

**The Future of Libraries and Collections:
Keynote Address to the Fiesole Collection Development Retreat, Oxford, 20 July 2000**

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When I agreed, what seems like ages ago, to be the opening speaker at this collection development retreat, I blithely assumed that what would be expected from me was the usual short and light-hearted after-dinner speech, liberally sprinkled with amusing anecdotes and more-or-less appropriate jokes on the general subject of libraries and collections - something to send you all off to bed happy, and, of course, well-impressed with the wit and wisdom of the chief librarian of the University of Oxford.

But, not having had the pleasure of attending the previous retreat, I had obviously misjudged your dedicated professionalism, and, especially, your organiser's determination to fill every available moment - and even the gastronomic afterglow of an Oxford college dinner! - with more serious considerations about the future of the information world from now till then.... In fact, it was only a few weeks ago that a letter from Rebecca Lenzini put paid to any thoughts I might have had of preparing an entertaining party piece for this occasion. Instead, Rebecca made it clear that my brief for tonight was a keynote address that would help to "set the stage", at some length, for the next few days of discussion and debate about "the new world order in collection development", under the general title of "The Future of Libraries and Collections". So that, ladies and gentlemen, is what you're going to get. And whether it sends you to bed happy, or makes you even more sleepy than you already are, only you will be able to say! I just hope that you don't all go off to bed repeating Groucho Marx's famous line: "I've had a good evening; but this wasn't it!"

And, of course, even if this was 9 o'clock in the morning, and you were all wide awake and intellectually alert, it would still be a tall order for me to give relevant answers to the overarching questions which this retreat has set as examination subjects for itself. "What is the likely shape of the library in 2005?". "And how do we build collections for it?" These are taxing questions for us all at the best of times, let alone at 9.30 in the evening, at the end of a long and tiring day, however pleasant the ambience we are in may be. So I hope you'll sympathise and bear with me as I attempt to share with you a few of my own all-too-hazy perspectives on these important, but thorny, issues which are exercising many minds much smarter and more far-sighted than my own! As the New York Yankees' catcher, Yogi Burra, once said: "It's tough to make predictions - especially about the future"!

The other thing I suppose I should do by way of introduction to my remarks is to explain to you my own professional background, and therefore, where I'm coming from, since that will inevitably shape and colour what I have to say tonight, and will help to explain the context and background of the personal perspectives I have to offer. My working life - all 30 years of it - has been spent entirely in university libraries. And although I've been fortunate to work in six of them in the UK, 25 years of my career have been spent in the four largest university research libraries - the libraries of the Universities of Manchester, Cambridge, Leeds and Oxford; and so my experience has been mostly oriented to the needs and concerns of some of the leading academic research communities in the UK. I did, however, spend five years working in two smaller technological university libraries - at Surrey and Aston - and I'm very thankful that I was involved in those institutions, quite early on in my career, with a very

different set of library issues. Both Surrey and Aston are relatively smaller technological institutions, having achieved university status during the 1960s; and their libraries are necessarily much more specialised, more highly service-oriented, much closer to the 'access' end of the holdings to access spectrum, and, when I was there in the 1970s, they were also much further advanced in the application of computers to library processing activities than their much older and larger research library counterparts. Inter-library co-operation was much more in evidence, too, and my time at Surrey and Aston was a valuable introduction for me to the benefits of the early automated cataloguing co-operatives like BLCMP (of which Aston was a founder member). In fact, I realise now that those five years I spent in those two smaller, more modern, libraries, with their emphasis on service, on highly selective collections, on access, on automation, and on co-operation, have been very formative in bringing my experience of those issues to bear in the research library environment at a senior management level, in Cambridge, in Leeds and, since 1997, here in Oxford.

I have been very fortunate, also, to have been directly involved at the national - and more recently at the international - level in academic library developments. I was Deputy Librarian at Cambridge in the early 80s when CURL (the Consortium of University Research Libraries) was formed, and I was Secretary of the Consortium when its machine-readable database of catalogue records was established by the Higher Education Funding Councils as the UK-wide COPAC service in the early 90s. I was Vice-Chairman and then Chairman of SCONUL (the Standing Conference of National and University Libraries) when the former polytechnics became universities in 1992, and I was well-positioned, in that context, to promote inter-library co-operation between the older and the newer university library sectors. I was fortunate, too, to be directly involved in the Follett Review of university libraries, which reported in 1993, and I was a member of the original panel for the post-Follett Non-formula funding initiative, which has done so much to support specialised research collections in the Humanities over the past few years. In the area of electronic information, too, I have had a direct hand in many of the post-Follett initiatives. While the lion's share of the credit for the Electronic Libraries programme (eLib) must go to Derek Law, to Lynne Brindley and to eLib's Programme Director, Chris Rusbridge, I was privileged, a couple of years ago, to succeed Lynne Brindley as Chair of the Joint Information Systems Committee's Committee on Electronic Information (now known as the JCEI); and, in that capacity, I have presided over both the final phases of eLib and over the development of its direct successor programme, the DNER, the Distributed National Electronic Resource. As you may know, a key part of the DNER is concerned with the take-up of electronic journals, and I have been Chairman of the National Electronic Site Licensing Initiative (NESLI) since its inception two years ago. As the current Chair of the JCEI, I am the only librarian on JISC itself, and am therefore closely involved in the development of the new national strategy on information systems for Higher and Further Education in the UK. And, finally in this brief overview of my personal involvement in the wider library and information scene, I have been a Director of the international Research Libraries Group, RLG, since 1996, and was elected as RLG's Chairman last year; and I regard myself as very fortunate indeed to be overseeing RLG's growing international agenda in three key areas: in digital preservation and archiving; in international resource sharing between research libraries; and in the building of a Cultural Materials service, which will consist of a critical mass of digitised images of the primary research materials of some of the world's leading holdings institutions.

Now, I mention all of these things not as a mere ego-trip, nor even as a simple rehearsal of my personal bona-fides in speaking to you tonight, but as a basis for giving some kind of structure and substance to my remarks. Because it seems to me, as I look back over my career in this way, that my own experience of involvement with the development of libraries and

collections - in the academic library sector at least - is in many ways a pretty accurate mirror of what has been going on in libraries in recent times, a more or less faithful reflection of the general trends, and also a reasonably reliable set of pointers to our future directions. Co-operation, automation, and the building of the digital library - and all for the enhancement of service delivery levels in support of teaching and research - these are the three key elements which have run through my own career; and I believe that these are three of the principal drivers which will shape our collective future as suppliers of information to the scholarly world. And so, co-operation, automation, and the building of the digital library are the three themes which I want to use to structure this keynote address. Woven into them all, of course, is the emergence of the Internet. And, if the Internet has anything really valuable to offer us, it must lie in its capacity to enable us to integrate our various approaches to these three key issues, and to network our solutions globally, as we plot together the future of libraries and collections during the coming years.

So, let me say a few words, first, about co-operation. There are, of course, in the world of libraries as in life generally, some people who just don't know the meaning of the word co-operation; but I hope that none of you is numbered amongst those benighted souls. These are sometimes individuals whose vanity is equalled only by their sense of self-importance, or who firmly believe that they know better than the rest of us, and who are determined to prove it at all costs. I've known a few of these in my time, and the information world is littered with cautionary examples of people (and even groups of people) who persist in pursuing library-related developments in isolation from everybody else, or who cling perversely to self-reliance as the answer to all their problems, as though any of us can seriously achieve comprehensiveness in collection development, or develop technical solutions for modern information service delivery which are built entirely on home-grown efforts. I'm pointing no particular fingers here; but some of our national and quasi-national institutions are not exempt from the worst excesses of the 'not-invented-here' syndrome. And they are by no means alone! But I'm convinced that the future does not belong in that direction; for if the last few decades of library and information developments have taught us anything, then it's surely that the really significant advances, and the most meaningful and lasting solutions, are co-operative ones. And more than that: they are tending to become global ones. MARC, AACR2, and even the Internet itself, are obvious examples of this, and there are many others; and the rise of consortia of every kind is testimony to the growing recognition of the value - the necessity even - of inter-organisational co-operation, at both local and international levels.

And, in the world of electronic networks within which we all now operate - and within which we will all increasingly live and move and seek our respective futures - our survival as organisations will undoubtedly be based on the extent to which we adopt, and adapt to, international standards, which are themselves the products of co-operation of the most significant and beneficial kind. You all know this is true, in whatever neck of the information woods you happen to work - in publishing, in library supply, or in information service delivery - and so, for all our sakes (and especially for the sake of our end-users, whoever they may be), I hope we can all agree that, even where we are in competition, we also have a mutual self-interest in helping to build systems and processes and models and service-delivery solutions that are based on co-operatively-agreed solutions and standards. The UK's somewhat grandiose concept of a Distributed National Electronic Resource is posited firmly on such a basis, and I can only appeal to you all to adopt a similarly outward-looking, co-operative, approach to whatever part of the global information infrastructure you are currently involved with. The future will not forgive you if you don't; and what's worse, I don't think you will have a healthy future if you insist on 'doing your own thing'!

And these siren words of warning are, I believe, especially relevant as we all try, in our own ways, to figure out the future paradigms for the scholarly communications industry, in which we all have an interest of one kind or another. As we begin to move more purposefully into the world of electronic journals, for example, it behoves us to get past our collective nervousness about the uncertain economics of this new environment, and to seek collective and co-operative solutions more systematically. I'm pleased to say that, in the context of the UK's National Electronic Site Licensing Initiative, in spite of the inevitable difficulties in striking mutually acceptable deals between Higher and Further Education libraries and publishers, there are signs of an emerging willingness to work together towards more appropriate economic and service-delivery models; and I can only hope that this trend continues, and gathers pace, in a genuinely collaborative spirit. It's certainly a direction we need to go in, and we all stand to gain from more of it.....

We need a co-operative approach, too, to the really big issue of digital archiving, since this is most definitely not something that any of us can hope to resolve alone. It's a truly global issue, too; and we really must engage, more than we do at present, with the international computer industry at large, as we seek to learn more, not just about the technical issues involved, but also about the even more thorny economic and managerial questions which we are all beginning to face in this key area.

And this issue of digital archiving, which we are all starting to recognise as a major piece of our collective future, brings me seamlessly on to my second major theme: automation. We have, of course, come an awful long way since the days when we used to refer to the application of computers in libraries by the ugly name of mechanisation; and the rise of the Internet in the last decade has, of course, totally transformed the information landscape within which our own local computer systems now inter-operate. Things could hardly be more different now than they were when I had my first experience of library computing in the 1970s.

We've seen the automation of acquisitions processing, the automation of the catalogue, the automation of circulation, and the automation of abstracting and indexing resources. And the key word in all of this is automation; and basically, that's meant doing what we were already doing, but doing it better, by using machines to help us. But now, with the rise of the Internet, and with the development of a lot of really smart computer-based technology which has application possibilities in the information and communications world, we are seeing what Cliff Lynch has recently described as "a whole set of discontinuities lurking around on the horizon". And "automation" is almost no longer good enough, or accurate enough, as a term to describe and embrace the way we are going to have to address these discontinuities and their massive implications in the globally networked world. Even "ICT" (or information communications technology) is not a big enough concept to characterise the next phase of the computer-based revolution that we're living through, and having to deal with. And those discontinuities that our use of automation has thrown up are not just about libraries: they're about the whole nature of publishing, about the whole cycle of authoring, publication, and reading; they're about control, about economics, about big legal issues (like IPR and copyright), and they're about social issues, too, like filtering, about censorship, and even about obscenity. And in the world of globally networked information, these are all phenomena that are coming at us 'out of the woodwork'; and we're going to have to learn to deal with them if we're really going to get much further across the threshold of the digital library, and if the Internet really is going to be an integral and reliable part of our institutional and organisational strategies. Authentication, authenticity, and the persistence of digital stuff are other key issues that we can include in this same category of discontinuities that will

demand some kind of resolution before we move beyond the merely 'automated' stage that we're largely still living in.

So, what about the third of my key themes for tonight - the building of the digital library? And what does this big issue have to tell us about those even bigger exam questions which this Collection Development retreat has set for itself: "What is the likely shape of the library in 2005?", and: "How do we build collections for it?". Well, I want to have at least a stab at some of these conundrums in two particular ways. First, I want to share with you just a few philosophical reflections on some of the implications of the digital world as I see it; and then, secondly, I want to finish off on a more concrete and practical note, with a case study of the Oxford library system, which will show you at least some of the ways in which we are tooling up to use digital technology to redevelop our library services and collections for the opening years of the new millennium.

OK: so here's the philosophical bit first! And I want to start this section of my remarks on a positive note. I suppose that implicit in the title of this talk ("The future of libraries and collections") there is the underlying, implicit, question: "Do libraries even have a future?" And my positive, upbeat, response to that very big question is a resounding "Yes!" And more than that, I believe that libraries, and the physical collections which they contain, have a very rosy future. But that future will be different - nothing can be more certain than that - and it will be deeply digital, as well as enduringly physical. So let me explain what I mean, first philosophically, and then practically.

Well, you hardly need me to tell you that the digital information world is expanding at a dizzying speed and that is transforming virtually everything that we all do, and even the very ways in which we think about what we might do in the future. And central to that rapid transformation are the Internet and the World Wide Web. But unlike the libraries that we have built over the centuries, which are carefully selective, well-organised and occupying physical spaces, the Web is staggeringly unlimited, catholic (with a small "c"), and, above all, chaotic. It has no physical location; and apart from its servers and the terminals we need to use it, it occupies virtually no space. At the same time, too, it is both expanding - exponentially, towards infinity - and also, potentially at least, shrinking. In storage terms, that other mind-boggling area of revolutionary change, nanotechnology, is bringing us closer to the time when we may see the realisation of Richard Feynman's prediction - made over 40 years ago - that all of the recorded information in the world will ultimately be capable of being written "in a cube of material two-hundredths of an inch wide - which is the barest piece of dust that can be made out by the human eye". But if we can envisage the possibility of Feynman's all-embracing digital nanocube, which could contain every piece of information that we currently hold or that we may produce in the future, it is still fairly certain that we are still a long way off from actually having it. And, since the frame of reference set for my remarks tonight is the year 2005, I believe that it's pretty safe to say that we will not have the nanocube by then, and that our main task in the interim will continue to be to provide ever-improving access, both virtual and physical, to our ever-growing collections of knowledge-based resources, a significant part of which, as now, will continue to be owned, managed, organised or 'gatewayed' by our libraries or by our library-like organisations and information systems.

And as for the future of libraries as physical locations, it's already the case that much of what we provide by way of services to users is offered in virtual information spaces, networked 24-hours a day across campuses and even across the globe. Catalogues of library holdings of most major academic institutions are already available without the initial necessity of making

physical visits to the libraries themselves. Databanks of scientific, demographic, economic, political and legal information are accessible worldwide, as well as newspapers and, increasingly, electronic journals of every kind. More and more full text materials can be consulted online, as well as scholarly preprints. Vast electronic archives are being created and offered for wider access. Government documents can be read in their entirety; photographs can be reproduced, and film and audio materials can be downloaded. And, because such databases can be searched with growing ease and efficiency, with relevant linkages between them, there are even now possibilities for study and research in the digital environment which could not have been dreamed of only a few years ago. And all of this kind of activity will continue to expand, and to improve, and we shall all, in one way or another, be doing our bit to contribute to these transforming developments. And the UK's Distributed National Electronic Resource will be one piece of that worldwide effort to build the global digital library, to bring greater coherence into the chaos of the Internet, and to carve out a managed information clearing in the jungle of the World Wide Web.

At the same time, and by the same token, activities and national development initiatives like the DNER will require not only the close involvement of the institutional librarians who live and work in the physical spaces of their local libraries, but it will also depend crucially upon those same librarians and directors of information services finding ways of integrating national services like the DNER into their own local service infrastructures. And in this context, the need for librarians, and for the libraries and the collections and services which they manage locally, will most definitely not go away (or even, in my view, diminish). Librarians may increasingly be thought of (or even actually called) "information brokers"; libraries may increasingly be redesignated as "information services", or as "learning resources"; and the management of library collections (and access to them) will certainly be based more and more on digital technology; but their physical existence will continue, and, certainly in places like Oxford, will continue to grow, and grow physically. As I said earlier, 2005 will not see us all replaced by Feynman's nanocube! There's definitely a lot more for us all to do, as real flesh and blood people, and within physical spaces made of bricks and mortar (or whatever materials 21st-century libraries are being made of!)

All of which brings me, at last, to a practical view of what the immediate future is likely to hold for a very big physical library system like that here in the University of Oxford. And this is the point where this keynote address becomes visibly visual, with an illustrated presentation of how the digital revolution is being harnessed here to introduce a new paradigm of access and service for our 21st-century library users.

But before I begin my slide show, I want to stress that every image I'm going to show you has been captured and downloaded off the Internet. (I say this because only as little as a year ago, I could not have found all this material in electronic form on the World Wide Web, and that fact in itself underlines how far and how fast things are moving here.)

[Rooftop view of Duke Humfrey and Radcliffe Camera] So, is this the kind of image which is conjured up in your mind when someone mentions the library system in Oxford? And this? **[View of the Tower of the Five Orders, Old Bodleian]** Wonderful old buildings: part of the glorious architectural history and heritage of England **[View of Arts End, Bodleian Library]**, and filled with printed and manuscript treasures from the past. Is that how you think of Oxford's libraries - as "museums of the book", almost frozen in time, like outdated dinosaurs from a bygone age? Do you think such libraries - even perhaps libraries as an entire species - are ultimately condemned to extinction (or perhaps, at best, to live on the margins of the post-modern world), as more and more of the information needs of the

modern age are met in electronic form and supplied across global communications networks, rather than by that curious 3-dimensional physical artefact known as the printed book? [**View of chained books, Duke Humfrey's Library**]

Well, if that's your view of the future of Oxford's libraries, then I hope my remarks tonight will make you think again. Because that's not how we see them here. Instead, we see a very long and exciting future ahead for us in the digital world, as the electronic information revolution gathers pace, and as we increasingly harness the new technology to transform the support which our libraries provide for scholarship. We do not see ourselves merely as the privileged guardians of the accumulated relics of the past, but also as the even more privileged facilitators of new and exciting forms of scholarly study and research in the Brave New World of digital technology. [**View of the Bodleian Library, West Front**] And why do we say this? Why do we believe that a library like the Bodleian Library (illustrated here), with 400 years of history behind it, can look forward confidently to many more centuries of successful service in a world where scholarly communications are becoming so pervasively dependent on the computer, and where "the death of the book" is so often alleged to be imminent?

Well, first of all, because we are certain, on the basis of our experience as an institution of legal deposit, that the printed book is very far from terminally ill. Like Mark Twain, in 1897, the printed book in the year 2000 could be forgiven for smiling and saying: "Reports of my death have been greatly exaggerated"! *The book as object, I can assure you, still has a lot of mileage left in it.* In fact, by a strange kind of irony, the computer age is actually *increasing* the quantity of printed material being published. In our libraries in Oxford, for example, we receive more and more printed material all the time: at the moment, we are adding 1,000 printed items to our collections for every single day of the week throughout the year; and this represents more than 2 linear miles of additional shelf-space per annum. The book, I can promise you, is alive and well, and living in Oxford!

[**View of the statue of the Earl of Pembroke, Old Bodleian Quadrangle**] And second of all, we are finding that more and more people are coming to Oxford every year to use our traditional library materials: there are no signs that our libraries, or the physical holdings they contain, are being used any less in this digital age. Quite the opposite, in fact. For its many tens of thousands of readers, the Bodleian Library remains what it has always been - a rich and seemingly inexhaustible treasure-trove of printed, manuscript and archival resources supporting every conceivable kind of study and research. And readers are coming here in ever-increasing numbers, more and more of them from outside Oxford. (More than 60% of current Bodleian reader's cards, for example, are held by non-members of the University; and, of these, about 50% are held by readers from outside the UK.)

[**Interior of Duke Humfrey's Library**] All of which is entirely consistent with both the status of the University as a world-class institution, and with the outward-looking vision of the Bodleian Library's Founder. From 1598 until his death in 1613, Sir Thomas Bodley lavished care, attention and his very large fortune on the refurbishment and re-equipment of Duke Humfrey's late mediaeval library room. He filled it with shelves and benches and, above all, with printed books and manuscripts - many of which were cajoled and charmed as gifts from the wide circle of influential friends he had made during his career as a diplomat in the service of Elizabeth I. Sir Thomas also concluded a far-sighted agreement with the Stationers' Company in 1610, making the Bodleian a deposit library for all new books published under licence in Britain. Described by Bodley's close friend Francis Bacon as 'an ark to save learning from the deluge', the Bodleian Library, propelled headlong by Bodley's

extraordinary generosity and energy into the systematic collection of the recorded wisdom of mankind, grew very quickly after his death, and is now by far the largest academic library in the UK, being at least a third larger than the library system in Cambridge.

[Map of the University Departments and Colleges] Today, the Library has grown way beyond anything that even its founder could ever have envisaged, with dependent libraries and storage sites all over Oxford, as well as beneath and beyond the city (marked as red shapes on the map). But throughout the centuries, the Library has remained staunchly faithful to its Founder's wish that it should open its doors to any and all in pursuit of learning - a long and noble tradition on which we are determined to continue to build, as we develop the collections, as we raise money to keep the ancient infrastructure in good repair, and as we welcome those ever-increasing numbers of readers and visitors into our buildings.

[Oxford University Libraries Web page] But, of course, in the brave new digital world of the 21st century, the value of a world-class library system is no longer measured simply by the size of its collections, nor even by the state of repair of its physical infrastructure, important though these things clearly are. In an age when electronic information is bringing rapid changes into the world of scholarly communication, the library system in Oxford is building on its unique heritage of historic collections and buildings by developing a completely new paradigm of access - an entirely new approach, in which digital information and communications technology are playing an increasingly crucial role. "Digitisation" and "The Web" are now as much a part of library life in Oxford as they are anywhere else in the developed world; and our library website (of which this is the home page) is believed to be one of the most extensive of its kind in Europe. **[Web page: Subject list of Library Catalogues]** And this is the next level down on the library website, where all the electronic catalogues and the hundreds of reference databases available to readers are sorted and listed by broad subject areas. Just one click on any of these lines, and you're away into an electronic Aladdin's Cave, with the riches of the whole of the Oxford library system at your fingertips!

And it's in this environment that we in Oxford, in common with many of the world's major research library systems, are using the term 'hybrid' library to describe the integration of our physical collections with our virtual collections. **[Quotation on 'The hybrid library']** And so, just let me read this definition of the 'hybrid' library with you (and forgive me for quoting myself!):

"The dominant user view of a library is of a physical place. But libraries are services which provide organised access to the intellectual record, wherever it resides, whether in physical places or in scattered digital information spaces. The 'hybrid' library of the future will be a managed combination of physical and virtual collections and information resources."

In Oxford, as in a number of other places, we see ourselves increasingly operating as a 'hybrid' operation, using technology to help us manage and provide access to very large and growing collections of both print and non-print materials, with much-enhanced services, not only for those who continue to come physically to Oxford, but also for that wider and increasingly global community of networked information users who access our facilities electronically without ever setting foot in the place.

So what have we got out there on the electronic networks? What are we providing, locally and on the Web, to make it possible for the Oxford mountain to come digitally to Mohammed (wherever in the world Mohammed may happen to be)? **[Cover illustration from the CD version of the Bodleian's Pre-1920 Catalogue]** Well, of course, as you can imagine, we've had to put an awful lot of effort into the conversion to machine-readable form of our vast

manual catalogues. And this was one of our earliest efforts: a CD-ROM version of the Bodleian Library's pre-1920 Catalogue of Printed Books. This was published in 1993 and marketed by the University Press; but we have since put the whole thing up on-line, and we have very recently integrated it into our main library information system, which we call OLIS. **[OLIS front page]** And this is the front page of OLIS - the Oxford Libraries Information System - in which the University has generously enabled us to make a major investment in the last few years. OLIS has grown in such spectacular fashion that it is now possible for readers with access to a networked terminal anywhere in Oxford - and throughout the world via the Internet - to gain round-the-clock access to information about the majority of the Bodleian's vast printed holdings, as well as those of more than 75 other libraries in the University. **[OLIS record/search result]** And here's a brief record display which is typical of our online catalogue, which now contains many millions of records. The display provides the basic bibliographical information to enable you to identify the book you're looking for; it tells you at a glance how many copies we have in Oxford; and it tells you whether or not they are currently out on loan, or otherwise unavailable for immediate use. We are now almost on the point of linking these catalogue records to an automated stack request system, and this will enable readers to pre-order any materials which are stored in closed access areas simply by clicking directly on a catalogue entry like this. This is a development which will save an enormous amount of academic and library staff time, and it represents a giant stride forward from the present labour-intensive manual book request system.

[OLIS record for the Railtrack passenger timetable] Allied to this radical modernisation of the OLIS catalogue, the new technology is also being used to enrich the catalogue database with other relevant information. Already, some printed book records like this one direct readers electronically to a website containing associated material (in this case it's current travel information): and readers are able to click on the website address and go directly to it via a live Internet connection. So, in this example, you can click on this catalogue record, and you'll get to this Web page: **[Web version of railway timetable]**, which is the Web version of Railtrack's *Journey Planner* for Great Britain. Enter the details of the journey you'd like to make, and then click on the 'Submit' button, **[Journey Planner results]**, and here are the results: if you want to get to London by train from Oxford before 7am on a weekday, then you'll have to leave on the 5.33, changing at Didcot Parkway!

So much, then, about our enrichment of the *printed* catalogues. **[Title page of a manuscript finding aid in EAD format]** Having made such enormous strides with our book records, we have recently to turn our attention to the really mammoth task of converting to machine-readable form the very large number of manual records describing our vast holdings of original manuscripts and archives. The slide displayed here illustrates the international standard format (known as EAD) which we are now using to make large quantities of our unique research materials available for accessible searching on the Web. (The electronic finding aid displayed here provides very sophisticated and carefully structured Web access to the full details of the contents of the very large personal archive of Maurice Latey, who served the BBC in various key posts from 1931 until well into the 1970s.)

And then beyond all this provision of electronic *descriptions* (or *metadata*) of our library holdings, we have also been working very hard over the last few years to create digital versions of some the original materials themselves. **[Digitised image of an advertisement printed by Caxton]** For example, we already have digital surrogates for a number of our rarest printed materials. (This is one of only two surviving printed adverts used by William

Caxton in 1479 to publicise his books.) And in order to place this kind of conversion work on a production basis, we are now embarking, in partnership with the University of Michigan and with Bell & Howell as our commercial partners, on the systematic digitisation of our enormous 17th and 18th century collections of printed books; and within a few years, we should have many thousands of rare printed texts like this one up on the Web.

[Home page of the ILEJ project] In collaboration with a number of major research libraries in the UK, too, we have already digitised substantial numbers of important 18th and 19th-century journals. This is the home page for the Web version of the ILEJ Project - the Internet Library of Early Journals; and the easily searchable index we have constructed will take you smoothly to pages like this one: **[Blackwood's Magazine title page, 1863]**, or to an individual page like this: **[Page from the Gentleman's Magazine from the 1730s]**, where the topic of interest highlighted is the value of the dollar in relation to the Pound sterling in the American plantations of the 1730s...

[Home page of the Early Manuscripts at Oxford project] We are investing lots of time and energy, also, in creating a critical mass of digitised manuscript material which is of crucial importance to historical scholarship; and we are systematically putting this material up on the Web as high-resolution images like this one, from the late 15th century: **[Virgin and Child, from the Ms Buchanan]**. The Bodleian Library also has outstanding collections of antique maps; and there are now many hundreds of these in digital form, like this John Speed map of Oxford, from the early 17th century: **[Digitised version of John Speed's Oxford]**, and this late 18th-century map of Boston: **[Digitised version of Map of Boston]**, all of which you can now peruse at your leisure on the Internet.

[Digitised manuscript Mendelssohn score] And if music is your particular interest, then you can examine this digital surrogate of an original Mendelssohn score; or you can enjoy at your desktop, anywhere in the world, this electronic version of Mendelssohn's fascinating series of notebooks **[Digitised Mendelssohn notebook]**, in which the composer sketches himself playing the organ with Prince Albert and Queen Victoria Consort, in the 1840s.

[Broadside Ballads home page] Or, if early printed street ballads (or broadsides, as they're sometimes known) are of value to you in your research, you can come to this important Bodleian Web page, where you can search and call up the largest collection of such materials in the world, **[Nelly Bly broadside]** like this one, for example, from the Crimean War period, when you could buy ballads like this in the streets for a penny. **[Ballads Sound Files Web page]** And what's more: if you have the equipment on your desktop, and there's any musical notation on the Ballad, you can click on the relevant line, and hear for yourself, over the Internet, what the tune of the Ballad may have sounded like, as much as two or three hundred years or so ago...

[Toyota City Transport Browser] Or, if you're interested in the history of transport, and you want access to the thousands of digitised images from our John Johnson Collection of printed ephemera, you only need to connect to this Bodleian Web page; and if you click on *railways*, you will soon find yourself admiring and poring over **[Image of New York City elevated railway]** this fascinating image of the New York City elevated railway as it was in the late 1800s. (I'll leave the New York locals among you to work out exactly where this impressive piece of hardware may be today!)

[Title page of the Mellon-funded Scoping Study Report] And the catalyst - the galvanising force - in all of this digital content creation which we are now undertaking and planning in Oxford's libraries, is this report of a scoping study which was generously funded

by the Andrew W Mellon Foundation. The outcomes of this study, which reported last summer, have provided the libraries of the University with a blueprint and an outline strategic plan for the further large-scale development of digital library services in Oxford, which will enable us to continue to transform our library support for research and teaching even further.

[Bodleian Shopping Arcade home page] And, yes, just in case you were wondering, we are also deeply into e-commerce in the library sector in Oxford; and we have plans to develop this part of the Bodleian Website even more, in order to reach into markets we never even dreamed of until now!

[Portrait of Sir Thomas Bodley] And, talking of dreams, I want to just reflect for a moment, before I close, on what the Bodleian Library's Founder would have thought about the digital revolution and all the huge changes which it's bringing into the Library which he established so long ago. Well, I like to think that, although he would no doubt be completely staggered by what goes on in the Oxford library system today, almost four centuries after his death, he would certainly approve of our re-interpretation of his vision, since all that we're doing is designed to maintain the relevance, and the value, and the accessibility, of the institution on which he lavished his energy and his fortune. And I'm sure that he would approve, too, of my final remarks; because I want to leave you with a famous quotation from the great essayist and historian, Thomas Carlyle. But I want to modify one of his most famous sayings in the light of the digital revolution. "The true University of these days is a collection of books", is what Carlyle said in 1841. But in the year 2000, I think we can build on that, and go a lot further, by saying that, for us, in Oxford, "The true University of these days is a collection of books, manuscripts, archives, maps, music, multi-media, databases, and electronic information resources of every kind, which are integrated into a single manageable whole and are made available across the global networks". So, with apologies to Carlyle, that is our vision for the University library system in Oxford for the 21st century. It's a bright vision, but it's an achievable one. And, as we all ponder our several and collective futures over the next couple of days and beyond, let's remember the immortal words of dear old Forrest Gump (which are so true for every one of us): "If you don't know where you're going, you will probably not wind up there"!