries play an extremely important role in the successful conversion of catalogues to machine readable form. Cataloguers know their source data. You only have to look at the cataloguing source code 040/CAS to determine how reliable the description, access points and classification of a record are. This comment applies to current cataloguing as well as for older material. At least most errors in older records are due to practice which is no longer the standard; not coding errors, content data errors or inappropriate use of rules and thesauri.

- Users find an Opac preferable to a card or a fiche catalogue. Most errors that we, as cataloguers, see in our finished product are transparent to users and in an integrated system they can be corrected with a minimum of delay. Somehow the 'fault' can be more easily attributed to machinery rather than to the person behind the machinery. This attitude can lead to dangerous complacency on the cataloguer's part.

- The potential for retrieval in a parameter driven online catalogue is far greater than the data cataloguers traditionally add to it. It is the responsibility of cataloguers to ensure that potential is not thwarted with inferior cataloguing, whether it be retrospective conversion or current.

RETROSPECTIVE CONVERSION: IS IT A CON JOB?

Peter Haddad *Chief Librarian, Control, National Library of Australia*

Abstract *A review of lessons to be learnt from the National Library of Australia's first retrospective conversion which began in December 1987 and finished in December 1989*

THE NATIONAL LIBRARY'S first retrospective conversion which began in December 1987 with the microfilming of data, is drawing to a close, and will be completed by December 1989. The project has been a successful one and we have been pleased with the thoroughly professional approach and responsive attitude of our conversion bureau. Our conversion was large and complex, and has probably been a learning experience for both of us.

Whereas in the paper provided for the conference Elizabeth Jovanovic and I outlined the National Library's retrospective conversion of rare books and some other types of materials, in this talk I want to step back from the specifics of the conversion and take a broad look at the whole conversion experience with a view to offering some observations and advice arising from our experiences.

I will list my 'Ten commandments of retrospective conversion': and say a little bit about each.

1 Plan your priorities

Certain files within a library, or segments within a file will be more important than others. Many conversion projects will be staged over a number of financial years and it is important to convert the most used portions first. There may also be some merit in attending to the easiest segments first. This gives a sense of achievement and a boost to staff morale.

The National Library's decision to begin with its 1967-1980 catalogue was based on file use by the general public. It was also the easiest file to convert. The choice of the next priority for conversion will not be nearly so easy. Oder Australiana, foreign language material 1967-1980 and older collections of Australian and overseas material remain to be done.

2 Sample your collections

Sampling and pilot projects provide data for estimates which will give you some degree of confidence. It is amazing how these estimates can differ from the collective folk wisdom of the organisation. Sampling of our older catalogue (ca.1900-1967) dispelled the myth that the hit rate on ABN was minimal; based on the sample, it is 38.3%.

3 Estimate your staffing requirements

This was most important in our case as a task of this magnitude could not have been undertaken without seriously affecting the viability of our current cataloguing operation. To offset the impact, two librarian and two library officer positions were established for retrospective conversion.

4 Take pains over the specification

The specification is the set of written instructions for the conversion bureau. Their importance cannot be too strongly emphasised. This was recognised from the beginning of the project, and the specification drawn up was both as detailed and as complete as we could make it.

Even so, not every eventuality was covered. There was an instruction to expand a number of abbreviated subject headings, Hist. to History, Pol. & govt. to Politics and government etc, but the fact that other abbreviations had been used, Aust. for Australia for example, was overlooked. To rectify this, a change in specification after the signing of the contract had to be made, and the library had to pay for the programming involved.

A footnote to this would be to watch the assignment of record numbers. We nearly had a disaster, and had to abort a reviewing session when it was discovered that, through some error in assignment, the unique numbers were not unique!

5 Keep communication channels open

It is most important if the conversion is to proceed smoothly, that all those involved be kept well informed. These include the Bureau staff and programmers, and at the Library end, the director, senior and middle level managers, the retrospective conversion staff, the ABN Office staff, the ADP staff and programmers and the Accounts department staff. To add to the potential for confusion, many of these people change during the course of the project. In addition, the Cataloguing Section needs to communicate what is happening to the rest of the Library through such channels as the staff newsletter, talks at staff meetings, and to groups of staff.

I cannot claim that we have been entirely successful, at least within our own organisation in keeping confusion at bay. Perhaps it is a price one has to pay in a large organisation. There have been instances where nothing has happened for a week or two because someone had been waiting for someone else to send back a tape, the 'someone else' being completely oblivious to the fact that anything was expected of them.

6 Do not underestimate the reviewing

Once the relatively easy stages of the NONMARC conversion had been passed, the FULLMARC tapes began to yield records which needed examination and intervention by cataloguing staff. This reviewing could not be hurried and inevitably led to a number of unlooked for and unexpected results. Some of those encountered were:

- Problems with the bumping of hierarchy on ABN. Many of the National Library records matched with National Library of Medicine records already on the database. NLM records take precedence over retrospective cataloguing records, but lack Library of Congress Subject Headings. The result was that LCSH had to be individually inserted into hundreds of NLM records if we were not to lose subject access to records.

- Institution-specific information, particularly on our rare book records, could not be retained where the National Library record matched without a similar process of inserting it into records one by one.

7 Monitor the project

Constant checking on the progress of the project and its overall coordination is necessary if the impetus is not to be lost. A project or team leader will generally be appointed to supervise, make day to day decisions, liaise, nag or bully (nicely of course). Preferably this person should possess the strength of Samson, the patience of Job and the wisdom of Solomon.

8 Control of cost factors

Retrospective conversions involve money, and with a large job relatively large sums are involved. It will seem fairly axiomatic that efficient cost control and oversight needs to be provided.

Alas, is it our size, and the complexity of paying an account in one area of an organisation based on a tape received in another area, or lack of planning? Whatever the reason, we overpaid a substantial amount fairly early in the project, and discovered it twelve months later. It ended happily for us — we were in credit for the final stages of the project. It was probably not such a happy event for the Bureau, and in any case it was a salutary lesson for future projects.

9 Be aware of outside factors

During our retrospective conversion we discovered that there were a number of outside factors which we could not influence or control, but which affected the progress of the retrospective conversion. It is as well to be aware of these, and to accept their existence. For us, they were:

- Getting the first FULLMARC tape through. This involved a number of painful exchanges of tape to and fro around Christmas 1988. Once the teething troubles had been sorted out, progress was made.

- ADP scheduling. This is a fact of life. Retros take processing time, and processing time is scarce. At times we found ourselves competing with 2.5 testing on ABN. Implementation of 2.5 is vital to the survival of the database. (Guess who won?).

- The Bureau has other clients and other jobs. This may be hard to believe - 'our' retro assumes such overwhelming importance in the workplace — but it is helpful to remember this fact.

- People are away — at both ends, Bureau and Library, and the more desperately you need to contact someone, the more likely it is that they will not be available.

10 Maintain a sense of perspective

Stay sane. Maintain a sense of perspective and a sense of humour. The result of a retrospective will never be perfect (Why, oh why did they decide that Sydney NSW was in Canada, and assign the place of publication code cn?) but the end result is an achievement. Is it not a tremendous achievement that a whole catalogue of 370 000 items, all those headings and bibliographical information, 14 years worth of labour and toil, has suddenly (well, perhaps not suddenly) appeared in machine-readable form?

Finally, we will never, never take a superior attitude towards any library whose retrospective conversion records appear on ABN. It has been a chastening as well as an exciting experience. Elizabeth Jovanovic, our project leader has said to me 'I have always thought that there is nothing like having children to humble one's pride and lower one's standards, but I am beginning to think that a retrospective conversion is the next best thing'.

DESIGNING INFORMATION RETRIEVAL SYSTEMS WITH THE CLIENT IN MIND

Lynn Allen *State Librarian, Western Australia*

Abstract *The parameters of an information delivery future with library clients as the focus are considered under the following: Information retrieval in libraries; the MARC record; the user interface; typology of information needs; the client's current and potential pathways; the client interface*

TO BEGIN my paper I want to consider some of the systems that we could group in the category 'Information retrieval systems' in libraries. By its very definition, I will be forced to make generalisations. I do not intend focusing on proprietary systems nor to try to make differentiations between one application and another. I will start by conceptually considering systems from the point of view of retrieving rather than creating information.

In most automated libraries there are two levels of enquiry on bibliographic databases: one for inhouse, basically housekeeping type, activities such as bibliographic verification for order placement, interlibrary lending, circulation; and the other for Opacs where systems have been developed to enable the client to operate somewhat in a selfhelp manner. These are essentially tools for searching bibliographic records and even where other types of data are involved typically we try to massage that data into the bibliographic format.

Another type of information retrieval can be broadly categorised as 'STATUS type' systems. In other words, they are command driven rather than menu driven. They require a fair amount of training to use, and they can be relevant to both bibliographic record databases and databases that are structured in other ways. Of course many librarians still provide microfiche access and for older material the catalogue card file. Increasingly, libraries are creating databases of material such as local studies collections, community information and government information. Before proceeding to talk about some aspects of this type of data I want to focus on what has till now been the basic characteristic of library automation, the ubiquitous MARC record.

The MARC record

The history of library automation has seen the creation of systems which have emanated from the manipulation of catalogue records within large databases like WLN, OCLC, RLIN; and so the epicentre has been the creation of the bibliographic record. Inhouse systems tended to start with the problem of automating the circulation desk and places like Curtin University of Technology and the University of Western Australia were in the forefront of developing inhouse systems to deal with such matters. However, the majority of commercial standalone systems have grown from the point of the creation of the MARC record, though earlier systems were based on circulation needs. The primary characteristic of these systems is that the MARC record forms the basic input and in many cases the output. It is surprising to note the invasion of the MARC record into library automation. MARC was developed as a format for exchanging bibliographic records between systems. As such, it defines every piece of data; it tells you what you get before you get it; it gives you some field terminators to make sure that you have got it all; and it is basically linear. When you think of computer logic as being random access, to base systems on linear logic has to be questioned. However, having spent so much mental effort in breaking up the bibliographic record into its MARC fields and components, it would certainly be pushing the proverbial uphill to suggest that we discard the MARC record as the basis of housekeeping systems.

I call them 'housekeeping systems' because systems installed in libraries at the moment have grown from the circulation or from the cataloguing requirement. They do not save staff but keep staff ceilings reasonable. They are transaction based. They assist the librarian in updating files; they have payoffs in efficiency; they make it easier to control circulation, to update supplier files and to keep track of financial data. They are designed essentially for the benefit of the librarian/library administrator.

If we examine systems whose centre is the bibliographic record then we will find that the access to those records tends to be through supplementary indexes that provide either a direct hit, (eg if you key in the correct subject heading you will get works only which fulfil that request) or keyword access through searching any word in the string of a subject heading or a title field. In some cases they are simple inverted indexes and so you can search the first word only in a string and in other cases, you are able to search by the first set of letters at the beginning of the string.

The systems are standards driven. They tend to comply with such standards as the MARC input and output format and AACR 2. There tends not to be too many checks and balances on whether you enter valid classification numbers or valid subject headings. Some systems are sophisticated enough to offer authority checking at the point of entry and so the concept of authority control in a highly controlled environment tends to dominate. At the risk of offending my audience, I must suggest that we cannot continue to expect these systems to be developed into client oriented systems.

The user interface

This brings me to the central theme. I want to concentrate on the library users I prefer to call 'clients'. For example, if clients visit a library, what is the set of requirements they bring with them?

Are they looking for particular types of information? Do they approach us, saying 'I'm looking for bibliographic information', or 'I'm looking for community information'? Do they come in knowing that they are looking for a particular format? 'I'm looking for a film', 'I'm looking for a book', 'I'm looking for a periodical'. Do they know whether their information is directly available within the computer system or whether the computer system is simply the channelling point of the answer to their query?

Quite clearly the answer to that question is, 'It depends'. It depends on the type of library, the information system, on the level of sophistication of the client. A sophisticated researcher who has examined and deciphered the intricate secrets of our organisations could formulate well defined queries like: 'I'm studying the theory of architecture in UK from 1850 -1914'. Others may have more difficulty.

What types of information systems can we make available to the client to satisfy queries when the client is either an unsophisticated user or someone who chooses to be an unsophisticated user? The query may be couched in such terms that the client is unable to determine exactly the point at which the search should commence. Does s/he go to a periodical shelf, ask for an overseas database search, look up the microfiche or search the computer? How do they know where to go as the first port of call? Now, we can be cynical and say we do not want them to know where to go as a first port of call because the first port of call is to 'ask a librarian'. In a few libraries like The Library and Information Service of Western Australia, the number of people who visit every day who want to 'ask a librarian' far exceeds the reality of the number of librarians we can provide. And if we want to keep on marketing and promoting our services so that not only 50% of the population use public libraries, but 70 or 80% it is patently foolish to think there will be a concomitant increase in human resources to meet that demand. We all know realistically that will not happen. If you work in a government environment you are being urged to be more accountable, monitor more what you do, assess client satisfaction and adjust services accordingly. That all takes resources and of course you are being pressured to do more with less. So some way has to be found to deal with information services to both the occasional and the sophisticated user while allowing our services to increase in times of static if not declining staff resources.

Typology of information needs

If libraries are, then, promoters and providers of access to information, and we are the window on the information world, what are the kinds of information systems that we want for our clients? The time has come to define this future, not allow technology to define it for us. We do not want 'information managers', a term being used by at least six professions, including our own. We need client focused information delivery systems. Rather than look at how we can make existing

bibliographic databases in existing library structures more accessible to the client we need to focus on the client and ask how we define his/her information need and how we can service this need without the person being required to understand the library, or, possible, without the person even visiting the library. There is only so far we can go if we keep assuming that people have to learn how libraries work to be able to use them. To that end let us turn to Diagram One which centres what I have called a 'Typology of Information needs.' My definition of 'typology' is not so much a recipe book but rather several categories that may or may not overlap. (Diagram One)

It is not based on empirical research although clearly it could be the basis of some research. It is a useful way of looking at our information delivery world in order to enable discussion to take place.

In the left hand column, I have listed types of information need in an attempt to categorise various ways clients might approach the system in requesting information. Firstly there is the known item search.

(A) In other words, the person knows what s/he is looking for. The problematic is they may know some detail, they may know little, ranging from 'where is that little book I used on that table last Friday' to 'I want McGraw Hill's 'Dictionary of Technology' 6th Edition'. The trap in this search, of course, is the assumption the client does know what he or she is looking for. This may not always be the case. They have asked for a specific book because they believe it will suit their specific information need. If they are dissatisfied or they are wrong we may never be aware of their unsatisfied need.

The second category suggested is the subject approach.
(B) In other words, people have come with a topic in mind. Again, however, there will be varying needs. They will want 'something on', 'anything will do' or they may want 'something specific' in which case we come back to a specific item search. They may want everything; they may want everything available within the system they are searching; or available at the moment or available whenever and wherever. The level of sophistication here could range all the way to 'I want everything that has been written in the last ten years in English on Patrick White published throughout the world', a typical PhD project. The library database is not going to answer that question but, nevertheless, that is the question the client is asking.

We have to be able to cater for a request for specific material format.
(C) Someone will say 'I want a John Cleese film on staff appraisal' or 'I want a training video on occupational health in the mining industry'.

In a library with a range of clientele such as a State Library, levels become important.
(D) There is no point in directing a child to a very sophisticated reference book. Similarly there may be literacy levels.

(E) If English is not the person's first language then directing them to an extremely complex text may induce frustration. These are the kind of things that a person may not be prepared to admit. They may have specific language requirements or they may simply want to practise their mother tongue or the language of their parents. They may be reading for serious study. They may be reading for pleasure. So the level of language and pitch become more important than the information content.

(F) & (G) I know the next two categories are an increased level of sophistication and it could be argued that they do not fit here but I prefer to leave them here. These are the needs of customers who want regular specific subject or source scanning. This could be an information technology company wanting to keep up with the latest storage technologies and wanting the actual physical articles delivered monthly. Their information need must be satisfied promptly and regularly especially if the organisation is prepared neither to hire a librarian or information professional nor have someone spend hours learning how to find this material. The last category listed here is packaged information and this is one that we must consider carefully. Time is

money. Time is money not just in business any longer. This approach is expected in the public sector if that sector is going to 'do more with less'. If, for example, government employees are going to produce policies more quickly then packaged information can help. For example, take a question such as 'what will it take to set up program management in government?'. The research assistant wants the analysis done upon program management in Canada, the Commonwealth Government and Britain, current practices, what are organisational structures to support it and so on. The source of the information is important but secondary. The content is important but must be selective, analysed, and reliably delivered in time.

The client's current pathways

Thus we all have a miscellany of clients with a wide variety of information needs. I would suggest to you at the moment that this client with unsatisfied information needs can be depicted in a library context as outlined in Diagram Two. Here is a client with unsatisfied information needs. We are talking only about computerised information systems at the moment. If the client chooses to interface with a computer terminal the choices are through the inhouse computer to other systems or to sign on directly to external systems. On the inhouse computer they may go into the bibliographic database or they may go into community information. They may go into some other small databases that might be developed inhouse but it is fairly safe to say that this category is largely undeveloped. The primary problematic characteristic of this system is that there is no integration. The client has to consciously know the difference between community information and other databases and bibliographic records. It would be highly unlikely that the public interface to those three databases would be the same. Since this is a client learning process you would have to presume the client is prepared to learn. The link through to other systems is probably very rare in libraries at the moment even through the inhouse computer or direct linkage through a microcomputer.

Now this life is complicated enough. If we look at the true picture of what happens in most reasonable sized libraries we have a picture more like that in Diagram Three. Card catalogues exist still in many libraries. Now I hear librarians often say the older material is less important. Well, if you are a humanities researcher this is not the case. Some of the finest literary theory and some of the most interesting literature was published well before 1956 or 1968, two regularly used cut off points. In addition to the printed card catalogue we have the microfiche for backup for our computers. The more you automate the more terminals you need the less you can afford and so on. Not *everyone* can *always* have access to a computer terminal. We have print based indexes which interface with material on computer disks or, increasingly, compact disc. We have many printed indexes with which the client may be very familiar. Microfiche catalogues could also be indexes to genealogical records, convict records etc. Printed indexes could be the only subject access to library collections. Finally, of course, you have the client who goes straight to the shelves. The problem with this is we have a resultant plethora of so called client information aids. If we keep saying that we are information providers with decreasing or static staff attempting to cope with an increasing information explosion of more compact discs, more microfilms, more microfiche catalogues, more imaging, more databases how does the reference librarian keep up, far less the client?

We need to make some sense out of this.

The client's potential pathways

This paper may be seen by some as 'blue skyish' but we do need to be blue skyish every now and then. I would like to suggest to you the picture of the library world of the future from the client's view of our information systems as outlined in Diagram Four.

What we have here is a set of databases which may or may not be on the same computer. They may reside on external compact disc drives. They may be interfaced with other systems. To all intents and purposes I will ignore the networking implications of other systems. The databases consist of bibliographic records, community information, government information and let us say we might have an online government directory. We can have another internal database of our own choice, an external database, a linked library or an overseas database or ABN. We might

have a state union catalogue online. We might have a supplier database, a client database and we will have future databases. The point is the user interface for every one of these will be different. Chances are that the thesauri will be different. Chances are the standards for controlling organisations' names may be different. If fact what we have is an absolute mess as any reference librarian who searches multiple computer databases will tell you.

As some of you know I have spent years discussing the quality of subject indexing and I do not want to get on to that hobby horse again. Yet this difficulty in accessing information by subject is the result of librarians never taking the access issues on board, never grasping that they are the experts in information indexing and retrieval and insisting on universal standard of languages for accessing various subjects/formats. What I am suggesting is not a simplistic solution but by focusing on the client, then we clearly have a need for a radical solution. You will notice that the client is able to search any specific database. I am not suggesting that clients are incapable of searching using multiple interfaces as they will get to know their favourite databases. Regular clients will know where to go. Sophisticated clients will be quite discriminatory in their usage of terminology and search strategies. The system needs to allow the option of going directly into the bibliographic databases' indexes. If you like, this can be represented by the system in the State Library in Western Australia or Curtin University. This contains the indexes for the records. If you actually look at databases covering all sorts of different topics whether they are telephone or address directories, lists of reports or management type material you start to get a commonality in the way people think about information. Some of it matches up with library terminology and some of it does not. People know to search by title (it could be the title of a file, the title of a film). They can search by names of people. Life can get a bit more confusing when we refer to names or organisations or is it the title of an organisation? But you can get over that by the computer making the decisions. Requesting information by subject is fairly common. 'What have you got on,?' 'I need everything on...' is something that people can understand. So if we had some way of enabling people to go direct to the database when they knew it contained the material, the information content or whatever they think that they want, they can do that, but if they are not sure, then some assistance is required. If, for example, a client is studying the history of the Department of Community Services, then you want things it produced, you want to know the current situation, you want perhaps to go to its history file to see what its previous name was so that you can then search by that previous name. The government information database might have some soft information on how to get help for child abuse, pamphlets put out by the Department and so on. Then you might want to explore multiple databases. But number one, why should you be required to know what databases there are, and number two, why should you have to understand ten different search languages to get what you want?

The client interface

Let us look at Diagram Five. In order to facilitate this kind of searching there are a few things that are needed. One is a supplementary set of indexes that build on what is stored internally within each database. Now the interesting thing about this could be that you could carry those indexes to databases that you do not actually access on your own computer.

We cater here for the most sophisticated library user, a reference librarian as well as an occasional client. Now in order to do that unless we add the external circle which I have called the IR software interface we in fact still require a possibly unacceptable level of sophistication in the clientele using libraries. This is unlikely in state and public libraries, and having worked in academic libraries I can tell you that academic clients are on the whole not any more sophisticated.

This interface is something of a sophisticated reference interview. I do not like to talk about expert systems because I think it is early days and this may be going down the wrong track conceptually. I am proposing a conversational interface that enables the person to input what they seek and for the system to decide where best one should look. I am not suggesting that things should be hidden. For sophisticated users and regular users, normal user education and teaching information skills are still valid but different interfaces may be needed.

So what does this do in terms of our typology? If we go back to Diagram One and have a look at information needs, remember we always start with the client. The next step is to determine the

pathway that will be used either by the client or by the computer to get to the right source. So if we look at column two in the diagram you have a strategy I have called 'Pathways'. Sources of information are the bibliographic catalogue, the community information database, government information including directory, archives database, specialised indexes, commercial databases, ABN, link libraries etc. You can add your own.

If we link item A in column one with the pathways needed and build that into the information retrieval circle, then this is how you could custom design the system to suit your own organisation. So if a specific item search is required then the person, based on what they know, will go through title or series to the various databases in column three. So for specific item search they may go by title, through to the bibliographic catalogue, or they may go through to an archives database for the title of a file. For the title of something in a specialised index, be it poetry index or a children's or multicultural item, they will do through another path.

With a subject approach the pathway suggests a thesaurus, keywords or notes. The client may need to decide on the access pathways needed in order to get to the information, but on the other hand s/he may not want to make those decisions. So one could go straight to the source database and expand the search by building on what has been found.

Client profiles may be another pathway. Stored strategies might be another pathway, with an ability to rerun them as determined by previous requirements.

What we are trying essentially to do here, and this is terribly important in a place like Western Australia, is provide a single point access — a window to the info universe, regardless of where you are located. Australia is an isolated country. Even our capital cities are isolated, with Perth the most isolated. There are many people living throughout Australia even more isolated. If an equitable quality of life from the point of view of education, recreation, business development and access to government services, is going to be achieved then efficient information delivery using appropriate technology is vital. Equity is always a paramount objective to those of us in service industries. I would suggest, too, that the client is the paramount focus. We must not look at technology and fit the problem to the solution.

So maybe a single client sitting with a PC and a modem can access all of this provided the interfaces are not so complicated s/he gives up and provided you do not have to go on two months' training, and provided every single database does not need different training, and providing of course, I suppose, it is cost effective. And so the logic of this information retrieval software is going to be highly sophisticated to the present if needed, an easy to use, deceptively simple face to the client.

We can return to complete the *Typology of Information Needs* chart. Column four discusses distribution mechanisms. I do not want us to forget that the weakest link in library services is the distribution of the information as required. If we are going to look at a computer system that will make the world available to individuals living in isolated communities then we have to back this up with efficient distribution. And so I have tried to provide a range here to remind us of this problem. Clearly is is not part of our discussion today. The quality of information from the system can only be assessed by the client. And so the distribution mechanisms would involve things like self help, a location service or acquisition service and some kind of evaluative feedback mechanism.

A fast order alerting service could be a way of distributing information which is in hard copy similar to our current awareness service except awareness of the things we have not bought yet. Current awareness service is very important. SDI is very important. You can see how we move from the need for packaged information services through using the various databases and pathways to producing a document that is delivered to the client. Electronic messaging and fax have become indispensable in delivering the document through the same system that has received the enquiry, but we have yet to widely apply these technologies for the direct benefit of the client in libraries.

Where do we go from here?

To conclude, I would like to talk about some of the difficulties we would have to overcome to achieve this picture. The characteristics of the proposed retrieval software should be machine independent so that more than one library can use it. What a wonderful opportunity it would be if the information retrieval software you used when you went to the University of Western Australia was the same as that you used at the University of New South Wales. Clearly the computers will require better telecommunications in order for services to be cost effective within acceptable response times. The information retrieval software would be highly interactive, asking questions, clarifying and refining before actually running various searches so the level of activity would be on those first and second outer rings in the previous Diagram, actually accessing specific databases themselves only when you want to search for the items. You would not have to sign onto those databases until you determined your strategies. With increasing numbers of clients the system must be able to be used by the casual user being walked through the system. It must be capable of advising on strategies so that the system is interactive with the indexes. It would be useful to do dummy runs so that the strategy can be refined before the downloading or printing so you are able to do your searching and determine if your it rate is going to be too high. Then you can further refine your search before you do your final run.

There are clearly several quality and standards problems but they can be overcome. The standards for names and organisations is AACR2 and librarians could possibly persuade archives people, and creators of various directories and databases that the formats for those names should be agreed to and accepted. However I think the fact that with names you can probably get a reasonable match when, for example, the Department of Community Services is entered under various manifestations, makes for some common ground. I think the real problem is the subject access and possibly this can be overcome by some kind of megathesaurus where Library of Congress Subject Headings are clearly only one set of headings used to access the bibliographic databases and various thesauri such as ERIC, TEST and Medline's Mesh are integrated in some way. I do think that this is a long overdue area for research.

There are other areas for research and I would like to conclude with these. I think that too many client surveys are based on asking the client if s/he is happy, asking what was sought, what used, rather than the definition of the original problem. I think it would be very useful if we have surveys that actually analysed the kinds of questions with which people entered an organisation and then assessed the level of satisfaction when the items were consulted. Client satisfaction, needs assessment and service evaluation are areas that will become increasingly significant. We are going to get intensely involved in this in the Library and Information Service of Western Australia because we have client satisfaction as a performance measure. There are linguistic problems and there are behavioural problems from the point of view of how people actually approach an organisation, how much they are prepared to say they know and they do not know, and their level of computer literacy, computer awareness, computer fear, whatever you want to call it. The client's anticipated knowledge base is a problem. Is the person interacting with the computer at the right level to match the knowledge that they have?

And so in terms of the theme of the conference, *Garbage In Garbage Out*, what I am trying to say is that maybe some of the garbage that is going in does not necessarily need to come out as garbage if it gets some processing in between. Equally, data in, garbage out could be avoided. But we must remember, one person's garbage is another person's gold. Valid information is only that which meets a need, otherwise it is noise. I think the days of libraries believing that they are in the business of bibliographic record creation and maintenance have to end and cataloguers must not think of bibliographic records as the beginning and the end of their universe. Specialised indexes, different ways of creating databases, community information databases, government directories, Dialog type databases, indexed list of serials: that is cataloguing as much as the creation of the bibliographic record. We must look at the whole spectrum of information management because if we do not, on a really pessimistic note, with all your skills in cataloguing theory, index building and the understanding of the need for quality, these databases are still going to get messier and messier and a technocrat solution will be free text searching on everything. As a researcher I can tell you free text searching on everything drives you insane because your hit rate is always so high and the noise level is deafening. Other solutions are

mandatory. We must seek them now before the technologists design our future for us. This paper presents a small contribution to the process of defining the parameters of an information delivery future with our clients as the paramount focus.

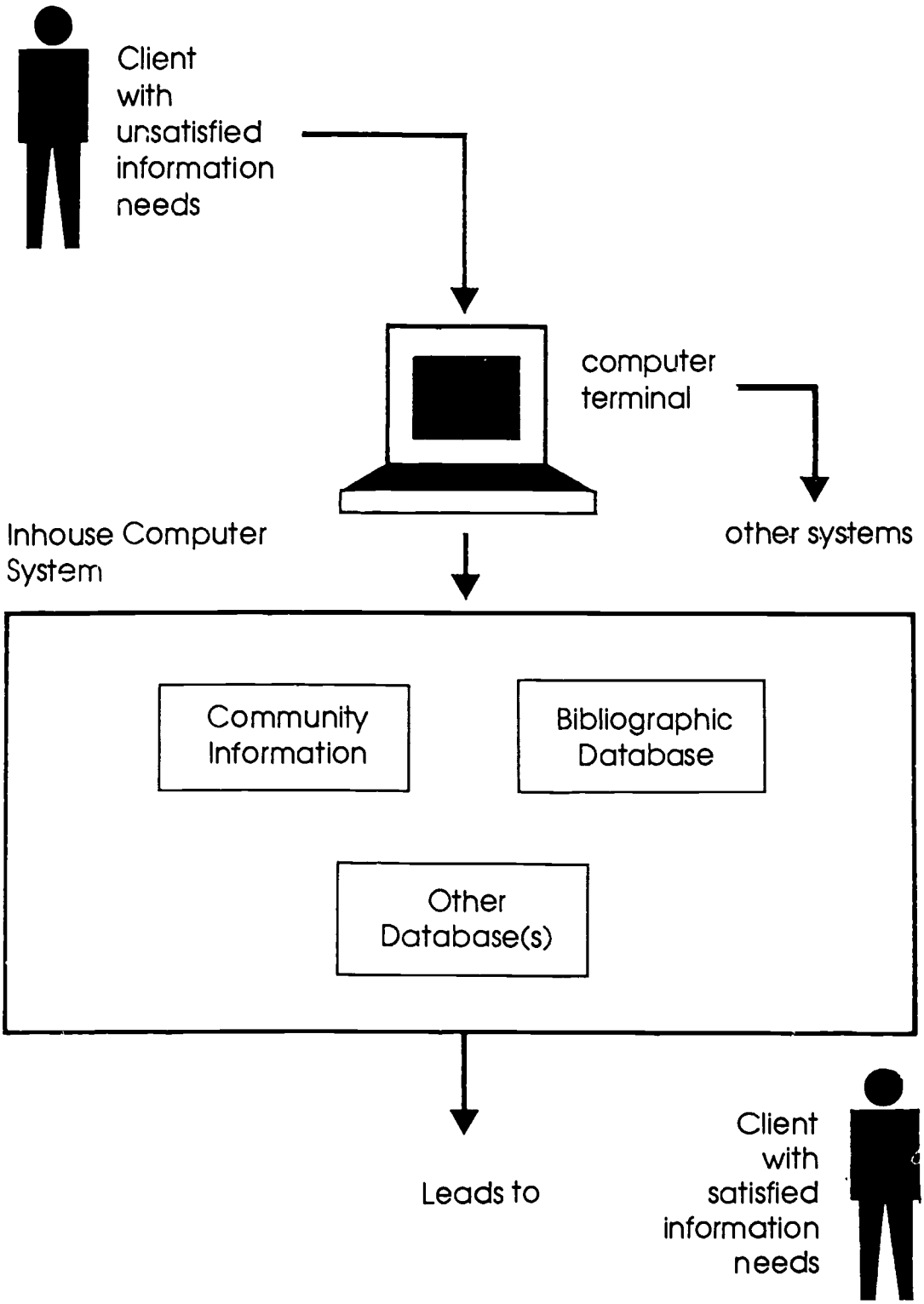
Lynn Allen was appointed State Librarian of WA in 1989 after a career including Head Cataloguer at the University of WA,and State Manager in WA for AWA Urica. Address: State Library Service of WA Perth Cultural Centre Perth WA 6000

TYPOLOGY OF INFORMATION NEEDS

	Client Knowledge	Pathways	Sources	Mechanisms
A.	Specific Item Search . knows detail . knows little . available . now or?	Title	1. Bibliographic Database	Self help
		Author	2. Community Information	Location Service
B.	Subject . something on . everything on . available now or?	Names	3. Government Information	Acquisition Service
		Series	4. Directories	Alerting Service
C.	Specific Material . film . training video	Thesaurus	5. Archives	Current Awareness
D.	Specific Levels . special needs . children's . literacy	Format	6. Special Indexes	SDI
		Language	7. Commercial Databases	Electronic Messaging
E.	Language	Client Profiles	8. ABN	Fax
F.	Regular Specific Subject or Source	Stored Strategies	9. Linked Library Systems	Packaged
G.	Packaged Information . feebased . targetted			

Diagram One

CURRENT AUTOMATION PROFILE



CLIENT'S EYE VIEW

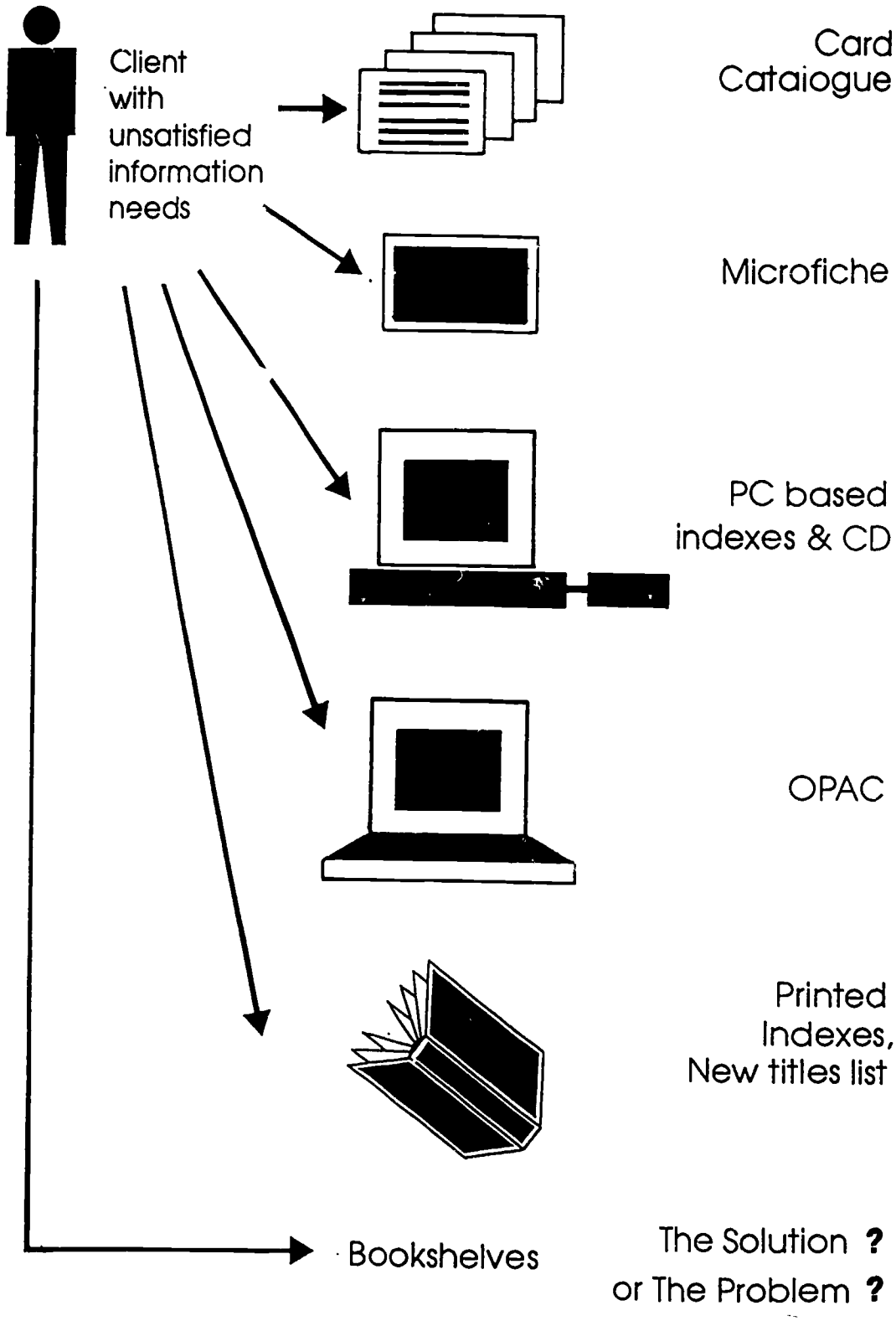


DIAGRAM THREE

MORE THAN BIBLIOGRAPHIC RECORDS

Pathway to the infouniverse

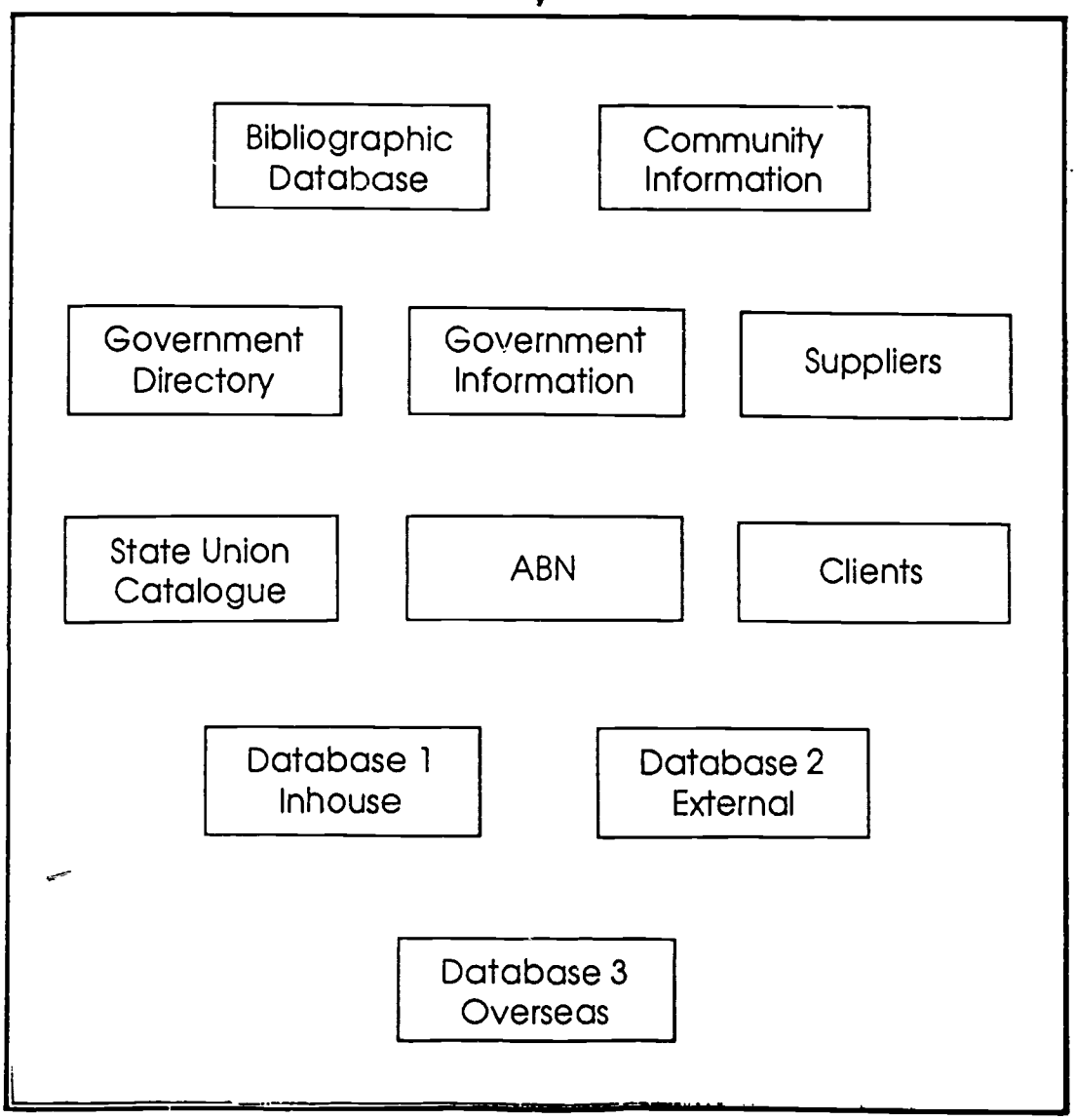


DIAGRAM FOUR 115

THE CLIENT INTERFACE

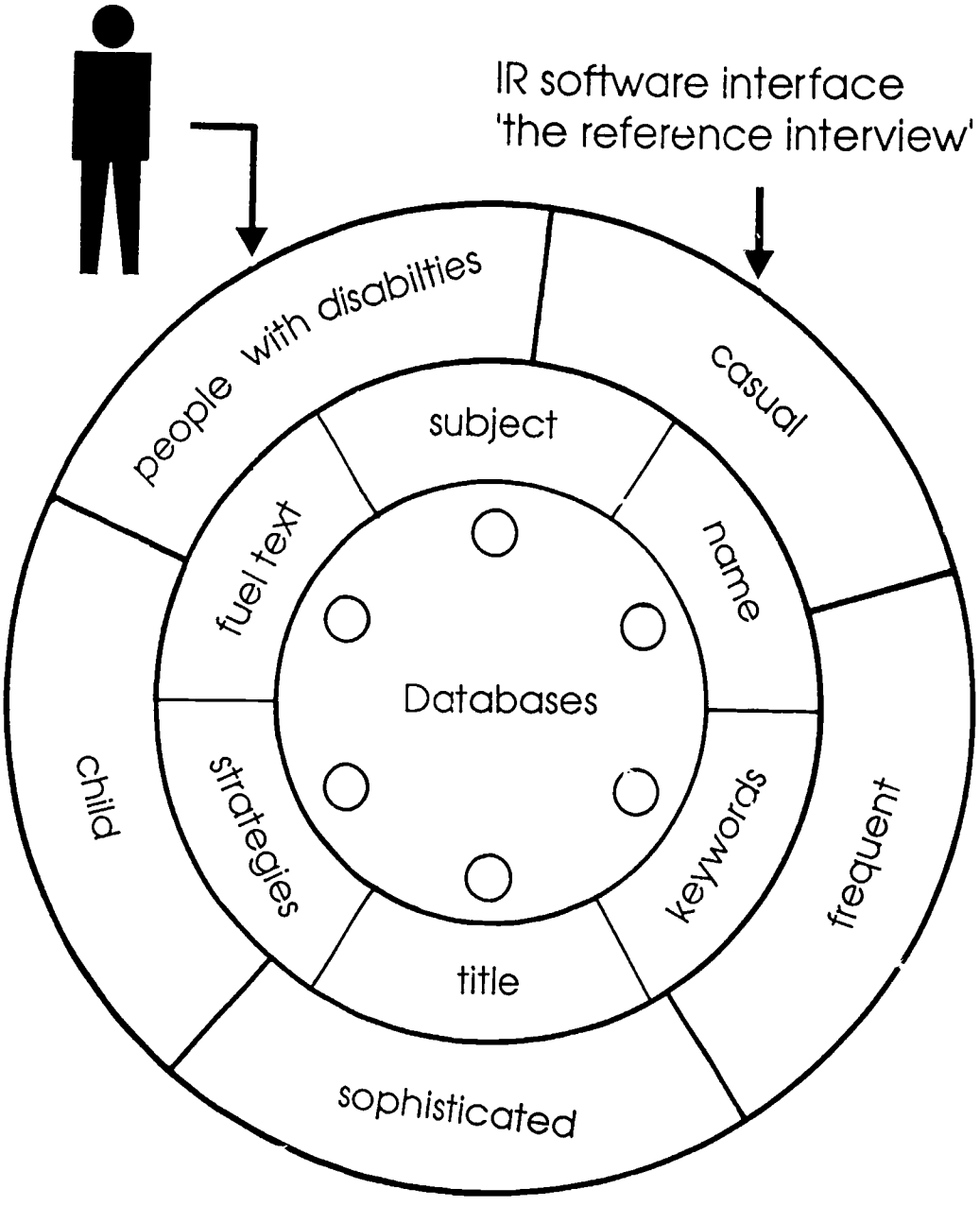


DIAGRAM FIVE

FASTER THAN A SPEEDING BULLET: CATALOGUING EDUCATION IN THE AGE OF COMPUTERS

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Abstract *What has the age of computers meant for the education of professional cataloguers in the 1980s and 1990s? This paper outlines some curriculum design issues with which educators have been grappling in recent years. It begins by looking at factors which have brought about change in cataloguing education, viz the impact of computers in the traditional library cataloguing context, and the broadening of librarianship education to include information work in many contexts. Resulting dilemmas facing educators are described, particularly the sheer breadth of the topics to be covered in cataloguing courses, given that the traditional cataloguing tools are still relevant to the library context (in which most graduates still find jobs). Strategies are suggested for cataloguing curriculum design. The role of cataloguing practitioners in supporting library cataloguing education is stressed. The paper concludes by postulating that the core theory behind descriptive and subject cataloguing provides basic information retrieval skills which will be vital in the age of the electronic library and the paperless office*

WHAT HAS the age of computers meant for the education of professional cataloguers in the 1980s and 1990s? This paper outlines some curriculum design issues with which educators have been grappling in recent years. It begins by examining two factors for change in cataloguing education: the impact of computers on the work of the cataloguer and the broadening of library education to include information work.

The impact of computers on the work patterns and environment of cataloguers

A first step is to unravel some key threads which might describe the impact of computers on the work patterns and environment of cataloguers. In reality, many of the trends to be discussed below are the result of a complex web of factors, an important one being the changing automation scene. Different practitioner experiences and perspectives together present a complex picture. For many cataloguers who have experienced the changes wrought by automation, the points made below will probably sound rather trite. The summary below is an attempt to list a few main trends relevant to this discussion about which there is some general agreement:

1 *There is a dramatic decrease in the amount of original cataloguing being undertaken*

Many libraries are either users of AMRS or, more commonly today, are participants in shared or centralised cataloguing networks, such as ABN, CLANN, ASCIS and Technilib. Cataloguing-in-publication programs are increasingly successful in their coverage. As a result, the major cataloguing operation in libraries today is copy cataloguing, and the amount of original cataloguing undertaken has been considerably reduced.

Nevertheless, the small quantity of original cataloguing that is undertaken has often to conform to the strictest network standards, local, national and/or international. Original cataloguing has to be applied to materials for which cataloguing copy is not available, such as audiovisual items, internal reports, foreign language and historical material which require high level cataloguing skills and sometimes specialised knowledge and backgrounds.

Moreover, those who check the access points provided in the cataloguing copy need to be skilful enough to pick up small deviations from rigorous compliance with standards applying to the description, classification and subject indexing of the item. Goodell[1] describes the same trend, predicting the need for 'fewer but better catalogue'.

2 *Cataloguers are working with a dynamic range of information technologies, including turnkey systems, microcomputers and compact discs. There is a merging of the concepts 'catalogue' and 'database'*

Rowley makes the point that:

> Today's cataloguers must be conversant with OPACs, menus, LANs, man-machine interfaces, database management systems, and a plethora of other information technology concepts... The catalogue has become the area of library operations where information technology has made most headway[2]

Most libraries have either installed, or are planning to install inhouse standalone mini or micro computer systems for a range of library functions, including cataloguing, circulation and OPACs. These systems may consist of software packages only eg INMAGIC, or they may be turnkey systems consisting of hardware and software, such as LIBS 100 and GEAC.

Many libraries which have such systems are also members or users of a shared cataloguing network such as CLANN and ABN. The technology is steadily being enhanced, for example the loading of ABN tapes into some turnkey systems is now possible through direct downline loading. The use of regional, national and international sources of cataloguing copy on compact discs via micro computer searching is likely to expand rapidly.

It is already possible to search local catalogues, union catalogues, national databases and external indexing and abstracting services from a home micro computer. As it becomes possible for library patrons to have such breadth of access from their library's OPACs, each searchable collection of citations will simply be thought of as a file within an international pool of databases. Cataloguers are increasingly having to input to, and search a whole range of databases, of which the catalogue is only one type.

Hildreth's articles[3,4] eloquently point to the need for cataloguers to operate and evaluate an ever increasing range of hardware and software systems. Liaison with systems personnel and computer vendors, both in selecting and enhancing systems is a major part of the professional cataloguers's work. Cataloguers need to be conversant with system manuals, and inhouse and national formats such as AUSMARC and ABN MARC. They need to be expert database users, understanding the way the different modules of an integrated system fit together, and working at a high level of skill within the cataloguing and OPAC modules. The role of the cataloguer in system selection and evaluation appears to have greatly improved the image and status of the cataloguer in recent years.

3 *Workflows in technical services areas have changed and are likely to continue changing, with a blurring of some of the traditional divisions between the cataloguing function, and such functions as acquisitions, circulation and reference*

For a continuing education course, Tindall[5] documented the workflow and procedures in the Technical Services Section of Chisholm Institute of Technology, which uses both a turnkey system and ABN for the cataloguing of materials, While this is only one example of such procedures, it is useful in illustrating the main division of tasks common to many libraries with similar complex system configurations. While this is only one example of such procedures, it is useful in illustrating the main division of tasks common to many libraries with similar complex system configurations. The main stages, in very broad outline, consist of *Acquisitions Section:* pre order checking and verification; orders; receipt; and physical processing; and *Cataloguing Section:* pre cataloguing; copy cataloguing; original cataloguing; end processing; and authority work.

In some libraries, however, the pre order bibliographic searching and pre and copy cataloguing stages have been merged (see, for example the articles by Share[6] and Hobert and Morris,[7] with the cataloguing copy located at the acquisition stage being checked, edited and added to, thus effectively blurring the old distinction between acquisition and cataloguing.

A key role of OPACs is to indicate to the user whether an item found in the catalogue is on the shelves or out on loan. At Aston University Library, Birmingham the OPAC provides a self service facility for users to place a reservation on an item. These features highlight the close interface between the catalogue record for an item and its circulation details, and the need for staff from both areas to liaise with each other, and with systems personnel.

To quote from Brindley on the impact of OPACs:

> ...The point of entry of the record no longer corresponds to the sole or primary interest of just the one section — for example, a record entered in acquisitions is most likely to form part of the OPAC, and interlibrary loan records conceivably part of the available information to individual readers, as they check their items on loan and status. Management and bibliographic information are more closely linked in virtual unitary records.[8]

OPACs may also bring about a trend for cataloguers and reference staff to work together in new organisational structures which recognise their joint roles in educating users on the operation of the OPACs, in monitoring the success of different screen layouts and instructions, and in maximising the information retrieval capabilities of ever more powerful system. Both Chisholm and the Royal Melbourne Institutes of Technology, for example, have experimented with such structures, and at the University of Illinois and Pennsylvania State University original cataloguing is partially undertaken by decentralised subject specialists.

4 *Staffing implications have included a reduction in numbers of professional cataloguing positions, re deployment of professional cataloguers in other areas of the library, an increase in the number of paraprofessional staff and, sometimes, an increase in the grading of both paraprofessional and professional positions*

Sanders reports on 'the increasing use of library technicians and clerical staff, both in terms of relative numbers, and the intrusion of their work into areas formerly considered the realm of the graduate librarian'.[9] In 1989, this trend is still noticeable, with numbers of job advertisements for technicians in *The Age*, for instance, outnumbering those for professional positions, particularly in the area of technical services, and recent reports from some large libraries of a shortage of library technician applicants.

Sanders sees it as a good thing that:

> ...it is not unusual for libraries to have changed...so that librarians no longer do any descriptive cataloguing, and certainly do little or no checking of bibliographic tools. All of this is now done by technicians or clerical staff, and the more expensive staff are used for subject analysis and authority control.[10]

The upgrading of paraprofessional tasks in technical services, with a merging of pre-order bibliographic searching and copy cataloguing has been documented in a number of articles, including that by Hudson[11] at the State University of New York Libraries, Albany, Horny[12] at Northwestern University Library, Hobert and Morris[13] at Iowa State University Library, and Share[14] at Fondren Library, Rice University, Houston. Butler's thesis[15] concerning workflows at La Trobe University's Borchardt Library discusses Sanders' argument for para-professionals to undertake authority control work on personal name headings,[16] and mentions the increase in job satisfaction for technicians if they undertook all descriptive cataloguing. With this scenario, professional staff take on the role of reviewers and problem solvers, with more time to concentrate on classification, subject indexing and authorities work.

5 *In large libraries, jobs are becoming increasingly specialised and stratified by task*

Library positions have traditionally been organised around functions and tasks. The need to use different sets of computer system commands and procedures for moving from one module to another, and from one technical service function to another has encouraged this trend. Streamlining of the processes involved in searching of, and inputting to the relevant files has resulted in the division of tasks so that staff members become specialists in a particular set of computer commands and one stage of the item's progress.

As Butler points out in her study of a URICA implementation:

> ...Time consuming transfers between URICA (system) functions...promote stratification of jobs by task, rather than the integration of tasks around the passage of individual books, as access to all functions from one terminal in real time might otherwise suggest.[17]

The broadening of library education to include information work

Many library educators in Australia and overseas have been working hard for some years now to adapt their courses to meet the needs of the growing number of careers in information work (see, for example, reports from schools in *The information professional: proceedings of a conference*,[18] and articles by Australian Educators, Lane[19] and Broadbent.[20] The recent change of name of the Library Association of Australia to the Australian Library and Information Association, and statements on education for 'library and information science' and curriculum content for first award courses in the LAA *Handbook* indicate full endorsement by the profession of this changing emphasis.[21]

Surveys in Australia by Schauder[22] and Middleton[23] of newspaper job advertisements for information handling personnel (for which no single established course or qualification was a prerequisite) verified eleven workfields which involve 'information work'. Examples of these workfields are: General administration and secretarial work; Information/Records Management; Database Administration; and Information Counselling. Interviews with a sample of personnel involved in information work showed that (in addition to administrative and managerial functions) 'tasks common to many of the categories involve database development and maintenance, information networking, and the inclusive tasks of files design and use'.[24] The transferability by librarians of their information retrieval and information technology skills to such tasks (together with their knowledge of information sources) is the basis of the claim staked by librarianship educators to develop a portion of the information management workforce.

In schools of library and information studies (as they are now called), the aim is to treat the library context as only one of a range of environments in which information work takes place. Course content is organised by function rather than by environment to stress the transferability of skills from one context to another.[25]

The need for flexible programs is heightened by the fact that most students in Australia who begin an undergraduate or graduate course in library and information work have no special preference as to their future workplace. Moreover, their long term careers are likely to span several changes of workplace.

The dilemma for cataloguing educators. How have the two factors, automation in libraries and the inclusion of information work affected the cataloguing curriculum?

In the discussion below, the term 'cataloguing' is defined in a very broad sense to include practices and theory relating to methods, procedures and technologies used in the description, classification, subject indexing and arrangement of records.

Computers have revolutionised the work patterns and work environment of cataloguers. However, as illustrated earlier in this paper, automation has in no sense replaced the need for professional cataloguers working in the context of a large library who are able to:

- apply the cataloguing rules and standards at a high level, to varied formats, and to particular phases of the cataloguing process, such as subject authority control
- apply their understanding of cataloguing principles with sufficient proficiency to evaluate, select and operate computerised cataloguing systems
- understand and operate system interfaces between the bibliographic file and other library functions such as OPAC and circulation

- be sufficiently flexible and adaptable to cope with changing workflows and new reader services' roles
- understand current database searching techniques and options, and be capable of learning new techniques as the technology increases in sophistication

In a special library manned by one or two staff, the selection and use of classification and indexing tools appropriate to a particular client group, and the purchase of a suitable automated system may well form one part of the librarians' many duties.

The demand for cataloguing or cataloguing related tasks appears to be steady, despite predictions to the contrary. A recent survey of *The career paths of RMIT librarianship and information services graduates from 1983 to 1986*[26] obtained answers in the latter part of 1988 from 172 respondents to the question: what are the major responsibilities of your current position? The two most common tasks listed were reference work (66 responses) and cataloguing (44 responses). In addition, 16 respondents stated that 'maintenance of a database' was a major responsibility, and 7 listed indexing.

Two Victorian sections of the Library Association of Australia jointly organised a forum on cataloguing education, held in November 1988, entitled *Workshop on cataloguing education: demands and directions.*[27] The 38 practitioners who attended (cataloguers from a wide range of organisations) together with 14 educators, affirmed the need for cataloguing 'as a core subject in librarianship education and as the basis of effective library services'. The Workshop concluded that education should focus on cataloguing principles (descriptive and subject), illustrated by use of the mainstream cataloguing tools, and extended to examples of less used tools. Computer skills were seen as essential, as was increased emphasis on work experience. All participants saw the provision, coordination and recognition of continuing education in the cataloguing area as being of vital importance.

Common tasks for records managers (as often seen in job advertisements) are to classify and index incoming correspondence and documents, review file keywords for inclusion on a database, and computerise a manual filing system using a particular software package. Thus in the registry or office context, information professionals need to be capable of applying description, classification and subject indexing principles in creating or selecting, implementing and maintaining shelf/filing systems and databases, also often as only one part of a larger set of responsibilities. The levels of skill and understanding required in undertaking such tasks are often undervalued. Information searching techniques are relevant to both the library and non library environments.

Most educators in Australia and abroad (and the students who have endured the consequences) would agree that the one year graduate program for a professional qualification in library and information work has to be taught at a pace that provides perhaps the ultimate test of time management abilities of staff and students. The growing number of information sources including databases, the importance of studying recent management theory and techniques, the need for general computer literacy for all students, and the complexity and diversity of information contexts and formats have affected the programs as a whole. Williamson, Professor at the Faculty of Library and Information Science, University of Toronto sums up the problem as follows:

> Courses may become more and more superficial as the time available becomes either compressed or diluted; there can be a temptation to concentrate either on theory without practice, or on practice without theory. Also, some courses, either intentionally or unintentionally, may be designated as less important and made elective rather than required, or, in the extreme, eliminated from a program... There is some erosion taking place, and in this respect courses in cataloguing, classification and subject analysis have not escaped.[28]

For cataloguing educators the problem is that automation and broadening contexts have greatly expanded the content of cataloguing courses. Since the traditional tools and theory are still as relevant as ever, it is a case of adding much material, while trying to throw out as little as possible.

For many years now, subjects in the cataloguing area have been called, for example, 'bibliographic organisation', 'information organisation', 'information retrieval' or 'database design'. These names signal the inclusion into the programs of many information formats, the operation and creation of automated systems, and the wide range of information contexts to which the cataloguing subject is now applicable.

The Appendix at the end of this paper attempts to list many of the components that would ideally be covered in a multiple purpose cataloguing course. These components are named and parcelled up differently by different schools, with different levels of emphasis. One thing about which most cataloguing educators would be in agreement, however, is the high pressure pace at which their subjects have to be covered.

Fay Nicholson, Facilitator at the *Workshop on cataloguing education: demands and directions*[29] reported on data she gathered concerning cataloguing course content in Victorian schools of librarianship and information studies. Topics covered in varying degrees of depth are cataloguing and classification theory; *AACR; DDC;* a selection of other indexing and classification tools, such as *LCSH, Sears, ASCIS, UDC* and *LCC*; MARC coding, bibliographic control concepts, networks, ABN, filing, automated cataloguing, database design and evaluation, thesaurus use and construction, and even expert systems. Factors that varied between schools were the time spent on cataloguing as a core component; the existence of electives to offer indepth elements; time spent on special formats, such as serials and audio visual materials; approaches to, and time spent on manual and online practical cataloguing; the opportunity for ABN inputting and authority control; and the hardware and software used for teaching.

Strategies for cataloguing curriculum design; some personal reflections.
It is suggested that there is a need for library and information studies schools to produce several different species of graduate cataloguer (particularly derived from the categories put forward by Saye):[30]

1 *Catalogue generalists* Those who have competence as trained users of library catalogues, databases and other information sources at a level which allows them to act as intermediaries for clients, and those who apply cataloguing principles to the tasks of database creation and maintenance, amongst other duties. Typical roles are those of reference librarians and records managers.

For category 1) above, 'common core' subject should be taken by all students, both records/information managers and librarians. This subject should include basic principles, illustrated with examples of applications, in the following areas:

- description of documents/records, the essential elements of description, the need for consistency etc
- different methods of 'human' subject indexing, the advantages and disadvantages of pre and post coordinate indexing, concepts such as exhaustivity, specificity, and their impact on precision and recall, automated indexing
- different approaches in shelving/filing arrangements

Students need to be aware of some of the codes/methods used in different contexts, such as *AACR, LCSH, DDC, UDC,* correspondence file numbering systems, industrial classification systems, thesauri etc. This subject forms a basis for later studies in database/filing system design, information resources/reference, and cataloguing.

At the end of this subject, students thus select from a range of electives, allowing the development of a solid cataloguing stream, or of a mix of subjects, keeping open the option of working in the database or records management area, with cataloguing/indexing as part of the duties. In addition to providing elective subjects in the database design and records management areas, elective subjects would therefore be provided for the following categories:

2 *Catalogue semi specialists* a) Those who have competence in cataloguing as one aspect of their job. Typical roles are those of managers of small libraries who undertake the entire cataloguing process as only one of many of their responsibilities; and b) those whose expertise is limited to a defined phase of the cataloguing process. Typical roles are those of reference subject specialists and database indexers who participate only in the allocation of subject headings. This semi specialist category also characterises the role of the library technician in the descriptive phase of the cataloguing process; and

3 *Catalogue specialists* These have indepth competence in the creation and use of library catalogues. Typical roles are those of administrators and senior cataloguers for large and/or complex cataloguing operations and formats.

The strategy suggested here results in core and elective subjects made up of different groupings and mixes of the elements set out in the suggested 'Components of a cataloguing curriculum...' in the Appendix at the end of this paper. While this should help to alleviate the problem of too much to fit in, staff and students will still need to move through the subjects at a brisk (but not superhuman) pace!

It is easy to idealise education in the pre automation era when there was time to spend a whole week on each major class in Dewey. Even then, however, graduates starting jobs in the cataloguing area felt insecure about their cataloguing skills. Educators can only aim to teach principles and key aspects of practice; the rest must be learnt on the job on an ongoing basis.

The issues covered in this paper highlight the crucial role of managers and cataloguing practitioners in the important tasks of:

- *guarding and enhancing the status of cataloguers within their organisations as catalogue/database construction and retrieval experts*
- *supporting courses with talks, demonstrations and tutorial sessions, and conveying to students an enthusiasm for their speciality*
- *supporting fieldwork in the cataloguing/database area*
- *helping educators to keep in touch with state of the art practices*
- *finding innovative ways to provide generously for appropriate inhouse training, particularly to help beginner cataloguers*
- *joining with educators and/or ALIA groups to provide continuing education*

Looking into the future

The need for staff and students to have the powers of Superman in order to cope with the educational demands of the 1980s/1990s may be a short term problem. With children in kindergarten already being taught the beginnings of word processing, database and spreadsheets, students of the future may be so well versed in information organisation and technology that there will be time on the course for wider coverage of course expert systems and other new technological and intellectual challenges that are probably just around the corner.

As for the importance of cataloguing in the long term future, in the age of the paperless offices and the libraries without walls — I believe that the cataloguers will be there in full force, using their principles of description, classification and indexing to solve the intellectual design and retrieval problems which have flummoxed the computers.

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Appendix: Components of a cataloguing curriculum: a personal view

1 INFORMATION ORGANISATION AND RETRIEVAL THEORY: Descriptive theory, subject analysis, classification theory, indexing theory: vocabulary control, semantic and syntactic relationships, pre and post coordinate systems, compiling classification systems and thesauri, theory of free text retrieval...

2 TOOLS/RULES/CODES: AACR, DDC, LCSH, LC, Rule interpretations, LC Subject cataloguing manual, filing rules (various), book numbering systems, UDC, LCC, LASH, SEARS, ASCIS, various thesauri, eg ERIC, ATED, EJC, MARC formats, eg AUSMARC and ABN MARC, authority control tools, eg LCNA and ABN authorities, OPAC input, search and edit protocols, records management file numbering systems...

3 PROCESSES: copy cataloguing, original description and selection of headings, classification, indexing, subject analysis for different kinds of catalogue/database, abstract writing, authority control, retrospective conversion...

4 FILE STRUCTURES: Access points, search sequences, catalogue outputs, hard copy file structures, eg dictionary and classified, computer file structures...

5 AUTOMATION APPLICATIONS: Database design: record structures, fields, access points, networks eg ABN, CLANN, Technilib, LIBNET, LANs, integrated systems for libraries and registries, eg LIBS 100, GEAC, DYNIX, etc, database management software, eg INMAGIC, user interfaces, downline loading, automated indexing, expert systems...

6 FORMAT, SUBJECT AND LANGUAGE SPECIALISATIONS: Monographs, serials, audiovisual materials, microfilm, computer software, manuscripts, correspondence, internal reports, client and project files, legal materials, foreign language materials...

7 CATALOGUING MANAGEMENT: Workflows, network and local interfaces, modules, system and tool selection and evaluation, OPAC performance, system implementation, staffing budgets, statistics...

8 CATALOGUING DEVELOPMENTS: History of codes, schemes, methods, technologies, future scenarios...

9 RESEARCH: Review existing research in the above areas, undertake further research

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GARBAGE OUT? THE QUALITY OF LIBRARY SCHOOL GRADUATES

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Abstract *Those who teach cataloguing and indexing are commited to quality output but for reasons discussed cannot be expected to turn out graduates who can undertake practical cataloguing tasks within particular systems without on the job training. It is vital that there is cooperation between educators and practitioners in the education of future cataloguers and that there is an understanding of each others roles*

IT IS VERY difficult for any teacher of cataloguing and classification, to use the traditional terms, to stand up before an audience of cataloguers and talk about the education of student librarians in these esoteric arts. There are a number of reasons for this.

Firstly most cataloguers have at some time in their professional lives acted as teachers. They have been faced with new members of staff who need introducing to the cataloguing system of the library. These newcomers are understandably confused and need very clear initial instructions and patient assistance for some time to come with individual problems. The cataloguer is forced to become an efficient teacher, merely because time and resources are precious. Today's audience is, to that degree, an audience of experts.

Secondly the reputation of education in this subject is not high. Many of you may not have happy memories of your own experience in library school. Many feel that they were taught cataloguing in a most uninspired fashion, and this can be exacerbated by continual changes in standards and texts and the introduction of new technology. We may have felt the same about other aspects of the curriculum, such as management, but could laugh that off because management did not seem very important at the time. Cataloguing by contrast, is. Most students, even those who loathe the subject, acknowledge that it is at the heart of their work. It is the one aspect of the curriculum which friends and relatives can appreciate as justifying the number of years it takes to become qualified as a professional librarian.

The third difficulty we feel is that any conclusions we draw in this paper are likely to include a challenge to you as practitioners. There are a number of things you can do to improve the practice of cataloguing in library schools and the reputation this has. The one thing we certainly do not want is unhelpful complaining about the standard of library school graduates. Something a great deal more positive is called for.

A fourth difficulty in communication between educators and practising librarians leads to the heart of the matter. Students believe that they will be expected to be thoroughly familiar with the practical use of technical systems when they leave library school. They constantly demand more hands on practical workshops and worry when they cannot have them. They have a fixed belief that their perception of the standard they should have reached before graduation is shared by their future employers. Where does this belief come from? In talking to practitioners we are constantly assured that they do not expect such detailed knowledge of graduates. Yet it must be acknowledged that criticisms of recent graduates are more often framed as 'they do not even know how to....' rather than 'they are incapable of benefitting from on the job training in...'. The library school educators are left in the middle of this, desperately trying to satisfy everybody in the face of conflicting demands.

The phrase that is always used as the basis of debate about library education is 'education versus training' and this paper will be no different. However, before looking at the positive conclusions which can flow from looking at the argument in that way, it is necessary to detail some of the pressures on educators which often mean that they cannot deliver the product they would wish. To list these negative factors runs a risk of the educators being seen as excusing their inadequacies, but the pressures are so potent at the moment that it is vital that the problems are appreciated.

Time, money and equipment are all in short supply in universities and colleges. Providing enough terminals and personal computers for a reasonable amount of hands on experience for each student is difficult, as is negotiating site licences for decent software at a reasonable and affordable price. Some of our teaching is done using public domain and shareware products because good educational versions of better packages are not available. Nevertheless we do not consider that equipment is our worst problem. Staff sizes at library schools have generally been reduced at the same time as more and more new topics have to be covered. At the same time there has been pressure on college and university academics alike to obtain higher qualifications, undertake significant amounts of research and provide new teaching in the form of continuing education and higher degree courses. The tertiary education sector is fiercely competitive and will be more so as the effects of the white paper on education continue to filter through. Future funding will often depend on entrepreneurial activity and proved research capability. This will be particularly difficult for areas like library education which tend not to be placed in the apparently high tech areas of applied science, but in low funded faculties and divisions, perceived by bureaucracy, often quite wrongly, as chalk-and-talk. Morale of academic staff is low, especially with attacks on tenure, and this is being felt in recruitment. It is very difficult to find any suitable academics, and at the grade of lecturer and below in subjects like cataloguing it is virtually impossible, since recent graduates do not have enough experience of real cataloguing systems, and those who do have such experience would rightly demand more money and status.

There is another aspect in which time is a problem. The popular one year graduate diploma courses are now far too packed with information. Eric Wainwright, the Chairperson of the ALIA Board of Education, recently remarked that library educators felt they could not, in conscience, leave something out because room had to be found for a new topic. Most of the new material depends for understanding on more 'traditional' elements of the curriculum, and, in any case, many graduates work in libraries which are not yet automated. All that can be done is to try to give students a flavour of everything, producing an information and assessment overload which many reasonable students find they cannot cope with. The obvious answer might be to introduce two-year qualifying courses for graduates, but in the present economic and political climate this is impractical. What is actually happening is an upward drift in qualifications, leading more and more librarians back to study for masters' degrees, which leads to more pressure on library schools to offer coursework masters which are more relevant than general MBA degrees.

Despite all these pressures the library schools and their staffs are still in business. The reason is presumably that we have a commitment to good education in our profession and a desire to teach courses which combine industrial relevance with educationally sound principles. Our business is to define the basic principles of the skills used by information professionals and teach these against a strong background of tested theory. We also need to place these studies within their context, ensuring that students are introduced to general management skills and understand the economic, cultural and environmental background against which information services continue to develop. There is no reason why the teaching of these principles should not take place within what, on the surface, may seem to be mere training in the major standards. However, for better or worse, library school courses are academic degree courses, and they are not judged by university administrations or outside accrediting bodies by different standards because they are vocational. To make our way and receive continued funding we need to be 'academically respectable.'

This does not mean that our courses have to become so speculative and general that we completely ignore the teaching of what are sometimes rather dismissively referred to as 'traditional skills'. We believe that these skills are vital to all librarians and are becoming, if anything, more important. Many graduates are running one-person libraries, where the skills of information organisation cannot be ignored on the grounds of not being a cataloguer. In any case automated systems have made the bibliographic database the centre of library operations and the need for this to be consistent and accurate is increased rather than diminished. Paradoxically, automation was supposed to diminish this need for indexing care because of its sophisticated retrieval capabilities. This has not proved to be the case and indexing skills are more important than ever. The theme of this conference and concerns about the quality of records on ABN are testimony to this.[1] There is no doubt that those who teach the fundamental technical skills are as committed to them as ever.

However, it is easy to find library schools where the teaching of cataloguing and indexing plays a lesser role in the curriculum than in the past.

The pressures towards this have come from two directions. Many courses have advisory committees composed of practising librarians, and these have been quick to advocate policies which would diminish the place of cataloguing and indexing skills in library courses. It might be asked why the profession should shoot itself in the foot like this. The major reason is that it is perceived that there are fewer jobs for cataloguers and therefore to continue to emphasise these skills would mean that we were not educating for the market. In addition, those who sit on advisory panels tend to be library managers, rather than technical staff; university principal librarians, for example, rather than chief cataloguers. Another reason is the desire to make room for what are seen as progressive innovations, particularly those which apparently widen the scope of courses.

The final point made above has also weighed heavily with some educators who have introduced significant amounts of change in their curricula. They have wished to move towards cooperation with other departments of their institutions on inter-disciplinary courses, which have weakened their commitment to what are seen as traditional skills. This is a pity. Librarians have developed a substantial body of theory in information description and retrieval, particularly by subject and in this respect are ahead of the other information professions. We should encourage appreciation that indexing is one of the most important skills which librarians can offer to related information professions such as records management and information systems, and we should more aggressively assert that such skills are part of the necessary education of all information professionals. The importance of consistent description of information and theoretically sound indexing has not been enough understood by those outside librarianship.

Those who teach cataloguing and indexing are committed to quality output but for all the reasons discussed so far cannot expect to turn out graduates who can be expected to undertake practical cataloguing tasks within particular systems without a reasonable amount of on the job training. Employers have the right to expect all graduates to understand the basic principles of cataloguing and indexing tasks and know a reasonable amount about the major standards, but it is likely that a good deal of revision will be needed by even the ablest students, since our standards, however worthy, are eminently forgettable unless they are used on a day to day basis. Therefore it is vitally necessary that there is cooperation between educators and practitioners in the education of future cataloguers and that, above all, we have an understanding of each other's roles.

Despite the need to emphasise general principles, it is, however, necessary to provide a reasonable amount of hands on experience for students and this is difficult. Not only are there problems with software licences and the costs involved, but also educators face considerable restraints on class size and hours taught. To give students 'hands on' experience which is worthwhile learning experience, educators need access to an adequate number or work stations and small class sizes. Managing a 'hands on' class of fifteen or more students is impossible. Within classes there are students with differing levels of knowledge about computers. Some are extremely knowledgeable, others have few or no keyboard skills, let alone a familiarity with how computers operate. Ideally the class size for workshops should be no more than ten students.

There is a dilemma in the teaching approach to be used. Should educators lead students through step by step? 'Press enter, then press option 1 on the menu...'. Or should educators encourage discovery learning with the teacher there to facilitate learning and solve problems as they arise? The latter is preferable, but it requires the smaller class numbers and good teaching materials. The manuals which come with software are not usually adequate for self learning and it is necessary to write tutorial-style manuals with adequate numbers of exercises for students to undertake. The problem is that small class sizes leads to an increase in teaching hours for academics who already have excess workloads and, similarly, writing good teaching materials takes a great deal of time. The suggestion that such teaching materials could lead to a situation in which no formal hands on sessions need to be held is an appealing one. However, it has proved difficult because there is nobody available to sort out problems as they arise; we have no full time technician.

Concurrent with this idea is a move by universities to decrease teaching hours so students have 'thinking time'. This is a philosophy which may be at odds with the practical workshops needed in so many vocational courses.

Another question arises with the 'hands on' teaching approach. How many software packages does a library school need? Indeed, how many can students cope with? If one teaches principles and not packages, a library school can get by with a small number. But this leaves the schools open to the accusation that they are pushing one package or system over another: 'They are a Dynix school', etc. It does not matter to us, as teachers, which packages or systems are used, but this is not necessarily understood by all practitioners. Educators do not push a particular product, in fact, any product used in a library school is fully revealed to the students. They will not only be familiar with its name, but they will also know its strengths and weaknesses.

All the arguments given above suggest that, despite our very best efforts and irrespective of how many software packages or systems are used in a library school, not all aspects of cataloguing and classification are going to be covered in any depth, especially in postgraduate courses. Consequently, there is a great need for inhouse training and continuing education. Rapidly changing technology will ensure this need will continue.

Library schools are an ideal location for continuing education courses. They are set up for teaching, with the right facilities and equipment for running courses.

The difficulties faced by employers in providing inhouse training for employees, especially in the current economic environment, are leading them to look for other training solutions. There are also demands for information organisation courses from allied professions. The market for continuing education is there and practitioners and educators need to cooperate to produce courses which meet the needs of the profession. Courses need to be relevant. Close cooperation would ensure that educators were aware of current practices and trends, and hence the curricula of the courses would address to marketplace needs. The practitioners, on the other hand, would have a more thorough understanding of the role of the educator.

While believing this cooperation is vitally important for the future welfare of the profession and educators, we must signal a warning.

Educators must be aware of the danger of becoming too involved in continuing education courses. Such an involvement may be to the detriment of those people they are employed to teach in the first place — students wanting to gain a professional qualification. There is an enormous amount of encouragement by universities and the government to provide continuing education as an entrepreneurial activity. However, if such courses are profit making and recover all the true costs involved including the pay of lecturers, they may be too expensive for the profession to afford them. Expensive, profit making courses must be supported by very professional course materials and the production of these takes a great deal of time and effort. It is most unlikely that the time lecturers put into preparing the courses will be compensated for by a true amount of relief from other duties, not because there is necessarily an unwillingness to do this, but because it is difficult to obtain good casual teaching staff and logistically difficult to fit them into the student curriculum without the students feeling disadvantaged. It may be that the cooperation between the practitioners and educators should increasingly consist of practitioners being prepared to prepare and teach generally applicable courses with the advice of the library schools and using their facilities.

Educators must take cognisance of what the universities want from them as academics — teaching, research, scholarship, and, more recently, entrepreneurship — but they must ensure entrepreneurship does not take over as their main role.

We spoke earlier about the relevance of curricula to market place needs. This is an area all educators always have under consideration. Courses are under constant examination, and are regularly revised where necessary. Changes. when they are made, should not be ad hoc or based upon what is supposedly wanted by practitioners, even supposing this were easy to determine.

Changes must be based on the evidence of practice. As a means of providing such evidence, one of us, Christine Richardson, received a university grant last year to investigate cataloguing, classification and indexing practices in Western Australian libraries.

An analysis of the research results is proving interesting, particularly in the area of special libraries. Analysis reveals that among special libraries in WA approximately 30% use UDC, 33% use Dewey and 20% use inhouse schemes for classification. Of subject headings or thesauri approximately 21% use Library of Congress Subject Headings, 38% use a published thesaurus and 29% have developed an inhouse list. The implications for curriculum change in this area are significant. In the past we have focused on Dewey and emphasis on UDC has been reduced. Because the results reveal that UDC is just as important to practitioners in this growth area for graduates, we are now in the process of rebalancing our courses. UDC will assume a greater importance than previously. This is a change based on sound evidence of practice.

As mentioned, the investigation also revealed that a substantial number of libraries use inhouse schemes. This reinforces a current component of our indexing curriculum. Curtin has a unit for undergraduate and postgraduate students which allows them an opportunity to analyse a small subject area and develop a classification scheme and thesaurus for it. We have always defended this assignment on the grounds that it was an important opportunity for the students to think and to apply the theory they have learned. It is pleasant to know that, despite the growth of standardisation in bibliographic control, this element of the curriculum also reflects current practice.

It was mentioned earlier that the officials channels of advice from the profession to library schools often does not include a clear voice from those who are concerned to advance cataloguing and indexing skills as vital elements of modern information provision. This conference has attempted to reassert the need for these skills. It is up to the profession, and specifically the Cataloguers' Section of ALIA to lobby for the kinds of curricula you would like to see in library schools and also — this is most important — aid those who are working for better funding of tertiary education so that the resources for serving vocational and professional needs are increased.

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Ralli, T Cleaning up the ABN database Cataloguing Australia 15 (2) 1989

Participants

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