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European Research Libraries Cooperation

ERLC

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ERLC covers all aspects of research librarianship: preservation, bibliographic control, document supply, library management, data processing, library architecture, etc. Special attention is given to library cooperation in Europe and to the comparative approach to librarianship.

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Editorial

Since its foundation in 1971, LIBER has been the relevant organisation for cooperation among European research libraries. LIBER has continuously been covering all aspects of research librarianship, in the form of well-noticed annual general meetings and a number of working groups on a variety of topics vitally important to research librarians. LIBER was awarded advisory status by the Council of Europe. LIBER has been masterminding cooperation activities among research librarians in Western Europe; and, presently, LIBER is the driving force in extending cooperation towards research libraries in Central and Eastern Europe.

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ERLC will cover all aspects of research librarianship: preservation, bibliographic control, document supply, library management, data processing, library architecture, etc. Special emphasis will be given to the comparative approach in research librarianship.

The two other serials published by LIBER, the LIBER Bulletin and the LIBER News Sheet, will be merged into the new Quarterly.

Sections of ERLC will include: selected contributions to annual and working group meetings; commissioned articles on special topics; continuous reports on working group activities and on research librarianship in various countries; progress reports on European library plans (such as the Action Plan of the European Community).

LIBER takes pride in having the new journal produced and marketed by the Akademische Druck- und Verlagsanstalt (ADEVA) in Graz.

Hans-Albrecht Koch
Heiner Schnelling

Sharing the Burden, Cataloguing Legal Deposit: a British Project.

FREDERICK RATCLIFFE
Cambridge University Library

The year 1950 was a landmark in British bibliographical history. The first issues of the British National Bibliography (BNB) appeared and details of some 13,000 entries were published. The BNB was established in 1949 on the recommendation of a Committee of the Library Association, set up in 1947 to examine centralised bibliographical and cataloguing services. Its recommendation led to the formation of the Council of the British National Bibliography Ltd., which was registered in 1949, and was made up of representatives of ten bodies concerned with bibliography and information, among them the UNESCO Co-ordinating Body for Libraries. Its ambitious objectives were defined in these terms: "to carry on the business of compiling, editing and publishing in appropriate bibliographic form lists of books, pamphlets, and other recorded material of whatever nature published in Great Britain, the Dominions and Colonies and/or foreign countries, together with such annotations or further information as may be desirable for the use of librarians, bibliographers and others".

This development was important for psychological as well as purely practical bibliographical reasons. The criticism that librarians in numerous libraries were engaged in cataloguing the same materials was deep seated and it was widely current among academic critics of libraries. The costly nature of that exercise could not seriously be countered by the "every library is different" plea. Even the most single-minded cataloguer could not deny the truth in the criticism that the apparently needless duplication of effort stultified minds and, in Douglas Foskett's memorable phrase, "was a waste of people's lives"[1]. The BNB promised, if not an end to, at least, an amelioration to that. Not only did it publish weekly, monthly, quarterly, annual and quinquennial cumulative lists, it also provided a printed card service to individual libraries. By the mid-sixties there were some 1,300 subscribers to BNB and some 300 libraries used the Printed Card Service. Not least important, it was a financial success. Its costs of c. £200,000 per annum were met out of income from the numerous subscriptions to its services. Of greater significance still, though its implications were not recognised at the time, over the fifteen years or so of its existence, the number of entries recorded virtually doubled. The BNB seemed to grow at around 1,000 extra entries each year.

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1 FOSKETT, D. J.: "The intellectual and social challenge of the library service". *Library Association Record*, 70, (12) December, 1968. London, 1968

It was commercially of interest in that it provided evidence of the international dimension of bibliography and information in that the BNB quickly established a circulation right across the world. In the words of the Dainton *Report* "Overseas sales account for about 30 per cent of all sales of the Bibliography, and, in 1968, amounted to about 1,600 annual volumes, 1,200 quarterly circulations and 1,400 weekly lists."[2] Income generation has become an important concept among librarians in recent time. It is worth recalling that in the case of the BNB in the nineteen sixties it was factual, not conceptual.

The year 1972 was another important date in British bibliographical and information history. The British Library Act was passed and, in 1973, the Library itself came into being. It brought together hitherto independent national library institutions, including the BNB. It embodied most of the proposals of the Dainton *Report*, published in 1969, and its various components have now become familiar names. The Dainton *Report* was the second of two important reports on libraries in the late sixties: the first, two years earlier, was the University Grants Committee's Report of the Committee on Libraries, the Parry Report[3]. Although this may not appear to have been so significant in terms of what it achieved, it certainly prepared the ground and furnished much of the evidence for the Dainton *Report* and in some respects is now proving peculiarly prophetic. It did not address the question of a national library directly but was aimed at a specific sector of the nation's libraries. That sector had traditionally been the closest associate of those institutions which were to make up the British Library. The very existence of the Standing Conference of National and University Libraries (SCONUL), which reflected their common interests and problems, was a clear expression of this relationship. It was inevitable that the two reports in many respects would complement each other.

The Parry Report was also not a little exercised by the need to "avoid duplicative effort and make better use of staff by centralising technical processes and sharing services"[4]. "Since many university libraries acquire the same titles, it is self-evident that duplicative effort results if each catalogues them only for itself." It pointed out that "the advantages of centralised cataloguing have long been recognised in the United States, and the Library of Congress has been selling printed catalogue cards since 1901. It now sells fifty million cards a year"[5]. It cited the BNB's contribution and referred to the possibility of "shared cataloguing on an international basis". It anticipated the Dainton *Report* in various, specific ways:

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2 Department of Education and Science. *Report of the National Libraries Committee* (Chairman: F. S. Dainton). London, HMSO, 1969. (The *Dainton Report*.) p. 48

3 University Grants Committee. *Report of the Committee on Libraries*. (Chairman: T. Parry.) London, HMSO, 1967. (The *Parry Report*).

4 ibid. p. 132, 133, 134

5 ibid. p. 82

"The benefits of centralised cataloguing to a university library are greatly diminished, and may disappear, if cards or catalogue information are not speedily available for nearly all the books it acquires. We have made recommendations [already] about a British National Library. We envisage that such a library would take a leading part in developing a centralised cataloguing service, including foreign material, for the benefit of British libraries. We do not, however, wish to minimise the difficulties raised by centralised cataloguing but we do not believe the difficulties to be insuperable"[6].

Although the Parry and Dainton *Reports* inevitably cover much of the same ground and are frequently at one in their recommendations, their objectives and audiences ensure that there will also be areas where the common ground is seen quite differently. The Parry Report, for example, devoted several paragraphs to Union Catalogues, to the National Central Library (NCL) and its successes, such as the *British Union Catalogue of Periodicals* (BUCOP), and to the possibilities of extending such activities. The Dainton *Report* went much further and recommended the incorporation of the NCL and its activities into the proposed national library. In regard to the Copyright Deposit Libraries the Dainton *Report* is only concerned - beyond the British Library - with the Scottish and Welsh national libraries: the university deposit libraries are largely ignored. The Parry Report, being directed at universities, is more concerned with the deposit libraries in general. After the lapse of some twenty years and in the context of this paper, its comments on these libraries make specially interesting reading.

It is "remarkable" the Report notes "that all six copies deposited in the various [Copyright] Libraries are, with some exceptions [in Cambridge] kept for reference only. In other countries it is usual for at least some of the legal deposit copies to be available for inter-library lending ... It has often been pointed out in discussions of the implications of legal deposit in other countries that the acceptance of books and periodicals under the terms of the appropriate regulations for this type of deposit lays certain obligations upon the receiving library. These obligations, in fact, relate to the production of the national bibliography and in most European countries, to participation in schemes for sharing responsibility for the provision of library resources on a national scale. Libraries benefiting from legal deposit, therefore, by the act of receiving material, should become part of the national library organisation to which its obligations will be no less than to its own immediate clientele". (Para. 304-5). The Dainton *Report* ignored this advice and, indeed, eschewed anything which might suggest a national library network. It has taken almost a quarter of a century to see those observations by the Parry Committee finding some modest fulfilment. That it should come about at all is due to circumstance rather than design.

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6 ibid. p. 83

Two years after the creation of the British Library in 1973, the Bibliographic Services Division was established. Publishers' output in that year rose to 35,608 entries in the BNB and a modest Cataloguing-in-Publication (C.I.P.) project was inaugurated by the British Library. The Library of Congress had introduced a similar programme four years earlier in 1971. By 1982 the output from British publishers amounted to 48,307 new titles and the BL was having difficulty in "keeping pace with a constantly increasing work-load of new publications" and proposed expanding Cataloguing-in-Publication. The Annual Conference of the five Copyright Agency Libraries, meeting in Edinburgh that year, invited the Director General of the Bibliographic Services Division, Mr P. Lewis, to report on the BL proposal to expand the C.I.P. programme. It produced a somewhat lukewarm response but no outright opposition from the Agency libraries. The following year a 'discussion paper'[7] describing the proposals was circulated to libraries generally and their views were sought. It can hardly be said to have been welcomed but, again, there was no concerted opposition. The paper argued that it was only by adopting the proposed expansion that "optimal timeliness" and "optimal quality" of the cards could be achieved, "The thrust of this proposal", it said, "is to improve the performance of the national bibliographic service in respect both of its timeliness without loss of the valuable qualities implanted in the present service, and of its meeting the important needs of all its users, including the publishing community and the library community". Most important of all, perhaps, to the British Library, this was to be achieved "without the requirement for additional resources, whether grant or revenue".

In the event, the proposals were implemented: the discussion paper, it may not be unfair to say, was a statement of intent. Such criticisms as were voiced, such as those from Cambridge University Library, where tests with existing C.I.P. entries showed "an error rate of about 25% in headings, of about 5% in the title statement", made little impact on the decision to proceed. In the context of the rapidly rising published output the BL could see little alternative and, in theory at least, any deficiency in the information given could be rectified later. At around the same time, another modest initiative was being taken which was to have long term and potentially more significant repercussions. The five deposit libraries served by the Copyright Agency were embarking with Bibliographical Services on the automation of certain operations of the Copyright Receipt Office (C.R.O.), which served the BL, and of the Copyright Agency. A feasibility study had been carried out on behalf of both parties in 1981 and its proposals were approved. A joint claims programme, based on two separate but identical systems was proposed, one in the Office, one in the Agency: it would be "capable of handling the

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7 The British Library, Bibliographic Services Division. *Cataloguing-in-publication: expanding the United Kingdom programme. Discussion paper*, March, 1983. (Typescript, duplicated.)

bulk of the monograph intake and a useful fraction of the serials intake". Records, i.e. tapes, were to be exchanged so that the same items could be claimed in both places. Hitherto, there had always been discrepancies, in what was received in the CRO and in the Agency. The study noted, significantly, that "a single shared system has some operational advantages, but required that the two parties commit themselves to a considerable degree of co-operation." The Agency libraries would have preferred the single system which would remove additional effort and expense both in the Agency and the C.R.O.

The enterprise did not get off to a good start. The firm selected to carry out the automation went into liquidation and considerable additional costs were incurred. Eventually, however, at the second attempt and after much input from the computing staff of Cambridge University Library, the systems became operational. The reasons behind this co-operation between the five copyright libraries and the British Library Copyright Office were the same as those which led to the expansion of C.I.P. It was the inability to deal with published output rather than any spontaneous desire on the part of the Bibliographical Services to share their responsibilities, which sponsored this co-operation. The new systems ensured at the very least that both parties knew what the other was receiving. The immediate result, somewhat ironically in view of to-day's problems, was to increase the number of items both parties received so that something like eighty-six per cent of the total published output is acquired both by the Office and the Agency. A hundred per cent of the output has never been secured nor does it seem ever likely to be a realistic possibility. Be that as it may, the Agency's experience of the automated system is that once the initial difficulties had been removed, the efficiency of the claiming operation has greatly improved.

These increasingly frequent contacts with the BL and the shared initiatives between the five Agency copyright libraries and the BL were symptoms of a growing intractable problem. Published output in Britain showed no signs of abating, on the contrary, its growth appeared to be accelerating. It was against this background that the Bibliographical Services Division issued in July 1987 its highly controversial Consultative Paper, *Currency with Coverage: the future development of the British National Bibliographic Service*[8]. The paper pointed out that in the thirteen years since the BNB first came into the BL there had been an increase in published output of some 80%. "The future" offers little prospect of these trends being reversed. The annual output of UK publishers is forecast to rise dramatically into the 90,000's during the next decade at a time when even level funding for the British Library can no longer be maintained". In its strategic

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8 The British Library, Bibliographic Services. *Currency with coverage: the future development of the British National Bibliographic Service. Consultative paper*, July 1987, London, BL, 1987.

plan *Advancing with knowledge*[9], published in 1985, the BL had already committed Bibliographical Services to "an increased hit-rate for BNB MARC records to 85% by 1990". The Consultative Paper described how this was to be done. In future only 50% of BL MARC records were to conform to AACR 2 level 2, the other 50% would be treated at level 1. Library of Congress subject headings were to be discontinued. The two measures were to be introduced in 1988.

The Consultative Paper too was more a statement of intent than a discussion document. Despite strong opposition from academics, librarians and the book-trade in various places, including the correspondence columns of *The Times*, the proposals went ahead. For libraries which had followed in the footsteps of the BL, the proposals had damaging implications, the full extent of which are only now being fully felt. "It was claimed" said Fox recently[10] "that this change [LC subject headings] would save three cataloguers at the British Library, but in terms of a national policy it transferred much greater costs to all those libraries who felt obliged to continue to provide their readers with subject access to their catalogues via LCSH". The view of Bibliographical Services was that "in the current operational environment there is no alternative means of achieving this objective other than by reducing the unit costs of current cataloguing by a half". Mr D. Whitaker, Chairman of J. Whitaker & Sons Ltd., pointed out in a letter to *The Times* on 3 October 1987, another obvious way. "Bibliographic Service could buy in (or even be given free of charge) catalogue entries created by the other great libraries of the country at Oxford, Cambridge and elsewhere, which are in receipt of free copies of all books under the provisions of the Copyright Act." The readiness to contribute records free to Bibliographical Services was confirmed by the Master of Emmanuel and the University Librarian of Cambridge in a letter to *The Times* on 22 October 87.

Although Bibliographical Services implemented and continues to implement the policies described in the Consultative Paper, the widespread criticism was such that it could not be ignored. Given the predicament in which Bibliographical Services found itself it could not be seen to be rejecting the offer of free entries from other Copyright Libraries whose cataloguing level was now superior to their own, since the original BL standards were still being pursued there, as they still are in many libraries. Accordingly, in 1988, Bibliographical Services met with the librarians of the Agency copyright libraries to consider how they could contribute to a shared BNB MARC programme. There seemed initially little enthusiasm for such discussions from Bibliographical Services' side which saw a road ahead only

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9 The British Library, *Advancing with knowledge: the British Library Strategic Plan*, 1985-1990, London, BL, 1985.

10 Fox, P.: *Bibliographic record supply: a failure of national policy.* [A paper given at the joint conference of SCONUL and COPOL, Newcastle-upon-Tyne, 1990. To be published in the British Journal of Academic Librarianship.] p. 4.

cluttered with problems. Gradually these were whittled away and a pilot shared cataloguing programme was planned and is now being tested. The British Library contributes 70% of the records, the others 30%. The latter gain by pooling records, from each other as well as from the BL. For the BL it offers a real opportunity not only to reach their targets without any increased costs, but also to extend them because, if successful, the programmes seem certain to be expanded both in regard to the proportion of legal deposit material contributed by the Agency libraries and specifically in regard to foreign publications.

There are likely to be other benefits from other quarters. Both Cambridge and Oxford are at present members of the Consortium of University Research Libraries (CURL) which is a newcomer to the shared cataloguing scene. The modest success of this voluntary, shared cataloguing co-operative has already resulted in the presence of BL representation at their meetings. Given the initiatives of the Legal Deposit Libraries and the opportunities which CURL could present, it seems increasingly likely that in this combination there lies a permanent solution to the cataloguing currency problems, provided that the BL can reconcile itself to being part of a network, albeit a major and possibly controlling part, but not the whole. In this regard the Library of Congress has again provided an example in its role in the National Co-ordinated Cataloguing Agreement (NCCP)(10). The announcement in the October 1987 issue of the *Library of Congress Information Bulletin* that the Programme had already been in planning for over one year and that the Pilot Project would begin in 1988 provided a markedly positive contrast to *Currency with Coverage*. The Library of Congress along with several national organisations "agreed to the following objectives for the program: (1) to increase the timeliness of cataloguing copy; (2) to extend cataloguing coverage; (3) to reduce duplication of effort; and (4) to produce cataloguing of a 'national level quality'"[11]. These are exactly the objectives of Bibliographic Services. The Library of Congress, with all its resources, recognised early "that the high costs of collecting and processing bibliographic claims make comprehensive coverage on the part of any one library prohibitive". The Library of Congress and the network which had effectively been created avoided any suggestion of downgrading records. On the contrary the libraries involved were to "create authority records related to the bibliographic records, as well as supply Library of Congress subject headings and classification numbers".

It is, of course, true to say that the Library of Congress does not have to contend with the weight of tradition which the British Library inherited from its constituent parts nor is the BL's primacy remotely threatened by other great libraries in the way that the Library of Congress is. Given its pre-eminence in Britain, however, the BL has been slow to recognise what the Library of Congress, confronted with the vastness of the country it serves, has been obliged to

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11 *Library of Congress Information Bulletin*, Vol. 46, No. 42, October 1987.

live with for many years. There are encouraging signs now that the nettle is being grasped by the BL and that a national library network, as predicted by the Parry Report, will eventually become the pattern for future provision and a main plank in the policy of the BL. The very modest beginnings of a shared cataloguing programme among the deposit libraries hold the seeds of real growth in the creation of the network. Much of this progress is due to the changes in recent years in the senior management of the BL which no longer has its vision restricted by the objectives of the Dainton *Report*.

This thinking has been encouraged further by the publication in 1989 of *Selection for survival: a review of acquisition and retention policies*[12], which provides as frank a look at the British Library as could be hoped for from the library community. The review "arose in the first instance from consideration of future storage plans, including the fact that available space in the new Library building at St. Pancras would be full soon after opening"[13]. In fact one of the *Review*'s "Key themes" emerged as the "links between the British Library and other institutions". The *Review* notes the changes in thinking between the first Strategic Plan of 1985 and the second of 1989. "New emphasis is placed on co-operative arrangements with other libraries and organisations."[14] In its final chapter, "Conclusions", the *Review* spells out in some detail the importance of "Co-operation and Co-ordination, internal and external". It speaks of more "inter-departmental co-operative initiatives" with a degree of urgency which is in itself a somewhat depressing comment, but concentrates on the importance of external co-operation:

"it is now recognised to be impossible for any single library, however well endowed, to seek to be self-sufficient. In a national context, selectivity programmes must imply co-operation, shared information on acquisition policies, preservation and disposal. This process of co-operation, in which promising initiatives have been developing relatively quickly, needs to be accelerated. The development of inter-library co-operation, both national and international, must strengthen the confidence with which the case for adequate funding can be put to government.

The review welcomes the progress made by the six Copyright Libraries towards establishing a co-operative programme for cataloguing the current output of statutorily deposited publications. National and international exchange arrangements for cataloguing records may enable professional staff effort to be redeployed on acquisition and retention activities.

The cataloguing programme embarked on by the Copyright Libraries could be extended further by consultation about a possible division of responsibilities

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12 ENRIGHT, B., HELLINGA, L., AND LEIGH, B.: *Selection for survival: a review of acquisition and retention policies,* London, BL, 1989, p. i.

13 ibid. p. 18

14 ibid. p. 85

for archiving and lending deposited materials. Since an archiving obligation precludes the availability for lending, a careful balance has to be struck. Such consultation could, however, eventually lead to an alleviation of accommodation problems in the libraries concerned."[15]

The decision to publish the *Review*, which began as an internal investigation led by an external independent director and which is so critical of the BL's organisation, I have described elsewhere as 'courageous'. It gives substance to the belief that its recommendations will be implemented, indeed, now that it is in the public domain it could hardly be otherwise. Even so, it is one thing to make recommendations, it can be - with the best will in the world - quite another to implement them. If they are, the experience gained in the planning and introduction of the shared cataloguing project of the legal deposit material will be instructive. The project began to take shape early in 1988 and its progress has been marked by meetings of the principals and the heads of departments involved, by various memoranda of agreement between the libraries, and by occasional BL press releases. The memoranda dealt with proceedings for name authority checking, for input of magnetic tape and suchlike. Taken with the drafts and consultations which inevitably precede final versions, a great deal of documentation and administrative work was involved, the greater part of which, as far as typescripts and distribution are concerned, fell to the BL. Areas seen as potentially difficult often proved susceptible to simple solutions. The question, for example, of allocating the material received under deposit was based on alphabetical groupings by publisher so that Cambridge deals with all publishers beginning with C, the National Library of Wales D to G plus all Welsh imprints, the BL L to U plus all the titles in the C.I.P. programme and so on. Initial experience in Cambridge of the pilot programme gives an average contribution from the Cambridge "fast cataloguing stream" of around forty titles a week. This falls short of the target of 3,780 a year, but will be adjusted in the light of experience and as publication patterns fluctuate.

The records of the Agency libraries go into the BNB as soon as the BL copy of the book is received. Given the common automated system for receipt, this means there should be little or no delay. As a result of the procedures agreed for record production and for the setting of identical standards, record checking by the BL of the Agency libraries contributions is accepted as unnecessary although this was not conceded without a struggle. The "fast cataloguing streams" established by each library to deal with the legal deposit titles mean that these titles should be catalogued and delivered to the BL within one week of the books being received by the Library.

A number of important lessons have been learned. First, to enter into a partnership of this kind with such a large institution as the BL, which as *Selection for*

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15 ibid.

survival makes clear, is not without its internal problems, is no easy undertaking for either side. There are bureaucratic barriers which have to be surmounted and, possibly more difficult, status complexes which have to be soothed. What seemed a straightforward matter in theory turned out to be complicated in fact. The rather cumbersome administration, which almost inevitably characterises such a large body as the BL, does not admit of the kind of quick transactions which university libraries can effect. Moreover, since all staff involved have commitments, any additional undertaking may not receive immediately the kind of attention it needs.

Secondly, it was never envisaged that there would be technical problems in introducing the shared system at the BL end of the operation. In fact, it emerged that the BL was geared only to despatch records to other libraries, not to receive them, another rather revealing comment on prevailing BL attitudes. For this reason exchange of magnetic tapes, reminiscent of that between the CRO and the Agency, rather than on-line transmission for down-loading, has to be used. It is now hoped that the new computer installation planned for Boston Spa, the new home of the CRO, will remedy this deficiency in technical services. This proposed transfer raises a third consideration: it is unwise to expect such a large, diffuse institution as the BL always to act consistently. The corollary of shared cataloguing of the legal deposit and automation of the claiming system was not to move the CRO to Boston Spa but for the BL to join the Copyright Agency. The Agency libraries are already moving into use of automated records generated at the Agency. Were the British Library to become a member of the Agency, the opportunities to expand the present project quickly would be considerable. Moreover, not only would currency problems increasingly disappear, it would be cheaper for all of us, not least for the BL.

The pilot project is scheduled to end early in 1991. The final paragraph of the Memorandum of Agreement between the libraries states: "At the conclusion of the pilot [programme], the principals will consider whether and how it should be expanded to form a full operational system and whether a Memorandum of Agreement can be formulated based upon the experience gained". Behind that cautious legalistic phraseology lies a wish of all involved that it will expand into something much greater than the pilot programme. The memorandum makes clear the continuing primacy of the BL, for example in stating that "the ownership of records contributed to the system will be vested in the British Library", or in "Day-to-day management of the pilot will be undertaken by the British Library". It was very much the wish of the Agency libraries that there should be no doubt about the BL's position. The memorandum also constitutes a clear statement that the BL's concept of the national library is changing, that in the fulness of time there will be a national library network for Higher Education with the BL at its heart.

There is other evidence of this change in British Library policy apart from the project and that mentioned in *Selection for survival. Newsplan*[16] is already a network for the preservation of newspapers which points to the principle. Organised now through the Sub-committee set up by the Library and Information Council, it illustrates how successful a network approach can be. The National Preservation Office and more recently the Mellon Microfilming Preservation Project are further pointers in the same direction. The *Eighteenth Century Short Title Catalogue* might almost be seen as a forerunner of the network principle, although too far-flung a system for present purposes. The back-up system set up by Boston Spa is in effect another instance of a Division of the BL operating a network and this is a more appropriate example. It includes the University deposit libraries and functions smoothly and efficiently. Cambridge meets on average c.40,000 requests a year from Boston Spa. Nevertheless, by far the most promising sign remains that found in the publication of *Selection for survival* which provides something of an antidote to the "strategic plans": the grand sweep of forward planning is here put into the very real context of every day problems. There are large gaps in credibility between these two approaches.

So far this paper has concerned itself for the most part with the well-being of the copyright deposit libraries and assumed that what is good for them must be good for all the other libraries. To a large extent this is true, certainly as far as the Higher Education library sector is concerned. The broader, if you like, national role of the deposit libraries is indicated explicitly in the so-called Special Factor, an earmarked grant, made by the University Funding Council to the University Libraries of Cambridge and Oxford. This recognises both the cost of administering the deposit but also the cost of making available the resources of these two University Libraries to other universities and scholars generally. As the numbers of visiting scholars to Cambridge testify, this has never been more important than it is to-day, when the funding of the universities and the British Library is so far removed from that of the sixties. This special factor funding points unambiguously to a network situation in higher education.

Both the Parry and Dainton *Reports* were published in what is now referred to in Britain as the post-Robbins[17] era. That was the time of apparently limitless expansion of the university system following the Robbins Report, when new universities were founded and existing ones greatly expanded. Both the Parry and Dainton *Reports* would be written very differently with the benefit of to-day's hindsight. The great expansion which is now so difficult to maintain would have

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16 *Newsplan*. The Newsplan Sub-committee is now a LINC responsibility. It represents all library authorities in membership in the eight regional systems in England and Wales and the Scottish and Irish systems.

17 Department of Education and Science. *The Report of the Committee on Higher Education* (Chairman: Lord Robbins). (Cmnd, 2154.) London, HMSO, 1963. (The Robbins Report.)

taken a very different course. Universities would almost certainly have been fewer in number but larger and the network theme in the Parry Report would have been a dominant theme. What the Dainton *Report* might have recommended is less easy to envisage, but it must be highly questionable whether such self-contained activities as those operated by the NCL and at Boston Spa, with their commercial potential for self-financing status, would be included to-day when income generation and privatisation are all the fashion. Whatever else, it would be certain that the co-operative themes of *Selection for survival*, the principles of networking, would be uppermost in its vision of the future.

We can only consider, however, what exists to-day. The university and national libraries are by and large chronically under-resourced. Subject rationalisation within the university system by the UFC has brought few real benefits and it is questionable whether it is not more sensible to leave a library which has been formed to serve a specific subject where it is, than to follow the UGC directive and pack it off to the place where its subject is now centred. It cannot be denied that that is cheaper to leave it in its place of origin and the technology for information transfer advances at such a rate that the possibilities of cheap and efficient transmission of whole text must now lie just around the corner from Fax. Perhaps the clearest message from all the current new technology comes from the Joint Academic Network, the nation-wide higher educational system of computer links, which the BL recognised immediately it had to join.

Selection for survival was not the only report at the end of the last decade concerned with the issues before us to-day. The University of London Library Resources Co-ordination Committee published the Report of its Working Party on the rationalisation of Medicine in Libraries in Bloomsbury in 1988. Its conclusions pointed again to a network within the London area. The British Library published its Report on library provision for the Culture of Science, Technology and Medicine in 1989. One of its principal recommendations was that the BL "must seek to discharge its responsibilities in co-operation with outside bodies, but the precise form of such co-operation requires further study". It identifies the Science Museum Library and the Wellcome Institute of Medicine Library as the major national resources in the history of science, technology and medicine. Maybe that part of the BL's deposit should be transferred to those bodies and incorporated into their claims system. It is difficult not to believe that these and other specialist bodies will have key roles in the developing policies of the BL. Indeed, any perusal of these reports in the context of BL funding difficulties cannot reach any other conclusion. It is immensely important that all such areas of specialist interest be brought at the earliest date into the planning of the nation's library provision for the next century.

The Library world is faced with reducing resources. The only answer to that has to be resourcefulness. The new library building at St Pancras is going to require all the resourcefulness that the British Library can command if it is to be

the success that everyone wants to see. A national network policy for Higher Education, not least a shared cataloguing system not just for the legal deposit material but all incoming new stock, is one way of ensuring that it will be. Perhaps most important of all, however, is the recognition - now growing among BL staff - that no library can be all things to all men. In recognising this the British Library is now on the way to becoming a truly national library.

Managing Retrospective Catalogue Conversion

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This paper is concerned with what has been a four year project to convert the British Library Catalogue to machine-readable form. Rather than give a descriptive, historical account of the project - although some background will be necessary - I have chosen instead to look at the way in which this major project has been managed by the British Library, with the intention of letting our experience serve as a guide to the pleasures and pitfalls of retrospective conversion.

The source document for the conversion is the 360 volume edition of the British Library Catalogue published between 1979 and 1987. Each volume consists of approximately 500 pages, and each page contains about 30 catalogue entries: a staggering total of over five and a half million records. The catalogue itself covers the acquisitions of the British Library's English language, East and West European collections up to 1975, including works in a variety of languages and scripts. Items published and aquired for these collections after 1975 are already catalogued and available in computer-readable form within the Library's systems.

The idea of converting the major British Library catalogue began to be discussed in the late 1960s, but the impetus to make the conversion a reality came with the construction of a new home for the library at St. Pancras in London, and the decision to make online access to the Library's catalogues the primary means of information retrieval from the collections in that new home. Research showed that the items recorded in the published catalogue, and searched for in the 2.000 guardbook volumes in the present Round Reading Room of the Library, were those most often sought by users and would continue to be so in the future. With the knowledge that the first readers would be in the new building at St. Pancras by 1993, the decision was taken that the British Library Catalogue should be converted in time for this event.

There were lots of reasons why this could not be handled as a standard, "off the peg" library retroconversion. In the first place, there was the sheer size of the catalogue. No-one knew at that stage exactly how many entries it contained, but estimates were in the range of six million. Secondly, there was the type of collection which the catalogue recorded, which consisted of works published from the introduction of printing (the earliest I have found - only findable with the advent of the file in machine-readable form - is an edition of the Psalms in Latin, published in Mainz in 1457, the catalogue record containing a note that "This is the first book with a printed date and the name of the printer"). The vast mass of

records in the catalogue just did not exist elsewhere in computer-readable form, and would have to be converted from scratch. Thirdly, the catalogue contained a much greater than usual diversity of languages and scripts: the statistics we have obtained from the conversion show that only about 53 % of the entries are in English, that in all there are entries in over a hundred different languages, and that over 11 million non-Roman characters have been captured. Finally, and perhaps most importantly in terms of making this a unique conversion attempt, was the structure of the catalogue. It is necessary to have some understanding of this structure to appreciate the complexities of the task facing the Library and those who would be carrying out the conversion.

I have already mentioned that the source document selected for the conversion was a version of the catalogue existing in book form. Within that catalogue, the pages display a series of bibliographic descriptions containing conventional catalogue data presented in a relatively conventional way: title, imprint, series information, notes. Wherever appropriate, a series of shorter descriptions relating to later editions or copies of the work which have been acquired by the Library follows a bibliographic description. Ordering and structuring the bibliographic descriptions are name and uniform title headings, but these do not, as in a conventional card catalogue, appear in conjunction with each bibliographic description to which they apply, but rather appear singly on the page and are then followed by all the bibliographic descriptions to which that heading or title relates. In the case of some corporate bodies and uniform titles, very complex hierarchies of subheading can occur. At no point does the user of the catalogue see the entire hierarchy, however: each subheading appears on its own as a separate step, followed by the bibliographic descriptions relating specifically to that subheading. To take an example, the reader sees on the catalogue page the heading Cambridge. This is followed by the heading Public Free Library, and a series of bibliographic descriptions. The next headings on the page are Central Lending Department, Reference Department, and Barnwell Branch, all of which headings are again followed by bibliographic descriptions. If that final heading, Barnwell Branch is considered, it will be seen that that heading is a subheading, merely the last step in an hierarchy which would read Cambridge. Public Free Library. Barnwell Branch. Although the fixed structure of the printed catalogue allows subheadings to stand alone in this way, the computer-readable records would have no fixed relationship one to another and headings in those records would need to consist of full hierarchies.

The final noteworthy element of the printed, source catalogue was the way in which it handled secondary authors. This was generally by means of a name-title cross reference to the main entry heading, although later entries utilized the unit entry principle, with the full bibliographic description following the secondary author heading. These records were distinguished from main entries by the addition of the phrase "Added entry" at the bottom of the bibliographic description.

Having described the catalogue which is being converted and some of its oddities and idiosyncrasies, I now want to discuss the way in which the conversion of that catalogue to computer-readable form has been managed, from the inception of the project through to its present stage of near completion. Three stages are identifiable: firstly that covering the initial decision to convert, the fundamental principles of the conversion, the drawing up of the specification and the signing of the contract; secondly the set up of the project and its implementation; and finally the ongoing conversion process and planning for the post-capture record processing and handling.

The first stage, that of pre-contract discussions and decisions, is the most important period of any retrospective conversion process. It is during this time that decisions will be taken which will limit and control choices in the subsequent stages. The key principles on which the conversion of the British Library Catalogue is being carried out were established on the basis of three fundamental and interconnected decisions. Firstly, the prime function of the converted records would be to provide access to the Library's collection by means of their use in an online information retrieval system; that is, the records would never be used to output the *entire* catalogue in a linear sequence, whether in print or fiche. This meant that the coding and tagging of the data for filing purposes, and some of the structural aspects of the catalogue which had been related solely to linear display, could be given little or no weight. Secondly, it was understood by the Library that the conversion would not be at an end when the last record in the catalogue was successful captured. Further processing of the records would be necessary in order both to produce conventional unit records from the converted data and to incorporate corrections and amendments. This implied that there must be commitment not just to the data capture of the records but to long term editorial and routine maintenance of what would be a living catalogue. Finally, the conversion would be carried out externally, by a commercial organisation in the business of data capture, rather than by the library itself.

Within this strategic framework, some criterial decisions were taken. Most importantly, the conversion would take place using the published edition of the British Library Catalogue as the source document. On the surface, this was a strange decision with several limiting implications. The published catalogue was not the most up to date version of the catalogue available: for example, it did not give an accurate picture of such vital data as shelfmarks, several thousand of which had been amended since the volumes were published, and it also did not include records of acquisitions from the period which had been made post-publication. The method by which it had been produced had led to some new errors: records and headings had been accidentally omitted, with the result that some bibliographic descriptions now appeared under an incorrect heading. What the use of the published catalogue did mean, however, was that the conversion was able to take place in the context of a single, stable source readily available in

multiple copies to both the Library and to the contractor, and one which could be easily and specifically defined in terms of the conversion contract. This facility has been of critical value in assessing and monitoring the conversion in terms of both quantity and quality, and contrasts with the more conventional type of retrospective conversion which has to incorporate some method of copying a single source catalogue for multiple or remote use.

It was decided that no correction or amendment of the catalogue data would be made before or during conversion, even when the data was known to be incorrect. In this respect the present conversion differed markedly from previous attempts to handle the data or to move it from one medium to another. In the nineteenth century, it had taken over fifty years to make the catalogue available in printed form, due to the strong arguments made by Panizzi, the Keeper of Printed Books and later Librarian of the British Museum Library, that the reputation of the Library demanded nothing other than the appearance of a "perfect" catalogue in print. He embarked on a wholesale recataloguing programme of the manuscript entries, which was only abandoned when limitations of space for the growing catalogue and the exponential growth of cataloguing backlogs made it no longer feasible. In the twentieth century, there was a massively unsuccessful attempt to fully edit the catalogue between the appearance of its first and second published editions. More recently, the first attempt to convert the catalogue to computer-readable form included a substantial element of editorial work. To some extent the Library can take credit for having learnt from its mistakes, but a more weighty factor perhaps was the knowledge that editorial systems would need to be developed to both complete the conversion process in terms of producing unit records, and to amend and maintain the converted records within the new online catalogue database. This meant that where necessary corrections could be made post-, rather than pre-conversion, but more importantly the Library would be able to assess whether there was a continuing need for some of the changes being requested in terms of the provision of online access to the records.

Not only would there be no clean-up of the data before conversion, but there would certainly be no attempt to recatalogue in terms of the current bibliographic standards employed by the Library. This decision implicitly recognised that the converted file could not, in a bibliographic sense, be integrated with the catalogues recording the current acquisitions of the Library: there was no prospect, for example, of a common system of authority control while names occured in different forms across the pre- and post-1971 files. Conversely, the format in which the converted data was to be held was a standard MARC format, although much simplified in terms of tagging and subfielding, and again demanding no processing of the data to add in new information. This basic MARC structure meant that the Library would have the flexibility to utilise the records in its current systems.

Having now decided on the source and form of the records to be provided to the contractor for conversion, and the form of the converted records which the contractor would deliver to the Library, the next stage was to draw up a specification showing the way in which the data would progress through the conversion process. This was an exercise carried out solely within the Library and was dependent of efficient interaction between representatives from the "users", who were in this case the Library staff responsible for service provision, the computing area of the Library, and the Library management. Although each of these three areas brought differing, essential skills to the exercise, it was fundamental that one member of the group, in this case the manager with responsibility for the conversion, had the authority to take decisions on the final form and structure of the converted records. The specification document covered the whole process of data conversion from detailed exposition of data capture, to output of the converted records to magnetic tape and their despatch to the Library, to quality control and definition of acceptable error rates. The specification has been the single most important document in the British Library Catalogue, as it should be in any retrospective conversion, and there are special factors which influenced the way in which it was drawn up.

An overriding consideration was the timescales within which the conversion had to be carried out, and an understanding and acceptance of what could be realistically achieved whithin them. With this in mind decisions were taken which would help to ensure that the conversion was completed to time. The British Library Catalogue conversion actually involves two contracts, one for data capture and the other granting publishing rights in the converted data. The Library felt that this latter contract not only meant the possibility of a discounted price for data capture in return for the publishing rights, but also the existence of a tangible stake in the success of the conversion from the contractors' point of view: an example of one way in which positive incentives can be developed to keep projects to schedule. Similarly, the conversion of the 360 volumes of the catalogue was planned to cover a four year period, but those four years were broken down into three phases: start-up, build-up, and full production. During the start-up phase a set of test data was to be run through the whole conversion process, in order to test procedures, establish routines and allow for the development of effective software. The data conversion contract established that the fixed price for the conversion was to be made up of an initial payment of 5 % on acceptance of the test data by the British Library, followed by a subsequent fixed price per volume. Again, this substantial payment linked to completion of the test data was felt to be a strong incentive to the contractor not just to succeed, but to succeed whithin reasonable timescales. These incentives set aside, the Library was at the same time astute enough to include within the contract stringent contractual penalty clauses for late delivery of data!

The contractual timescales were drawn up with the needs and commitments of the British Library in mind rather than the needs and requirements of the potential contractor, and it is essential in any conversion that the commitments if the initiating party should be fully understood, acknowledged and allowed for in the contract. The Library was often assured that the conversion could be handled much more rapidly than the timescales it had scheduled; these had been deliberately set, however, to guarantee turn-round times of data on the part of the Library, to ensure proper monitoring, and to avoid cash flow problems given the Library's need to fund the project from annual revenue, and the original timescales were strictly adhered to during the contract negotiation process.

Although a basic decision had been taken that the records should be held in a MARC format, the specification had to contain very precise instructions on the handling of data which was sometimes radically different from the *Anglo-American Cataloguing Rules* based data which the MARC format conventionally has to handle. The manipulation of the raw captured data to a valid MARC exchange record format had to be specified in such a way as to allow it to work consistently over the wide range of printed record formats encountered in the catalogue. The problem areas were primarily the headings with sub-headings, where a mechanism had to be installed to contruct heading hierarchies from sub-headings data which could appear separately over several pages, and the need to provide a multi-level output record to handle the way in which the printed catalogue presented copy and edition statements. The techniques for moving from the printed record to a computer record were always considered in terms of whether they were achievable from a computer point of view.

Much emphasis was placed by the user areas on the need for quality in the conversion, and the specification again had to achieve acceptable compromises within the reality of available time and staff resources. The specification makes it clear that quality assurance, an extremly important part of any retrospective conversion, would be achieved by statistical sampling, rather than a complete check on the total output of the contractor. Within this sampling framework, the specification also laid down precise acceptable error rates for the data. If these rates were exceeded, the particular volume being quality controlled would not be accepted by the Library and the contractor would be contractually obliged to reprocess the entire volume and resupply it to be quality control processed from scratch. The setting of these error rates exemplified the balance that had to be achieved between the ideal, in terms of "perfect" data conversion, and the real, in terms of an achievable conversion at a realistic price and to a reasonable timescale. The higher the levels of accuracy demanded in the contract, the higher the price which may be demanded by the contractor and the more laborious the task of checking the contractor's output falling on the Library. A practical solution reached by the Library was to divide the catalogue record into key and non-key data, the key data essentially being that in accuracy was vital: generally primary

access routes to the item itself such as the shelfmark, or data having a collocative function and ensuring comprehensive retrieval of information of relevance to the user, such as headings. The key data error rates specified for the British Library Catalogue conversion were 1.5 errors per 1.000 characters. In reality, this means that 2.4 % of all pressmarks, for example, would be incorrect were the contractor to achieve nothing more than the acceptable error rate and the errors were truly randomly distributed throughout the data.

Some visitors to the Library who have studied the retrospective conversion have made the case that the error rates specified are too lenient. There is some slight misgiving that they may be correct, although we have been more than pleased with the high levels of accuracy achieved by the contractor which have meant that this is not the problem which it potentially could have been. In actual fact, we now envisage that less than 1 in 400 pressmarks will be incorrect: an acceptable, if not perfect, situation.

In all cases where choices had to be made, the manager responsible for the specification invariably selected, in the light of the conventional process of searching an online file, the solution which was the easiest to implement from the point of view of the Library and of the contractor. Indeed at times we sensed some frustration on the part of the contractor when we consistently rejected suggestions for improvement such as correction of obvious errors or inclusion of more specific subfielding. Complex solutions are difficult and time-consuming to implement and can impact on the later stages of the project. There is an intellectual rigour implicit in simplification which acts against the tendency to produce a specification giving the users exactly the data they have now, structured in exactly the same way, but accessed via a computer keyboard rather than a card, page or microfiche reader.

To move on now to the second stage of the conversion process, the set-up and implementation of routines and procedures. From the point of view of the Library, a vital factor was to establish sufficient staffing for the project to ensure that schedules were met, queries dealt with, and output from the contractor properly monitored, particularly in the initial stages of the project. It is extremly important not to underestimate the necessary commitment to a conversion project in terms of staffing, both in the bibliographic and data processing areas. Staff concerned with the bibliographic side of the conversion should ideally be employed or seconded to the conversion project full-time: it is a commonly encountered fallacy that staff, particularly experienced staff who have detailed knowledge of the manual catalogue, can somehow handle a conversion at the same time as carrying out their normal job. In the case of the British Library priject, all the operative level staff who were recruited to the project not only had no knowledge of the catalogue they would be helping to convert, they were also new to the British Library itself. The qualities looked for were a professional librarianship qualification, combined with an understanding of the role and func-

tion of a library catalogue. Management of the project was again given to a member of staff with substantial understanding and knowledge of catalogues, but little in-depth knowledge of the British Library Catalogue. All staff were expected to adopt a practical approach to decision-making; to be able to cope with sudden crises and fluctuations in workflow, and to be committed to maintaining schedules. Training of the team was largely centred on use of the specification as a house manual, and was carried out to timescales which would ensure that a trained team was in place when the converted data started to come through on tap. This was facilitated by the fact that a start-up phase was built into the schedules, during which both parties were given time to establish routines and solve problems. Attention during this period was focused on the successful processing of a set of test data, specially selected to try to cover all the record and heading types encountered in the catalogue.

The contract established clear timescales for each part of the data capture process for a volume. In essence there were four stages: firstly data capture by the contractor according to the specification, and stemming from this the production of a list of all subheadings in the volume. This was despatched to the Library, where staff working on the conversion allocated codes to each subheading establishing its position in the eventual hierarchy of subheadings which would follow the heading in the converted record. The list was returned to the contractor, where the information was incorporated into the rest of the converted data for the volume, and a tape containing that data despatched to the Library.

Following validation, a statistical sample of the data was used for quality assurance testing, and the whole volume either accepted or rejected according to whether acceptable error rates were met. The process for each volume took a maximum of seventeen weeks from receipt of the subheadings list to acceptance or rejection of the volume. Once the project was fully operational, the contractor was outputting two volumes of converted data per week, this number being subject to a schedule agreed between the respective project managers. A schedule which established the processing pattern for each individual volume was central to the project and enabled progress (or lack of it) to be clearly monitored, necessary resources established in advance, and individual staff targets set.

Meetings were held between the management teams of both the Library and the contractors: frequently in the early stages and subsequently at six month intervals. Although the contract emphasised clear division of responsibilities between the two parties, good communications fostered a collaborative approach to problem-solving: it was in the interests of both sides to establish and maintain momentum. In the same way that no pre-conversion editorial work was carried out on the catalogue data, there was no attempt to amend incorrect data found during quality assurance. This was merely added to the existing stockpile of amendments and corrections which would be handled by means of an editorial

system developed by the Library for routine maintenance of the converted catalogue.

Finally, the ongoing management of the established conversion process and the planning for future stages of record handling and processing. Since the early days of the conversion, a great deal of staff resource has gone into the planning of the "compression" of the converted records. This process takes us back to the problems raised by the structure of the source catalogue, and the way in which it handled access from secondary access points by means of cross-references. This two-stage system, while working well in a print catalogue, is neither effective nor economic in an online catalogue. Conventional MARC records include these secondary access points, in specially designated fields, in what we can call a unit record: that is, a record which contains all the descriptive and controlled access point data relating to a bibliographic item. If the Library was to produce unit records from the catalogue data in the British Library Catalogue, it had to find a way of taking the heading from the name-title cross reference, and integrating it into the main entry record to which it referred. This process would reduce by about a third the number of entires in the catalogue - by getting rid of the cross-reference records - and hence it came to be referred to as the "compression" of the converted database.

The compression process was not specified as part of the conversion, and indeed when the contract for data capture was signed there was only a very broad understanding of how it might by carried out. This was essentially by means of matching the pressmarks which were found in both the main entry and the cross-reference, although the complications behind this inherently simple process proved to be legion. The development work on the compression was carried out by computing and bibliographic staff working on the project, and regular processing of the records by the Library is now taking place to integrate the added entry headings.

The development work was aided by a decision to provide early access to the converted records using the Library's existing operational systems. This ability to see and use the records in their proper environment from an early stage has proved an immense bonus, not just in terms of justifying earlier decisions on the form and content of the data, but in enabling informed decisions to be taken on the future treatment of the records.

The contract for conversion of the British Library Catalogue was signed in January 1987, and we now expect data capture to be complete by December 1990, well within schedule. At present 86 % of the catalogue is available for searching through the British Library's BLAISE-LINE service, and two of the eventual three compact discs containing the converted data have been published by Saztec Europe, the Library's contractual partners in the conversion. The project has been an example of a successful collaboration between the public and private sectors, and I want to conclude by presenting the points made in this pa-

per in the form of a check-list for those contemplating retrospective conversion of a catalogue which cannot be handled by conventional means:

1. Ensure that high calibre management and data processing staff are allocated to the project from as early a point as possible.

2. Ensure that your source data for data conversion is fixed and that both you and your contractor have idential, precise copies.

3. Don't attempt to correct or enhance the data - this can usually be done post capture with considerable assistance from computer processing.

4. Be precise in the specification of what your data input will be, what you require on output, and how long you need to do the task - and dont't be easily diverted by potential contractors before or during the conversion!

5. Don't forget that you will have to check that the conversion work is being carried out to specification and that the contractor will require support anyway - dedicate sufficient staff to the task.

6. Don't skip the start-up phase - it's vital to you as well as to the contractor.

7. Don't forget that data capture is only the start of the conversion - and very often the simplest part!

8. Don't underestimate the overall resources required in terms of staff, money, time and computing.

9. Don't go for perfection all in one go - neither you nor the contractor can achieve it, and your users wouldn't have anything left to complain about if you did!

10. Keep it simple!

Retrospective Conversion: Scandinavia

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At last year's LIBER Annual General Meeting in Madrid Professor Esko Häkli presented a comprehensive overview of the Scandinavian research library scene, covering such aspects as organizational structure, funding, trends in national libraries, and of course library automation. His survey could serve as a general background to his report on retrospective conversion in Scandinavia.

Our European colleagues may regard Scandinavia as constituting one fairly homogeneous region. I can assure you, however, that there are quite a few significant differences between the library scenes of the five Nordic countries, although I am of course aware that they may be more easily perceptible to Scandinavians themselves, and may perhaps sometimes be overemphasized by them. In any case I belive it will be more convenient for you if I give you this report on retrospective conversion country by country, rather than trying to squeeze the facts into some more ingenious structure of common features or trends.

It appears that activities in this particular field have so far been comparatively few in Iceland and Norway. Thus most of what I have to say will concern Denmark, Finland, and Sweden. I am greatly indebted to the colleagues who have provided information and answered my questions, in particular Mr. Niels Erik Wille of the Office of the Danish National Librarian (recently renamed the National Library Authority, Statens Bibliotekstjeneste) and professor Esko Häkli of Helsinki University Library, which is also the National Library of Finland. In addition, I have been able to draw on state-of-the-art reports from some of the Nordic countries presented at a joint SCONUL/SCANDIA meeting in September last year in Stockholm.

Denmark

The ALBA/SAMKAT system

In Denmark there is a joint national database called ALBA, which may be seen as a continuation of the printed Union Catalogue of Foreign Books. Since 1979 some 20 major research libraries have been cataloguing their accessions of Danish and foreign publications online into the so-called SAMKAT ("shared cataloguing") system, which is part of ALBA. Beginning in 1980, another 180 libraries or so have been sending copies of catalogue cards of foreign acquisitions for central conversion and input into ALBA, excluding local data such as number of copies, location and class marks. In the process use is being made not only of the

records of other libraries already present in the base but also of those of the Danish National Bibliography from 1976 onwards as well as of imported BL and LC records.

This means that libraries which have later established local library systems with OPACs have generally been able to download their own records from 1980 onwards from the ALBA base, adding local data on location and classification. At the same time they have been able to carry out retroconversion of part of their Danish holdings with the support of the machine-readable records of the National Bibliography going back to 1976.

As for periodicals, ALBA also contains a union catalogue of Danish and foreign periodicals as DASP. This part of the database does not cover the same number of libraries as that of the monographs, however.

Plans for a national strategy

The existence of the ALBA/SAMKAT system has meant that Danish interest in major national retroconversion projects has focussed on the period prior to 1979 or 1980. Individual libraries are very anxious to establish comprehensive machine-readable catalogues of their total holdings, both as a direct service to their users and in order to take full advantage of the capacity of their automated circulation systems. Considerations of library cooperation and the need for effective sharing of the entire library holdings of the country would also seem to justify investment in expanding the common database as a location tool to include earlier material as well.

The Office of the National Librarian in 1988 commissioned a special working group to look into the technical and economic problems of a joint strategy for the conversion of research library catalogues prior to 1980 into machine-readable form. The working group is hoping to submit its proposals, intended to serve as a basis for an application for Government funding, in two or three months. Among the issues to be decided is that of whether to aim at converting the catalogues of a limited number of major libraries or the entire National Union Catalogue.

Local conversion projects

In the meantime individual libraries have undertaken retroconversion projects of a more limited scope. For younger libraries, with a major part of their holdings already registered in machine-readable form, it may be a feasible strategy to try to convert the remainder as an ongoing operation, without separate funding. In these cases priority will normally be given to those parts of the collection that are in most frequent demand, e.g. by integrating conversion with the regular circulation routines. One example of this strategy is Odense University Library, which was founded in 1964 and acquired a local system in 1986. Other Libraries, such as that of the National Museum, try to solve the problem by systematic conversion of the old catalogue from beginning to end, parallel with other regular routines, using shared facilities of ALBA/SAMKAT just described.

A private pharmaceutical library has had its catalogue converted by means of optical scanning and subsequent addition of tagging, and the National Library Authority is now funding a pilot project using the same methods as part of an attempt at developing a computer work station for optical scanning and semi-automatic (perhaps eventually even fully automatic) formatting of catalogue cards and other bibliographic products. In addition, the Computer Department of the National Library Authority is investigating the feasibility of other applications of optical scanning, e.g. of the printed volumes (1901-78) of the Union Catalogue of Foreign Books.

The Royal Library in Copenhagen, which has the largest holdings in Denmark, and consequently also the most comprehensive catalogues, has undertaken a series of pilot projects using different methods for retroconversion of catalogues as well as national and subject bibliographies. The overall purpose of these experiments has been to reduce costs as much as possible as so to allow making all major collections and bibliographies available in the form of online databases. Both OCR technology and manual keyboarding have been tested and are currently regarded as parallel techniques to be applied alternatingly depending on variations in the price/performance relation. Records in a reduced MARC format are being made available as separate databases within the Royal Library's REX system. An example of such a database is the catalogue of a special drama collection, which has been converted in its entirety (ca. 25.000 records).

A total retroconversion based on the systematic catalogues of the Royal Library, subject by subject, is under consideration. Because of the overlapping of the Danish collections with the printed Bibliotheca Danica, which covers the period 1482-1840, input from that bibliography in the reduced MARC format by means of both OCR and keyboarding has also been tested. In addition, manual retroconversion of Dansk Musikfortegnelse (Danish Bibliography of Music) from 1972 onwards (approximately 7.000 records) was recently completed by the Royal Library.

There have been some preliminary studies in Denmark of the pros and cons of retroconversion using the OCLC database, but apparently no real catalogue conversion has ever been carried out by such methods. The main problem with acquisition of records from external databases seems to be that the expected hit rate is low for pre-1960 records. Hiring the services of international agencies employing cheap foreign labour has been considered but has not been found attractive in Denmark.

The National Bibliography

Denmark has endorsed the conversion strategy recommended by the Council of Europe, according to which maximum advantage should be taken of data already existing in machine-readable form at an acceptable bibliographic level. This would seem to imply that individual countries should give priority to con-

verting their own national bibliographies in order to be able to exchange bibliographic data. A substantial part of the Danish National Bibliography from 1970 is available in machine-readable form, and a file of Danish records from around 1960 onwards has also been created by the Danish Library Bureau (Bibliotekscentralen) as part of a retroconversion project for public libraries. It will be an important national undertaking to supplement these records with converted records of the Danish collections of the Royal Library and the State and University Library in Århus from 1960 onwards. There are also some plans for the creation of a pool of pre-1960 Danish records, either by converting the national bibliography by means of optical scanning or by keyboarding and formatting the relevant catalogues of the two libraries just mentioned, or possibly by a combination of these two methods.

It remains to be seen whether the Danish Government will be prepared to provide the considerable funds that will no doubt be needed to implement the plans for a joint national retroconversion effort soon to be presented in Denmark. If so, the project could probably begin in 1992.

Finland

With regard to library automation Finland is in a unique position in that the same local online system, the American VTLS (Virginia Tech Library System), will be installed in all university libraries of the country, which are to be linked together through a central system in a uniform network (LINNEA) using the academic communication network FUNET. Thus there will eventually be optimal facilities for sharing bibliographic information irrespective of where it happens to be stored.

Helsinki University Library

Helsinki University Library (HUL) is among the very first libraries to start using the new system. Being the National Library, however, it took a lead in retrospective conversion well before the choice of VTLS was taken by the Finish Government.

Retrospective conversion in HUL follows two parallel lines: the catalogues of foreign material in the Main Library and those of the Finnish archival collection are to be converted simultaneously.

Catalogues of the foreign collection

Records of the foreign collection had already been produced in machine-readable form from 1980 onwards. Those from the period 1956-79, 128.000 records in all, were converted in 1988-89 by Saztec Europe Ltd. This part of the catalogue was chosen not only because of expectations of a reasonably high hit rate in external databases but also because the cataloguing rules used here were fairly modern, conforming to the Paris principles of 1961. On the basis of samples

Saztec expected a hit rate in existing databases of up to 80 %. The final figure turned out to be no more than 50 %, however, which illustrates the difficulty of sampling. Other complications included of format conversion, although FINMARC is actually very close to UK MARC, as well as the number of languages represented in the catalogue (40 % English, 20 % German, 10 % Scandinavian languages and 30 % other European languages). Even though the company proved to be very reliable, more library staff time was needed than had been anticipated. In fact the price paid to Saztec amounted to no more than 60 % of the eventual project cost. Professor Häkli concludes that the experience of HUL does not immediately encourage the use of foreign databases for retroconversion in Scandinavia.

The conversion of the old (pre-1956) catalogue of foreign material in HUL, comprising some 280.000 titles, was begun in spring 1988 as an in-house project with two staff members, one of them a trained cataloguer. Contacts with two foreign companies led to nothing because the costs appeared prohibitive. Approximately 35 % of the sheets of this catalogue are handwritten, partly in old German script, more than half are in languages other than English, and the cataloguing code used was modelled on the old Prussian rules. 28.000 records have been converted to date, which means that unless other methods can be applied more staff will have to be allocated in order to complete the project within a reasonable time period. The CD-ROM version of the BL General Catalogue has been examined in this context, but so far in-house keyboarding appears to be faster.

The Finnish collection, the National Bibliography and the Kotka unit

Like the other Finnish copyright libraries HUL uses the database of the National Bibliography, which currently covers the years 1967-71 and 1977-, as the basis for its catalogues of Finnish literature.

In late 1989 HUL established a new conversion unit in the town of Kotka on the south coast east of Helsinki. The local authorities of Kotka are making provision for premises and furniture for the first five years and will pay the salaries for the first 16 months. In addition to a varying number of temporary employees for commissioned projects, a permanent staff of 10 with an annual output in the order of 100.000 records is envisaged. The Kotka unit is to be a service centre for all libraries in the country. Its first major task will be to convert those parts of the printed National Bibliography that are not already in machine-readable form. Work has begun on the years 1972-76. Records of literature of recent date will of course be the most interesting ones not only for the seven copyright libraries but also for major public libraries installing local systems with circulation modules. Use of the national bibliographic records is anticipated to exceed by far that of the Finnish Union Catalogue of Foreign Literature.

Incidentally HUL is cooperating closely in the establishment of the Kotka unit with the Finnish Library Service Ltd. (Kirjastopalvelu Oy), the supply centre for public libraries in Finland. The company will share the costs of converting the

National Bibliography in return for the right to market the machine-readable records to public libraries.

The National Bibliography will also be available on CD-ROM. The first disc, which covers 1977-89, was released a month ago. Converted records will be added, beginning with the years 1967-71, to be integrated in the first update in September 1990.

Conversion activities at Kotka are expected to expand through commissions from other libraries or groups of libraries. The first library out was that of Helsinki University of Technology, whose records from the period 1969-79 (about 100.000 in all) are to converted by 5-6 persons temporarily employed for the purpose. Work is to begin in a couple of months and is expected to be completed by the end of 1991.

Other projects

Apart from the projects and plans of HUL which I have just described, no national strategy in this field seems to have emerged. The Finnish Council for Scientific Information (TINFO) has considered problems of retroconversion on a number of occasions, but no decisions have been taken. The issue has been discussed at a couple of meetings of library directors, but on the whole there has not been any very intense debate. There can be little doubt that the situation will change a great deal when most of the libraries will have their local VTLS systems installed.

This does not mean that there have not been any retroconversion projects carried out in individual libraries other than HUL, however. The University of Technology Library project has already been mentioned. The Central Medical Library, which was established only 20 years ago, had its relatively small catalogue of monographs (c. 12.000 titles) converted by Saztec Europe Ltd. in 1988-89, apparently to the great satisfaction of the library.

With the help of the American company Access Innovations, Inc. Jyväskylä University Library has converted some 59.000 records of mostly foreign literature published between 1966 and 1979. All the information in a sample of 2.500 converted records was checked by the library. One or more errors were found in 17,6 % of them, mostly due to misinterpretation of data on the cards caused either by varying cataloguing rules or by difficulties of language (Scandinavian and "non-Western" languages in about 40 % of all cards).

The Library of Parliament has been experimenting this year with teenagers (aged 14-19) doing retroconversion work under the supervision of librarians. The introduction of optical scanning is reported to have doubled the speed of production. With a budget of 75.000 FIM the library is hoping to be able to convert 20.000-25.000 titles this year.

Iceland

The two large research libraries in Iceland, the National Library and the University Library, are to merge when moving into a common building, whose completion is unfortunately still being delayed for lack of funds. In the field of automation a significant step was taken only a month ago, when the two libraries after a lengthy period of evaluation signed a contract for the installation of the British system LIBERTAS.

The production of the National Bibliography of Iceland was automated 10 years ago, whereas current cataloguing of foreign material in machine-readable form has been going on since 1988. The catalogues of foreign pre-1988 literature in the two libraries (some 200.000 titles in all) are now being converted with the help of Saztec and the UTLAS database. The project, which has been funded by transferring the equivalent of about £ 200.000 from grants for the new library building, is expected to be completed by mid-1991.

Norway

Norway has two major research library systems with widely differing purposes: the integrated BIBSYS II system developed in Trondheim, which is now used for acquisition, cataloguing and circulation by the four university libraries as well as most other large research libraries, and the Oslo University Library system for the production of the National Bibliography and the national union catalogues for books and periodicals. If there have been local attempts among research libraries at retrospective conversion of card catalogues, they probably have not been of any significant proportions, according to the National Office for Research and Special Libraries (Riksbibliotektjenesten).

The online services of the University Library of Oslo provide access to some 20 databases containing approximately 1.6 million bibliographic records. The most important bases are SAMBOK and SAMPER (the Norwegian union catalogues of books and periodicals respectively) BOK (the Norwegian National Bibliography), and NOTA (the Norwegian periodicals index).

The National Library branch at Mo i Rana

The University Library of Oslo, like its counterpart in Helsinki, also fills the function of a National Library. As a first step towards a separation of the two functions the Norwegian Parliament decided just over a year ago to establish a National Library branch at the small town of Mo i Rana way up in the north of the country. The branch has already been in operation for half a year, and only next month the present staff of 46 will expand by another 30. In the course of the next five years this unit is to become the centre of a national library network with responsibility for national bibliographic cataloguing and bibliographic data-bases. One of its functions will be to convert library catalogues to machine-readable

form. Work has already begun on converting and transferring the main catalogue of the University Library of Oslo for the years 1966-89 (some 240.000 entries) to the BIBSYS database. There are also plans for converting the printed volumes of the National Bibliography.

Sweden

The LIBRIS system

Swedish research libraries are fortunate in sharing the computer-based information system LIBRIS, dating back to the early 1970s and developed to promote national sharing of their combined stock. Some 35 libraries have permanent links to the systems, while another 500, some of them located in other Scandinavian countries, use dial-up access.

LIBRIS is a data communication and processing system for cataloguing support, for locating literature in the interlibrary loan traffic, and for the production of various catalogues and bibliographies, such as the Swedish National Bibliography (from 1976 onwards) and the national Union Catalogue of foreign Books. The Nordic Union Catalogue of Periodicals (NOSP) is also part of the LIBRIS database, and bibliographic records from abroad - BNB-MARC, LC-MARC, FINMARC and ISDS - are made available to support acquisition and cataloguing activities in LIBRIS libraries. The LIBRIS database currently holds about 2,3 million records.

Just as in Denmark, 35 research libraries, including all the major ones, catalogue their accessions directly into the LIBRIS base, either by adding their local data to records found in the base or by entering full catalogue records for titles not found. Libraries with local systems may then download their records overnight, while others may order printed catalogue cards or COM products. In addition, the foreign accessions of about 40 smaller research and special libraries are input centrally from cards sent to the Royal Library in Stockholm, which is responsible for the maintenance and development of LIBRIS.

Local retroconversion activities

The situation also resembles that in Denmark in that libraries acquiring local computer systems have had a very good basis for their OPACs at the outset by downloading all the records that they have accumulated over a period of 10-15 years in LIBRIS. Sweden's youngest university library, that of Linköping, which was founded in 1969, in fact has practically all its holdings registered in LIBRIS and has been using LIBRIS and its OPAC. Most large research libraries, however, are now being faced with the huge problem of organizing and funding local retroconversion activities in a period of financial stringency, as their budgets are already being stretched to the utmost in order to cover the costs of installing and running their new systems. The arguments which are being applied by librarians

in trying to persuade their funding authorities to allocate special resources are the same as everywhere: the greatly enhanced search facilities of the OPAC, the risk of underexploiting the university's large investments in older literature, and the necessity of having a reasonable proportion of the titles most in demand in the local database already at the time of implementing automated circulation.

From the early 1980s, beginning with Stockholm University Library, a large number of in-house projects of varying extent have in fact been started. Although some of the more ambitious ones may have been suspended or discontinued for lack of funds, others have been successfully completed or are still running according to plans.

As far as I know, all retroconversion is being carried out by input to LIBRIS, retro records being marked by a special code, which makes it possible to collect some statistics. Thus it appears that in the fiscal year 1987/88 27 libraries converted 117.500 records in all (63.500 by contributing full cataloguing and 54.000 by adding local data to records already in LIBRIS). The corresponding figures for 1988/89 were 100.700 (36.100 + 64.500), the changing proportions perhaps reflecting the increasing benefits of sharing the burden of retroconversion.

A considerable part of this retroconversion was carried out in Göteborg University Library, as part of a project begun in Marc 1987. To date we have converted some 96.000 pre-LIBRIS records of Swedish and foreign material from the "new" card catalogue of the Main Library, which begins with the year 1958. Several Swedish libraries, such as the Royal Library and the university libraries of Uppsala and Lund, introduced a new catalogue code in the late 50s or early 60s, which meant that they had to make a break and start new catalogues. Thus it will be natural in most libraries to begin retroconversion by concentrating on the new catalogue. In Göteborg for over two years we used the systematic catalogue as our basis, giving priority to the subject groups that are the most important ones for our users. This project, which was funded from our book budget, has now been suspended, and for the time being we are only converting post-1957 records for circulating items that have not yet been processed in this way.

With some variation the situation seems to be about the same in most Swedish research libraries. The largest of them, Uppsala University Library, reports having converted 20.000 records in-house with another 140.000 post-1962 ones still awaiting conversion. - Lund University Library is in a unique position, having been granted the equivalent of £ 85.000 a year by the University for a 3-year period for retroconversion. They expect to complete work on their post-1957 catalogue in autumn 1991. - The Royal Library, which is the Swedish National Library, has been running a project since the beginning of 1988 for the conversion of their card catalogue for 1956-86 (260.000 titles). Progress has been slower than anticipated, with 40.000 titles converted to date.

National projects

With the backing of the majority of the Swedish research libraries the Royal Library last year proposed a coordinated large-scale effort involving the conversion of the Swedish National Bibliography for 1830-1975 and the Union Catalogue of foreign Books in Swedish Research Libraries for 1886-1967. The whole project, comprising approximately 1,5 million records to be registered in the LIBRIS database and thus made accessible for downloading to local systems, was estimated to cost the equivalent of about £ 1.870.000 and expected to take three years to complete. As for the method of conversion to be applied, no definite decision had yet been taken by the time of application, but estimates of costs were based on an offer submitted by an international agency.

Unfortunately the Swedish Government was not convinced that this project ought to be given high priority. In her application the National Librarian had stressed the ambitious efforts and plans in this field initiated in the European Community and elsewhere and the importance to Sweden of being able to participate in the building of international library networks with vast amounts of information. This was the only argument mentioned by the Government in their rejection of the proposal. The existing LIBRIS database and the portion of the National Bibliography already available there were regarded as sufficient for international cooperation, and gradual retroconversion of older material ought to be carried out at whatever pace current resources would allow.

In this situation the National Librarian has started discussions with the university libraries aiming at defining suitable joint projects of a more limited scope with some other source of funding. There seems to be general agreement that since so much in-house work has already been carried out for material from about 1958 onwards, a joint project should preferably focus on the preceding years, beginning around 1945. Opinions differ somewhat when it comes to choosing between Swedish and foreign material. Personally I am in favour of giving priority to the National Bibliography, both because I regard it as a kind of national obligation to the library world at large, and one which certainly nobody else is going to fulfil for us, and because I believe that in the view of most general research libraries the relative interest of Swedish as opposed to foreign material will probably tend to increase the older the records converted are. The printed volumes of the Swedish National Bibliography for the period 1941-55 contain some 75.000 records, of which 15.000 are already to be found in LIBRIS.

Optical scanning is being seriously considered as a feasible method of input in the case of both the National Bibliography and the Union Catalogue of Foreign Books. Using the same sort of political argument as in the case of Mo i Rana in Norway, it has also been suggested that Government funding would be more easily obtainable if at least part of the work could be located in some unemployment area in the north of Sweden. The alternative option of having the records converted by an international service bureau still remains, however.

The Pica Library Automation Network and Retrospective Catalogue Conversion

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PICA, Leiden

The general theme of this conference has been announced as: *networking catalogues; access to information holdings*. Within the program strong attention is paid to the problems of retrospective catalogue conversion and retrospective cataloguing. In my paper I will give a survey of the existing and planned facilities of PICA and, after that, I will concentrate on the retrospective conversion activities in the Netherlands in relation to the PICA-Network.

PICA

PICA is a co-operative not-for-profit organization for libraries and other information providing institutions, like documentation centres, in the Netherlands. PICA aims to promote, co-operation between those participating institutions, using automated library network facilities, to optimize the management of those institutions and to improve the services of libraries to end-users. PICA is promoting efficiency to create optimal access to information and library resources.

Co-operation

There is, in my opinion, no longer any doubt that co-operation and resource sharing have proved to be cost-effective and can improve the quality of library services. However difficult it is to define precisely notions as co-operation and resource sharing, they are generally understood when used in relation to library automation and technical networking. Co-operation as a basis for library automation has more successful results, because of the simple fact of resource sharing, i.e. the sharing of bibliographic resources, of documents, of information services, and, above all, the sharing of costs. Next to it, I think for co-operation the libraries need a strong feeling for reciprocity.

Resource sharing through networking

For the creation of an operational automated library network, one can recognize three different aspects. The libraries within a network need

- an organizational infrastructure
- a technical infrastructure
- a (library-) professional infrastructure.

How those complete infrastructures are realized within the Netherlands, and how the existing infrastructures will develop in the next future, I will explain from the history of PICA.

Organizational infrastructure

PICA has originated from a research Project on Integrated Catalogue Automation during the period 1969-1975. The research was co-ordinated by representative staff members of the participating libraries (Royal Library and several university libraries under responsibility of the directors of those participating libraries as a Steering Committee). In 1976, the Steering Committee decided to stop the research and to start operationalization. A central bureau was established for co-ordination and development, while the group of representative staff members was changed into an user group. Each member of the Steering Committee was obliged to report to his own university board (for the Royal Library to the Minister of Education). After a period of strong growth in operations and participants in the early 80's, the organizational infrastructure became more and more insufficient. It was decided to change the structure into a independent not-for-profit foundation under Dutch law, the Centre for Library Automation PICA, in 1986. From then, the board consists of a chairman (appointed by agreement between the Minister of Education and the Minister of Culture), the director of the Royal Library, four university chief-librarians and three directors of public library organizations. Since then, the organizational infrastructure is felt to be effective, because of recognizing the idea of co-operation with respect for the necessary, certain independence of the central organization and the own responsibility of each participating library.

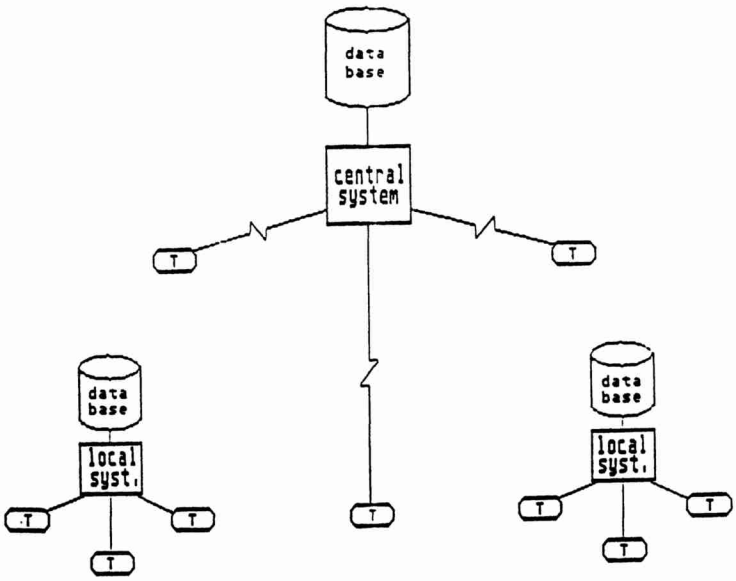
Technical infrastructure

In the period 1976-1990 PICA has realized an automated library network with all the different system- and network facilities. The system facilities became operational in the following steps:

1976 - 1979	PICA 1:	
-	shared cataloguing	
-	output facilities	
1980 - 1990	PICA 2	
-	shared cataloguing	(1980)
-	output facilities	(1980)
-	interlibrary loan for periodicals	(1982)
-	local library system (circulation, acquisitions)	(1983)
-	central online retrieval system	(1985)
-	local library system (online public access catalogue)	(1985)
-	interlibrary loan for monographs	(1988)

The network facilities moved from a central computer system with terminal/printer-work stations connected via leased telephone-lines (a star shaped network) into a network with central and local applications, connected by different data communication-technology (leased and dial-up lines; use of packet switching networks line Datanet and SURFnet; interlinking via pre-OSI-technology) and using personal computers next to terminals as work stations.

(Figure 1)



Now that the technical infrastructure is realized, PICA has developed projects for changing the infrastructure into an Open Library Network

- by redesigning the central facilities (PICA-3-Project; realization 1990);
- by redesigning the local library facilities (LBS-3-Project; realization 1990-1992);
- by converting the data communication network into SURFnet-technology, the Dutch academic research network (realization 1990-1992);
- by experimental interlinking with networks abroad, especially for interlibrary loan (together with LASER, England and SDB/SUNIST, France; 1990-1992).

The different projects are financed by own investments and by special grants from the university libraries, from SURF, from the Ministers of Education, Culture and Economic Affairs, and from the EEC.

For the whole operation it is essential to plan a phased implementation, because of the fact that it is unacceptable for the participating libraries to be one day out of existing services.

Characteristics of the new developments are:

- integration of software;
- standardization of search facilities;
- the implementation of intelligent work stations (PC);
- standardization of data communication (OSI);
- improvement of online public access, based on additional user requirements and ergonomic studies.

In the end of 1992, the network will have been changed into a network, in which the library staff and the professional end-user can use all the available systems and databases with his own single personal computer knowledge in which computersystem his transactions are done. The user needs a functional menu, which presents the different facilities he is allowed to use.

Professional infrastructure

During a 10-years period, next to the organizational and technical infrastructure there is realized a strong co-operative professional infrastructure. The power of an automated library network is its central bibliographic database, which can be used as a bibliographic utility and which is built up by the production with facilities to store information.

The present shared cataloguing system is used by more than 120 libraries (national, university, public libraries; Dutch national bibliography; special libra-

ries/documentation centres). With ca. 800 work stations (terminals/personal computers) those participants are cataloguing 1.200.000 copies/year. The database is fed by magnetic tapes of the British National Bibliography, Library of Congress and Deutsche Bibliothek. The average hit percentage for libraries is 84 %. The database is growing with 750.000 new titles each year and consists of 6.500.000 title descriptions now, next to 1.100.000 authority records for personal names. Private authority files are available.

The database can be searched for cataloguing purposes. For retrieving the database (or separate parts of the database), there are windows (indexes), kept apart from the cataloguing procedures:

- ILL-window (with Boolean search facilities and administrative procedures; used by 280 libraries for 350.000 ILL-requests/year)
- ORS-window (with menu-driven and Boolean search-facilities for over 25 'logical' files with specialized information, e. g. Audiovisuals, Bibliography of Dutch language and Literature Studies, etc.; separate indexes for each file; used by 200 libraries for 50.000 searches/year). This Online Retrieval System can be used as a central OPAC for small libraries.

The OPAC in the PICA Local Library System (16 sites from small libraries with 15 work stations into large libraries with 150 work stations) is fed from the central cataloguing system. The OPAC can be retrieved in the same way as the ORS-system. For very small libraries (up to 20.000 volumes) PICA has developed a Micro-OPAC software package as personal computer-application. This package can also be used as search-facility for CD-ROM and 'private' catalogue for university staff.

Co-operative program

In 1989, PICA decided to improve the resource sharing further by developing a co-ordinated program for professional co-operation, using existing facilities for new projects. The main issues of the program are related to:

- retrospective catalogue conversion
- retrospective cataloguing
- analysis and registration of library collections
- subject access.

For all those issues program-activities are now under way. In this paper, I will concentrate on the activities related to retrospective conversion of library catalogues.

Retrospective catalogue conversion

Since 1980 the central database is being built up by the cataloguing of new acquired titles. From the same moment, libraries have used the database for retrospective conversion and retrospective cataloguing. With the database of 6.500.000 titles, the libraries have catalogues over 10.000.000 volumes, available in library stocks. Research for the average use of library stock have shown that 80 % of the use regards publications from the last 20 years.

Nevertheless, for the purpose of efficiency in library management and of completeness of the catalogues, dutch libraries felt the need to retroconvert their catalogues in an early stage, the begin-80's. Different libraries decided to develop programs. The most remarkable project in the early-80's was the Leiden University program to convert all the titles from the imprint-1963 (ca. 500.000). The project was finished in 1987. Groningen University planned a program for converting the complete catalogue and have this ready before the year 2000 and started in 1988 strongly with it (until now: 400.000). The Tilburg University Library (250.000 before 1980), Maastricht University Library (150.000 before 1980) and the Provincial Research Library of Leeuwarden (300.000 before 1980) have converted their catalogues completely. The Royal Library converted over 100.000 items next to several retrospective cataloguing programs (e.g. Short Title Catalogue Netherlands with 30.000 titles and National Bibliography 1801-1832 with 30.000 titles). An estimation of the total of all retroconverted titles exceeds 2.000.000.

All those programs were local projects, financed by the libraries from own or extra university funds, using online/real time procedures with the PICA-database or the help of service-bureaus (including the unpredictable consequences in workload for checking the correct offline input).

In 1988, the Royal Library decided to try to co-ordinate all those individual programs, but this failed. I think, that it was impossible at that moment because of the danger to interrupt then the existing, operational and by the local authorities funded programs.

OCLC-procedure

As a result of those projects, however, PICA decided to sign an agreement with OCLC after a successful experiment to use the OCLC-database as a secondary database for retroconversion. In the PICA-database there was a hit rate of 50 % for pre-1980 titles. Use of the OCLC-database could increase the hit rate with 25 %. After a slow start, OCLC and PICA decided to improve the facility by creating an exchange-procedure of search-keys and titles via file-transfer two times/week. At the moment the use of the facility is different from what we expected. I suppose that the facility again interrupt the existing procedures too

much because of the three-days delay of title-delivery in the Netherlands are used to online/real time operations.

Co-ordinated retroconversion

Because it is obvious that co-ordinated retrospective catalogue conversion is more cost-effective than individual conversion, this year within the new co-operative program two project are set up to experiment a co-ordinated approach.

The university library collections-program

The program started 1 June 1990 with the retrospective conversion of 100.000 titles from important collections of 6 university libraries and the Royal Library. This project will be finished at the end of this year. The project intends

- to evaluate the retroconversion-approach from important collections;
- to establish an effective co-ordinated procedure (converted titles are completed with other library numbers by the Royal Library; those lists are send to other participants, if the title is in stock there, for further conversion);
- to prepare international co-operation according to the EC-Action Plan for Libraries-proposals.

The project is sponsored by the Minister of Education.

The Provincial Research Libraries-program

The program started 1 June 1990 with an experiment study for all the items in stock of the important, not-university research libraries in the Netherlands. The study will be finished at the end of this year and is financed by PICA and the Minister of Culture. The study prepares the retroconversion of over 200.000 items before the imprint-1990 and plans to include conversation/preservation-notes.

Conclusion

Based on a reliable organizational, technical and professional infrastructure retroconversion projects are started and completed in Dutch libraries within planned budgets and on time. Different co-ordinated programs are now under way to improve further cost-effectiveness.

It is encouraging to see how the *Recommendation on Retrospective Conversion of Library Catalogues to machine-readable Form*, as approved by the Committee of Ministers of the Council of Europe, 19 September 1989, has influenced the recent developments. The recommendation is directed to international, to

national and to local authorities. The recent developments are of course not the result of the recommendations, but it was an effective help when organizing new projects. It influenced the decisions of the Ministers of Education and of Culture to sponsor the mentioned two programs. It was a pleasure to be informed, early this year, that the authorities of two Dutch universities (Groningen and Nijmegen) decided to invest in retroconversion with extra funds of over 2 million Dutch gilders for each library.

When a good infrastructure is available, the recommendation is an extra help. Librarians, however, have to make the proposals.

Brève présentation du projet de conversion rétrospective de la Bibliothèque Nationale

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La Bibliothèque nationale offre aujourd'hui, avec sa base BN-Opale, un accès informatisé à plus de 1 million de notices (descriptions de monographies ou de publications en série). Dès que le chargement du catalogue 1970-1979 sera terminé (début 1991), la base couvrira quasiment toutes les publications françaises et étrangères entrées à la Bibliothèque nationale depuis 1970. Mais les documents entrés avant cette date resteront accessibles à travers divers catalogues manuels dont 40 ont été recensés comme les plus importants, regroupant près de 7 millions de notices.

Dans la perspective de l'ouverture de la Bibliothèque de France, en 1995, l'automatisation de l'ensemble du catalogue de la Bibliothèque nationale est une nécessité soulignée par tous les partenaires: elle facilitera sur place et à distance l'accès des utilisateurs aux collections transférées vers le nouvel établissement; elle permettra la constitution d'un réservoir de notices réutilisables par les bibliothèques et qui servira également de noyau dur au futur catalogue collectif national.

Le projet précis, qu'il s'agit donc de mettre en oeuvre très rapidement, est de convertir des informations aujourd'hui sur support papier en données accessibles informatiquement.

Cette vaste opération de conversion rétrospective doit permettre de réaliser un produit informatique qui pourra être intégré au futur système informatique de la BDF.

En raison de son ampleur le projet a été découpé en trois phases correspondant à différents groupes de catalogues:

Phase 1: Catalogues généraux des livres et périodiques des origines à 1970 (environ 4 M. de notices)

Phase 2: Catalogues spécialisés de livres et périodiques (environ 2 M. de notices)

Phase 3: Catalogues de livres et périodiques en caractères non latins (environ 200 000 notices)

1. Comment convertir

Il existe techniquement deux possibilités: la récupération de notices dans les bases de données existantes et la saisie directe de notices originales. Il semble difficile pour la Bibliothèque Nationale d'envisager une rétroconversion par récupération de notices des bases de données existantes. En effet pour les éditions francaises, les catalogues de la Bibliothéque Nationale restent le réservoir le plus vaste et, certainement le plus fiable. Quant aux éditions étrangères, le travail induit par la récupération (tri et extraction de notices à récupérer, mise à jour des notices rècupérées, adaptations de formats à programmer) et la faible proportion de notices, récupérables rendraient une opération de récupération de notices plus couteuse qu'une saisie directe.

Le seul mode de conversion possible reste donc vraisemblablment la saisie des informations depuis les catalogues (volumes imprimés, microfiches ou fiches), saisie faite par dactylo-codage et non par lecture optique (cette technique a besoin de typographies rigoureuses, régulières et de ponctuations univoques, ce que ne présentent pas nos catalogues et fichiers à convertir). Toutefois, les sociéteés de service sont à meme de procéder aux études de couts pour déterminer si la combinaison de ces modes de conversion est une solution économiquement valable.

2. Objectifs

La conversion rétrospective proprement dite sera mise en ouevre autour de trois principes majeurs:

A. Sauvegarder toutes les informations existantes.

B. Structurer le plus possible ces informations afin d'accroitre le nombre et la finesse des accès aux notices. Ceci implique:
   - un repérage des zones de l'ISBD
   - une organisation de ces zones selon un format MARC identique ou presque à celui de BN-Opale pour faciliter les intégrations futures et proche d'UNIMARC, format d'échange international donc aisément convertible en d'autres formats.

C. Rendre exploitable grace à l'informatique des informations potentielles: la langue, le pays d'édition, la classe CDU d'un ouvrage.

L'opération doit etre menée en quatre ans (1991-1994). Dans une perspective maximaliste, les phases 2 et 3 démarreraient respectivment courant 1991 et courant 1993.

Deux autres impératifs doivent etre pris en compte:

Pendant l'opération, des modifications de cotes seront nécessaires au fur et à mesure du transfert des ourages fragiles ou précieux sur de nouveaux supports, aptes à la communication au public et à la diffusion (microformes etc.) et du processus de récolement liés au transfert des collections de la Bibliothéque Nationale vers la Bibliothéque de France. Les modalités de stockage et d'accessibilité des informations saisies ont été étudiées à cet effet.

La Base BN-Opale de la Bibliothéque Nationale ne pouvant accueillir ce volume supplémentaire de plusieurs millions de notices sur le système GEAC actuel, un support informatique de communication et de diffusion permettant l'accès à ces informations bibliographiques sera être rapidement fourni.

3. Structure de l'opération

La Bibliothéque Nationale va lancer en septembre 1991 l'appel d'offres de la phase 1 qui constitue la partie quantitativement la plus importante du projet. Elle sera proposée en plusieurs lots contractuels pour couvrir la saisie et conversion du Catalogue général des livres imprimés auteurs de la Bibliothèque nationale, du supplément au Catalogue général, du Catalogue général des livres imprimés auteurs, collectivités-auteurs et anonymes 1960-1969, du Catalogue général des périodiques avant 1960 et d'une partie du fichier général des périodiques postérieure á 1960 non informatisée.

Compte tenu de l'ampleur du projet, l'appel d'offres, construit avec l'aide de la Société SILOGUA, proposera une sous traitance de la gestion technique du projet et d'une partie des controles qualité de la saisie ainsi qu'une sous traitance pour l'intégration et le traitement des notices provenant de la saisie des catalogues.

La Bibliothèque Nationale va mettre en place une équipe de personnels qualifiés au tour de la cellule de convers rétrospective déjà créée au sein du Centre de coordination bibliographique et technique.

Cette equipe assurera dans ce projet les tâches qu'on ne peut "déontologiquement" et "professionnellement" sous-traiter, qu'il s'agisse de la gestion administrative et financière des lots ou de la gestion des anomalies du catalogue, par exemple.

Par contre, la Bibliothéque Nationale sous-traite le maximum de tâches d'exécution qu'elle aura la possibilité et le devoir de contrôler: gestion technique des lots de saisie, suivi des résultats des recettes, contrôle d'exhaustivité des notices saisies.

4. Techniques et procédures

Les quatre catalogues ou fichiers doivent connaître les trois memes étapes ou types de travaux:

1. manipulation des exemplaires matériels originaux par l'équipe BN
2. identification et saisie des informations
3. intégration des données saisies en vue de la constitution d'une base transférable sur le système mis en place par la Bibliothèque de France.

A l'intérieur de chacune de ces étapes, par contre, des divergences de traitement existent suivant les catalogues.

Chacune des ces étapes sera contrôlée par la cellule, aidée par le prestataire.

La typologie des notices est importante car elle induit la structuration des informations. Or la Bibliothèque Nationale a choisi une saisie structurée, formatée pour optimiser les points d'accès et pour rendre l'intégration des notices performante en fin d'opération lorsqu'auront lieu les compactages. Cette saisie, peut-être un peu lourde, sera utile à terme. En effet, l'opération Bibliothèque Nationale est montée à partir de catalogues et de fichiers non homogènes: si l'opération devait être stoppée ou si l'intégration des notices des différents catalogues ne pouvait pas être assurée, la base image de la saisie de chaque catalogue pourrait quand meme devenir pour les autres bibliothèques un réservoir de notices récupérables car elle contient l'image exacte et formatée, avec tous les points d'accés, du catalogue auquel elle correspond.

Conclusion

Il ne serait raisonnable de parler plus longuement d'une opération qui n'a pas encore démarré. L'enjeu de l'opération est tel, tant pour la Bibliothèque nationale que pour la Bibliothèque de France qu'il faut réussir: c'est le seul moyen d'offrir à la Bibliothèque de France le catalogue informatisé dont elle à besoin dès son ouverture; c'est aussi la création du coeur du futur catalogue collectif national, formidable réservoir de plus de 6 millions de notices, réutilisables par les autres bibliothèques francaises et étrangères. Alors nous sommes confiants ... mais nous croisons les doigts!

Retrospective Conversion in Germany

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The last 10 to 15 years bear witness to an enormous growth of library automation in W. Germany. Almost all of around 70 university and state libraries have introduced the computer into their cataloguing departments, and an increasing number of libraries are managing to pass on the benefits of automated cataloguing to their users by providing online public access to their files. Yet it would be more to the truth to say that

(a) only about 20 of these libraries do actually have all or the greatest part of their cataloguing data in machine-readable form, and

(b) only about a dozen provide an OPAC.

Which is why retrospective conversion is likely to remain a major issue of library management and, indeed, library politics in the next 10 to 15 years.

Retrospective conversion is not going to be the only issue, though. It may suffice to refer to other technical issues such as local library systems and open systems interconnection, or the concern of preservation and conservation. And it should go without saying that any prediction on time and budget scales has to be tentative these days, bearing in mind the speed and thoroughness of political change.

Limiting the present paper to retrospective conversion (re-con), I am going to summarize what is being done in W. Germany and what is being planned for the immediate future. I will then briefly comment on various problems arising in the course of re-con in W. Germany, dealing with subject access in greater detail. For the survey of present action, this paper is indebted to a comprehensive article by F.-G. Kaltwasser.

For reasons primarily rooted in German history rather than inherent in bibliography, there are borderlines in W. German re-con projects, separating titles published (a) after 1501 and before 1850, (b) between 1850 and 1945, and (c) after 1945. The first period has attracted most practice, and the last has attracted at least some planning, while the second would still be quite close to a white spot on the re-con map, were it not for the work done in Göttingen. The earliest segment was begun by the Bayerische Staatsbibliothek as well as the Staats- und Universitätsbibliothek Göttingen in 1981. The project has been sponsored by the Deutsche Forschungsgemeinschaft (DFG). Soon afterwards, it was decided in Göttingen to shift the deadline from 1850 to 1945. In the meantime, about two thirds of the Bavarian titles (600.000) and 40% of the Lower Saxon titles (1 mill.) have

been converted (June 1990). The Munich part of the project will be completed in 1992/93.

Kaltwasser rightly claims that the positive experiences in the Munich and Göttingen projects paved the way to what may be called the wholesale approach to re-con activities. The DFG financed background studies exploring both the bibliographic as well as the presumed financial framework of that approach as well as comparative investigations into re-con methodologies adopted in other countries (see Syré). The DFG outlined their perspectives of what is called "Altbestands*erfassung*", as opposed to "Altbestands*katalogisierung*": *Erfassung*, i.e. keyboarding bibliographic descriptions already existing (rather than re-cataloguing on the basis of personal inspection of the book), is envisaged as a routine element of EDP-cataloguing in W. German libraries. For test purposes, a limited number of libraries with substantial historic holdings as well as one regional union catalogue were chosen to get the project underway: apart from the state libraries in Munich and Göttingen, the university libraries of Tübingen and Munich, the Württembergische Landesbibliothek Stuttgart as well as the union catalogue of North Rhine-Westphalia (pre-1900 section). It remains to be seen whether other libraries will join this project.

This project will cover titles published up to 1850 (with the exceptions of Göttingen and the union catalogue). As for the EDP-cataloguing routines just mentioned, titles are being converted on the basis of the RAK-WB cataloguing rules and a cataloguing format compatible to MAB. They are being fed into the regional cooperative databases; in due course, they will be copied into the *Verbundkatalog maschinenlesbarer Datenträger* (VK), compiled by the Deutsches Bibliotheksinstitut in Berlin. This database is intended to become something like a machine readable national union catalogue; while the largest part of titles contained in that database are naturally post-1850 titles, the VK database will be gradually enriched by pre-1850 titles and will, in turn, support further re-con activities.

As for the post-1945 period, the first thing to be noted are the influential and controversial *Empfehlungen* (recommendations) published by the W. German Wissenschaftsrat (Science Council). With regard to the position of the Science Council as far as fundamental considerations of project planning and budgeting are concerned, it would be misleading if these recommendations were not taken as guidelines. The Science Council assessed the number of post-1945 titles in W. German academic libraries at 29,740,000. Based on estimates, rather than backed by experience, the conversion costs were taken to be some 150,000,000 DM. That sum - 5 DM per title - is said to include staff costs as well as the investment for hardware equipment, data transfer and storage. The costs are to be split even between the "Bund", the central government, and the "Länder", the federal states, over a period of ten years, beginning in 1991/92. The idea masterminding the Science Council's recommendations is to provide all academic libraries with ma-

chine-readable files covering those parts of their holdings which are thought to be most frequently used. Moreover, files of that kind are intended to facilitate the implementation of local OPACs and speed up document supply via inter-library lending.

Again, the decentralised or regional approach to shared cataloguing in W. German libraries is the decisive factor within the scenario outlined by the Science Council. Post-1945 re-con is envisaged as an exchange of data between the various regional cataloguing cooperatives. The VK is intended to play a leading role in this project by acting as an institutional and data storing interface. First, all machine-readable data are to be cumulated in that database; second, the VK pool shall be made available to all regional cataloguing cooperatives; third, data from decentralised sources shall continuously be fed into the VK. Yet with respect to the problems the VK has so far encountered (data delivery from regional sources, output delays, access to VK online), it will take some time until the VK can really play that part.

Via the VK, data from sources other than the regional cooperatives will also become available. Above all, these data would include material from the Deutsche Bibliothek, and they would also include data from foreign sources, notably the Library of Congress and the British Library. I will refer to foreign data for re-con purposes later on.

The post-1945 re-con scenario pays due tribute to the decentralised structure of librarianship in W. Germany. Work will (have to?) be dispersed into possibly all university and state libraries in the country. It will, ideally speaking, be work in two parts: (a) actual conversion, i.e. keyboarding bibliographic data, and (b) adding local data (call number, possibly subject cataloguing data) to data available in machine-readable form, i.e. having been converted already in another library. It will be re-con on a shared basis. Both parts will be of reciprocal importance: at first, emphasis is thought to be on the bibliographic side, feeding titles into the databases. With the databases gradually growing, though, the emphasis will shift towards the adding of local data.

It has been argued that 1945 would be a somewhat awkward and arbitrary deadline. I think it serves symbolic purposes, and having in mind the ultimate aim of re-con activities, 1945 is as awkward as any other deadline, which would exclude bibliographic data of certain material from the library's machine-readable file. More to the point is another critical remark, arguing that the cost and the time schedules of the project were inappropriate at times when books, periodicals, and newspapers were brittling away: given ten years time only to complete the re-con project, all that may remain of the collections were dust and their bibliographic data in machine-readable form, remembrance of things past, as it were.

Nobody can tell whether the Science Council's recommendations will be turned into a "living" project, and even if a project were started, it would be impos-

sible at this moment to predict what portion could be completed within a period of, say, ten years. We do not know to what extent political change will affect library planning, referring both to budgets as well as to the totally changed framework of planning. Nobody has, as yet, assessed the re-con programs within a perspective no longer limited to W. Germany, but also comprising the libraries of E. Germany. And, what is more, nobody has assessed the priorities of library investments in a re-unified Germany: it may well turn out that there are problems more urgent than re-con (library building for instance), consequently and deservedly directing money and staff effort to other fields and postponing re-con activities. Yet the re-con process envisaged by the Science Council would only be delayed; it could not be stopped.

As for post-1945 re-con, the project scheme outlined by the Science Council is about all to be mentioned. There are, however, attempts, plans, and projects on a more limited basis. Smaller libraries, notably special ones or university faculty libraries, have succeeded in converting their titles. A few university libraries, which have only recently changed their conventional cataloguing to EDP, are converting titles acquired the year(s) preceding the change of cataloguing, in order to enhance the new catalogue on microfiche or the OPAC. Other libraries joined a test project run by the Deutsches Bibliotheksinstitut to investigate the feasibility of data exchange with OCLC for re-con purposes; in the mid-eighties, much optimism was spread around this idea (see Beyersdorff), which has apparently lost much of its former cooperative drive and is being pursued in local initiatives (e.g. Heidelberg University Library). Advanced technology is being employed, for instance, in scanning catalogue cards: an experiment was started in Tübingen University Library to scan cards of doctoral dissertations (which are likely to render themselves to scanning since the bibliographic description is standardized to a very high degree).

Local or regional sources of a special kind are intended to be used for re-con: the regional cooperative of Hesse, for instance, turned to computer cataloguing only in 1987. Titles published previously are still being catalogued the conventional way. There is, however, a register, listing the ISBNs for titles published between 1974-1986 held by libraries sharing that cooperative. Bibliographic data matching these ISBNs will soon be joined to that register, using data from the Deutsche Bibliothek first (see Dugall). Later on, data from other W. German cooperatives as well as the Library of Congress and the British Library may also be used.

This attempt at re-con, modest as it may appear, serves for an illustration of several practical problems. The register lists ISBNs plus numbers identifying individual libraries holding these titles; yet the register does not list the call numbers of an individual book. It will be left to the libraries participating in the re-con project to add the call numbers to the bibliographic data, which is an unavoidable effort if the database is intended to serve as an OPAC. Leaving these

technical questions aside and concentrating on more technical matters: to have bibliographic data matching ISBNs fed into the database is easy for German, English speaking, and possibly Dutch, French, or Scandinavian titles. And to have them sorted according to individual libraries is just as easy. Yet how many titles will be left, for which no machine-readable record will be available? And how many titles are being held by libraries in Hesse which have no ISBN at all? What about differences in cataloguing practice: the *Regeln für die alphabetische Katalogisierung* (RAK) are not unambiguous; there are problems concerning multi-volume titles, serials, and microforms, when RAK-catalogued titles from the Deutsche Bibliothek or from one cooperative are going to be merged with RAK-titles from other libraries or cooperatives. It has been impossible, as yet, to assess precisely the editorial effort necessary to mend fundamental differences in cataloguing according to RAK as opposed, for instance, to AACR2 (author, corporate, serial entries). The same applies to authority files and subject cataloguing. Facing these problems, it will be helpful to bear in mind that any re-con effort relying on someone else's data will require a pragmatic attitude (see Mittler). Funds permitting, a start will be made in 1991.

There is, however, a mine of problems surrounding the question of subject cataloguing. Not only in W. Germany, this is likely to cause concern for a number of reasons. The very aim of automated cataloguing and, consequently, of re-con is to provide online public access to the complete library files. OPAC research has pointed out unmistakeably that the majority of OPAC queries is of the "subject oriented" type rather than "known item search". The quality of OPACs, therefore, is to be assessed in terms of the systems' capabilities to handle "subject" searches and to turn vague "books about something" queries into matches relevant to the user's particular interest.

It seems to me that the re-con discussion has so far concentrated on details of descriptive cataloguing. With regard to W. Germany, this is quite understandable. For the tradition of subject cataloguing in this country reveals that with very few recent exceptions every academic library has always regarded subject cataloguing as a matter of its own discretion. In total contrast to the United States, where merely three systems of subject cataloguing have proved feasible for both academic and public libraries for over a century, a sundry variety of subject cataloguing approaches prevails in W. Germany. For reasons not to be investigated here librarians in (W.) Germany have until recently felt unable to comply with standardized systems of subject cataloguing. In the United States all three systems (*Dewey Decimal Classification, Library of Congress Classification, Library of Congress Subject Headings*) have not only been accepted in days of conventional cataloguing; they are being converted, as it were, to suit the requirements of the OPAC age. Besides, ideas of shared subject cataloguing have been quite unpopular in W. Germany.

As for the exceptions in W. Germany, the Bavarian cooperative has accepted the new system of verbal indexing as the basis of shared subject cataloguing for its libraries. The North Rhine-Westphalian cooperative is likely to follow soon. Test runs are being made in other cooperatives as well. This new system, based on the *Regeln für den Schlagwortkatalog* (RSWK) and the thesaurus of standardized subject headings, *Schlagwort-Normdatei* (SND), was introduced in the mid-eighties and endorsed by the Deutsche Bibliothek in 1986, which has been engaged in building up the SND and has been providing *SND*-indexing in the Deutsche Bibliographie since 1986. This was the first time that the W. German national bibliography offered subject cataloguing data shareable by other academic or public libraries in the country.

About 20 university or state libraries are or will be doing subject cataloguing on the basis of *RSWK* and *SND*. The other 50 may or may not change their subject cataloguing, possibly continuing their variety of verbal, classified or mixed forms of subject cataloguing. Cooperatives other than the Bavarian have found it impossible to introduce shared subject cataloguing.

What happens if subject headings or notations pertaining to classifications are coming into the library files in the course of re-con activities? May these data come in at all? The Science Council has explicitly recommended to make use of data from foreign sources precisely because of their "valuable" subject cataloguing. On the other hand, this has provoked critical comment in W. Germany, pointing out subject cataloguing would be a scattered affair if data from the Library of Congress, the British Library or the Bibliothèque Nationale were integrated into the files of W. German libraries. As an alternative, it was argued to have re-con subject cataloguing on a selective basis: libraries involved in the *Sondersammelgebietsplan* (Special Collection Programm) of the DFG should provide the subject cataloguing of those disciplines into the VK as the national re-con file (see Wiegand). Yet literature of those special collections has always been indexed or classified in libraries according to the principles and traditions of the library in question. What may, at first sight, appear a sound solution turns out to be a mere continuation of the multiple approach to subject cataloguing in W. German libraries.

I cannot see any danger in accepting foreign subject cataloguing data. Some special libraries, notably medical ones, have for a long time accepted the *Medical Subject Headings* by the U.S. National Library of Medicine. I cannot see any possibility to raise funds for a project likely to be called "post-1945 subject re-con" on the basis of *RSWK* and *SND* (or, indeed, any other basis), let alone for anything like "pre-1945". There will certainly not be any money to produce concordances of subject heading lists from various countries, either. If that is out of the question, we should accept what is within reach. We expect users of academic libraries to be able to read literature in foreign languages (in most cases, "foreign" would mean English). They may as reasonably be expected, then, to search lite-

rature by using subject headings in foreign languages. Yet this, I am afraid, is too fundamental a question to be answered simply by recommending a "pragmatic" attitude in re-con.

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Catalogue Conversion in Switzerland

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At the LIBER annual meeting of 1986 in Heidelberg, I had the pleasure to report on the early phases of our library's conversion project. In the first part of this paper, I would like to bring this report up to date and give you an outlook on our future prospects. Beyond this strictly local subject, I shall give you a more general sketch of conversion policies and conversion politics in Switzerland. I will close with a few remarks on problems of national planning for conversion and on the use of exterior data-resources.

Our actual project extends to our library's so called 'New Catalogue', covering publications dating from 1940 or later. As the name implies, another catalogue containing all older titles had already been closed in 1940 and is left in place for the moment. Funds for this project were granted as part of the automation project, because the authorities, especially some professors in our cantonal parliament, could be persuaded that having to consult three catalogues in parallel was an unacceptable inconvenience for patrons of the library.

After considerable hesitation about the most effective method to convert approximately 360,000 titles, we decided to do the work in-house and without the aid of external resources.

By late 1985, after several tests with disastrous results, we finally succeeded to fix working rules and an organisation for the task, that proved efficient and are still in effect: a group of 11 half-time employees, mainly students, work under supervision of two experienced cataloguers. The data are taken from photocopies of the catalogue cards and are keyed directly into our online cataloguing system. We try to preserve as much of the bibliographic information on the cards as possible, but limit added entries in comparison to current cataloguing. All cards are examined by the professionals, who take care of the most difficult cases. Productivity was first stabilized at 8 titles per hour; when we found that we had a certain financial leeway, we raised quality standards to improve access to series, which reduced production to 7 records per hour. The project has now been proceeding at this pace for more than four years; we have reached the letter T in our alphabet and will complete conversion in 1991.

On the whole, we are very satisfied with the progress we have made; we also think that the quality of the results is quite acceptable, although it is clearly below the level of our current cataloguing.

This is mainly due to the fact that we apply ISBD more strictly and completely today, than our colleagues in the 1940s did with the Prussian Instructions.

The use of machine-readable data would certainly have improved the quality of bibliographic descriptions; it would not have spared us strict controls and editing to maintain compatibility of headings between current cataloguing and converted material, a problem I shall return to later. It would not have spared us our most bitter sacrifice either, the loss of non-convertible subject-headings.

I still think, that our decision to do the conversion in-house and without recourse to exterior databases was justified, but we do realize that the situation could be very different with an older and less homogeneous catalogue.

The completion of our first project in 1991 will certainly be an event to celebrate. Hopefully, it will not be the end of conversion in Basel. After all, we and our patrons will still have to live with two catalogues, even in the main library. Besides, there are some three dozen departments and institutes, whose libraries we want to integrate in our online-catalogue. Professors there usually don't ask whether conversion of their 5000 to 30000 titles is possible; they just want to know, whether it will take one or rather two months.

So we are even now in the process of establishing the priorities for further projects, trying to weigh varying and often conflicting criteria. One obvious measure for the importance of material is its current use; under this aspect, the recent acquisitions of the department libraries and our own holdings from the early twentieth century would probably take precedence. On the other hand, the library owes its national and international reputation just as much to its collection of early printed books, especially from the 16th century, when the Basel printing trade flourished. While there may not be hundreds of scholars interested in our early editions of Erasmus, it would still be nice if these were accessible in a dial-in OPAC. The same holds true for various special collections, e. g. those of the Botanical Society, a private library of Russian theology and philosophy or series of largely unknown pamphlets on 19th century social and economic history.

Even conversion of less important titles can be highly desirable to simplify the structure of the entire catalogue system. In our library e.g., many important titles after 1940 appear only in a card catalogue of doctoral theses and Habilitationsschriften; these have not been converted, quite logically, because they were never included in the main catalogue. But will there be any patron (or librarian) left in ten years who remembers that fact? In this sense, any limited conversion project that leads to the elimination of a complete card file is highly worthwhile.

Priorities may further be influenced by external circumstances. When libraries are moved to new buildings, merged with others or reclassified, conversion into machine-readable form may significantly simplify the necessary changes to the catalogue. In this context, it may be noted that funds for conversion are often easier to obtain, if the proposal can be 'packaged' with a multimillion construction project.

While we cannot hope to obtain a comprehensive mandate to convert all of the remaining catalogues at any cost whatever, we do hope to persuade our au-

thorities that conversion is an on-going concern, and should be pursued to make access to the university's stores of information ever easier and more comprehensive.

However impressive we find our own arguments, we do hope they will be supplemented by a more forceful one: a strong commitment of the federal government to subsidize conversion. In Switzerland, universities are primarily financed by the cantons, but subsidized by the confederation. These subsidies are much higher for long term investment (buildings, machinery and the like) than for current expenditures like salaries etc. Libraries have tried for nearly ten years now to convince federal authorities, that catalogue conversion should be regarded as an investment and supported accordingly, so far they have had little success.

In recent months however, there is evidence for a certain softening of the federal position; some important officials now tend to regard cataloguing generally and conversion in particular as indeed a long-term contribution to the cultural heritage and seem inclined to advocate a substantial raise in federal subsidies. Now under review is a proposal by the Conference of University Libraries, that the conversion of any catalogue record into machine-readable form should be supported by a contribution of 80% of average cost; this being estimated at SFr. 12.- per title. If such a proposal were accepted, it would hopefully provide a strong impulse to conversion efforts in Swiss libraries. So far, too few of them have tackled large scale projects. The Library of the University of Lausanne is the only one with a commitment to converting its complete card catalogue. It has completed a large part of the task with its own forces; for the remainder it has a contract with the first Swiss company that offers cataloguing and conversion services on a private basis.

In all other universities except Basel, conversion has been limited to partial projects in smaller libraries. The Conference of University Libraries estimates the number of titles to be converted in the country's research libraries at 7.5 million; it has not attempted to estimate the number of unique titles. This leads us to the question of national coordination and cooperation in this field. Quite understandably, observers outside the libraries, including the federal authorities, insist that no title should be converted twice in different libraries. While this claim seems perfectly reasonable, it is very difficult to follow. To avoid any duplication of work would be easy if we had a shared database for all libraries. Unfortunately, we are far from such a state of cooperation. There are two cataloguing databases being used by more than one major library: one for all the universities in the French-speaking part of Switzerland, one for Basel and Berne. The federal polytechnic universities also have a common library network, which is however largely dominated by one single library. Several other academic libraries are building their own databases on local systems, while a decision on the automation of the National Library's bibliographic services is still pending. To make sure

that a particular title does not already exist in machine-readable form, at least three or four different databases under different systems would have to be accessed, in my opinion a totally unrealistic proposition.

Several models for cooperative conversion have been outlined, but none of them discussed in depth. One proposal was, first to convert the conventional union catalogue, maintained since 1928 by the National Library, and make these records available to all libraries. Another tempting idea is to distribute conversion among libraries according to criteria like periods of publication, language or subject areas. While I would agree that such models of distributed conversion should be studied in detail for the publications of earlier centuries, I feel that conversion of recent holdings in academic and research libraries is too urgent a task to wait for the outcome of prolonged studies and negotiations.

There should also be no illusions about the labour-saving effects of organized cooperation: planning, organising and coordinating a joint conversion project will use up a lot of the time and energy saved on the conversion of doubles.

I still find it difficult to imagine a staggered project, where you convert first all titles in your library's allotted special field, then search and use records converted by partners and finally convert everything that's left after the first two phases.

The Conference of University Libraries seems to share some of these misgivings; it proposes not to make federal subsidies conditional on strict avoidance of redundancy, but only on general accessibility and free availability of all converted records for other libraries, preferably within the framework of one of the existing networks.

Why, you may ask, should cooperation between Swiss libraries in this context be so important, when most of the records in question are probably available on one of the world's large bibliographic databases, like OCLC, UTLAS, RLIN, BLAISE or VK?

The question is of course being raised, and I would even say, that most participants in the discussion regard extensive use of foreign databases as an indispensable tool for conversion.

While I share this view to some extent, I would still like to point out, that Anglo-American experiences with the use of external data do not apply unconditionally to continental Europe. The issue at stake is of course the compatibility of existing local catalogue data and data from multiple external sources and problems are due to the differences between national cataloguing rules.

These problems may be particularly irritating in Switzerland. Our country is multilingual, it is also small and its publishing industry is of comparatively minor importance. Any Swiss research library of some importance has a large majority of books and serials from foreign publishers and they are be predominantly from one country and in one language. Our own national bibliographic agency will never answer more than a small part of our needs for bibliographic records, - even if it did offer machine-readable records, which it still does'nt. Neither will

Swiss libraries ever attain 80 or 90 percent hit-rates on any single foreign database; they would have to use two or more different sources; one or more of them probably outside the scope of AACR2 and the Library of Congress name authorities.

It depends on the standards of homogeneity that are applied, whether one regards this as a serious problem.

Most librarians would probably agree, that different interpretations of ISBD or even non-ISBD bibliographic descriptions can very well coexist in one catalogue.

Variations of headings are obviously less acceptable. Most of our traditional card catalogues aimed not only at providing catalographic functions, permitting a user to locate a known item in the library. They also fulfilled, to some extent, bibliographic functions, grouping under uniform headings all works by one author and all editions of one work. This requires unavoidably a certain standard of authority control. If a computerized catalogue, established according to Swiss cataloguing rules, were to be fed with data from, say, OCLC, OPALE and VK without any manual control, this would certainly be the end of its bibliographic functions. I know that American and British libraries have faced the same problems and have at least partially solved them through authority control programs. I am not familiar enough with these to judge whether they could also be of use to German or French libraries and whether they could work on large existing databases.

Giving up bibliographic catalogues must not necessarily be regarded as disastrous. It is often claimed, that more powerful retrieval software will solve most of the problems posed by heterogeneous data. Although I sometimes get the impression, that some of these claims are based on poor understanding of the utility of uniform headings in an online-environment, it is certainly necessary to reevaluate this utility. For many libraries, depending on the needs of their users, depending also on the nature of their holdings, limiting the catalogue to its strictly catalographic functions can be perfectly acceptable. Although I am an advocate of bibliographic functions, even I suspect that they were never used by more than a minority of patrons and are certainly less important than having a comprehensive online-catalogue. Personally, I see a very strong argument for using imported data, even without strong authority-control, in the fact, that they may provide greatly enhanced subject-access, especially if exploited by ever more intelligent search software.

While these questions may seem somewhat academic, I think they have very practical implications. In many continental libraries, original cataloguing with strict authority control still occupies a significant proportion of staff time and is one of the most expensive activities. Much of this work will simply be wasted, if, at some point in the future, the catalogue will be flooded with a few hundred thousand unedited records, imported from different databases.

If a library's management plans conversion on a large scale, it may have to opt for minimizing costs by making maximum use of available data from different sources without manual intervention. If this necessity is foreseeable, it seems logical to abandon all efforts to maintain authority control in current cataloguing. If, on the other hand, uniform headings are to be maintained, use of imported data is of course still to be considered, especially if the existing catalogues are heterogeneous in themselves and not up to modern standards. But expectations of doing conversion cheaply and quickly this way should not be too optimistic.

For these and many other reasons I think that retrospective conversion is a subject that should concern every librarian. Even if there is no immediate wish or possibility to begin a project, the long-term necessity of integrating all or parts of the older holdings in the computerized catalogue should be kept in mind in the regulation of current practices.

Library Networks in Belgium

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Although Belgium is a small country, there is not one national library network. At Present, there are two well known library network systems in use: DOBIS/LIBIS and VUBIS.

1. DOBIS/LIBIS

1.1 Historical background

After some reorganizations during the 70's the Catholic University of Leuven (K.U.Leuven) in Belgium worked out a complete automation plan for its libraries. This plan aimed at a complete solution for all departments. According to a market study commissioned in 1974, no system then existing satisfied all the university's requirements. The PICA system was under consideration for a time, but the evolution of this Dutch system did not then appear very promising. Another project, started at the beginning of 1975 at the University of Dortmund, met most of the objectives of the feasibility study. In 1975 a cooperation contract was concluded between both universities. The K.U. Leuven signed an additional contract with IBM in 1976. These agreements would lead to the development of the DOBIS/LIBIS system.

1.2 Automation with DOBIS/LIBIS

DOBIS/LIBIS is the IBM integrated, online management system, making it possible for libraries to build up a common database in a network structure. It can also be used as as standalone system. DOBIS/LIBIS has been developed for all types of libraries (national, academic, public and special libraries). Today, almost 170 installations are orperational wordlwide on behalf of hundreds of libraries in 30 different countries.

1.2.1 Bibliographic searching

1.2.1.1 Access

Descriptions of documents, also non-book materials, can be searched through several access-points:

- names (all elements of an name)
- titles (all title words)
- subject headings (+ subheadings)
- Publishers
- subject classification numbers
- ISBN/ISSN
- national bibliography numbers
- other entries (e.g. administrative nrs, report nrs a.o.)
- abstracts (all words of an abstract)

1.2.1.2 Local files

A set of local files with access-points is at the disposal of the member libraries; they are not accessible for other members. This architecture enables each library to store its own specific information in isolated files, in order to avoid pollution of the central files.

1.2.1.3 Boolean search

All results can be combined (operators: and, or, but not and then limited more specifically by date, type of document and availability).

1.2.2 Library management

All library functions, subject to automation, have been integrated in DOBIS/LIBIS:

- bibliographic search (libraries)
- OPAC (public access)
- acquisition
- cataloguing
- circulation
- periodicals control
- electronic mail

- abstracts

Each of these functions contains a comprehensive set of integrated subfunctions.

1.2.3 Products

A large package of batch-products (catalogue cards, different catalogues on paper or listings, COM) is available, as well as the necessary administrative output (overdue claims, order letters, labels). Catalogue output is in accordance with ISBD standards. DOBIS/LIBIS produces statistics and management information online or in batch.

1.2.4 Other highlights

DOBIS/LIBIS

- is conform to MARC or MAB1
- is multilingual
- is interactive and user friendly
- provides conversion facilities via the DMARC-in/out exchange format)
- allows creation of authority files
- can be tailored to specific needs (source code delivered)
- accepts an online transfer of records from external sources

1.3 The LIBIS-Network

LIBIS-Net, The DOBIS/LIBIS system installed by the University of Leuven, quickly attracted the attention of other institutions which affiliated themselves with it.

1.3.1 Network participants

Today, the network participants are:

Universities

. K.U.Leuven (= Catholic University of Leuven)
. UFSAL (= University Faculties of St. Aloysius - Brussels)
. R.U. Gent (= State University of Gent)
. FNDP (= Faculties of Notre Dame de la Paix - Namur)

. UCL (= Université Catholique de Louvain)

Special libraries

. BB - ABB (= Belgian Farmers Union & Insurance Co - Leuven)
. IBM : IEC and EHQ (= IBM - International Education Center - La Hulpe and European Headquarters - Paris)
. IHE (= Institute of Hygiene and Epidemiology - Brussels)
. Belgian Parliament

Documentation center

. KADOC (Catholic Documentation & Research Center - Leuven)

Thanks to the particular technical architecture of the DOBIS/LIBIS network structure, each of these libraries could maintain distinct and independent local files within one large central system.

We might also add that each of these institutions has very different objectives: the Network includes, indeed, five university libraries, one documentation center and four special libraries. The institutions maintain their total independance for all library functions, but at the same time profit fully from the common cataloguing effort.

1.3.2 Hardware

Currently 240 designated terminals and printers - that is, serving only library activities - are connected to this installation by means of about 35 leased telephone lines. LIBIS-net may also be consulted via the dial-up telephone network.

Let us also add hundreds of non-designated terminals used by the university for other applications, which can carry out search functions within DOBIS/LIBIS. Searching the library catalogue does not necessitate moving from library to library, but can be conducted from anyone's place of work.

Configuration summary:

IBM 4381 - R92E / 32 MB
IBM 3380 disks
IBM 3820 laser printer
35 leased lines
240 terminals / local printers

1.3.3 Software

The LIBIS-Net system runs under OS/MVS and the CICS release 1.7 telecommunication monitor. The full DOBIS/LIBIS package realease 1.4 is in production. At the moment, the new DOBIS/LIBIS version 2.0 is in installation phase.

1.3.4 Three Databases

Figures (Dec. '89)

(a) Catalogue of network participants

. descriptions	1.286.000		
. copies	1.590.000		
. names	697.000	(+ permutations	1.029.000)
. titles	1.180.000	(+ permutations	5.445.000)
. subject headings	18.000	(+ permutations	51.000)
. classification nrs	82.000		
. publishers	106.000		
. ISBN-ISSN	341.000		
(stopwords	7.300	for 10 languages)	

(b) CCB

A subset of the CCB, the Belgian union catalogue for monographs, containing about 1.250.000 shortened records from non LIBIS-Net libraries, has been installed online.

(c) Antilope

The periodicals union-catalogue, Antilope, is also accessible via all titlewords. This database contains 35.500 current periodical titles with the 77.000 related holdings in Belgian scientific and special libraries.

1.3.5 The nucleus : the online catalog

1.3.5.1 Some production figures

Every day between 800 and 1000 new descriptions are added to the database and about 80 OPAC terminals search the catalogue daily. Individual users have

24-hour access to the LIBIS-net via dial-up. Public access and circulation control necessitates optimum system avialability, which is today over 99 % during working hours.

1.3.5.2 Central catalogue maintenance and quality control

The obligation to verify all the indexes used as authority files during the cataloguing process improves the quality of the oneline database.

Although many network-libraries use local files for additional, non-standard information, central quality control and catalogue maintenance remains necessary.

Therefore, all network participants contribute to the personnel cost of a small group of specialized cataloguers for this purpose.

1.3.5.3 Batch catalogues only on demand

Batch catalogues can be ordered on different levels (complete network library, faculty or branch library) and on different media (card, listing, paper, COM ...).

A user may order online the sorting and print-out of his serach results in a lay-out of his choice (author, title, subject, shelf-list or periodical catalogue).

1.3.6 Organization of LIBIS-Net

Databases of catalogues that are built up in a decentralized way obviously need a special organizational approach and coordination, otherwise the common part would very soon be polluted. Over the years, there has been a gradual improvement in the affiliated institution's participation in the decision making process. The actual structure seems to satisfy the participants and to allow efficient working.

Working groups have been set up for the different departments such as cataloguing, acquisitions, OPAC etc. They are responsible for the draft of standard rules, handbooks, working plans, the definition of solutions for common problems and such. These working groups submit their proposals to a technical commission.

The technical commission must protect the integrated character of the total system and eliminate certain contradictions that can arise from the different working groups. In an integrated system the danger is indeed not imaginary that specialists within a certain area not at all in sight of common interest and the influence of their proposals for other sectors.

The technical commission reports to an advisory body which at last presents the proposals to the Direction Committee. The different network libraries are represented in all these organs.

1.3.7 Future: new functions and techniques

1.3.7.1 New functions : the bibliographic pool

This year a large bibliographic pool will be installed. An important selection (probably 2.000.000) of LC-MARC records will be available online for acquisitions, cataloguing and conversion services. The user will have the possibility to select records from the pool database, display and edit the record and transfer it online into the LIBIS catalogue.

1.3.7.2 The micro-evolution : PC techniques and CD/ROM

Instead of standard terminals, PC's with back-up facilities are installed for circulation control. New functions for decentralized printing of administrative products and library access control are under development or are ready for implementation.

The libraries of the LIBIS/Net contribute with one CD/ROM disk to the CCB (Collective Catalogue Belgium). A new version with an upgraded record format is being studied.

1.3.7.3 The macro-evolution: content extension and interconnection of systems

The LIBIS-Net catalogue is limited today to monographs, periodical descriptions and some AV-material.

Technically the system is now ready to be extended with separate documentary bibliographic databases of periodical articles outside to the DOBIS/LIBIS network catalogue. The (financial) possibility of adapting existing sources is under evaluation at the moment.

Since 1988 the LIBIS-Net has been linked to other networks in Belgium. Terminals connected to a public library and a school library-network, both based on DOBIS/LIBIS, may also search the LIBIS-Net catalogue of the universities and special libraries. The Université Libre des Bruxelles recently installed DOBIS/LIBIS. This interconnection will be operational soon.

Today, the possibilities of 'supernetworking' with other systems abroad are being examined.

1.4 DOBIS/LIBIS worldwide

1.4.1 170 installations for hundreds of libraries

Besides the LIBIS-Net, the scientific library network that developed around the Leuven system, there are 5 other DOBIS/LIBIS installations in Belgium. The COI (Centrum voor Overheidsinformatica in Haasrode) runs the previously mentioned public library shared catalogue and the HIK (Hoger Instituut der Kempen in Geel) is setting up the school library network.

On a world schale we find DOBIS/LIBIS on all continents: more than 170 installations in 30 different countries. Among these we find library networks with dozens of institutions and libraries in more than a hundred locations. DOBIS/LIBIS has been translated in almost all western languages, but also in Arabic, Chinese and Japanese...

1.4.2 International DOBIS/LIBIS Users Group (DLUG)

The users have set up an international users group. The permanent secretariate of this group is located in Leuven. It takes care of the publishing of a bilingual newsletter and organizes a yearly international meeting. Futhermore, it acts as global information centre for DOBIS/LIBIS.

The goals of the DLUG are:

- to set up a permanent link between users in order to improve cooperation and communication
- to maintain a maximum compatibility between the systems and to coordinate activities (development, enhancements...)
- to exchange programs and adaptations developed locally
- to transfer data and exchange databases
- to activitate studies (software, hardware, library organization)
- to disseminate information via its permanent secretariate, newsletter and meetings
- to act as a clearinghouse for publications about the system (articles, education material, manuals, audiovisuals etc.)

1.4.3 National users groups and local support centers

In order to facilitate frequent contact between users and to guarantee the spread of information, national user groups were formed in most countries.

Many local support centres take care of training and provide help for installation.

1.4.4 Technical maintenance

IBM is the owner of the DOBIS/LIBIS software and worldwide technical maintenance is done by the IBM DOBIS/LIBIS Centre in Dublin (Ireland). It incorporated numerous user demands, which resulted in a number of new releases made available over the years. In addition, a group of experts of the International DOBIS/LIBIS Users Group act as a permanent commission and advisory body for development.

2. VUBIS

2.1 Characteristics

VUBIS is composed from VUB (Vrije Universiteit Brussel - Free University Brussels) and IS (Interactive Systems), a software firm located in Brussels, which, from 1975 until 1983, was involved in the development of the system (VUBIS I).

In 1983, and this time without the co-operation of IS, the VUB began to work with the Technische Universiteit Eindhoven (TUE) on the development of VUBIS II, an online system in which the various modules are joined together in an integrated manner and in which all additions and alternations are processed in real time. The principal modules are: catalogue maintenance, OPAC, lending administration, periodical mangement and acquisition management.

An important characteristic of VUBIS is its user friendliness which finds expression, among other ways, in the public catalogue; a very simple keyboard, dialogue interface in Dutch, French and English, menu driven searches, a well organized screen layout, rapid response interval.

2.2 Technical data

VUBIS uses MUMPS (Massachusettes General Hospital Utility Multi-Programming System), developed in 1967, as its programming language and operating system. In the USA, MUMPS is, beside FORTRAN, COBOL, and PL1, on of the four ANSI-standard programming languages. MUMPS can be used as an independent operating system or can operate under the tree most widely spread operating systems, namely, DOS, UNIX and VMS (VAX computers).

MUMPS versions are avialable for practically every type of hardware, from mainframe to micro-computers.

2.3 Price

The price of VUBIS is tailored to the library. Decisive here is the number of users who must be able to work with the system simultaneously. Catalogue maintenance and the public catalogue together make up 50% of the total cost, the lending administration and acquisition system each 20%, periodical management 10%.

2.4 Distribution

VUBIS is currently being used in fifty-six institutions in Holland and Belgium, among which are both public and scientific libraries and documentation centers. The largest installation to date is that of the public library network in the (Dutch) Province of Zeeland (35 local libraries, 150 terminals, 3 million loans per year).

The most recent development in Belgium is the co-operation of the Intercommunal Center for Information (CEVI), Gent, with VUBIS, so that it will be recommended that all public libraries in the provinces of Oost- and West-Vlaanderen (East and West Flanders) be automated using VUBIS.

The University of Antwerp has developed a library network using VUBIS in which the Antwerp City Library and the Limburg University center participate.

2.5 The Antwerp VUBIS Network

2.5.1 The affiliated partners

Before discussing the structure and working of the VUBIS network, I will briefly introduce the affiliated partners: the libraries of the University of Antwerp (UA), the Antwerp City Library (ACL) and the library of the Limburg University Center (LUC).

2.5.1.1 University of Antwerp

The University of Antwerp is composed of 3 university institutions: the Rijksuniversitair Centrum Antwerpen (RUCA; Antwerp State University Center), the Universitaire Faculteiten Sint-Ignatius Antwerpen (UFSIA; University Faculties St. Ignatius Antwerp) and the Universitaire Instelling Antwerpen (UIA; Antwerp University Institution).

The non-denominational UIA was established in 1971 to complement the undergraduate programmes offered since 1965 at the RUCA (a state university) and the UFSIA (a Catholic university) with the intention of making a complete university program available in Antwerp.

The University of Antwerp numbers some 7,600 students using 3 independent libraries spread geographically over the city. These libraries contain 1 million books, 10,650 current periodicals and administer a common budget of 2,6 million pounds.

2.5.1.2 Antwerp City Library (ACL)

The Antwerp City Library was founded in 1505. The oldest core collection goes back to 1481.

At present the collection consists of 750.000 volumes and subscribes to 2.400 current periodicals. It is a library with emphasis on the literature and history collections.

2.5.1.3 Limburg University Center (LUC)

The LUC, established in May 1971, offers undergraduate level cources in the following disciplines: mathematics, computer sciences, physics, chemistry, biology, dentistry and medicine. Together with the Economische Hogeschool (commercial sciences/commercial engineering), the LUC numbers 2.136 students.

2.5.2 Structure of the network

2.5.2.1 Historical overview

When the UIA was established, the central library began immediately in 1972 with the production of a machine readable catalogue in microfiche form. The UFISA library - which was encumbered with its old collection registered in a traditional card catalogue - followed the UIA in July 1977.

These microfiches did indeed allow the catalogue to be available in a decentralized way, but it was not kept up to date. It was an offline procedure resulting in a time interval between the input of data and production of microfiches. In order to remain as current as possible, cumulative fiches were made regularly, but this resulted in a serious cost increase.

At the end of 1982, the idea began to grow within the University of Antwerp that it must be possible to offer the user a better product which, after investment, would not weigh heavier on the yearly operating budget than the amount spent

until then on the microfiche catalogue. From that moment the RUCA also wanted to participate in the discussions.

With VUBIS we believe we have finally achieved this objective. In July 1986 the contract was concluded, after a comparison was made with, among others, DOBIS/LIBIS and Geac.

Early in 1988 the Antwerp City Library joined the network and in November 1988, the Limburg University Center followed also. All these partners are now united in an online integrated network within which all the above mentioned library modules will be automated but not for each institution.

A handy and already operative sybsystem of the network is electronic mail allowing the 5 partners to communicate online and send one another interlibrary loan requests.

2.5.2.2 Hardware

- *Centralized*

The UIA uses 4 DEC minicomputers of the type PDP 11/73, interconnected via Ethernet. The internal memory of each PDP is 4 MB. Total disk capacity of the 4 PDPs is 2,500 MB. Each PDP is supplied with 24 asynchronic communication lines providing a total of 96 ports.

- *Decentralized*

The 5 institutions together have 140 links with the central computer. The links are divided as follows: RUCA 30, ACL 16, UFSIA 48, UIA 40, LUC 6.

At present the institutions would like to increase the number of terminals.

2.5.2.3 Telecommunication

Until May 1988, the network was characterized by point-to point links: each terminal was permanently linked with one port to one of the central computers, even when it was not active.

In May 1988, a Motorola IXP (Intelligent X.25 processor)-660 was installed. This permitted a larger number of connecting points to be included in the network than there were ports to the central computer (principle of ports contention). Thus, a total of 140 terminals 'hunt' 96 ports. This port contention will only be able to be fully evaluated when all the terminals are in use at the same time, which will be the case only after all the library modules have been automated.

This IXP allows: the whole network to be run from the level of each affiliated terminal; the catalogue to be opened to other networks on the university campus; and the forging of links with external database.

2.5.3 Support

In addition to the competence of the TUE and the VUB, the UA also has recourse for the support of the network to a computer scientist and an industrial engineer.

In December 1987, a meeting was held to establish a VUBIS users group with the intention collectively to maintain, develop and propagate VUBIS.

2.5.4 Consistency

2.5.4.1 Catalographic annotations

The central database contains at present 520,000 titles.The Antwerp VUBIS network can be described as a cooperative cataloguing system which doubtless contributes to a consistency in cataloguing and to the transparency of the catalogue. Before a book title is entered, the cataloguer looks whether or not this title is already present. If not, then a new bibliographical description is made. If so, then he only has to add the reference to his own library. Title descriptions already present are thus respected. Variant interpretations are passed on online in an unused field, the AA (analytic annotation) field.

Consistency in this cooperative cataloguing system is not threatened by the formal title description, but is much more difficult to maintain subject retrieval. Consistency in this area means that each partner assigns the same UDC number and the same key words to the same book. We try to achieve this, of course, by using common rules for assigning UDC numbers, categories, and key words, but also via a common 'UDC handbook' for the indexer. Here is accurately mentioned for ever UDC number what it includes and what not. For the subject retrieval, too, the rule is maintained that the earlier attributed elements are respected. Suggestions for correction are also placed in the AA field.

2.5.4.2 Work groups

With a view to a thorough consitency, meetings are regulary held by:

- the work group of chief cataloguers, which discusses the common problems of formal accessibility.
- the indexer's work group, which treats accessibility with regard to subject retrieval.
- an Accompanying Commission, meeting quaterly and composed of the directors of the affiliated libraries and a representative of the computer centres of the various participating universities, serves as an organ for determining policy.

3. Integrating DOBIS/LIBIS AND VUBIS

It is obvious that the question arises of the coupling of these two networks located scarcely 50 km from one another.

At present, Leuven and Antwerp can consult each other's catalogues, but a genuine coupling has not as yet been achieved. Within the Belgian University Conference of Chief Librarians the desire has been expressed to reach this coupling via OSI, but no further action has as yet been taken.

Perhaps there is now less need of it since a Central Catalogue has appeared on CD-ROM of books present in the main scientific libraries of Belgium, a total of 2.7 million titles including the collections of both the DOBIS/LIBIS and VUBIS libraries.

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Implications of Expanding and Improving Bibliographic Access through Library Automation

Trends as noted from an Open Session at the LIBER Annual Meeting, 1990 at Edinburgh, and from replies to a questionnaire, presented and commented by the LLA

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Section 1 : Expanding bibliographic databases

1.1 *Should a bibliographic database of a local university network or of a wider network be expanded to as many as possible libraries of any type, or are there limits?*

At first an all-inclusive bibliographic database seems to be ideal. In practice, however, it has its limitations, not only technical ones, but functional as well. A bibliographic database, normally, is not of a general nature, but is for defined purposes.

One main purpose is for the control of both local and interlibrary loans. The database functions as a union catalogue for the area (campus, region, country) served and should be as complete as possible, provided the titles included are available for loan according to a common set of rules. If there are technical or financial limitations priorities will have to be set.

For example, members may try to collect special or unique material to achieve as wide a coverage as possible for satisfying loan requests; on the other hand, the policy can be to multiply the locations of some heavily-used material in order to spread and balance demand.

Another main purpose is to serve the needs of shared cataloguing. In this case consistency of data quality is required and, accordingly, participation will be limited to those libraries which are able to adhere to the agreed standards of the network. Moreover, a certain degree of overlap of titles among the participants is desirable so that there is a balance of benefit between new input of records and their re-use. It is arguably better for libraries of the same type to work together as they will find it easier to agree priorities and adopt each other's data.

In any case, upper limits of a technical nature have to be faced. For example: size of database and network, CPU-capacity, response time, cost of data transmission, organizational limits (such as responsibility, funding, charging), and limits set by the ratio of cost and benefit, though those limits, in part, can vary with one's situation or the state of technical development.

1.2 *In order to adopt external bibliographic data from outside a database, is there an economic ratio to procure them in advance or on demand?*

In general, one would prefer to obtain records on demand; however, in the end it depends on various factors, such as the library's situation or purpose, which method will be chosen. Technical factors are database capacity, telecommunications costs versus storage costs, software available for online-conversion. Material factors are coverage, quality, format and coding rules of the external bibliographic records in question. Such factors as the local and particular situation and purpose of the library; the size of the network and proportion of re-usable records; special needs and the scale of retroconversion activities must also be considered.

Where large networks exist with a mixture of library types (university, research and public), the acquisition of the current machine-readable data of the more important national bibliographies as 'potential requirements files' has proved to be very useful. Similarly, when beginning automation or retroconversion it can be helpful to have an existing pool of machine-readable records, covering one's own subject area(s).

In the end economics will determine the answer to the problems, viz. costs and benefits.

1.3 *Open networking and powerful workstations allow the cataloguer, technically, to switch over from one database to another. How will this influence the practice of cataloguing in a shared database?*

Most librarians consider it a very important and positive development to have the ability to choose the database which has the highest hit-rate, the best quality and the lowest cost. However, the choice should be a more general one: using

quality, coverage, availability and cost as the basis of comparison, only one or two databases can be chosen for use, and this choice will generally have to be made by managers rather than by cataloguers.

Switching casually from database to database would lead to 'hunting' for appropriate records and to overlooking differences in quality and applicability, or to overlooking the fact that such switching and the editing of required records may take more time than using a single database, or creating the records in-house.

A concern of managers of the main bibliographic agencies and networks would be: if libraries wish to search various and even each other's databases directly, where will the central databases obtain their records and how will they grow? Indeed, this is a concern of libraries as well, because, in general, large central databases are unsurpassed with respect to timeliness and effectiveness; however, both libraries and suppliers will be looking closely at cost / benefits and pricing.

1.4 *Problems of keeping data secure in functionally integrated local library systems in an open networking environment?*

Data security and privacy do not yet seem to arouse the concern they should. Often more is spoken of the technical possibilities of universal networking and integrated systems than of the consequences for organization and management.

Special care must be taken

- of the records in shared cataloguing databases, because these records are of high value and their loss or damage affects a multitude of participating libraries;
- of personal and loan data in circulation systems because of privacy;
- of ordering and accounting data in acquisition systems because of contractual and financial consequences.

The existing means of protecting records are: control of admittance to the database by passwords; assignment of authority for reading or writing in the database; and physical separation of the cataloguing database from the public access database. Physical separation will be best for protecting acquisition data, and titles on order, or in process, should be duplicated for public access. Privacy of personal data in an open circulation system or circulation / OPAC-system can be controlled only by passwords.

Loss or damage of data caused by misuse or ignorance will normally be remedied by recreating the data, rather than by using a complete back-up system which is very expensive. Integrated systems using LANs and WANs undoubtedly increase risks. A general principle for hardware and software security management should be to distinguish between integration of functions and integration of

data and as far as possible to keep the original data physically separate from the data processing.

1.5 *Conflicting aims of retrospective cataloguing, retrospective catalogue conversion and re-cataloguing?*

The different processes mentioned have different aims. Retroconversion is the conversion of existing manually produced records into machine-readable form and has as its main goal the easy and rapid location of the items in question. It is considered the quickest way of producing the machine-readable records. The quality of retroconverted records depends on the quality of catalogue converted. If the quality is low, one has to face consistency problems which especially affect the re-use of the data. If the catalogue is of a higher quality, the difference between retroconverted, retrocatalogued, or re-catalogued records, however they are created or converted, may be less significant. When there are limitations of funds and time there is a preference for retrospective conversion and deficiencies of quality may have to be accepted, although there is an expectation that quality might be improved later on, especially through shared projects.

Depending on the purpose and material, libraries can justify retrospective cataloguing, or re-cataloguing from the book in hand, for older, rarer titles up to the 18th, or even 19th century. Reasons for such projects are that old catalogues are often insufficiently comprehensive and their information too short so that it is difficult for titles to be uniquely identified without accurate cataloguing. The older cultural heritage requires special attention.

1.6 *Do you consider heterogeneous input in bibliographic databases (professional, non-professional, retroconverted) tolerable?*

Of course homogeneous records are preferable, but most of the respondents regard heterogeneous input inevitable and tolerable, especially for retrospective input, provided certain requirements are met. The same basic catalogue code must be used and authority control of entry elements is essential, even if levels of detail in the bibliographic description vary, the basic structure and entry points must be consistent. Given these conditions input from non-professional library staff can also be accepted, especially if proper support from the system is supplied.

Heterogeneous data is likely to lower the reliability of OPAC searching, unless special techniques are provided to cope with the problem.

Section 2: Improving catalogue accessibility

2.1 *Speaking of catalogue quality has different meanings; which quality will the user find most important for effective searching?*

The contents of a catalogue should comprehensively provide for the user's needs and be up-to-date; subject headings should be included. The qualities which are most expected of the records themselves are 'accuracy' (i. e. correctness and reliability of information to distinguish the item searched for) and 'consistency' (i. e. homogeneity of structure and access points and uniformity of entry elements: author / title and subject headings). Fullness of bibliographic information, usually, seems to be regarded as less essential, although it is important in catalogues of older books in order to identify clearly the frequent slight variations in different titles and editions.

2.2 *How to keep bibliographic control?*

For all forms of cooperative cataloguing, bibliographic control is necessary. All methods, selection of standardized input, controlling by staff, and automatic checking, can help this process. To ensure their proper application cost / benefit should be investigated.

The most effective and economic way of controlling bibliographic consistency in shared cataloguing is: to ensure that participants adhere to standards; to select and use such external data which conform or can be transformed to those standards; and to apply automatic quality checking for duplicates, completeness and standard authority forms.

In the context of large retroconversion projects involving a variety of libraries, and also in shared networks comprising different levels of participant, some variety of quality will almost certainly be increasingly accepted. In such cases automatic quality checking and procedures to indicate the status of records and to upgrade them will be all the more important.

Some controlling and editing by staff will be unavoidable, but the aim should be to limit the human effort required because of the costs and the risk of building in delays in bibliographical checking. The management has to control the effort of staff.

2.3 *What does most improve access to bibliographic information?*

Easy use of the system, a rich supply of data and numerous access points, these are the three qualities which most improve access to bibliographic information. It is clear that easy use and numerous access points will best be achieved with OPACs. A high level of bibliographic content is naturally expected from bibliographies (in printed or machine-readable form), but less so from catalogues, although the data must be correct. Complex searching strategies are less important for the general user, unless such strategies can be built into a user-friendly system.

2.4 *Does multiple access in an OPAC render unnecessary precise cataloguing rules? Or do we need precise rules, but different from rules for catalogues?*

Only a minority of those responding considered precise cataloguing rules unnecessary, or less important for OPACs. Most of the respondents think them to be still necessary, but modified and adapted to new technology.

First, a distinction has to be made between rules for input and those for presentation of output. Output will be different for bibliographic purposes; for the location of books in open stack compared to closed stack libraries; for other library demands.

The input must mirror these purposes; therefore, precise rules for analysis and tagging of the bibliographic information must be followed to organize that information for searching purposes in order that it can be selected and presented as required. It is true, however, that OPAC-rules are no longer rules for filing, but for analysing the information in the bibliographic records.

Since some lack of homogeneity has to be faced due to the use of external data, new generation OPACs are being designed to be "tolerant". This means that they are able technically to compensate for a degree of non-homogeneous data in the database.

2.5 *How much catalogue knowledge are we entitled to expect of the user? Must an OPAC be designed for any user's demand?*

In most library situations it has to be assumed that there are many users not interested, or not (or not yet) experienced, in using catalogues.These users must be helped as well as the expert ones. The OPAC is the very tool for this, as it can be designed with many access points, intelligent and clear searching facilities, and help screens. The OPAC gives an opportunity to design a really user-friendly interface between catalogue, circulation and stacks. The use of the OPAC should be easy for any user. This does not, of course, mean that the input or the techniques are simple. It will be the aim of a good OPAC to respond to both simple and complex searches and, at best, to make the complex seem easy.

Section 3: Subject access

3.1 *Which subject access do you prefer, and why?*

Subject access is very important, but, because of the difficulties of its provision, it has often been insufficient, which is a disadvantage especially for closed-access libraries. OPACs considerably improve the situation and now make the effort of subject analysis really worthwhile.

Subject headings are almost unanimously preferred as giving the most user-friendly access to bibliographic information and are what most novice users seem to expect. In addition key-words in the title and corporate names should be sup-

plied. They are cheap to produce, but can be confused with subject headings by many users.

Creating subject headings is a costly professional task, so cooperation and the acquisition of such data from bibliographical agencies, or other libraries, is much to be desired. Libraries in English-speaking countries are in the happy position of being supplied with the widely accepted and universal Library of Congress subject headings, which in other countries can be used only as a result of translation, or as a foreign language service. In multilingual countries the supply of subject headings is a crucial problem.

Classification is more difficult to understand and to become familiar with; nevertheless, it should not be regarded as obsolete. It still seems to have value: as providing a means of browsing complementary to verbal access; as a systematic overview of subjects; and as a control for the subject headings vocabulary; and, not least, as a means for bridging language gaps when subject headings are tied to classification.

3.2 *Is your library able to make efforts of its own for subject access? And how to accomplish subject access best?*

Some libraries can afford to create subject information of their own, some are not, or at least not to sufficiently high standards. In general, subject access widely seems to be inadequate to the user's needs and expectations. More and more libraries seek to compensate for this by means of cooperation.

The availability of subject analysis although desirable as a standard bibliographic service, is an unrealistic goal while bibliographic services are restricted to language areas. The most promising way seems to be cooperative subject analysis provided through a network, particularly if several libraries contribute their expert knowledge. This allows for the adoption of data from bibliographic agencies, as well as sharing the work with others.

In a cooperative situation a certain standard has to be accepted; on the other hand, there are those who say that the provision of standard subject information is not sufficient and that different levels of analysis for different needs are necessary. When information is obtained from a service or a network, it must be carefully evaluated according to the library's own needs. Differences have to be recognized: according to the type of collection (e.g. universal or specialized, main or departmental); according to specific interests and projects of the users; according to traditional local practice. The individual library can, and should, reduce its own efforts, but will wish to keep the final responsibility for subject information.

3.3 *Do you estimate transborder cooperation in subject cataloguing promising?*

Though aware of the severe difficulties in using subject information directly, or by translation from other languages, libraries are seeing promising possibilities for transborder cooperation. At least it is considered a help to see under

which subject bibliographic authorities such as LC or BLNBS have catalogued a certain publication, even if the terms cannot be directly adopted. More advantage will be achieved when input is made in a form which lends itself to machine translation. Here classification schemes such as UDC linked to a standardized vocabulary, can play an important role.

Considering that there is a certain commonality of terminology of sciences among the languages, it should be worthwhile making greater efforts to produce, and to manage, controlled concordances of standard vocabulary to be used for machine translation.

Section 4: Networking and integrated local systems

4.1 *In the light of open networking and increasing local systems, which services should be provided by network centres and which functions should be locally operated?*

There is wide agreement on the principle distribution of central and local services in an open networking environment. Common services should be central, that is a shared central database for cataloguing (including the national bibliography and further external bibliographic record supply) and for interlending support. The local systems should provide for circulation, acquisition, periodicals control, and OPAC. Depending on the technical organization, acquisition routines can be more or less connected with the central system which will be used for supplying records for ordering. Besides the local OPAC it is very useful to make the central database accessible as an OPAC.

Only incidentally, cooperative solutions are recommended for acquisition and circulation, but possibly in a local, or regional area.

4.2 *How far should branch libraries in a local system be integrated or independent?*

Respondents favoured the integration of branch libraries, but most gave no further comments or, if so, only about the catalogue situation. There should be a comprehensive local database (including relevant circulation data) as well as restricted databases of the holdings of individual branch libraries. Those restricted systems may offer special facilities, e.g. special subject analysis etc.

This can only be considered here as a trend because the theme of complex local library organization cannot be treated briefly without examining the differences in size, number, area situation, status and profile of branch libraries.

4.3 *Services expected by networking with booksellers?*

Services expected are ordering, mailing between library and bookseller, invoicing. None of the respondents stated that booksellers' title data could be a help for cataloguing, with the exception of CIP or pre-CIP records.

4.4 *Which applications seem promising in transborder networking?*

Networking is expected to be useful in a variety of ways. There is the possibility of finding and downloading ready-made bibliographic information for items about to be catalogued. In addition to existing network links, libraries can access networks across national boundaries, or can access other libraries directly; although this is only worthwhile where a considerable hit-rate is likely and economic (no record-hunting!). Direct networking between libraries will be particularly useful if there are interests in common, or similar special collections. In such cases library cooperation in cataloguing and interlibrary lending can be helpful. In general, supplementary downloading of records and, especially, searching and locating copies for interlibrary loan or copying, will be better facilitated by access to transborder network databases.

Cooperatives which work together across national borders can exchange and supplement each others bibliographic information and give each other, and each others members, on-line access.

A Reader Looks at the Catalogue

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A catalogue, like a library, is a living thing. When I entered Edinburgh University Library as a postgraduate student in the Summer of 1964 it operated in different premises, with a cataloguing system in transition, with radically different geography of its bookstacks. When it moved to George Square its catalogue was still in flux; and like the catalogue the bookstock and its location was continuously being changed and updated. When in 1973 I was a guest on the faculty of Guelph University the automation of its library catalogue was a mystery to me. For me, a catalogue was a friendly thing, my ideas formed on the various card catalogues of the National Library of Scotland (baffling to the first-time visitor, covering as they did different accession periods rather than different publishing periods) or the black guard-book catalogues of the University Library, still part hand-written and part type-written. I have been teaching students English and Scottish Literature since 1967 in Edinburgh, and the library has grown in that time. This paper is about that growth.

Since 1973, we have moved slowly but surely in the direction of that automated catalogue I met in Canada. We have seen library resources diminish as the specialised needs grew, and indeed I have seen that process from the seat on the Library Automation subcommittee, where anguish is a common emotion. We have witnessed a partially achieved retroconversion in the main University Library catalogue, and automation of the circulation system. The National Library of Scotland, meanwhile, has successfully put one of its three catalogues on line, though old-time users still can enjoy the diversity of cards and fiche for the other two; the Edinburgh City Library with its diversity of services has achieved substantial automation without much altering the layout of its stock. Edinburgh, in short, has seen change almost continuously in its libraries during these years. Meanwhile, the teaching and the learning of the University have gone ahead with minimum interruption. Luddite reprisals against automation predicted from the more reactionary teaching staff have simply failed to materialise. Student reaction against using the new catalogue has occurred, but then student reaction against the old card catalogue was commonplace: we all live with the new double system, moving between guard book and terminal when we can. Sometimes we have to remind ourselves, as well as remind the students, that a book not found in one catalogue may be in the other. But this problem is not unique to Edinburgh.

These words are written as the jetlag clears from a visit to California, and the daily spectacle of undergraduates, graduates and faculty at UCLA cheerfully enough queueing to consult two separate automated catalogues, one for their library and the other for the University of California system; and cheerfully enough accepting the inconvenience of a retroconversion which means processing a substantial proportion of the stock at check-out point before allowing it out of the building.

My overwhelming impression, looking back on the changes that have accompanied my years in Edinburgh, is of the adaptability shown on both sides of the library counter. The audience here will be no stranger to the inconveniences of automation and retroconversion taking place while normal service is maintained; the students impose their own rhythm of demand (or rather, they might claim the staff do in setting essays and examinations) while the teaching staff impose an increasingly year-long demand on research resources. New possibilities for research opened out by networking databases and CD-ROM readers will surely accelerate the demands put on libraries, as the University community slowly becomes aware of the rapid changes continually taking place. Yet from my vantage point, a library is only as valuable as its catalogue, at least in initial stages of usage. Perhaps this is the main reason why, each academic year, I take all my tutorial students in their first week to the library, and particularly in the catalogue and reference room introduce them to the resources which they will need all year, and all their later years, in order to make the best of their time in University.

Our students in Edinburgh, as you probably know, spend four years on their first honours degree (which is the master's degree) and specialise relatively late. They thus achieve some familiarity with large areas of the library in their early years, spent in very large undergraduate classes; and often have two specialised "honours" years before their finals to do a great deal of further reading. Such an introductory course to the library is compulsory to all postgraduates entering our department (as is a computer hands-on course, which has for years been obligatory) and very frequently students will return in later years to refresh their memories, and to try to keep up with changes in the library in a mere twelve months. I think it sad if undergraduates reach final year without knowing how to use reference resources and how to find from the catalogue the information they require; it is more than sad if postgraduates and potential scholars are not in a position to find out for themselves how their library can help them, and how it can use the resources of sister institutions to help them. Undergraduates, of course, approach the catalogue of a library with their own specialised expectations. It has been my experience that they begin (in the study of English and Scottish literature, which are my subjects) with a searching for reading copies of primary texts, little discriminating between editions, but seeking primarily access, very often competitively with other members of large classes.

This is a commonplace enough observation no doubt; yet in Edinburgh the catalogue has faced this problem for years by indicating the existence of a "reading room" stock with a high proportion of standard books to satisfy this very demand. With its own catalogue this collection could be accessed by students whose primary needs are to find texts with a strict deadline imposed by their courses. Cross-referencing in the main catalogue enables the students to be aware of duplication of copies elsewhere in the library, and elsewhere in New College Library, the Music Library, and the many class libraries scattered round Edinburgh's extensive campus.

This works both ways: I encourage our students who find difficulty in getting access to the reading room copies to seek out the duplications shelved in the literature stacks on the third floor; and if that fails to go to the fifth floor and seek out other (perhaps older) copies. In this direction, sensible use of the catalogue reveals extensive alternative copies for the student who finds the readily-available obvious copy under heavy use, already borrowed or - worst of all - stolen or deliberately misplaced during periods of heavy use. That the further copies highlighted by the catalogue may be of older and less satisfactory editions may not initially matter to the student: the availability of some copy may well be regarded as better than total failure to locate one.

There are circumstances where the use of an older edition can be extremely desirable to a student of nineteenth-century literature; and to a student who may not be aware of the extent to which texts have been edited and bowdlerised in the past. It comes as a shock to most readers of Hogg's Confessions of a Justified Sinner to go to one of the nineteenth-century collections which emasculated that masterpiece as the Private Memoirs and Confessions of a Fanatic, and see what can be done by bad editing.

In the opposite direction (and usually with students at a higher level) I have found intelligent use of the catalogue can help senior students approaching their finals to make use of the "reading room" copies when these may be under-used by junior classes. When honours lectures on the relevant author are in progress, when essay deadlines are near, or when finals approach the existence of alternative copies, and the completeness of the catalogue, work together to the students' advantage.

There will never be a large enough collection of books, above all for subjects like ours where undergraduate classes of 50, 100, 200, even 300 are quite common. While our texts may have slightly more permanence than those in the sciences which seem outdated before they even achieve publication, undoubtedly editions do go out of date and new editions often make marked advances which render them indispensable, whatever the merits of their competitors. That the catalogue can intelligently direct students to further copies of texts is a real benefit.

This achieved, our undergraduates (particularly with experience) go on to use the catalogue for more refined study aid purposes. I rarely need to issue book reading lists after the students familiarise themselves with the catalogue and standard bibliographies; with SALBIN now on line, the students can check the availability (and, most importantly, the status) of books in other Scottish libraries and frequently supplement the local collections. Further, the growing size of the database allows more and more refinement of search. For years now we have been able to make small-scale searches by theme and keyword: with all their limitations, these supplementary bibliographical listings are invaluable not only in the speed with which they can be compiled, but in their referring to books which are already in the University Library, drawn from the catalogue database.

With the transition from senior undergraduate to postgraduate status, this refinement becomes more and more valuable. In my own researches I frequently made use of the University Library's choice of Dewey to act as a rough research tool in itself. My subject was the early life of Carlyle, and it was easy enough to work along the stacks adjacent to. 82482, browsing and checking indexes for mentions of the mighty name which would send me reaching for the card index. Such browsing, unsystematic as it no doubt was, was enormously productive in widening the reading of a postgraduate whose first degree had necessarily been a focussed reading in many fields, narrow and pragmatic. With time to browse, the shelves were a goldmine.

The primary texts once located and their adjacent shelves combed, it became my habit to use the catalogue to locate other sections for browsing, through one title or one interesting book. For this I either looked at the Dewey Guide itself to locate the number of the chosen field or (more likely) used the old guardbook catalogue to locate one book whose title or (more likely) author I had already gained from other sources, and adjacent to this book would find many others, often far more valuable, which had not appeared in bibliographies which I had to that date studied.

Edinburgh's cataloguing system, like any other surely, had its idiosyncracies, and one of the more intellectually challenging activities was to keep up with the cataloguers. A case in point came when, after much persuasive correspondence, a previous librarian agreed to stock science fiction as serious literature. The problem of course was how to catalogue it - literature, science, social science - and the classic compromise created a Dewey number which occupied (memory tells me) two stickers on the spine of each books. The Carlyle-Goethe correspondence will not be with Carlyle, but with Goethe for good cataloguing reasons; so will the Carlyle-Emerson correspondence, to be found nearer Emerson than Carlyle. Some of the Carlyle books will be physically separate on special shelving relating to their size - and catalogued accordingly if one knows the catalogue's symbols. And in subjects which span more than one field - *Carlyle et la Pensée Latine*, for instance, or *Goethe en Angleterre*, it becomes quite interesting to find

where the cataloguers have located the volume. Not, you may be sure, where you might first think: but it ensures that we never outlive the catalogue's challenges.

As students grow in confidence they find, like their tutors, that catalogues are both invaluable and fallible. A postgraduate this year, of youthful appearance, confided that he felt he had had no respect from the desk staff of an august Scottish library till he had gone to them and announced a mistake in their catalogue - the great realist Scottish novel of 1901 The House with the Green Shutters credited not to its author (George Douglas Brown) but to Sir George Douglas, whose name coincided with that of the pseudonym "George Douglas" on the title-page of the first edition. Sir George Douglas, however, was scarcely born when The House with the Green Shutters appeared; score one to my student. He got, he said, a little respect after that. Yet he, like most of his contemporaries, has learned to respect different catalogues for different things.

For myself, I find myself using a variety of catalogues simultaneously as an aid to research. The Union Catalogue of the Library of Congress helpfully gives authors' dates, and often full notes on the more esoteric editions which it lists; yet I find the British Library catalogue on balance more authoritative on publishing details in the fields for which I use it, and in particular it lists editions more easily available to the researcher based in Edinburgh. The National Library of Scotland catalogues give excellent information supplementary to that available on the title-page - suppositious dates of publication, for instance, where these are not immediately available, and the copies themselves are often date-stamped with the time of receipt, another useful confirmation. The SALBIN software package, now freely available, gives details of most of the major libraries' holdings easily accessible to us, and more importantly still (as mentioned earlier) of the status of the book (borrowed or not borrowed) to avoid an unnecessary journey should the book be in circulation, or missing. Most of us, no doubt, are familiar with the frustration of a visit to a distant library for a unique copy which is mis-located or listed as destroyed in bombing - even a day's journey away by van.

With automation further benefits are becoming available. For years it was useful but fallible to rely on the printed London Library catalogues for title listings of pseudonymous publications, but now computer-search facilities make title searching easier, and the compilation of reading lists of supplementary titles easier still, as the databases grow. With satellite links, and with inter-library loan, this particularly helps the researcher in the humanities at an early stage of their work, and the Arts and Humanities Citation Index has had a revolutionary effect on more than one of my students, with its ability to pin-point articles and printed books whose titles, and whose authors, give by themselves little clue as to their applicability to the student's research. We look forward, with the rapid spread of CD-ROM, to the ability to scan documents and long works rapidly and further to build up reading lists.

For this, for me at least, has been one of the most identifiable benefits of growing up with the catalogues I have known and watched evolve during the last twenty-five years. One of my earliest responsibilities each academic year is to take our new postgraduate students, whatever their field or their particular interest, and introduce them to the library facilities of Edinburgh and the ways in which these can be best and most rapidly put to use. Whatever the variations in specialist interest and in prior training - many of our postgraduates, as you would expect, are skilled computer users before arrival, while others have absolutely no experience - there is a body of common knowledge. Other scholars' bibliographies, and the detailed suggestions of a supervisor, can go so far; there remains early on the step with which I certainly began, the two-stage use of the University Library catalogue to lay down the basis for a reading programme.

In my own case these stages were; first, a cogent and well-chosen list of primary critical works with excellent bibliographies which took me to nominated authors in the catalogue. My supervisor made this initial material available for about three weeks, then allowed the catalogues to take over. The second stage was for me to go to the catalogues and look at the existing holdings on my subject, Thomas Carlyle, who was a student at this University from 1809 to 1814. The material located was transferred to a card-index which became itself my working catalogue of reading, achieved and prospective; many students still choose this method, despite the electronic means available to abbreviate the process. Like the catalogue, this card-index grew and changed with the progress of the thesis, and it continues to grow and to change. The recent authoritative bibliography of Carlyle from R. L. Tarr did not then exist, and the card-index will always be necessary as even standard bibliographies are fallible and go rapidly out of date.

Like any student who made extensive use of the catalogue, I soon came to interact with it; to discover internal contradictions, for instance, since any research student should rapidly move ahead of supervisor or even librarian in specialist knowledge. It happens that Thomas Carlyle had a contemporary, also from Dumfries-shire, of the exact same name, who came to be a fairly well known preacher in the Apostolic Church. This "double-goer", as "my" Carlyle angrily dubbed him, was confused for the fledgling author at the time, and his printed works have sometimes been mis-catalogued in a quite understandable way - particularly since Edward Irving, the charismatic figure in the early history of the Apostolic Church, was also a very close friend of "my" Carlyle, as well as being spiritual leader of the other Carlyle. This sort of confusion can lead to occasional disappointments in running down in a library catalogue what looks like a hitherto unknown manuscript of Carlyle only to find it the work of the other Carlyle - again, a mistake which only a degree of specialist knowledge could avoid.

Interacting with the catalogue in this way, familiar through intensive use with the collections in the city and beyond, the researcher can input corrections, suggest supplementary action, and also (I find my students have far more time to haunt second-hand bookshops than I do) help the library locate and acquire supplementary resources of manuscript and printed books. The team of scholars working on the editing of the complete Collected Letters of Thomas and Jane Welsh Carlyle in Edinburgh and in Duke University have over many years enjoyed this kind of relationship to a number of major libraries. Locating texts in catalogues was the absolute starting-point for the basis of a critical edition which will, when complete, run to over 40 fully-edited volumes: since then our activities have been constantly involved with adding to our knowledge of collections, and quite frequently with bringing collections to libraries. Once there, these have to be identified, sorted and - even - catalogued. At a time when staffing resources are at a premium, the scholar can in the most practical way repay a library's assistance by participating in the cataloguing of new materials as has happened in the case of several Carlyle acquisitions (one of them running to several hundred items of correspondence, mixed in date, addressee and originator, physically mixed up and often undated) to say nothing of major collections of recent literary archives such as the magnificent Lewis Grassic Gibbon papers which came to the National Library of Scotland a few years ago, uncatalogued at the time, but generously made available during a sabbatical term during which I was able to sort them preparatory to a professional cataloguing when staff time in the library permitted. This co-operation between research and library staff seems to me of obvious utility, but also something which goes beyond mere convenience to either side. I have already mentioned the realisation that one's own students should know more about their area than their supervisor within a short time; after two decades and more on a project the specialist researcher has acquired not only familiarity with materials, handwriting and physical condition, but an enormous contextual knowledge through memory, notes and familiarity with secondary sources. As a project continues, this is bound to accelerate: in the case of the Duke-Edinburgh Carlyle Letters we now have 18 published volumes (and three more well advanced towards publication) which themselves form a reference archive continuously put to use in working on the subsequent letters - and continuously being rendered out of date by subsequent scholarship, to say nothing of the discovery of subsequent original letters whose eventual inclusion will be a headache for future editors.

The text established, the editors move on to the footnotes, using every possible printed resource - including among our reference resources the catalogues of the main libraries we rely on, different catalogues having (as I have suggested) different strengths to the regular user beyond merely helping trace the existence of copies. Catalogues, like scholars, can disagree: long experience has made us suspicious of all sources of information, including ourselves, unless we have cor-

roboration, preferably multiple corroboration. The fact that I myself appear in many library catalogues as Ian Campbell "born 1915" - there was such an Ian Campbell on the staff of this University when I joined it - perhaps has early instilled in me a wary respect for cataloguers' accuracy. Maybe scholars, like catalogues, wear well.

To the user, the variety of catalogues is a source of continuous fascination. I have been to one European library with a distinguished manuscript holding, where my request for the manuscript catalogue was greeted with simple incomprehension. They had no such thing: when I asked how they located their manuscripts, they smiled charmingly and said they asked the curator. And when I asked if I could see the curator, they smiled charmingly and said they were desolated but he was on three weeks' holiday. And when I asked what would happen if he were run over by a tram, they smiled charmingly.

Other libraries, of course, have enormously systematic manuscript catalogues, which I have found irreplaceable, particularly in the early stages of research. One of my own projects has been to follow the contacts in the history of science between Switzerland and Scotland, particularly in the 18th and 19th centuries. An unscientific but a highly effective technique early in that project was to go to large catalogues and read them closely for several hours, looking for specific things: for familiar names, for patterns of repetition, for two-way correspondences within a roughly-defined period of eligibility, for names which looked or sounded as if they would fall within eligibility even if they were not those of well-known scholars or public figures.

The result, before consultation began, was the makings of a fairly extensive card index which grew, with the project, to considerable size. Travellers whose diaries had survived, in Switzerland or in Britain (I found in the Bodleian material which fitted closely with material in Scotland, and in St. Andrews University Library marvellous resources which meshed with those in Bern) left particularly rich resources: the replies in British libraries to letters preserved in Swiss archives and vice versa formed another area which early assumed importance. The project was then able to proceed to study of the archives located, and to several useful achievements. These included an examination of the whole pattern of surviving correspondence between Scottish and Swiss intellectuals, travellers, educators and (particularly) geologists and botanists and the implied information to be gained on their work methods, their sources of information and the limitations of their knowledge.

A specific case was that of J. D. Forbes, later to be Principal of St. Andrews, but at the time professor of natural philosophy at Edinburgh University; his scholarly clash with Louis Agassiz over the discoveries of irregularity in glacial ice was to make a considerable impact in the nineteenth century, even though it is all but forgotten today. The evidence in Switzerland and in British archives, once the relevant names are known, is clear to see, as is the ramification of a rel-

atively small dispute over priority in scientific observation in a scholarly and tight-knit community which relied largely on correspondence, rather than on frequent meetings or the telephone, for their contacts. As the project grew it became possible to see whole patterns of correspondence - relating to individual university contacts, to family relationships, to scholarly specialisation, to membership of learned bodies, to the exchange of samples and apparatus. The effect of changes in the postal and transport services became apparent, as did curious fluctuations in service associated with European wars. Extraordinary correspondences (such as those of Haller in Bern) remain to be studied, and the collections in Geneva and Bern hold material for many more years of research.[1]

Yet the point to be made here is that the starting-point for a semi-invisible area of scholarly investigation was the catalogue: on card or in fuller form, the catalogues of the various institutions through which the collections are scattered gave the first clues to the existence of papers which required to be read together, and noted fairly extensively, to begin to make sense of the pattern they formed, and which frequently required months of subsequent investigation, to say nothing of repeated library visits, to reach the most tentative of conclusions.

Perhaps the limitations and the power of the catalogue are most sharply brought into focus by relating one incident in this process. Thomas Carlyle, like many others, had to make his way as a fledgling writer by submitting unsolicited material to famous editors, in the hope of breaking into prestigious journals. In his case he chose Francis Jeffrey who was, a decade later, to be a close personal friend; in 1819, however, Carlyle was a poor divinity student and private tutor in Edinburgh, torn between a waning interest in divinity, a growing interest in German studies and his main bread-and-butter work which was in the natural sciences.

I had got hold somewhere . . . of a foolish enough, but new French Book, a mechanical Theory of Gravitation, elaborately worked out by a late foolish M. Pictet (I think that was the name) in Geneva; this I carefully read, judged of, and elaborately dictated a candid account and condemnation of, or modestly firm contradiction of.[2] "The result was to be ". . . absolute zero, no answer, no return

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1 See particularly Ian CAMPBELL, "Correspondence between Scotland, England and Switzerland" in eds. Horst W. DRESCHER and H. VOELKEL, *Nationalism in Literature: Literarischer Nationalismus* (Frankfurt and Bern, Peter Lang, 1989), 237-56, and (with David Hutchison) "A Question of Priorities: Forbes, Agassiz and their Disputes on Glacier Observations", *ISIS*, 1978, 69 (248), 388-99, and,"J. D. Forbes' Scientific Correspondence with Switzerland", *Scotia* VIII (1984), 26-42.

2 T. CARLYLE, *Reminiscences* (London, Everyman University Library, Dent, 1972), 316-7. For details see Ian CAMPBELL, "Carlyle, Pictet and Jeffrey Again" *The Bibliotheck* 7, 1 (1974), 1-15, and *Carlyle and Europe: Some Early Influences* (Edinburgh, Carlyle Society, 1978).

of MS., absolutely no notice taken; which was a form of catastrophe more complete than even I had anticipated!"

The catalogues, alas, are no help in tracing M. Pictet's book, at least given the clues furnished by Carlyle's all-too-fallible memory. Those who have written of "un examin critique de la Théorie de la gravitation de Pictet" or "Review of Pictet's Gravitation (article)"[3] are bluffing, for there is no such book that has so far been traced. Yet a holiday visit to Geneva in the early 1970s allowed a visit to the Bibliothèque Publique et Universitaire whose catalogue confirmed the melancholy news all other catalogues had given - no such book. All other Pictets (and it is a famous and numerous Geneva family) yielded a mention of no such book. At the last minute, a catalogue entry led me to the Bibliotheque Universelle des Sciences, Belles-Lettres, at Arts, faisant suite a la Bibliotheque Britannique, published in Geneva and edited by - among others - Marc-Auguste Pictet. This Pictet had, infuriatingly, no books on gravitation; nor had he, in the volumes of the Bibliothèque Universelle of the period (and the library catalogues confirm Carlyle did have access to them, notwithstanding the Napoleonic wars in Europe) published an article on gravitation.

On the edge of giving up, I noticed Marc-Auguste Pictet had published in 1817 an essay on Alfred Gautier, whose Essai historique sur le probleme des trois corps appeared in Paris in 1817.[4] A faint memory of the three-body problem from schooldays, and the problem was solved: this indeed was the article published by Pictet on gravitation, and it seems fair to surmise this was the source of Carlyle's review article, one of a series he wrote at this time, one of them (on Hansteen's Inquiries Concerning the Magnetism of the Earth) from the German, achieving prestigious publication in the Edinburgh Philosophical Journal.[5] At this time in his life Carlyle, though far from rich, was still spending money on works as challenging as Newton's Opticks[6] and to have broken into the marketplace of literary writing with an article in the Edinburgh Review would have been a real achievement. To trace the all-but-forgotten original of his "Pictet" article is the stuff of satisfaction for the literary editor. The catalogue could not take him to the book for it did not exist; the catalogue, along with a large slice of luck, took him to a title-page and there pure luck, and the faintest of memories, completed the identification.

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3 "Carlyle, Pictet and Jeffrey Again", p. 3.

4 *Bibliothèque Universelle*, série "Sciences" V (1817), 253-75. The *Bibliothèque Universelle* had appeared in the handwritten catalogues of Edinburgh University Library since 1807.

5 III (1820), 128.

6 His personal copy, signed and dated 1818, survives in the library of the Carlyle House in Chelsea.

Carlyle's mind was myriad in its interests: a divinity student with a weakening ambition to enter the Church who earned a living by tutoring in classics and the natural sciences, while reading widely in French and Italian and rapidly acquiring a working knowledge of German is not easy for an editor to keep up with. We have had reason to be grateful to the catalogue of this and many other libraries, each a palimpsest of many specialisms: we have had the satisfaction of feeding into the catalogue, as discoveries occur - such as those of Carlyle's early borrowings from Edinburgh's Divinity Hall library which came to light in early ledgers[7] or, through the production of the Carlyle Newsletter[8] bringing to publication a steady stream of newly-discovered material outside Edinburgh University, indeed outside Edinburgh, but now capable of being used alongside the materials already here, to build up a more complete archive of Carlyle's works than even the forthcoming Essential Carlyle[9] will offer. When in twenty years or more the Carlyle Letters project is completed - as we hope it will be, in printed and bound form still available for libraries to hold alongside the 18 volumes already published, also we hope fully indexed and comprehensively equipped with materials which came to light too late to be included in chronological sequence - when the project is complete the surviving editors will have, perhaps more than most of their contemporaries, the satisfaction of looking back on unique co-operation with their libraries. The Edinburgh University Library, the National Library of Scotland, and a host of scholarly institutions world-wide will have helped make the edition possible: and closest to home, it is good to be able to take this public opportunity to thank our own University and library for their help at every stage.

The theme of this paper has really grown into two, the living nature of the catalogue, and the living nature of the co-operation of a teaching member of the staff in the humanities with his library. Edinburgh gives us an unusually good example of the possibilities here when we stop to consider them. Close proximity of the teaching centre to the library building is allied to an incomparable opportunity with open access for students at every stage to gain an early familiarity not only with the central body of set texts, but with the great periphery of secondary texts which enrich initial reading. The more advanced the student, I have suggested, the more that student will benefit from the opportunity; and in my own case I start very early by introducing the student not to the reading list, but to the catalogue and reference tools to create reading lists, and to the possibilities of simple browsing in a collection arranged with criticism and primary texts side by

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7 Ian CAMPBELL, "Carlyle's Borrowings from the Theological Library of Edinburgh University", *The Bibliotheck* 5 (1969), 165-8.

8 *Carlyle Newsletter* 1-9 (Edinburgh, English Dept.) and now *Carlyle Annual* 1-2 (New York, Queens Press): ongoing.

9 ed. Murray BAUMGARTEN, 8 vols. (Santa Cruz: University of California Press, in preparation)

side, and a logical arrangement of much of the wider criticism which falls into no single neat category.

With a large postgraduate school in the English Department, we have never been far from the library, working on both manuscript resources and on printed work with our students, learning as we teach them, learning from them and from the library.

With major research projects of the nature and magnitude of the Carlyle Letters we make continuous demands on our library, and our library has not flinched - even in times as hard as the last half-decade - from giving us service without which we could not have done what we have.

With a seemingly inexhaustible range of scholarly projects relating to Scotland in a climate of awakening national pride and scholarly interest, in literature, history and comparative studies, the growing sophistication of inter-library and inter-database communication opens out prospects limited only by time and by the pressures which the teaching departments share with the surviving specialist library staff.

In some form or other, the catalogue will remain the point of introduction; to the student daunted by the sheer immensity of a major collection, or to the more experienced worker seeking to make sense of something as yet formless, to make sensible use of time and resource to build the basis of a sensible research progress. In The House with the Green Shutters, to which reference was made earlier, there is a wonderfully sardonic picture of the freshman student at Edinburgh University, drawn by someone who had himself passed through Glasgow and Oxford, and knew something about loneliness and self-doubt.

Many youngsters are conscious of a vast depression when entering the portals of a University; they feel themselves inadequate to cope with the wisdom of the ages garnered in the solid walls. They envy alike the smiling sureness of the genial charlatan (to whom Professors are a set of fools), and the easy mastery of the man of brains. They have a cowering sense of their own inefficiency. But the feeling of uneasiness presently disappears. The first shivering dip is soon forgotten by the hearty breaster of the waves. But ere you breast the waves you must swim; and to swim through the sea of learning was more than heavy-headed Gourlay could accomplish. His mind, finding no solace in work, was left to prey upon itself.[10]

Which is to say, eventually, that he discovers whisky, and eventually drinks himself to ruin and expulsion. Poor Gourlay: not once in the novel does he enter the library, still less look at the catalogue. Whatever the sophistication today of the catalogue which replaced the black guardbook volumes of the 1960s, it remains the single greatest challenge and stimulus to the student in English today at the outset of a reading career at University. And perhaps enough has been

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10 ed. Dorothy PORTER (Penguin, Harmondsworth, 1985), 147.

said today to suggest that as the student's needs change, the ability of the catalogue to satisfy those needs changes also - even as progress carries the catalogue along, and the user finds it necessary to change and retrain in order to keep pace. It is hard to guess, given the changes of the last twenty-five years, what books, in what form, accessed by what means, and retrieved from which databases will be available in the next twenty-five; but certainly to the student of English and Scottish literature the challenge offered by what we at present see as the catalogue will remain central to the acquisition of knowledge and a spread of critical thought and reading. We should welcome the evidence of recent times that change is welcome and planned for, discussed and incorporated in long-term planning (such as our own department's plans to have computer-based instructional methods in place very soon). In some form, which probably I can barely guess at, the catalogue is likely to remain at the heart of the library as I have come to see it.

Special Collections in the Vatican Library: History and Access

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As the title of an article last year in the Wilson Library Bulletin about the Library started, "people don't come here to read best-sellers". Five hundred and fifteen years ago this month, on 15 June 1475, the Vatican Library, or more properly, the Biblioteca Apostolica Vaticana, was established by Pope Sixtus IV. The idea for a library, founded "for the common convenience of learned men", had come some twenty-five years earlier when Nicholas V was pope (1447-1455). While he gave it shape and increased the collection generously, he did not make it a reality, his death prevented it. It was not unusual for Nicholas' to have envisioned a library, he had been librarian to Cosimo de Medici. Under Sixtus IV (1471-1484), however, a librarian was appointed and finances, facilities and staff were provided to house and care for the library. He gave a set of rules for its organization and the assignment of regular income for its continuance. For most of its early history, that is up until the middle of the 15th century, it had been a private or personal papal collection. Throughout the Middle Ages the popes preerved their books with their treasures and the library, like the treasures, suffered from the continual displacements occasioned by the political disturbances of the 13th and 14th centuries. From 1309-1377, when the popes resided at Avignon, the library was maintained there. We know much about that library, including the fact that it was freely open to those who had need of it.

During the four hundred years after 1475, the library continued to grow both in numbers and in spaces, but its services for readers were very limited, if they existed at all. On 18 August 1883, the famous pope Leo XIII (1878-1903), unexpectedly removed all restrictions for research workers and formally declared the Vatican Library open for historical research. The physical facilities remained inadequate, however. There was one very small reading room, which was merely the lobby of the library: it had only one window, which made it impossible to work there on dull days unless one was directly under the window. In addition to the discomforts of the reading room, readers had no direct access to the indexes and inventories. In October of 1988 a reading room with seating for 40 people was opened, a well as a reference room; access to the collections was then a reality. At present there are two large reading rooms, one for manuscripts and one for printed books. In and around these rooms are some 75,000 volumes of reference material on open shelves. In recent years much has been done by way of renovation of the spaces, improvement of the lighting and rearrangement of the

collections to maximise and facilitate use and access. During the winter months between 120 and 150 people per day come to use the library and at this period after Easter, about 200.

The Vatican Library is primarily a manuscript library whose book collection is built around the manuscripts collection. The almost 150,000 manuscripts range in age from the second to the twentieth century. Of these, about 70,000 are codices (bound volumes containing collections of different manuscripts).

The printed book collection is fast approaching 2,000,000 volumes, about 60,000 of which are periodicals. Not a large library when compared with some university or national libraries. The book collection, like the manuscript collection, is divided into open and closed collections. The 30 closed collections are those which have been purchased, bequeathed or given by donation, and remain as individual units to which no new material is added (it is in that sense that they are closed). These collections are named after their former or place of origin. The open collection is composed of the General Collection and the Reference Collection: it is to these collections that new accessions are added. The General Collection (Raccolta Generale) is catalogued in 31 subject groups and subdivided by format and shelf location. The Reference Collection (Raccolta Consultazione) [the 75,000 volumes on open shelves in and around the reading rooms] is divided into 154 subject categories.

There is great variety among the 30 closed collections; some of the more interesting ones are:

The Fondo Aldine which contains almost 1,500 books printed in Venice between 1494 and 1598 by the Aldine Press which was organized by the family of Aldus Pio Manuzius. These editions are celebrated ones in the history of Italian typography. Perhaps the most interesting of the Aldine Books is a copy of Ovid's Metamorphoses, printed in 1502. It has extensive handwritten notes, thought to be those of Aldus himself. Also on the collection is the only known surviving copy of the statues of a kind of academy which Aldus and a group of his collaborators founded. This page was found, by accident, in the binding of an Aldine Book in the Barberini collection (Etymologicum Magnum, Venice, 1549).

The most important accession of modern times is the Barberini Collection which was purchased by Pope Leo XIII in 1902. There are 36,049 printed books, of which 3,527 are incunabula; as well as 10,788 Latin manuscripts, 598 Greek manuscripts and 165 Oriental. It had been the collection of Cardinal Francesco Barberini (1597-1679), the nephew of Pope Urban VIII (1623-1644). In the 18th century it was considered to be the most important library in Rome after the Vatican.

There are two collections dealing with the history of art: the Cicognara and the Steinmann. Leopoldo CICOGNARA (1767-1834), an art historian, archaeologist and critic, put together an amazing collection of 4,800 books which are extremely valuable for the history of art and archaeology, architecture, sculpture,

numismatics, classical authors and travel. There are also bound volumes of prints and engravings, as well as drawings and designs. Cicognara is considered to be one of the founding fathers of the discipline of art history and his collection was the largest and most judiciously selected library in the field ever brought together; it was the beginning of art history and contains everything in print that Cicognara could assemble on the practice and teaching of the arts. A perusal of the collection offers an enlightening view of how artists worked and how collectors and patrons of art made their choices. The annotated catalogue to this library has long been a standard guide to primary sources in the history of art from antiquity to his own time. The University of Illinois Library at Urbana-Champaign has undertaken a project to provide the entire Cicognara Library on microfiche and to produce a new and critical edition of the annotated catalogue. The Steinmann Collection of just over 1,000 volumes belonged to Ernst STEINMANN (1866-1934), as an art historian, who was the biographer of Michaelangelo, and who wrote a monumental work on Sistine Chapel. The collection the primary of focus of which is Michaelangelo and his works, deals as well with various aspects of Christian antiquity and art. It is a timely collection as the twelve year restoration of the Sistine Chapel frescoes goes on amid both strong support and strong criticism from the art world and from the ordinary tourist. Curiously enough, Steinmann himself addressed these issues eighty years ago and his observations are in the collections.

The Bibliotheca Palatina in Heidelberg was the most significant library north of the Alps up to the beginning of the 17th century. After the Thirty Years War its 3,500 manuscripts and 8,000 printed books were taken to the Vatican Library. The collection is known as the Palatine Collection (Fondo Palatina). The production of a microfiche edition of all the printed books is now underway.

There is also the collection of Leone ALLACCI (1586-1669) on Persian religious drama; that of Gustave de MOLINARI (1819-1912) dealing with social issues and the role of transportation in industrial progress; and the collection of Jules Paul Camille RUFFIN (1870-) concerning decorations and medals, both civil and military, the orders of knighthood, genealogy and heraldry. In it is considerable material on the French Legion of Honor and its history. The collection classified in the "Z" [zed] schedule of the Library of Congress classification system, numbers just over 10,000 volumes and deals with all aspects of bibliography.

The Collection of Incunabula [the books printed from movable type between the time of the invention of printing and the end of the year 1500] numbers just over 8,000 volumes (8,082 to be exact): this represents 5,016 editions in 7,766 individual volumes; 65 of which are printed on vellum and 93 bound with the manuscripts. There are also 316 duplicates which are identified, but not catalogued. About 3,500 of the incunabula were printed in Italy, of which 1,280 were printed in Venice and 700 and some in Rome. Of these Roman imprints, 37 are from the house of Conrad Sweynheym and Arnold Pannartz; the first printers in Italy at

Subiaco (1465) and in Rome (1467). Paul II (1464-1471) was pope when printing made its debut in Rome and in his service was the humanist Giovanni Andre Bussi. Bussi was not only versed in the classics, but an ardent promoter of this new art of printing, and was the editor of some of the first works printed by Sweynheym and Pannartz. Doubtless he saw to it that many of the first printed copies found their way into the papal library of which he was to become the librarian under the next pope, Sixtus IV. The papal library, which is the personal library of the pope, separate from the Vatican Library, which is, if you will, the public library. Sixtus IV had studied as a young man at the Universities of Paris and Bologna, and had been a successful professor not only at those universities, but at Padua, Siena, Florence and Perugia. He was, moreover, a writer on theology and philosophy. He knew from experience the needs of scholars and the importance of a good library. It was at the urging of Bussi that he began the work of rejuvenating the neglected library of Nicholas V, adding over 1,000 manuscripts in the first nine years.

The main access to the printed book collection is the card catalogue of almost 1,500 drawers. It is a dictionary in a single alphabet for authors, titles and subjects. All the material accessioned and catalogued since 1985 has been done in the MARC format and the information is available on-line at two computer terminals in the reading room. Also available is the information for about 1,000 of the books in the Reference Collection which were entered into the data base as part of a feasibility study for a retrospective cataloguing project. The preparation of the catalogue for the incunabula was also done on a computer and that information is about to be made available as well. The catalogue itself should be in press before the end of the year.

In addition to the manuscripts and printed books there are also 100,000 prints, engravings, drawings and maps. A card catalogue to the engravers is now in construction. It is quite complete and gives not only descriptions and dimensions of each item, but reference to the original work of art and to the various standard catalogs in which the print is cited. Much of this information is also available at the computer terminal.

Finally there are some 330,000 items in the numismatic collection. These include coins, cameos, papal, civil and military medals and decorations, moulds, seals and gems. Included are almost 22,000 Roman coins and 50,000 medieval coins.

Attached to the Library is a library school which receives over 200 applications for the 90 or so places available each year.

There is a rich and diverse complexity to the Vatican collections which span the whole of Western civilization's cultural and intellectual pursuits and developments, from Classical Antiquity to modern times. The legacy of those past ages is there in papyri, in manuscripts, many of which are elaborately illuminated and written in elegant hands; in printed books, some 8,000 of which, as I have

said, date from the first fifty years of printing, and others which were specially printed on vellum or beautifully bound in rich tooled leather as presents to the popes; in the maps, engravings, drawings and etchings; in coins and cameos. All this is set against the backdrop of, and within the context of, the pomp and pageantry and progress of the history of the popes. As a result, the Vatican Library is quite unlike any other, yet it is a thoroughly modern, technologically advanced library, with an easily accessible collection of diverse, and often unique historical and bibliographical material, as well as being a meeting place for scholars and a kind of international cooperative research center. I would invite and urge you to come to visit when you are in Rome. The library is open Monday through Saturday from 8:30 am until 1:30 pm, and again from 3:00 pm until 7:00 pm Monday through Friday for the convenience of those whose time in Rome is limited. The Annual closing is from 15 July until 15 September.

Access to Special Collections of Printed books and Shared Cataloguing: Spain

MERCEDES DEXEUS
Biblioteca Nacional, Madrid

We know that the special collections of printed books are those made up of books that have in common one ore more distinctive characteristics. The more usual and interesting ones are the collections or libraries specialized in a specific subject and those which hold old and rare books.

In this paper I will deal with the latter in the library and bibliographic automated systems, as the most important specialized libraries belong to scientific and academic institutions, which have been and still are the first ones to apply the latest technologies to the cataloguing and dissemination of their holdings, and there are many studies about their specific problems. The collections of old and rare books are, instead, never treated as a priority when it comes to automate the catalogues of the great libraries and the possibility of automating the catalogues of these collections is often not even taken into account. There are several reasons for that, particulary the well known problems posed by the retrospective automated cataloguing.

The Spanish Bibliographical Heritage is very rich and dispersed, as it is common in the countries which have a long and fruitful cultural tradition. The greater part of the heritage belonguing to the public institutions have been catalogued from the second half of the 19th century, when several cultural and political circumstances, favoured the social sensibility towards old books. Among these circumstances, it may be pointed out the confiscation of Church possessions, that put in the hands of the State conventual and monastic libraries, that had to be reinstalled and reorganized, though they generally had inventories, many of which have been kept as historical documents. During that period the publication of catalogues, total or partial, of the public and private libraries' retrospective holdings increased remarkably. However, the dispersion of this sources makes it difficult to consult them[1] and, besides, not all the existing catalogues have the same degree of reliability. On the other hand, we do not have yet enough information about many private and institutional collections, where very rare or even unique copies may be found.

Some of the Spanish public libaries, belonging to the State or ecclesiastic institutions, stand out because of their collections of old and rare books: the

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1 The Bibliography department of the Biblioteca Nacional gathers most of these catalogues, as well as a great number of general and special bibliographic sources.

National Library (Biblioteca Nacional) founded by Felipe V, in 1711; the library of de Monastery of San Lorenzo del Escorial, made by the Spanish famous humanists on the orders of Felipe II; the Palacio Real library; the Biblioteca de Catalunya, inaugurated on 1514, when the Catalans became aware of their own cultural identity; the library of the Universidad Complutense in Madrid; the libraries of the Royal Academies in Madrid and in other Spanish towns; those of some organisms of the regional, provincial or local administrations, either with deep tradition, as the library of the Diputacion Foral de Navarra or created recently, as the Biblioteca Valenciana, in Valencia; all the bishopric and cathedral libraries, among them the library of the Sevilla's Cathedral, which keeps the famous "Biblioteca Colombina", created by Dr. Fernando Colón, a son of the America's discoverer, early in the XVIth century and several university and public libraries, that keep holdings coming from the old convents. Among the last ones, the libraries of the Universities of Barcelona, Salamanca, Valencia, Sevilla, Granada, Santiago de Compostela, Valladolid y Zaragoza and the public libraries of Toldeo and Tarragona, may be pointed out.

In Spain, the interest in gathering the information about the old and valuable books of the country dates back to the beginning of ths country. From 1952 this work has been carried out systematically, through the union catalogues. The provisional editions of the union catalogues of the 15th and 16th centuries' printed books in the Spanish libraries were published early in the seventies. The definitive edition of the incunabula union catalogue, that must be kept update, including the new acquisitions and possible finds, has just appeared[2].

The present legislation about the Historical Heritage provides a close collaboration between the Central administration and the administrations of the Autonomous Communities in order to make the inventories of his Heritage, among them, the Bibliographical Heritage Union Catalogue. The new project continues, according to the present circumstances, methods and technological possibilities, the works started almost four decades ago. A cataloguing network joining the cataloguing centres created with that purpose in several Autonomous Communities and the National Library Bibliographical Heritage Centre, that coordinates the Catalogue, has been constituted. Thus, each Community controls their own collections. This network is inserted in the structure of the general network of the Spanish Library System headed by the National Library.

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2 Catálogo colectivo de obras impresas de los siglos XVI al XVIII existentes en las bibliotecas españolas. Siglo XVI. Edicion provisional. Madrid: Dirección genéral de Archivos y Bibliotecas, 1972-84. 15 v.
Catálogo General de Incunables en bibliotecas españolas. Coordinado y dirigido por Francisco Garcia Craviotto. Madrid: Biblioteca Nacional, 1989.

Though I have already talked about this matter on another occasion[3], I will outline briefly the basic guidelines of the realization of the Catalgoue:

a) To offer a reliable information by cataloguing book in hand all the copies earlier than 1801 and the later ones that should be consulted in order to identify them correctly.

b) To contribute to the Retrospective Universal Bibliographic Control, by information exchange with other countries. With this aims in view, the data collection of the Spanish printed editions, as well as those published outside the country in the languages of Spain, has been treated as a priority. On the other hand, the international standards have been adopted in the informations's processing and dissemination: the ISBD (A and M) for the bibliographic description; the MARC format, for the catalographic magnetic media and the set of characters[4].

c) To make profitable the resources assigned to the project and to reduce the time spent in its achievement, avoiding, as far as possible, the repetition of the description's task, by the basic principle of shared cataloguing: the database must be available to every cataloguing center, so as to describe only the editions not included in it and to add the specific data of the new copies of editions already included.

In order to systematize and to facilitate the data collection and at the same time, to begin to create coherent and useful information sources, the Centro del Patrimonio Bibliográfico has started by making two basic catalogues: the one of the 17th century imprints, which continues in chronological order the information gathered previously[5], and that of the 19th. century imprints, period without general information sources[6]. The basic catalogues include the holdings of the National Library and other importants libraries of Madrid. Thus, it already figures in the database a high percentage of the Spanish editions of the above-mentioned centuries, that is progressively increased with new contributions.

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3 M. Dexeus, "Retrospective Conversion in Spain". IFLA Journal, 16 (1990), No. 1, 109-112, that includes the bibliography about the project.

4 ISO 2709, for the logical record; ISO 1001, for the physical record; ISO 646 and 5426, for the set of characters; ISO 6630, for the control characters.

5 Vid. note 2.

6 Catálogo colectivo del Patrimonio Bibliografico Español. Siglo XVII. Madrid: Dirección General del Libro y Bibliotecas: Arco, 1988 - Catálogo colectivo del Patrimonio Bibliografico Espanol. Siglo XIX. Madrid: Dirección General del Libro y Bibliotecas: Arco, 1989.

At the moment there are 67.749 editions, with 98.614 copies in the database. I will point out the figures corresponding to 16th to 19th centuries imprints, as they are the most representative as regards the contents of this paper.

XVIth	century	29.878	editions, with	42.995	copies
XVIIth	century	14.034	editions, with	22.659	copies
XVIIIth	century	3.202	editions, with	3.420	copies
XIXth	century	19.001	editions, with	27.847	copies

The realization of the Union Catalogue has compelled us to consider some problems and to try to solve them. I hope we will have the chance to deal with them in other work-meetings, so I will confine myself to a brief outline of them.

a) Reconversion/recataloguing /new description): When? How? - In a project of shared cataloguing in network, we are not in favour of using bibliographical records without verifying them as the right identification of the editions is essential in order to determine the edition corresponding to a particular copy.

b) We need to reach international agreements about Authorities. The problem should arise even on a nation-wide basis, due to the succesion of different cataloguing rules and the individual viewpoints of the specialists in processing materials of a different kind and chronology.

c) The level of the bibliographic record, according to the aims of each project and bearing in mind the efficiency and cost effectiveness of each option.

d) The indexation of contents of old books. - We are in favour of the indexation of contents, but in what way?: A usual systematic classification? Subject headings already accepted in general libraries? Elaboration of a Thesaurus?

There are problems that we must try to solve together.

European Register of Microform Masters

COUNCIL FOR CULTURAL CO-OPERATION
Expert Meeting on Microforms - Bremen, 26-27 November 1990

Meeting convened by the Ligue des Bibliothèques Européennes de Recherche (LIBER) on behalf of the C. E.

Report and Recommendations prepared by LIBER

1. Importance of Microform Masters

Microforms (microfilm or microfiche) have become the most important storage medium for the intellectual content of books, periodicals, newspapers and other print media at a time when paper is increasingly subject to decay. Brittling paper has become the most serious threat to the cultural heritage of all nations. With more and more printed works decaying or becoming inaccessible, research and scientific co-operation are being endangered. In particular, this pertains to the collections of libraries in Central and Eastern Europe.

2. History and State of the Art

There have been several attempts at improving the cataloguing situation of microform masters. Most notably, a National Register of Microform Masters was begun in the USA in 1965. There are similar attempts for instance in the UK and in France.

LIBER proposed a European Register of Microform Masters (EROMM) already in 1985. A survey was undertaken to establish the demand as well as the actual support that could be expected for such a register. The CE and the European Community supported efforts preparatory to the register: the European Community had a feasibility study produced by a consultancy firm to establish the bibliographic, technical, financial and political framework to produce a register and have it running on a permanent basis. The feasibility study clearly pointed towards practical ways of erecting a European register. The results and recommendations of the feasibility study were confirmed by an expert meeting in Luxembourg in December 1989.

At the moment, the European register is about to be started in an initial phase. Intended to last for a year, bibliographic data of microform masters held by libraries in four countries (France, Germany, Portugal, UK) are to be merged in a database run by the Bibliothèque Nationale in Paris, In a second phase, the framework is to be extended to data coming from virtually all European countries. Phase one of EROMM is likely to be sponsored in part by the European Community.

3. Problems unsolved

These include bibliographic control of microform masters, not only in Europe or North America, but indeed worldwide; considerations on conspectus, i. e. co-ordinated collection building and preservation; access to reproductions of microform masters, relating to problems such as copyright, fees and speed of delivery; joint ventures of non-profit organisations, e.g. research libraries, and commercial publishers; keeping track of technical developments; increasing awareness and co-ordinating of diverging activities in the fields of production, storage and bibliographic control of microform masters.

4. Suggestions Made

During the meeting the following suggestions were made:

Comprehensive and systematic programs of preservation filming should be launched very shortly. On-going activities should be supported. Production and storage of microforms for security purposes (microform masters) should be encouraged and facilitated by provision of suitable technical equipment and appropriate building conditions. Most of all, however, it should be made obligatory to have the bibliographical data of microform masters recorded in relevant databases and made available to all interested persons.

The US experience is of great importance for all considerations made in Europe on recording of microform masters in order to avoid repeating mistakes. Therefore, the meeting included participants from US libraries and the US Commission on Preservation and Access.

5. Particular situation of Central and Eastern European Countries

Although storing most valuable collections, libraries in Central and Eastern European countries are suffering from severe problems. these include: insufficient technical equipment for large scale preservation measures; poor storage facilities and air-conditioning; insufficient financial means; lack of electronic data processing.

6. Recommendations

Considerata:

Libraries in Central and Eastern Europe store an extraordinary wealth of rare, in numerous cases even unique, collections of books, periodicals or newspapers. Although, in the course of political change, conditions of access to these collections have improved considerably, many of these collections are being threatened by decaying paper. It is, therefore, unavoidable to have as many books, periodicals or newspapers of significant research interest and pertaining to the cultural heritage preserved on microfilm or microfiche to ensure access to them in the future.

Recommendations:

The meeting, convened by LIBER, of librarians from Central, Eastern and Western European as well as from US libraries recommends that comprehensive measures be taken immediately to

- start comprehensive and systematic programs of preservation filming and support on-going programs;
- support production and storage of appropriate microforms for security purposes (microform masters;
- guarantee the bibliographic record of microform masters;
- facilitate access to reproductions of microform masters.

In order to achieve these objects it is necessary to

- have libraries in Central and Eastern Europe provided with state-of-the-art technical equipment for production of microforms and to have their buildings prepared for appropriate storage of microform masters (cf. ISO 4331, 4332);
- employ electronic data processing for cataloguing of microform masters and to use data formats compatible to UNIMARC (cf. ISO 2709);
- provide comprehensive and continuous training for the staff producing, storing and cataloguing microform masters;
- introduce, in medium terms, preservation processes from microform towards scanning technology of source texts;
- co-ordinate preservation filming respectively cataloguing programs on a national level and document them in international databases;
- provide follow-up meetings to allow for solving technical or bibliographical problems.

Bibliographic Control and Access to Microforms

PATRICIA BATTIN
Commission on Preservation and Access, Washington, D.C.

Bibliographic control

A successful international cooperative preservation program depends upon a standardized and widely-accessible infrastructure of bibliographic control to eliminate duplication of effort, to promote scholarly access, and to provide cost-effective opportunities for shared filming projects. During the past twenty years, research libraries in the United States have created the following capabilities:

1. A National Register for Microfilm Masters maintained by the Library of Congress. This Register is now being converted to MARC format and tape-loaded into OCLC and RLIN.
2. A set of bibliographic standards for preservation microforms developed by the Association of Research Libraries. These standards have been accepted by the research library community.
3. Two national bibliographic utilities: OCLC and RLIN. Both utilities routinely load the Library of Congress MARC tapes and together serve over 3.000 libraries.

   RLIN has a queuing capability, which permits the filming institution to indicate intent to film.

   OCLC member libraries enter a catalogue record immediately before filming an item in order to signal intent.
4. Regular exchange of tapes containing bibliographic records of preserved items between OCLC and RLG.
5. Routine loading into RLIN of preservation records from the British Library. Plans are in process to load records from the Bibliothèque National.

The National Endowment for the Humanities has launched a federally-funded 20-year Brittle Books program to reformat 3.000.000 volumes. The substantial grants of $ 1.000.000 to $ 2.000.000 are made to participating research libraries and carry the following conditions: Standardized MARC records must be entered into either OCLC or RLIN; a master negative must be stored in a secure

location under appropriate environmental conditions, and a printing master and service copy must be made available to provide convenient, cost-effective access.

In 1988, the Commission on Preservation and Access initiated its international effort to establish agreement on minimal level exchange records in machine-readable format in order to develop an internationally-compatible database capacity. The intent is to build on existing practices in many countries and the specifications for the emerging European Register of Microfilm Masters. It appears likely that most countries can meet the requirements for a minimal level exchange record based on UNIMARC data elements. This record could be enhanced locally at the discretion of individual countries.

Access to Microforms

In the United States, we are exploring the feasibility of a central collection of microforms dedicated to rapid, efficient, cost-effective access. An informal survey conducted by the Commission on Preservation and Access indicated that current service is very poor. We estimate that by 1992 there will be approximately 1.000.000 preservation microfilms with the prospect of an additional 2.000.000+ preservation microfilms by the year 2010. The bulk of these films are distributed among thirty to forty research libraries. Response to requests for either loans or copies is a low priority for most libraries. We believe a centralized dissemination facility, equipped with the latest technologies for scanning, printing, and network distribution, will be necessary to provide appropriate access to information seekers in the 21st century. Bibliographic records would be available in a machine-readable international register; orders could be placed by either libraries or individuals from networked workstations, FAX machines, or postal services; on-demand publishing services would be available for products on paper, CD-ROM, microform, etc.

We are currently exploring the complex issues of copyright, technology, economics, and governance of this concept. There is widespread agreement on principle -- the challenge is to make it happen.

The State of Microfilming of the Collections in Poland

JAN PIROZYNSKI
Jagiellonian Library, Kraków

After the end of World War II. Torunskie Towarzystwo Naukowe/Torun Scientific Society began a microfilm "edition" of the collections of historical sources. Soon three types of institutions, engaged among other things in microfilming, were shaped:

1. Libraries
2. Archives
3. Polish Academy of Sciences

1. Libraries

The Institution leading in microfilming is the National Library in Warsaw. It has a Microfilm Station, established in 1947, which is microfilming the most valuable manuscripts, old prints and rare books from the area of the whole country.

Besides, the National Library conducts central microfilming of newspapers and periodicals. Microfilms of particular titles are made from many copies borrowed from other libraries, which permits to complete possibly all numbers, and choose the best pages to photograph. The National Library has Zaklad Zbiorów Mikrofilmowych/ the Microfilms Collection Department, which apart from acquisition and lending of microfilms publishes "Catalogue of Microfilms". There have appeared 18 issues hitherto.

Entries specified in it are copied liable to charge, for the demands of institutions and private persons.

Larger microfilm laboratories and departments of reprographic collections or microforms are found in the following university libraries:

The Library of the University of Wroclaw

The Library of the University of Poznan

The Library of the University of Warsaw

The Jagiellonian Library

The Library of the Academy of Mining and Metallurgy in Cracow

The Center of Archives of Church Libraries and Museums at the Catholic University of Lublin

The laboratories of the above-mentioned institutions make, apart from the National Library, microfilms of their own library objects in order to protect the originals from damage. They also perform microfilm services for persons and institutions.

2. Archives

In 1955 Centralne Archiwum Dokumentacji Mechanicznej (The Central Archives of Mechanical Documentation) was established in Warsaw which took over the above-mentioned laboratory.

All the more important archives pass their archival records of considerable historical value for microfilming to the Archive of Mechanical Documentation, which gathers negatives of the microfilms it makes in its Central Microfilm Stock and gives positives to the owners of the originals.

3. Polish Academy of Sciences (PAN)

In 1954 a microfilm laboratory was established at the Center of Scientific Information of the Polish Academy of Sciences.

It performs the microfilm service for scientists and scientific centres of PAN. Larger microfilm laboratories are also found in PAN libraries in Wroclaw and Kórnik, and in the Library of Polish Academy of Learning which has been joined recently to Cracow's Section of PAN.

Moreover, the Scientific Information Center of PAN is conducting operations concerning foreign turnover of microfilms.

It publishes the catalogue called "Microfilms brought from abroad" which includes research works, articles from periodicals and other materials in its scope.

25 issues of the above-mentioned catalogue have been hitherto published.

Centres making microfiches in Poland:

I. Wroclaw

1. ZAKLAD im. OSSOLINSKICH (Ossolineum) has a microfiche laborator. The Microfilm Collection Department worked out in 1979 "Instruction for cataloguing microfiche materials in the Library of Zaklad Narodwy im. Ossolinskich (duplicated typescript), which is used by other libraries including the Jagiellonian Library.

2. WROCLAW UNIVERSITY. The Reprographic Section apart from microfiching of library collections has a publication program, publishing from 1985 a microfiche series "Germanica Wratislaviensia" sent on the basis of a legal deposit copy (thanks to a printed cover) to scientific libraries.

3. WROCLAW POLYTECHNICS makes microfiches for its own demands, and directs the action of microfiching foreign technical periodicals, in which Warsaw Polytechnics and Poznan Polytechnics participate. These microfiches are distributed in other technical academies.

II. WARSZAWA

1. GLOWNA BIBLIOTEKA LEKARSKA (The Main Medical Library) microfiches publications for completing its own collections, and in order to distribute foreign literature in scientific, medical institutions as well.

   The member of the staff in this library Irena Kwasnieska published for medical libraries instruction called: "Microfiches in a library. Preparation, storing, lending" [Aktualne problemy informacji i dokumentacji - *Current problems of information and documentation*, 1984 nr 1, pp. 30-35].

2. THE NATIONAL LIBRARY has not been making microfiches until 1990. It is engaged in complete microfilming of periodicals and special collections from the whole area of Poland. In 1990, using the equipment from the West, it began to make microfiches.

3. UNIVERSITY LIBRARY similarly as the National Library did not introduce microfiching of the collection but only microfilming. It gathered, however, microfiches received from other scientific centres. In 1990 it obtained a microfiches line made in the West and began the microfiching.

4. WARSAW POLYTECHNICS produces and distributes microfiches in close cooperation with Wroclaw Polytechnics.

5. THE PAN CENTER OF SCIENTIFIC INFORMATION makes microfiches for the demands of PAN scientific centres.

6. INTE (Scientific, Technical and Economic Information), DEPARTMENTAL CENTER OF ENERGETICS AND ATOMIC ENERGY produces and provides microfiches to other scientific centres.

7. INSTYTUT METEOROLOGII I GOSPODARKI WODNEJ (Institute of Meteorology and Water Control and Exploitation) produces and distributes microfiches in centres which are subject to it.
8. FABRYKA TRAKTOROW URSUS (The "Ursus" Factory of Tractors) has a large reprographic laboratory, in which several PENTAKTA microfiche lines are working. Drawings representing all details of produced vehicles are microfiched.

III. POZNAN

1. POZNAN POLYTECHNICS makes microfiches to complete its own collections and cooperates with Wroclaw Polytechnics in distributing foreign technical literature in form of microfiches.
2. MEDICAL ACADEMY completes its own collection in form microfiches and acquires microfiches from Główna Biblioteka Lekarska (Main Physicians' Library).
3. POZNAN UNIVERSITY microfiches its collection.

IV. KRAKOW

1. THE JAGIELLONIAN LIBRARY microfiches its own collections and publications it does not hold. It also acquires microfiches received from other scientific centres. It microfiches whole items for private persons and institutions.
2. CRACOW POLYTECHNICS has a laboratory making microfiches.
3. MEDICAL ACADEMY carries on microfiching of the collection and acquires microfiches received from various medical centres.

It should be maintained in general, that the system of microform making existing in Poland is badly organized. There are no generally binding norms, technical equipment is out-dated and insufficient, the co-operation between particular institutions does not go on very successfully.

Council of Europe: Parliamentary Assembly

Motion for a Resolution on the Preservation of the Libraries and Scientific Archives in the Countries of Central and Eastern Europe and on the Continuation of Scientific Co-operation Presented by Mr. Stig Gustafsson and Others

1. The Assembly welcomes the continued changes in the political situation in Central and East European countries, but these also mean that inner structures and networks weaken or break down. This is particularly obvious in the economic and political life of the societies concerned. Almost all the efforts made to keep abreast with the great difficulties are now focussed on the material aspects of life. However, the human values must not be forgotten.

2. The libraries and scientific archives, not to mention all the scholars involved with history and other humanistic disciplines have, in all the Central and East European countries, met with overwhelming difficulties in their struggle for survival. A number of good scientists have already been expelled from their institutes and jobs. Many libraries and scientific archives are threatened in various ways - mainly due to lack of money but also, in many cases, for political reasons.

3. In these former communist countries scientific research in the field of history and political science has, until now, been carried out in the universities, in the special sections/institutes of the academies of science, and in the so-called party institutes. All these institutes now have to make budget reductions, especially the latter two.

4. The libraries and the scientific archives may be cut to pieces or sold off, and this would seriously jeopardize future research, not only for national scholars but also for foreigners who often come from institutes in Council of Europe member countries. They have all, until now, been accustomed to good service at the various libraries and scientific archives and to fruitful contacts and scientific exchanges with one another.

5. The party institutes constitute a special problem. Their archives departments have material not only from communist parties but also from parties or organisations hitherto suppressed. A most delicate aspect of this is that they often have government documents and other materials which, in countries with undisturbed democratic traditions, are kept in national archives.

6. The libraries and scientific archives in the countries of Central and Eastern Europe form part of the European cultural heritage. The rapidly changing political situation in these countries means that libraries and scientific archives, valuable for scientific research, can be destroyed, and years of skilled scientific work ruined. It also means - and this is a tragic fact - that a number of good

scientists have been expelled from their institutes and that their research projects cannot be concluded.

7. The material in the libraries and scientific archives, and the scientific projects and their results are valuable, both for the nations themselves as well as for citizens and scientists in Council of Europe member countries. Ever since World War II, important scientific contacts have been upheld between East and West. These opportunities for scientific contacts must not disappear, particularly at a time when political exchanges are improving daily.

8. Consequently, the Assembly urges Council of Europe member states:

- not only to supply economic and material assistance to the countries of Central and Eastern Europe but also to support the libraries, scientific archives and research, in order to avoid destruction and irreparable losses;
- to use already existing contacts between national archives, libraries, scientific institutions and Central and East European countries for expeditiously carrying out this humanistic task.

9. The Assembly stresses that the history of these countries and societies is not only their own affair, it is also of great interest to citizens and scientists in Council of Europe member countries.

Signed: Stig Gustafsson, Tummers, Havik, Lars Gustafsson, Worms, Stoffelen, Elo, Thoresen, De Puig, Roman, Jung, Gjorv, Helgadottir, Holst, Martinez, Tarschys, Ewing, Svensson, Grondahl, Baarveld-Schlaman.

16 October 1990 Doc. 6330

NEWS SECTION

SALTYKOV-SHCHEDRIN/STATE PUBLIC LIBRARY LENINGRAD: CIRCULAR LETTER

We are anxious to complete our library's collection of Russian literature published abroad (i.e. literature after 1917, for example, emigrant literature), so that our library would become the National Library of Russia and represent the "memory of the nation".

We are, therefore, interested in establishing contacts with research libraries which hold an important stock of Slavonic literature. An exchange of literature by means of microfilm is one possibility. For instance, we might offer microfilm versions of contemporary,"non-official" literature for exchange. Our library might also prepare microfilm versions of the many newspapers, periodicals and other publications currently being produced by new parties and organisations.

We would be grateful to have your reactions to this proposal.

Please contact: Dr. Boris Volodin, Saltykov-Shchedrin/State Public Library Leningrad, Sadovoj ul. 18, USSR - Leningrad.

INTERNATIONAL LIBRARY TECHNOLOGY FAIR 1991

Europe will be the subject of this year's International Library Technology Fair at Hatfield. The fair will take place on 11 and 12 September 1991 and will offer conferences and seminars as well as exhibitions. The fair will be opened by Mr. Vicente Parajón Collada, Deputy Director General of DG XIII/EC, which is responsible for the IMPACT program as well as for the Action Plan for Libraries. Special meetings will be arranged by the Library Association, the UK Online Users Group (UKOLUG), the European Information Association, the MARC Users Groups and others. For details contact: William A. Forster, International Library Technology Fair, Hatfield Polytechnic, College Lane, Hatfield, AL10 9AD, United Kingdom, Tel: + 44 707-279665.

LIBER WORKING GROUP ON LIBRARY ARCHITECTURE

The Working Group held a seminar on Planning and Proposing Library Buildings in Europe including visits to several new library buildings in Bavaria from 29 October to 1 November 1990. The relevant papers will be published in ERLC.

LIBER WORKING GROUP ON MANUSCRIPTS AND RARE BOOKS

The Working Group held a seminar on Automated Manuscript Cataloguing on 21 and 22 March 1991 at the Vatican Library. The relevant papers will be published in ERLC.

LIBER Library Automation Group (LLA)

LLA is preparing the second edition of the LIBER directory "Library Bibliographic Networks in Europe" (1. ed. 1988). The updated and revised edition of the directory will be published in 1991.

Conference on Safety and Co-operation in Europe at Krakow

The Council of Europe involved LIBER in the preparatory work for the Kraków conference on aspects of European cultural heritage which has been a follow-up-conference to the Conference on Safety and Co-operation in Europe. The Conference was held at Kraków in May 1991. The Council of Europe was asked by the Polish Ministery of Foreign Affairs to set up preparatory guidelines within an expert meeting on 18 and 19 December 1990. The experts emphazised the need for European co-operation on preservation, conservation and access to libraries.