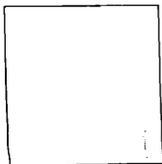
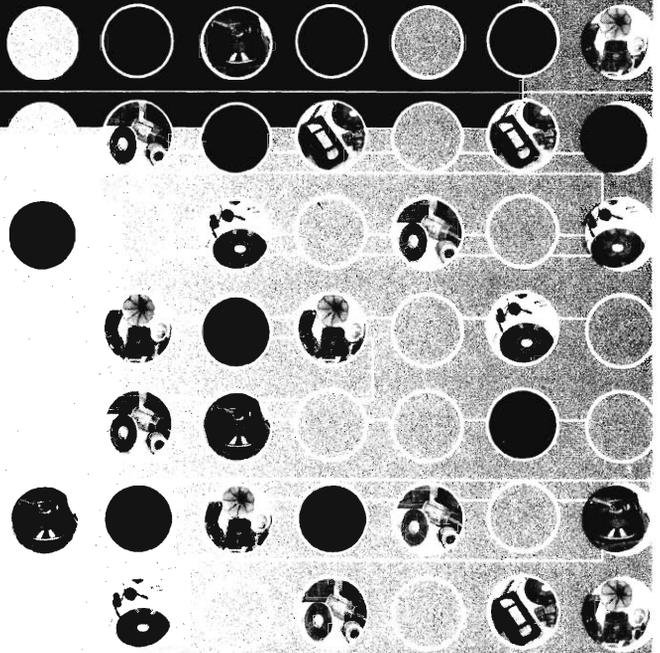


International Association of Sound
and Audiovisual Archives

Internationale Vereinigung der
Schall- und audiovisuellen Archive

Association Internationale d'Archives
Sonores et Audiovisuelles

iasa journal



- **Journal of the International Association of Sound and Audiovisual Archives IASA**
- **Organie de l'Association Internationale d'Archives Sonores et Audiovisuelle IASA**
- **Zeitschrift der Internationalen Vereinigung der Schall- und Audiovisuellen Archive IASA**

Editor: **Chris Clark**, The British Library National Sound Archive, 96 Euston Road, London NW1 2DB, UK. Fax 44 (0)20 7412 7413, email chris.clark@bl.uk

The IASA Journal is published twice a year and is sent to all members of IASA. Applications for membership of IASA should be sent to the Secretary General (see list of officers below). The annual dues are 25GBP for individual members and 100GBP for institutional members. Back copies of the IASA Journal from 1971 are available on application. Subscriptions to the current year's issues of the IASA Journal are also available to non-members at a cost of 35GBP / 57Euros.

Le IASA Journal est publié deux fois l'an et distribué à tous les membres. Veuillez envoyer vos demandes d'adhésion au secrétaire dont vous trouverez l'adresse ci-dessous. Les cotisations annuelles sont en ce moment de 25GBP pour les membres individuels et 100GBP pour les membres institutionnels. Les numéros précédentes (à partir de 1971) du IASA Journal sont disponibles sur demande. Ceux qui ne sont pas membres de l'Association peuvent obtenir un abonnement du IASA Journal pour l'année courante au coût de 35GBP / 57 Euro.

Das IASA Journal erscheint zweimal jährlich und geht allen Mitgliedern der IASA zu. Aufnahmeanträge für die Mitgliedschaft bei der IASA sind an das Sekretariat (Anschrift siehe unten) zu richten. Die Mitgliedsbeiträge betragen derzeit 25GBP für individuelle Mitglieder und 100GBP für Institutionen. Frühere IASA Journale (ab 1971) sind auf Anfrage erhältlich. Der Bezugspreis des IASA Journal für Nicht-Mitglieder beträgt 35GBP / 57 Euro.

The Executive Board of IASA

President: **Crispin Jewitt**, The British Library National Sound Archive, 96 Euston Road, London NW1 2DB, UK. Fax 44 (0)20 7412 7422, email crispin.jewitt@bl.uk

Vice Presidents: **Magdalena Cséve**, Hungarian Radio, Documentation, Bródy Sándor u.5-7, H-1800 Budapest, Hungary. Fax 36 1 328 8310, email csevema@uzem.radio.hu
John Spence, Australian Broadcasting Corporation, Radio Archives, G.P.O. 9994, Sydney, NSW 2001, Australia. Fax 011 61 2 9333 2525, email spence.john@a2.abc.net.au

Maria Carla Cavagnis Sotgiu, Discoteca di Stato, Via Caetani 32, I - 00186, Rome, Italy. Fax 39 6 686 8364, email sotgiu@dds.it

Past President: **Sven Allerstrand**, ALB, Box 24 124, S-10 451 Stockholm, Sweden. Fax 46 8 663 1811, email sa@alb.se

Editor: **Chris Clark**, The British Library National Sound Archive, 96 Euston Road, London NW1 2DB, UK. Fax 44 (0)20 7412 7413, email chris.clark@bl.uk

Secretary General: **Albrecht Häfner**, Südwestrundfunk, Documentation and Archives Department, D-76522 Baden-Baden, Germany. Fax +49 7221 929 4199, email albrecht.haefner@swr-online.de

Treasurer: **Anke Leenings**, Deutsches Rundfunkarchiv, Bertramstrasse 8, 60 320 Frankfurt, Germany. Fax: 49 69 15687 100, email aleenings@hr-online.de

© **The International Association of Sound and Audiovisual Archives IASA**

<http://www.ilgc.org.uk/iasa/>

Printed in Budapest, Hungary

Designed by the British Library Corporate Design Office

No part of this issue may be reproduced in any form, by print, photoprint, microfilm or any other means without written permission from the publisher. Signed articles and reviews represent the opinions of the authors and do not necessarily reflect the policies of the Association.

IASA has been growing recently. One way to measure this growth would be to look at the international spread of its membership and ask if IASA can now avoid being labelled an association of rich, Western European sound archives. If we survey the announcements of new members listed in the *Information Bulletin* since it first appeared on our website (January 1997) we can see that the twenty-eight new members from Western Europe are balanced by the same number from elsewhere in the world, the biggest increases being in Asia/Middle East and Africa. After two successful conferences in the Middle East and Far East respectively, and with the prospect of our first annual conference in Africa (in 2003) we could therefore conclude that IASA's footprint is more international than at any time in its history.

This issue has attempted to reflect IASA's enlarged scope. The conference keynote speech this year was given by Trond Valberg from Norway. He invited us to embrace the Internet and in just over ninety minutes we appeared to be transported around the world courtesy of new technology. Such an exposition was probably beyond the dreams of IASA's founders even less than forty years ago. It is therefore interesting to read what they did dream about, and so at one extreme of the timeframe covered by this issue we have a flash-back to Israel Adler's "prehistory" of the association, when a handful of internationalists unified terms of reference and a business language for IASA thereby paving the way for the seminal meetings in 1969 which Ulf Scharlau and Rolf Schuurmsma so eloquently described during the Vienna conference in 1999.

At the latter extreme we have, not one, but three substantial and thought-provoking papers on a new kind of language, which, if applied correctly and intelligently, will ensure that the work of sound archives, as represented by IASA, will survive and flourish alongside other domains that are being invested with new vigour on the internet. This new language goes by the scary name of 'metadata', and it is significant to note that all three papers originate not in the traditional western power-houses of London, Vienna, Paris, Berlin or New York, but in Canberra and Brisbane, Australia. That is not to imply that nobody elsewhere in the world is 'doing metadata' but it is a reflection of the pace-setting work being done in Australian research institutions, largely as a result of the Australian administration's prescience, which has acknowledged the role that libraries and archives must play in the development of better-informed societies and e-economies.

That there are various definitions of the term 'metadata' should immediately cause us concern. Here we have librarians saying, "Oh, it's just a techno term for cataloguing" – over there we have IT specialists claiming that it is "just data about data". The latter are closer, in my view. For me the important thing about metadata is not that it enables people to find Elvis Presley's singles in a digital mass storage system distributed over the world wide

web (though that is, of course, a requirement) but that it enables machines to identify those recordings in machine-understandable terms and to manage their long-term survival with limited human intervention. A machine does not need to know anything about Elvis Presley and his recordings but if they are represented by metadata that machines everywhere can read and if those same metadata standards are applied universally, then all societies can be equally well-informed and economically advantaged in perpetuity. That is a simple concept to articulate: it is quite another thing to put into practice and there is no escaping the complexities with which our three metadata experts have grappled in their papers.

“So much for theory”, you may say, after reading these three papers. In practice, as the tape specialist Jim Lindner and others stated at the most recent Joint Technical Symposium and at IASA/ SEAPAVAA in Singapore, uniform metadata standards do not seem to be emerging and are not being applied universally. Nowadays many will tell you that the metadata used in their digital storage/library system is based on Dublin Core (DC) and this, indeed, has emerged as one of the web's favourite labelling systems: DC is already a delivered feature of some of the major collection management software packages. But who controls its application? The beauty of Dublin Core is that it is very simple and does not need strict controls to work. But that is also its weakness. Without language-neutral codes for representing complex entities such as musical performances on record (such as ISRC is meant to be) I fear that we may still be looking at disunited pockets of resources requiring expensive intermediaries (translators, middle-ware) to enable machines to discourse. But maybe we need to read Jane Hunter's 'glue recipe' in this *Journal* more closely before making such judgements.

And just how far this discourse on metadata standards is from the experience of some of our recent members from less-developed countries I can only leave you to guess, but enabling technology may be closer than you (or they) imagine. As usual, Dietrich Schüller and members of the IASA Technical Committee are engaging with the realities of sound archive work in the field. Sound archives are obviously not as well endowed financially as banks or insurance companies and will certainly not have the means to transfer all their assets to an electronically managed system. Enter the small-scale storage system. A network of these small-scale systems complete with metadata standards recommended by IASA members could make a big difference. 'This is just the start', as Israel Adler and his colleagues must have said to themselves back in the 1960s.

Shortly after writing my last letter I was in Chapel Hill, North Carolina, for the annual conference of the Association for Recorded Sound Collections, our conference partners for 2001 in London. My presentation was well received, and we can expect a good attendance from ARSC members crossing the Atlantic Ocean next September. Local planning is now well under way, the first call for papers has appeared in our respective newsletters, and we shall shortly be setting up a conference website for ARSC/IASA 2001.

In July we had an excellent conference in Singapore. The local organisation was of a high standard, thanks to the hard work and commitment of the National Archive of Singapore. The programme covered current AV archival activity comprehensively, the future organisation of our professional associations, and there was a welcome proposal to establish an IASA Research Archives Section, which would join our Radio Sound Archives and National Archives Sections to provide a more comprehensive framework of support to the various constituencies among our membership. This will be discussed, and hopefully approved at our forthcoming London Conference. The only disappointment was in the number of registered delegates, which was less than expected. The Executive Board would welcome feedback on any issues that may have prevented your attendance. We agreed and approved closing Resolutions as a tangible outcome of our conference. This has not been IASA's practice in the past, but for SEAPAVAA (and many other professional organisations) it is normal procedure. Both Associations agreed on the need to develop and support the Co-ordinating Council of Audiovisual Archive Associations (CCAAA); to seek to amend the imbalance of AV archiving skills and infrastructure between the different countries and regions of the world; and we said that AV archiving requires the recognition and availability of formal professional training within established vocational and higher education programmes. We look forward to further development of our partnership with SEAPAVAA in the South East Asia region.

Our Immediate Past-President, Sven Allerstrand, delivered a friendly message from IASA to the recent conference in Vienna of the International Federation of Television Archives (FIAT). It remains to be seen whether they will be encouraged to re-join the formal structure of the CCAAA, but at a personal level relations remain cordial. FIAT will be meeting in London concurrently with the ARSC/IASA conference and we hope to arrange a shared social event during the week.

All new members are welcome but it is particularly pleasing to see that we now have members in Mozambique (Arquivo histórico de Moçambique), and that the National Library of Singapore has joined our friends in the National Archive of Singapore as IASA members. There are also encouraging indications that we may soon be able to strengthen our membership in Southern Africa.

I have just returned from the UN World TV Forum in New York. There was much talk of the changing relationship between television, radio, and the Internet, and I will write about this in my next letter.

Communication in the 3rd millennium - AV archives and the web

Trond Valberg, National Library of Norway Keynote speech delivered to the IASA/ SEAPAVAA Conference 2000, Singapore

Times are changing! Let me start by introducing a Turkish cult figure, Mr Mahir Cagri, and the story behind him. Early in the morning 3rd of November last year Mahir woke up in a new world. The phone rang constantly and people all over the world wanted to comment on his homepage (1). He didn't know much about what had happened and he tried to find his simple homepage on the web. But it was not there. Someone had moved the homepage to a new web address and also changed the content. What used to be a polite description of a Turkish middle-aged teacher had become an invitation to pick up a girl. Under the headline "I KISS YOU!!!!!" (with five exclamation marks) Mahir was said to be anxious to be married and crazy about girls. His knowledge of English was not very good, saying:

"Who is want come to TURKEY I can invitate. She can stay my home." [sic]

The complete name, address and phone number were given as well. Mahir contacted the police, but they couldn't do much. Anyhow, three days later a TV channel managed to find the sinner. One week later more than one million visitors had seen Mahir's homepage and Mahir got many visitors at home as well. He hit the headlines in many newspapers and TV, for instance in the Swedish newspaper *Aftonbladet*. Today Mahir utilizes his stardom to declare peace and love on the earth. What a magnificent example of sensible use of the Internet!

Times are changing. During the last 3,000 years the world has expanded several times, but recently - or at least in the last century - the world has started to implode. In the machine age humans have expanded space - just think of the great world explorers. Time and space have been fundamentals in the human understanding of life of all times, but electricity and more recently information technology have wiped away this traditional thinking. The changing of the way we communicate has even greater impact on human life. The ancient Greeks used to meet at the marketplace in the city to discuss trivial things, cultural affairs and politics. The one that was best practising the art of speech got most power, even if he was not the most knowledgeable person. Even today I think it is interesting to read how Plato describes the conflict between the philosophers (at that time the scientists) and the sophists in his dialogues. Furthermore, just imagine the impact of the phonetic alphabet in the Western world. The Greek myth about King Kadmos tells us about political power and authority, the dissolution of the city state and the development of military empires. This has to do with the fact that the alphabet was quite easy to learn and messages could easily and reasonably be transported by papyrus. As a consequence the priests had to transfer their political power to the military movements. Next, it is reasonable to compare the electronic evolution with the invention of printing. Messages could more easily be transported even from one continent to another. Time and distance are not fundamentals the way they were, and you could say that people are getting closer to each other in a new global world.

What's going on today? The digital age certainly takes place also in Norway, a country with a rural population of 4 million. Recently, the use of Internet-based services has increased remarkably, for instance within banking and finance. All the major banks are now offering Internet-services, and some banks even base all their business on the web. The development is growing even faster if you look at the companies offering stock trading on the Internet. Today six companies are offering trading at the Oslo Exchange. Soon I believe the World Stock Exchange will be a reality. The New York Exchange has started discussions with the Tokyo Exchange and other exchanges in Canada, Mexico, Brazil, Australia and Hong Kong to establish a global, 24-hour stock exchange. Just like the sun never set on the British Empire, the computer screens will never go dark! This evolution is closely related to what we call the New Economy and e-commerce. Estimates indicate that the Europeans will spend almost 50 billion \$US by e-commerce this year. The average Swiss e-trader spends most money, followed by the Swedes and the Norwegians. Even if the Internet use is much higher in the Nordic countries than the rest of Europe, both Great Britain and Germany dominate e-commerce in terms of the quantity of content. Countries with large populations like Italy, France and Spain seem to be less concerned about web shopping.

We know many examples of how new technology impacts on our daily life. A trend today (at least in Norway) is the use of text messaging on mobile phones. Teenagers, especially, use this technology very frequently, developing a new language or code system mainly based on abbreviations:

4E	For Ever	H2H	Happy To Help
AFAIK	As Far As I Know	HAND	Have A Nice Day
ASAP	As Soon As Possible	JIC	Just In Case
BBL	Be Back Later	L8R	Later
BFN	Bye For Now	NBD	No Big Deal
BIBI	Bye Bye	OIC	Oh, I See
BRB	Be Right Back	PRW	Parents Are Watching
BTW	By The Way	TIA	Thanks In Advance
CUL	See You Later	U	You
FYI	For Your Information	WB	Welcome Back
GA	Go Ahead	WTF	What The F***

This form of communication is similar to chatting on the Internet, but there is one important difference: the sender of SMS (Short Message Service) knows the recipient while Internet chatting normally takes place anonymously. This activity happens not only for amusement and because it is quite cheap. Imagine you want to invite somebody for dinner or to the cinema for the very first time. Sending SMS can work as an easy invitation without losing your pride. A Finnish world-leading manufacturer claims that they are connecting people, and in a way the Finns are right.

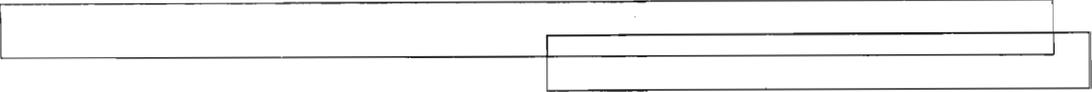
Wireless applications have increased rapidly in the last few years, and estimates signify that this tendency will continue. The mobile phone is not longer just made for talking. Motorola, Nokia, Ericsson and the US software company Phone.com were the initial partners that teamed up to develop the Wireless Application Protocol (WAP). WAP is an attempt to define the standard for how content from the Internet is filtered for mobile communications. Some manufacturers have already produced a model that makes it possible to download MP3 music. A Norwegian airline claims to be the first airline in the world to make it possible for customers to order airline tickets all over the world using the WAP technology. E-trade and stock trades are also examples of WAP-services. WAP in most Asian countries is still under-subscribed mainly due to poor content and high cost. However, in Japan, the number of users for the Japanese *i-mode* standard recently exceeded 7 million. This makes Japan the first country in the world to create a mass market for the Internet on the mobile phone. The reason behind the *NTT DoCoMo's* success is that its users are charged by the amount of data downloaded rather than by the duration of the connection (like WAP). There are more than 10,000 web sites specially written for *i-mode* with shorter text and simpler graphics.

Investors and other analysts talk about a new world market in the 3rd millennium based on converged, integrated and interactive solutions. There is a new term, *TIMES*, which stands for *telecommunication, information technology, multimedia, entertainment and system service*. So far I believe we only face the very beginning of the progress in technology and communication as we enter a new millennium. Also the familiar broadcasting media, both radio and television, will lead to more interactive use in the future.

This development also means new conventions governing our use of work time and leisure time. People want more flexibility. The traditional way of counting hours at work within a fixed time period will more and more lose actuality. A recent European research report indicates that we spend more time on web surfing at work, simultaneously as we do work at the computer at home. The merging of leisure time and work time is one of the significant tendencies in a digital age of communication.

So far I have given some examples of technology that impacts on mankind. It is essential to ask *how* this is being done. The Canadian media researcher Marshall McLuhan (1911-1980) is famous for his academic debate on technology and culture. In his major work *Understanding Media: The Extensions of Man* published in 1964, he proposed revolutionary theories that were not understood at that time. Although he didn't live to see internet-based communication, we can deduce some of his theoretical explanations and, generally, I think McLuhan's ideas are more meaningful in the year 2000 than they were 36 years ago.

The Internet can be regarded as a huge but diffusely organized information database, with the data located all over the world. The main challenge for the user is to find the information. Different search engines try to solve your problem if you don't know the exact web-address – and in most cases you do not (except for the bookmarks in your browser). From an archival view it is even more important to know how to present information on the web, so



that the user can find the information. I have seen a lot of informative web-sites, but in many cases you have to spend a lot of time to find what you are actually looking for. With these facts in mind, it is worth trying to understand one of the theses in media theory: 'the medium is the message'. Let us think about the electric light. We usually don't consider this to be a medium in itself. But if the light comes out from an illuminated advertising sign, you perceive the light as a medium – even if it is the content that grabs your attention. In fact this again is a new medium, which is characteristic for all media. The content of any medium is always another medium. The written word contains the spoken word, the same way as the printed word contains the written word and the World Wide Web contains the printed word. All in all you can say that all media or forms of communication are extensions of ordinary human functions. If the wheel is the extension of the foot, you can think of the Internet as an extension of your mind or the central nervous system. Probably, the Internet is the most striking example of a complex media-structure in a new digital age. McLuhan introduced the term 'global village' some decades ago, but not until today can we really say this has come true. People all over the world can work and live together in a way that was not possible earlier. The National Library of Norway's choice of database system (MAVIS), which partly has been developed in co-operation with ScreenSound Australia, is just an example. E-mail and other net-based communication have globalised our workplace villages.

What makes the Internet so interesting? Communication is the keyword more than wideband technology, although technology and communication go hand in hand, in fact. McLuhan classed media as either 'hot' or 'cool' depending on how high the level of interaction is. Hot media have very low levels of interaction, whereas cool media demand a high level of interaction. You could say the radio is a hot medium, whereas the phone is a typical cool medium. In the future I believe radio will turn out to be more of a cool medium with DAB (Digital Audio Broadcasting) and audio streaming on the Internet. The web is a very cool medium, potentially, as it can require high levels of interactivity and participation from the user. At one extreme you can be the author yourself – and certainly the archivist should be!

We can divide interactivity into three categories or paradigms: *navigational interactivity* focuses on fundamental ways of navigating through the information space, either via commands, menus, search engines or hypertext links. This is the most basic form of interactivity. Even the most sophisticated forms using search engines and hypertext links, still limit the user to control what is accessed next. Good navigational layout is fundamental to the success of a web site.

A higher level of interactivity is *functional interactivity*. This level lets the user communicate with the system to accomplish one or several goals. This may be winning a game or ordering a product from an online catalogue. (Usually you ought to start in the lower level if you want to order anything!). It is of crucial importance that the user receives feedback throughout the process. Web-based applications incorporating functional interactivity are appearing in ever-increasing numbers, and will become even more common in the future, I believe.

Adaptive interactivity is the highest level of interactivity, allowing the user to adapt the application or information space to fit their goals, or even their personality. (What about the Mahiri-case?) At higher levels adaptive web-sites allow the user to add or modify the site itself. At this level the distinction between author and reader becomes blurred. Even more interesting is the intelligent *hyperadaptive* site that interacts with the user and adapts itself to fit the user, readapting as the user's goals, knowledge or mindset changes. Such a site will totally engage the user, developing as the user develops – even acting as an adviser to the user. Hyperadaptivity carries the web to its maximum potential, converging hypertext, multimedia, object-oriented computing and adaptive interactivity. What if we can create hyperadaptive sites that develop and live their own lives ?

What about archives and the web? Many archivists are still frightened when it comes to thinking about making a lifetime's work available on the web. Some archivists even feel a sense of ownership of AV-material (which rarely is the case). Or they simply believe that copyrights and other regulations make it more or less impossible to publish catalogues on the Internet. Some even seem to mix together catalogue data and catalogue content, which of course has to be separated. Usually, librarians and archivists seem to be very concerned about quality control and completeness. Although these goals are important, they also limit an archivist's ability to publish material on the web. Although technical and financial limitations certainly do exist, I believe the question about going on the web also has to do with attitude or willingness.

If so, it is just about time for a change! Communication in the 3rd millennium definitely takes place out there in the information space. The archive user more and more expects to find information about the archive and the holdings on the web, rather than physically visit the archive. Publishing catalogues on the web provides better access to our holdings because of search facilities. Even poor text-based search features may alternatively function like a database system (e.g. the Norwegian Jazz Discography). However, most archives usually use one or more database platforms related to different kind of materials. Making a web-interface based on one or another database will be the user's access to the collections. Even if there are good reasons for choosing one database system, it is possible to link several platforms into one infrastructure. The idea of establishing digital networks between different archives, both nationally and globally, will improve access. In addition it will be an efficient solution to avoid duplication of effort where holdings overlap. Establishing network models is a big challenge due to an audio-visual landscape of barriers. Today, this certainly is the situation in Norway, but I presume other archivists will also agree with this.

Communication is also a matter of preserving. Furthermore, access is also a matter of preserving in the sense of digitisation. Web-based communication blurs the distinction between preservation and access. So to say, if any sound is published on the web consequently this is – or ought to be - a part of a preservation strategy. Nevertheless, archivists should care about preserving any format of the originals. The sound carriers document our cultural heritage themselves, usually regarding metadata as well. In the future

new technology probably makes it easier to produce high quality digitisations of historic sound carriers like wax cylinders or shellac discs. Talking about digitisation one should also remember that any digitisation made can never bring back the original analogue signal. Choosing the appropriate digital format for preservation should usually differ from the compressed digital Internet-format. Building network structures may also provide rational outcomes with regard to the cost of preservation and time spent.

Let me try to summarise some of my ideas regarding communications and archiving. Web-based communications will certainly affect the work of all archivists. Some seem to worry that the Internet revolution will overtake their archiving work. Of course, this is not true. Archivists will be more important than ever, preserving AV-media and making them accessible. We have to remember that the challenge of preserving our cultural heritage still exists, even if digital media replace the analogue ones. The importance of high quality cataloguing work is even more important when the archive opens its holdings to any potential user in cyberspace. Let me indicate some consequences of archiving in the 3rd millennium:

- 1 The distinction between preservation and access will disappear. Making the holdings accessible signifies preservation at the same time.
- 2 The medium is the message. Internet and wireless applications are the media. Archiving work has to focus on innovative communication forms.
- 3 Recycling of AV-media characterises the evolution. Adaptive interactivity replaces traditional broadcasting.
- 4 New priorities are needed to accomplish the goals. Changes of work priorities also occur due to project-based work.
- 5 Building network structures signifies trans-domain communication. Co-operation with commercial interests (e.g. record companies) will be more common.
- 6 International standards and agreements will constitute a basis for archiving work, including cataloguing. Copyrights will exist to a lesser extent in the future than today.
- 7 A global way of thinking characterises the philosophy of archiving; crossing national borders and continents will increase.

Dear colleagues and friends, let us go out in the cyber space together, building a future for the past. Let us create a joint World Wide Web designed for the users of our services.

Appendix: some Norwegian web-sites

The Norwegian Jazz Discography

http://www.nb.no/norskjazz/index_e.html

The preliminary web version is part of a larger collaboration between The Norwegian Jazz Archives and the National Library of Norway. The purpose of the project is to present a Norwegian jazz history on the Internet. This will be an advanced and updated database of jazz recordings by Norwegian musicians. The catalogue will have links to other forms of

documentation: biographies, photographs, video and sound clips. Online registration takes place in Oslo using the MAVIS-database connected to a server in Mo i Rana (1000 km north of the capital). We estimate the complete web-version will be available in the first half of year 2001.

The site shows how it is possible to publish a text document on the web including simple search facilities. You can search by main artist or band, album titles, track titles and (other) musicians. To search for main artist you must enter at least three consecutive letters from anywhere inside the name. If you want to search for a musician, you have to specify both first name and last name. When searching for a title you can enter the full title or a part of it.

(Let's see how it works: You want to find all the recordings of the Saxophone player Jan Garbarek as main artist. There are several ways to enter the search criteria:

- Full name "Jan Garbarek" or "Garbarek, Jan" (note the comma use!)
- First name or last name
- Minimum 4 letters "arek" or "garb".

Maybe you want to find all recordings that Garbarek has played on. Then you search for Garbarek as musician.

Let's find all the recordings of the track title "Summertime". In this case we will also find any titles including the word "summertime".)

A jazz discography is slightly different from any other discography, focusing on musicians, recording sessions and track titles. Even if the album title is included, this is not the main entry. Due to the fact that the jazz scene certainly is international, you will also find international performers in the discography. Just to mention a few names like Keith Jarrett, Chet Baker and Dexter Gordon. So, the importance of producing such a catalogue concerns both national and foreign users. We are happy to know that the printed book has been given honourable mention in the press, also outside of Norway. Johs Bergh's splendid work as a compiler definitely is the basis for making this site. The web-version is totally free of charge. The making of such a service points ahead: in the future we hope to also include the other Nordic countries in the making of a "Nordic Jazz Discography".

Spirit of the Vikings

http://www.nb.no/html/spirit_of_the_vikings.html

Spirit of the Vikings is a collection of Norwegian radio programmes broadcast in the US between 1941 and 1947. The National Library of Norway has digitised more than 400 programmes for the Internet from CDs via tapes from the original shellac discs. The programmes were produced by the Norwegian Embassy in New York, and the majority are in English aimed at the North-American listeners. The content includes both news from Norway about the Second World War, music programmes and radio plays.

You can use different ways to search through the online catalogue: genre, news sorted chronologically, subject heading or simply free text search. If you get any hits, you will get a short description of one or several programs. Next you can choose if you want to listen to the programme either via RealAudio or the linear wav-format. This site is a common example on functional interactivity, downloading AV-files related to the online catalogue.

The Spirit of the Vikings was the first collection the National Library made available on the web, back in 1995. Today our Digital Radio Storage project in Cupertino with the Norwegian Broadcast Corporation (NRK) is under way. The daily production of digitising analogue tape reels started in February this year. So far (June 2000) approximately 2600 tape reels out of 45 000 reels have been digitised. The annual production is estimated at 9000 reels, which makes 9000 GB data storage. After three years the project will be evaluated, and we hope that the rest of the historic recordings will be digitised too.

Phonofile

<http://www.phonofile.com/>

Phonofile is the largest music site in Scandinavia containing more than 23,000 tracks of music. Phonofile is owned by TV2 (Norway's leading commercial television channel) and FONONO (the Association of Norwegian Record Companies). The National Library regards the project as interesting, mainly due to our legal deposit and preservation policy. Phonofile considers our technical competence to be valuable for storing the data, as well as building and maintaining the catalogues. Even if no final agreement exists yet, we have started a pilot project to explore technical aspects regarding the digitisation. Naturally, the project involves significant costs, but also the question of access is crucial for the National Library's participation. So far, Phonofile is only developed for commercial use like broadcasting.

In this context digitisation means copying the music from the CD to data files. First an ID number is created to search for the actual CD in the CDDDB² database (**<http://www.cddb.com/>**). (CDDDB claims to be the world's largest online CD database and is an interesting example of adaptive interactivity. CDDDB² is grounded on CDDDB, but it includes more information like expanded album credits, track-by-track credits and web-links.) If the actual CD is found in CDDDB, the name of artist, album title and track titles are downloaded automatically. If the CD is not found in the database, the user has to register some minimum catalogue information. This happens quite often since the amount of Norwegian recordings is rather small. Next, the software reads the ISRC (International Standard Recording Code) if it exists, and then all the information is stored in the central database (Phonofile). Every track is converted into a separate wav-file, and then the converting module generates MP3 and RealAudio files automatically. The quality of the MP3 files satisfies the TV2 standard for television productions (256 kBit/s). The RealAudio format of 40 kBit/s has been chosen so that it is possible to download any file from the web. A minimum requirement is using a single ISDN connection.

Culture Net Norway

<http://www.kulturnett.no/html/cnn.html>

Culture Net Norway was launched 8th December 1998. Similar to other national culture sites this is the gateway to Norwegian culture on the web. Culture Net Norway is financed by the Department of Cultural Affairs and organised by the National Library.

A special site has been designed for children aged between three and six. Here you can try to do a puzzle; useful training for up and coming web-designers in the new millennium

Notes

1 http://members.xoom.com/_XOOM/primall/mahir/index.html

Recent developments in standards for archival description and metadata

Adrian Cunningham

National Archives of Australia

Paper presented at the Open Cataloguing Session of the IASA-SEAPAVAA Conference, 'A Future for the Past: AV Archiving in the 3rd Millennium', Singapore, 3-7 July 2000

What is archival description?

According to the *International Standard for Archival Description (General)* 2nd edition, the purpose of archival description is to:

'... identify and explain the context and content of archival material in order to promote its accessibility. This is achieved by creating accurate and appropriate representations and by organising them in accordance with predetermined models' (1)

Traditionally, archival description has referred to the process of establishing intellectual control over archival holdings following the transfer of records to archival custody. In other words, the production of surrogate descriptions 'whose primary purpose is to help researchers find relevant records and understand something of their purpose and origins'. (2)

Recently, however, the advent of electronic records has encouraged archivists to think more broadly about the scope and purpose of archival description. A significant addition to the introduction to the second edition of the recently published *International Standard for Archival Description (ISAD-G)* has this to say:

'Description-related processes may begin at or before records creation and continue throughout the life of the records. These processes make it possible to institute the intellectual controls necessary for reliable, authentic, meaningful and accessible descriptive records to be carried forward through time.

Specific elements of information about archival materials are recorded at every phase of their management (e.g., creation, appraisal, accessioning, conservation, arrangement) if the material is to be on the one hand securely preserved and controlled, and on the other hand made accessible at the proper time to all who have a right to consult it. Archival description in the widest sense of the term covers every element of information no matter at what stage of management it is identified or established. At every stage the information about the material remains dynamic and may be subject to amendment in the light of further knowledge of its content or the context of its creation.' (3)

I shall have more to say about this shift in thinking later. For the moment it is sufficient to

think of archival description as a dynamic and iterative process that can commence at or before the time of records creation and continue for as long as the record exists and sometimes even after it ceases to exist.

Perhaps the most important concept to understand when discussing archival description is the concept of 'record'. Records are the core business of archivists and both the subject and the object of archival description. According to the Australian Records Management Standard (AS 4390) records are:

Recorded information, in any form including data in computer systems, created or received and maintained by an organisation or person in the transaction of business or the conduct of affairs and kept as evidence of such activity. (4)

Explicit in this definition is the notion that records have provenance and context – records are created, received or maintained by an organisation or person. Records are not entirely self-contained or disconnected objects or packages of information. The major feature that sets archival description apart from the world of library cataloguing or museum curating is the archival principle of *respect des fonds*. This principle translates to mean that records have to be controlled, described and understood in the context of their creation and use. For archivists the critical questions are - who created, received and used the records in the course of what activity?

Flowing on from this notion of provenance is the idea that records not only relate to people, organisations, functions and activities – they also relate to each other. Usually, when conducting activities people and organisations create more than one record. Collectively, these aggregations of records constitute evidence of the activity. The evidential nature of records is derived from the fact that they sit within inter-related aggregations of records. A feature of archival description has been a focus on describing aggregations of records created by a particular individual or organisation (the *fonds*), or that relate to a particular function or activity (the series).

A common technique used in archival description to reflect the organic nature of records aggregations is the use of multi-level description. This is the practice of producing archival descriptions that proceed from the general to the specific or, alternatively, using relational databases to construct descriptions at the fonds, series, file and/or item level and documenting the part/whole relationships that connect these different levels of description.

Standards for archival description

Unlike libraries, which were compelled to adopt standards from an early stage in order to stop different libraries cataloguing the same book thousands of times over in thousands of different ways, archives have been much slower to adopt commonly agreed descriptive standards. When describing unique materials, unique descriptions and unique methods of description seemed far more acceptable.



Even today there are wide variations in archival descriptive practices from institution to institution and from country to country. Archivists are very often creatures of habit who become attached to their own idiosyncratic way of doing things and can be very reluctant to change their practices in the name of standardisation. Archivists may all subscribe to the theory of *respect des fonds*, but there are an infinite number of ways in which this theory can be applied in actual descriptive practice.

Nevertheless, over the past ten to fifteen years there has been a growing acceptance by archivists of the need for descriptive standards. There is a recognition that such standards help the end user by reducing the variety of descriptive systems that they need to master when conducting cross-institutional research. It is also recognised that the promotion and adoption of standards can encourage improved practices within archival institutions. However, it is the advent of computers and electronic networks that has given the major impetus to the development and adoption of descriptive standards.

When designing automated systems for providing intellectual control and access to records, systems designers like to work with pre-existing standards. Systems are built to satisfy functional requirements. If the functional requirements have not been articulated, then someone has to sit down and write them. Not only is this an expensive process, there is also the risk that if you are doing it on your own or in a small team you might get it wrong. The existence of commonly agreed standards defined and adopted by a professional community of experts saves people the time and effort of having to 'reinvent the wheel'. It also gives commercial software vendors the certainty that they can design a product that is likely to meet the needs of a multitude of customers, rather than just one customer. Of course, in a networked environment standards are absolutely essential if information is to be shared or exchanged between distributed computers or different networks.

Not entirely in jest, somebody once said that 'the nice thing about standards is that there are so many of them to choose from!' The field of archival descriptive standards is no exception to this observation. Internationally, there now exist a variety of archival descriptive standards to choose from. The diversity is partially a reflection of the fact that the different standards focus on different (though not mutually exclusive) aspects of the descriptive process, and partially a reflection of different national traditions and differing conceptual frameworks.

The peak international standard, first issued by the International Council on Archives in 1994 and now into its second edition, is **ISAD(G)** – the International Standard for Archival Description (General). This standard 'provides general guidance for the preparation of archival description. It is meant to be used in conjunction with existing national standards or as the basis for the development of national standards'. (5)

Beyond ISAD(G) are a veritable alphabet soup of other more specific descriptive standards:

MARC-AMC – a variant on the MARC (Machine Readable Cataloguing) standard for *Archives and Manuscript Collections*, used for producing archival descriptions for incorporation into library databases;

APPM – Archives, Personal Papers and Manuscripts, an Anglo-American Cataloguing *Rules-type manual for the description of archival holdings*, used mostly in the United States (6);

MAD – Manual of Archival Description, a British manual for the production of standardised archival finding aids (7);

RAD – Rules for Archival Description, the Canadian descriptive standards 'bible' (8);

EAD – Encoded Archival Description, a standardised set of semantic rules and syntax for the encoding in SGML (Standardised General Markup Language) or XML (eXtensible Markup Language) of archival description for Web-based access, searching and data exchange. Originally developed in the United States to facilitate access to and searching of traditional archival finding aids over the World Wide Web, but becoming increasingly popular internationally as a *lingua-franca* for the Web-based exchange of heterogeneous multi-level archival descriptions. (9)

The Australian 'Series' System

Since the 1960s government archives in Australia have developed yet another approach to the description and intellectual control of records. The 'Series' System, as it has become known, while it is solidly grounded in archival theory, differs from other approaches to archival description in a number of significant ways.

Firstly, unlike other descriptive standards outlined above, the series system is used to describe both 'current' and 'historical' records. In other words, the system is custodially non-specific – records can be described by the series system well before they are transferred to archival custody. Indeed, it is often the case that records that will probably never be transferred to archival custody are described using the series system.

As such, the series system provides for a more dynamic approach to the intellectual control of records – an approach that foreshadowed the so-called post-custodial revolution that I alluded to earlier when I described significant changes to the new edition of ISAD(G). (10)

Another significant feature of the series system is that it accommodates the documentation of multiple provenance. One of the problems with traditional archival descriptive practices is that it is based on the assumption of unitary provenance – i.e. that an aggregation of records can only have one creator. In reality, record aggregations can have many creators – a fact that is most evident in modern bureaucracies where regular changes to the machinery of government can see functions, and hence active records series, transferred from the

control of one agency to that of another agency. Multiple provenance (of both the successive and simultaneous variety) can also be found in aggregations of family papers and in record-keeping systems where the private records of an individual are intermixed with the records that individual accumulates in some official capacity acting on behalf of one or more organisations.

The series system copes with multiple provenance by abandoning the use of the *fonds* as the primary locus of intellectual control, adopting instead the series as the highest level of archival description. This approach permits a more sophisticated and accurate documentation of context through the creation of separate but linked descriptions of records, records creators and their functions and activities. It is worth emphasising however, that while the series system does not involve the production of *fonds*-level description of records, this in no way implies that the system constitutes a rejection of the principle of *respect des fonds*. On the contrary, proponents of the series system assert that their approach is a more accurate means of representing the true complexity of the *fonds*. At this point it is useful to highlight the distinction between the inputs to an archival descriptive system and the outputs of that system. While the series system does not require *fonds*-level descriptive inputs, it is certainly capable of generating *fonds*-level descriptive outputs whenever such outputs are needed. (11)

The Australian approach of producing separate, but linked descriptions of records and records creators is accommodated in the international descriptive standards arena by the combination of ISAD(G) and its companion standard, **ISAAR(CPF)** – The *International Standard Archival Authority Record for Corporate Bodies, Persons and Families*, which was published by the International Council on Archives in 1996. (12)

What is metadata?

When most of us first encountered the term metadata, we were probably repelled by yet another debasement of the English language by techno-boffins. The fact that the term can very often mean quite different things to different people simply highlights its slippery and infuriatingly imprecise definition. If you talk to software programmers about metadata they will almost certainly understand something very different to a group of librarians discussing the same term.

The term metadata emerged in the IT community many years ago. In those days it referred solely to the data that was necessary to make sense of data stored in a computer system. The Greek prefix 'meta' is defined in the Oxford Dictionary as 'denoting position or condition behind, after, beyond or transcending'. The definition of metadata as 'data about data' is as precise a definition as most people are prepared to venture. The imprecision of this definition has since allowed it to be applied to any computer-related descriptive information. Indeed, use of the term has become so flexible that now it does not even have to be related to computer technology - any data about data can now be metadata.

The main point I want to make here is that metadata is simply a new term for information that has been around for a very long time, but which now looks different due to the advent of computer technology. A better, more informative definition of metadata than 'data about data' that I would propose is:

Structured information that describes and/or allows us to find, manage, control, understand or preserve other information over time.

If we think of metadata in these terms, then archivists are metadata experts - it is just that we tend not to think in those terms about the work that we do and the things we produce. Traditional archival finding aids, index cards, file covers, file registers, the headers and footers of paper documents - all of these things contain metadata and all of them have their computerised equivalents that may or may not look different, but which nevertheless fulfil the same functions.

There are many different types of and uses for metadata. These include:

- systems operating metadata (that is, the metadata that is necessary to make sense of a computer software platform);
- data management metadata (eg. ISO 11179);
- information management metadata; record-keeping metadata (more of which later);
- resource discovery metadata (e.g. the 'Dublin Core' metadata standard for Web-based resource description and discovery) (13);
- digital preservation metadata (e.g.: the Open Archival Information System or OAIS reference model) (14); and
- rights management metadata (e.g. the <indec> initiative) (15).

These categories of metadata are not mutually exclusive. Particular metadata schemas (or sets) and the elements that make up those schemas can serve more than one purpose. Indeed, one of the sources of confusion about metadata is people's failure to realise that there is often a great deal of overlap and numerous inter-relationships between various metadata sets - hence the need for the so-called 'crosswalks' between various metadata standards which identify linkages between related elements in different metadata sets. This is not to say that particular metadata sets are redundant. On the contrary, metadata sets usually get developed in response to a particular set of well-defined requirements. It is just that many sets of requirements overlap with other related sets of requirements and, as a consequence, so do the metadata schemas.

What is record-keeping metadata?

At an international workshop on record-keeping metadata held in The Netherlands in June 2000 the following definition of record-keeping metadata was developed:

Structured or semi-structured information which enables the creation, management and

use of records through time and across domains. Record-keeping metadata can identify, authenticate and contextualise records and the people, processes and systems that create manage and use them.

Record-keeping metadata helps us do the following:

- identify records uniquely;
- authenticate records;
- document and preserve the content, context and structure of records over time;
- administer conditions of access and disposal;
- track use history and record-keeping processes;
- facilitate interoperability;
- restrict unauthorised use; and, most importantly, it helps
- enable users to find and understand records.

In other words, record-keeping metadata is the means by which both records managers and archivists do their jobs. It can be found both in current records management systems and it can be found in archival management systems. Record-keeping systems of whatever kind are metadata systems, because without metadata the systems simply cannot function.

The products of traditional post-hoc archival description are all metadata, but only a subset of the totality of record-keeping metadata.

The current focus on record-keeping metadata is helping to facilitate a trend towards convergence between the traditionally separate occupations of records managers and archivists by offering the possibility of integrating the previously separate intellectual control regimes for records management and archives.

This is in line with the recognition that, in the era of electronic records, archivists cannot continue to divorce themselves from the processes of records creation and record-keeping system design. Put bluntly, unless electronic records are created and managed properly in well-designed systems that can guarantee the authenticity, reliability, durability, useability and accessibility of those records, archivists are not going to have many records that they can preserve for long-term use or that will be worth preserving for long-term use.

Moreover, the emergence of electronic systems provides us with the opportunity to create and capture metadata /description at the time of records creation that can be re-used for archival control purposes, whenever this becomes desirable. Although there will always be a place for the creation of value-added descriptions by archivists, much of the hard work of archival description can be reduced by recycling or reusing metadata that has already been created. For this to be possible we need a single seamless framework of interlocking standards for record-keeping metadata and archival description. (16)

Standards for electronic record-keeping metadata

In recent years a number of initiatives have endeavoured to define criteria for the development of standards for record-keeping metadata. At the University of Pittsburgh a research team led by David Bearman and Richard Cox has developed a set of 'Functional Requirements for Evidence in Electronic Record-keeping' which is based on a concept of records as 'metadata encapsulated objects' and a set of metadata specifications for good record-keeping. (17)

Another research project, led by Luciana Duranti at the University of British Columbia, has produced metadata templates for the 'protection of the integrity of electronic records' (18), while the United States Department of Defense has issued a *Design Criteria Standard for Electronic Records Management Software Applications*, which incorporates metadata specifications. (19)

In Australia a cooperative research project led by Sue McKemmish at Monash University has developed a 'Record-keeping metadata framework for managing and accessing information resources in networked environments over time for government, social and cultural purposes'. This project builds on the findings of the earlier projects mentioned above to produce a holistic framework for standardising record-keeping metadata. Conceptually, the framework is grounded in Australian 'records continuum' and post-custodial' theory. It is also firmly grounded in the same conceptual thinking that informs the Australian 'series' system for archival description. The Monash project framework proposes three entities about which metadata needs to be captured in recordkeeping systems for any 'record-keeping event' or transaction that leads to the creation and capture of a record. The relationships between the three entities, people business and records, is illustrated in Figure 1 (20):

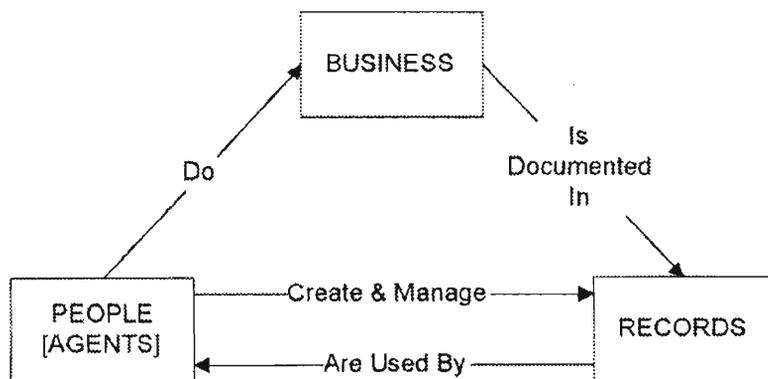


Figure 1:

Having developed and promoted its record-keeping metadata framework, the next step is to use that framework as the basis for developing a formal national standard for record-keeping metadata under the auspices of Australia's national standards organisations, Standards Australia. Standards Australia has indicated that it is prepared to support this initiative and work is about to get under way on the project.

The National Archives of Australia was an active industry participant in this Monash University Research Project. Concurrent with the development of the Monash framework the National Archives developed and published a *Recordkeeping Metadata Standard for Commonwealth Agencies Version 1.0*. (21) This standard is consistent with, but more specific than the Monash framework. The aim of the National Archives standard is to define the records entity metadata that government agencies should capture in their agency record-keeping systems. In other words, it aims to define that segment of the record-keeping metadata universe that government agencies need to deal with when managing their current records. In order to facilitate access to current records via the World Wide Web, the National Archives standard is also consistent with, but greatly extends the Dublin Core metadata standard for online resource discovery.

The National Archives record-keeping metadata standard consists of twenty descriptive elements, eight of which are mandatory, and a further sixty-five 'sub-elements' or qualifiers that add richness and complexity to the twenty main elements. The intention is that selected metadata captured in agency record-keeping systems can be imported into the National Archives archival control system (an implementation of the series system) whenever it is deemed to be an appropriate time to do so. At this time the agency-generated metadata can be supplemented by additional contextual metadata created by Archives staff in the course of their normal intellectual control/descriptive procedures.

As can be seen from these developments in Australia, the emphasis in the various record-keeping metadata initiatives has been on integrating the systems for generating and managing metadata in order to make metadata creation and use/reuse as automated as possible. The aim here is to achieve records that are as 'self-documenting' as possible through careful systems design and implementation. A feature of these efforts has been a shift away from the traditional 'top-down' archival approach of describing aggregations of records to an approach that places greater emphasis on item-level control and description with links to virtual aggregations being created by virtue of the documentation of contextual relationships.

Having got this far, however, we feel that we are only scratching the surface of the possibilities and potential in this area. There remain many unanswered questions and potential research projects to pursue. For example, our understanding of the means by which contextual relationships can be identified and documented is still fairly rudimentary. An outstanding problem is that, while these record-keeping metadata frameworks can be implemented in regulatable record-keeping environments such as government agencies, there are a lot of unregulated record-keeping environments that will prove more difficult to influence.

What does all this mean for IASA/SEAPAVAA members?

You are probably all wondering what any of this means in your own particular situations. Those of you who use the *IASA Cataloguing Rules* are at least familiar with the notion of descriptive standards. These rules are very good for guiding the static post-hoc bibliographic description of objects such as sound recordings and films. They also permit the documentation of some context and provenance information and part/whole relationships in aggregations of resources.

The main purpose of this paper has been to highlight that there are other more dynamic archival strategies for managing and achieving intellectual control over records. If you want to do more than catalogue objects, if you want to capture, manage and provide access to reliable evidence of activities, then you might want to pursue some of the strategies I have outlined. It is my contention that the emerging record-keeping metadata consensus is providing an 'event aware' as opposed to 'object oriented' approach to describing and managing records in context and over time.

Archivists used to see themselves as people who collected and provided access to artefacts – the documentary residue of society. Archivists in the future will continue to do those things but will also be much more actively involved in the processes of creating and using records throughout the entire records continuum. In the words of my Australian colleague Barbara Reed:

Records are not passive objects to be described retrospectively. Rather, they are agents of action, active participants in business activity that can only be described through a series of parallel and iterative processes. (22)

Notes

- 1 International Council on Archives, *International Standard for Archival Description (General)*, 2nd ed., Ottawa, 2000.
- 2 Sue McKemmish, et al, 'Describing Records in Context in the Continuum: The Australian Recordkeeping Metadata Schema', *Archivaria*, no. 48, Fall 1999, p. 8.
- 3 International Council of Archives, *op. cit.*
- 4 Standards Australia, *Records Management*, AS 4390, Homebush, 1996.
- 5 International Council of Archives, *op. cit.*
- 6 Stephen Hensen, *Archives, Personal Papers and Manuscripts: a cataloguing manual for archival repositories, historical societies and manuscript libraries*, 2nd ed., Chicago, Society of American Archivists, 1989.
- 7 Michael Cook and Margaret Proctor, *Manual of Archival Description*, 2nd ed., Aldershot, Society of Archivists, 1989.
- 8 Bureau of Canadian Archivists, *Rules for Archival Description*, Ottawa, 1992.
- 9 *EAD: Encoded Archival Description Application Guidelines Version 1.0*, prepared by the Encoded Archival Description Working Group of the Society of American Archivists, Chicago, 1999.

-
-
- 10 Terry Cook, 'What is Past is Prologue: A History of Archival Ideas Since 1898, and the Future Paradigm Shift', *Archivaria*, No. 43, Spring 1997, pp. 38-39.
 - 11 Adrian Cunningham, 'Dynamic descriptions: Australian strategies for the intellectual control of records and recordkeeping systems', in P.J. Horsman, F.C.J. Ketelaar and T.H. Horsman (eds), *Naar een nieuw paradigma in de archivatie*, Gravenhage, 1999, pp. 23-44; P.J. Scott, 'The Record Group Concept: A Case for Abandonment', *American Archivist*, vol. 29, 1966, pp. 493-504; Mark Wagland and Russell Kelly, 'The Series System – A Revolution in Archival Control', in Sue McKemmish and Michael Piggott (eds), *The Records Continuum: Ian Maclean and Australian Archives first fifty years*, Clayton, Victoria, Ancora Press, 1994, pp. 131-149; and Chris Hurley, 'The Australian ('Series') System: An Exposition', in Sue McKemmish and Michael Piggott (eds), *The Records Continuum: Ian Maclean and Australian Archives first fifty years*, Clayton, Victoria, Ancora Press, 1994, pp. 150-172.
 - 12 International Council on Archives, *International Standard Archival Authority Record for Corporate Bodies, Persons and Families*, Ottawa, 1996.
 - 13 See the Web site for the Dublin Core Metadata Initiative at http://www.purl.oclc.org/metadata/dublin_core/
 - 14 Brian Lavoie, 'Meeting the challenges of digital preservation: The OAIS reference model', *OCLC Newsletter*, Jan/Feb 2000, pp. 26-30.
 - 15 David Bearman, et al, 'A Common Model to Support Interoperable Metadata: Progress Report on Reconciling Metadata Requirements from the Dublin Core and INDECS/DOOI Communities', *D-Lib Magazine*, Vol. 5, No. 1, Jan. 1999. Available at: <http://www.dlib.org/dlib/january99/bearman/01bearman.html>
 - 16 This is not to argue that archivists have never before recycled or reused metadata from records management systems – there is in fact a long tradition of this, especially in Australia. The problem, however, has been that the separate standards and separate systems have made this more difficult than it should have been. With the emergence of new standards and new electronic systems we now have the opportunity to make this process as easy and as automatic as possible.
 - 17 The Web site of the 'Pittsburgh Project' can be found at: <http://www.sis.pitt.edu/~nhprc/progl.html>
 - 18 The UBC Project and its outcomes are described at: <http://www.slais.ubc.ca/users/duranti/>
 - 19 The U.S. Defense Department specifications can be found at: <http://jitec-ermh.army.mil/recmgmt/dod50152.doc>
 - 20 McKemmish, et al, *op. cit.*; See also the project Web site at <http://www.sims.monash.edu.au/rcrg/>
 - 21 National Archives of Australia, *Recordkeeping Metadata Metadata Standard for Commonwealth Agencies Version 1.0*, May 1999. Available at: <http://www.naa.gov.au/recordkeeping.control/rkms/summary.htm>
 - 22 Barbara Reed, 'Metadata: Core Record or Core Business?', *Archives and Manuscripts*, Vol. 25, No. 2, Nov. 1997, pp. 218-241.

The application of preservation metadata to digital objects

Kevin Bradley and Deborah Wooyard - National Library of Australia

Update of paper presented by Kevin Bradley at the IASA-SEAPAVAA Conference, Singapore, 2000

Abstract

The presentation highlights the importance of metadata to manage digital collections, and includes an overview of :

- background on various metadata standards;
- linking of metadata to existing cataloguing (MARC) records;
- the draft specification for preservation metadata at the National Library of Australia (NLA);
- how the NLA's draft specification is designed to dovetail with international metadata technology.

Metadata

Metadata, in this context, is structured information recorded about a resource for a specific purpose, such as management and providing access. While the actual resources are interesting to the end user, the metadata is helpful to the people or programs that have to manage the information. This isn't a particularly new idea. Systems like library catalogues have used this approach for a long time. The obvious example of metadata that most in the library and archive community will be familiar with is a MARC record (Machine Readable Catalogue - from the Machine-Readable Bibliographic Information Committee).

Metadata is usually recorded in a highly structured way following guidelines set out for a special purpose. The best known set of guidelines in use for digital resources is called the Dublin Core (<http://purl.org/dc>) which has been particularly developed for recording metadata needed for resource discovery on the Internet. The guidelines specify 'elements' in a metadata set which include, for example, Title, Creator, Subject and Source.

Dublin Core metadata aims for simplicity in application by creators and maintainers of digital information, yet sufficiently descriptive to help users locate and manage the resources. The Dublin Core lists fifteen elements that describe the essential features of documents and artifacts and has been used as a basis for other specialised metadata schemes. For example, the Australian Government Locator Service (AGLS) is an extension of Dublin Core [see the paper by Adrian Cunningham elsewhere in this Journal].

Types of metadata schemes currently used for networked electronic documents include:

- automatically generated indexes used by in-house software and locator services such as WebCrawler, Alta Vista, Open Text, Lycos etc;
- metadata applied by creators, indexers or cataloguers such as Dublin Core or cataloguing records, such as MARC.

Three different types of metadata have been described by the Digital Library Forum (DLF) Systems Architecture Committee in the Making of America II (MOAII) Testbed Project White Paper (<http://sunsite.berkeley.edu/MOA2/wp-v2.html>):

- 1 *Descriptive Metadata*, which is used to discover and identify an object. Examples include MARC and Dublin Core records.
- 2 *Structural Metadata*, which is used to display and navigate a particular object for a user and includes the information on the internal organization of that object, such as volume and chapter information.
- 3 *Administrative Metadata*, which represents the management information for the object: the date it was created, its content file format (JPEG, JTIP, etc.), rights information, etc. Another form of administrative metadata, the A-Core, which contains "accessory" metadata (metadata about the metadata), rather than "content" metadata (metadata about the resource), has been proposed to facilitate the administration of metadata.

The boundaries of these three types of metadata, however, are not necessarily distinct from each other, nor exclusive of other types of metadata. Preservation Metadata, for example, although described by Michael Day as a specialised form of Administrative Metadata (1) has received specific attention recently, and can also include elements that may be considered Structural Metadata by definition.

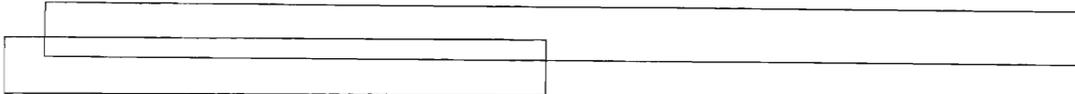
With a web document, providing metadata should ideally be an integral part of creating documents. However, some types of metadata may also be created later in the life cycle of a resource. It is also worth noting that the majority of web page designers rarely use DC standard metadata correctly. With an item created for an archive metadata will be entered at ingress (also known as 'ingest'), and at various times in the digital object's life cycle.

Where is metadata stored?

Metadata can be stored within the resource it describes (e.g. file formats that support descriptive headers), separate from the resource (e.g. an external catalogue) or separate but linked to the resource (e.g. a file linked with the digital object in a repository structure).

An example of storing the metadata within the resource is a World Wide Web (WWW) page. HTML, the markup language commonly used for WWW documents, allows metadata about the page to be embedded within the source text of the page (see **Figure 1**). This embedded metadata is not seen when the page is viewed.

The advantage of embedding the metadata within the resource is the tight coupling between the metadata and the resource. Whenever the resource is copied or moved, the metadata goes with it. Whenever the resource is modified, the metadata may be modified as well.



```
<HTML>
  <HEAD>
    <TITLE>Preservation Metadata</TITLE>
    <META NAME="DC.Title" LANG="en" CONTENT="Preservation Metadata">
    <META NAME="DC.Creator" LANG="en" CONTENT="National Library of Australia">
    <META NAME="DC.Subject" LANG="en"
      CONTENT="Preservation Metadata, description, digital, electronic, contextual
      information, record description, evidence, preserve,access, preservation">
    <META NAME="DC.Description" LANG="en"
      CONTENT="Description of Preservation Metadata (information that describes
      other information), and evolving standards for digital information.">
    <META NAME="DC.Publisher" LANG="en" CONTENT="National Library of Australia">
    <META NAME="DC.Date" LANG="en" CONTENT="15 October 1999">
  </HEAD>
```

Figure 1: Sample of metadata embedded in an HTML file header

When the resource is deleted, the metadata disappears as well. It is around this type of resource that our present metadata schemes were first modelled. A disadvantage with managing a collection of items with only embedded metadata is that in order to run a search, whether for resource discovery or for routine preservation and management tasks, every item would have to be opened to read the relevant metadata.

Another issue is the choice of file format. Though all files will have to carry data (i.e. technical metadata) that is needed to use and access the item, many formats do not include user accessible headers which can be used to store other types of metadata. This applied, until recently, to all audio formats. The recently standardised Broadcast Wave Format (BWF) is an example of a file format which includes user accessible headers and has been specified by radio broadcasters to facilitate better audio data exchange. The specification (<http://www.sr.se/utveckling/tu/bwf/>) expands the old Microsoft wave format to include extra documentation parameters needed by broadcasters for exchange of material. This extra descriptive information is called the 'Broadcast Audio Extension Chunk' and is itself metadata.

The alternative is to store the metadata and the resources in separate locations. Since the metadata is normally much smaller than the resource it describes, this means that a single server can store a large amount of metadata. This makes searching more efficient: fewer servers need to be accessed to search the metadata. It also allows for more metadata elements with less size limitations, such as we find in a tagged format like BWF. The disadvantage of separating the metadata and the resource is that the automatic linkage is lost. A resource could be copied, moved, deleted or modified without modifying the associated metadata. This, however, is a procedural problem that can be managed.

The National Library of Australia (NLA) has taken the approach that the greatest functional value is found in storing separate metadata for all resource, management and preservation needs. However, there is an advantage in being able to identify material separate to that

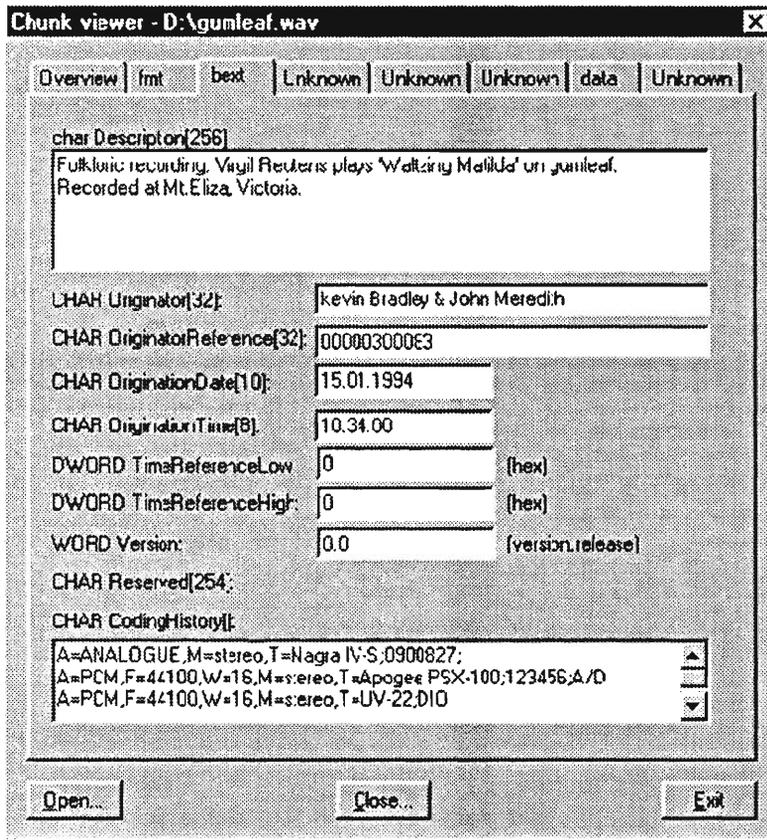


Figure 1: Screen capture of *best* chunk of BWF metadata

repository, and so, as a worst case scenario, the unique identifier will be embedded in the header. However, as we implement automated systems for undertaking this work, there will be an exchange between digital object and metadata repository using a standardised XML document exchange.

The following table is an example of what we are providing to suppliers for comment. It is not yet a finalised document. It includes some records about the original analogue reel, and specifies source of that data, where known. Data about the digital surrogate is included in a separate table.

Sounds database definition

Name	Type	Size	Source in Catalogue
IMMUTABLE	Number (Long)	4	MARC 019 1
CREATOR	Text	200	MARC 100 1
TITLE	Memo	-	MARC 245 10
PUBLISHER	Memo	-	-
FORMAT	Memo	-	MARC 300
SERIES	Memo	-	MARC 440 0
COVERAGE	Memo	-	-
DESCRIPTION	Memo	-	MARC 505 5
SUBJECT	Memo	-	MARC 650 0
CONTRIBUTOR	Text	200	MARC 700 1
DATE	Date/Time	8	MARC 033 0
IDENTIFIER	Memo	-	-
CATALOGUELASTUPDATE	Date/Time	8	MARC 005
CALLNUMBER	Memo	-	MARC 984
RIGHTS	Text	100	MARC 506
CREATEDATE	Date/Time	8	-
CREATEDBY	Text	50	-
UPDATEDATE	Date/Time	8	-
UPDATEDBY	Text	50	-

Name	Type	Size
OrigID	Number (Long)	4
TRC	Text	14
	Number (Long)	4
Immutable		
Interviewer	Text	100
Interviewer 2	Text	100
Interviewee	Text	100
Interviewee2	Text	100
DateInterviewed	Date/Time	8
OrigName	Text	15
Access	Text	40
DateAccess	Date/Time	8
Catalogue	Text	25
DateCatalogue	Date/Time	8
Transcript	Text	30
DateTranscript	Date/Time	8
OrigType	Text	25
OrigSize	Text	20
OrigTrack	Text	20
OrigSpeed	Text	20
OrigThickness	Text	20
OrigComment	Text	255
DateEntered	Date/Time	8
OrigBrand	Text	50
OrigDefaultDuration	Number (Single)	4
OrigInputDuration	Number (Single)	4
ProjectName	Text	100
Duration	Number (Single)	4
Category	Text	20
Status	Text	10
UserCassetteNo	Number (Byte)	1

Audio example

Let's take an example of something we believe is important enough to keep for hundreds of years, to illustrate why we want to do all this work.

The recording, for which the metadata is illustrated above, is of Virgil Reutens playing a gumleaf. It's a cultural phenomenon that had its heyday amongst Aboriginal musician in South East Australia in the 1930s. Though some, mostly non-Aboriginal players, still perform today, it is a cultural phenomenon that is now not widely known in Australia. Virgil Reutens won the gumleaf playing competitions six years running before retiring. It was recorded on an analogue reel, which now resides in the NLA's collection.

All the necessary information or metadata about the item is dispersed. We have what we hold in our hand, the tape, a MARC catalogue record, an often assumed array of technical information that is on the box or inherent in the item itself, and reference to recording equipment, practices, and standards that enable us to understand and play the sound recording. This means we know, or can surmise, a lot of information about this item, including the title, creators, date, format, substrate and carrier, etc. However, looking at the life cycle of a digital object, such as this will become, we can see a need for more information. Information in various forms and locations is difficult to retrieve and manage over time.

Being concerned with our ability to use this item in the future, either because the carrier is unstable, or the replay equipment is becoming scarce, we elect to preserve this item by making a digital copy. The digital copy may be an individual item, such as a CD or DAT, or it could be held in a digital mass store, or object storage system along with many other digital objects. A hand-held physical format is generally short-lived anyway. So, regardless of the interim step, we will probably choose to eventually transfer it to a mass storage system. The right metadata record in the present will help to facilitate that transfer. Apart from the information need to find and use it, we also need to imagine what users will have to know in the future when all of the assumed information is no longer obvious.

The information that will be needed in the future outlines what we want to record in our preservation metadata. A working group at the NLA has produced a list of information needs (Preservation Metadata for Digital Objects <http://www.nla.gov.au/preserve/pmeta.html>) that we expect will be required to provide long-term access, and our example here will show how the information applies.

We knew what to do with our analogue reel because we work with it every day, and though its future is threatened, it can still be purchased. The CD we record, or the file we make is similar. But what if it were a few years into the future? Could a neophyte user from the future distinguish a yellow book CD-ROM from a red book audio CD, or indeed a CD-R from a DVD-R, if that information wasn't on the label? Would they know what to do with it? Perhaps they can go to the only information source that was created to describe this item, the

catalogue record. Hopefully the information on that record will give us enough information to know what the item is and establish how it should be used. However, most existing catalogue records were never designed to record the dense plethora of data necessary to manage digital items in a future digital domain, so to help future users, what we need to do is link this catalogue record with a more comprehensive list of attributes.

Here we will walk through a few of the elements in our Preservation Metadata set and discuss some of the issues associated with them. In this paper it will only be a selection of the elements we have identified and I encourage you to visit the NLA's web site and examine the full document.

First we need to state what the item is: image, audio, video, text, database or executables. Though it is obvious to us at the present that the item we are describing is a sound recording, from the file extension if nothing else, it may not be so in the future. The file we create may be called leaf.wav, or leaf.bwf, however, this may indicate little to future users. It may be that the standard governing these files has been extended and incorporates a number of different file types, in much the same way as a .ra (Real Audio) file incorporates either audio or video as a format without change to the file extension.

Having determined that our item is audio, there are a number of technical parameters we will need to describe, these are listed in this table from the NLA Preservation Metadata document as shown in the following table:

5.2 Audio	
5.2.1 Audio Format and Version	Definition: The file type and version. Examples: AIFF interleaved .wav
5.2.2 Audio Resolution	Definition: The sampling frequency in kHz Examples: 44.1kHz; 96kHz
5.2.3 Duration	Definition: The length of the audio recording in minutes and seconds, or minutes, seconds, 100ths of seconds, and frames. Examples: 67 minutes 12 seconds:03:12:24:20
5.2.4 Audio Bit Rate	Definition: Word length used to encode the audio. Consequently an indication of dynamic range. Examples: 16 bit, 24 bit.
5.2.5 Compression	Definition: The type and level of compression (note audio compression, or bit rate reduction is a non reversible, "lossy" process) Examples: MPEG 3
5.2.6 Encapsulation	Definition: The delivery format and version. Examples: Real Audio II
5.2.7 Track Number and Type	Definition: The number of tracks and how they are related to each other. Examples: 1. 2 track Stereo 2. Single Track 3. 5 channel surround

Most of these parameters can be found as MIME types if the item is a web document. In our gum leaf example, which we have stored as a .wav file, the above data is found in the file headers, which encode the necessary operating information. In this way the computer system recognises the file and how it is to be used by first associating the file extension with a particular type of software, and reading the coded information in the file header. This is to our advantage as the data in the headers can be used to automatically record the information required. The automatic population of metadata files must be incorporated into these systems or the load of manual entry would make such systems all but impossible.

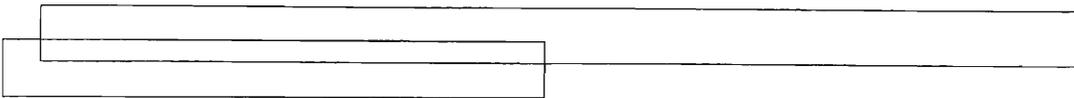
Is there other data necessary to make access to the item possible in the future? The short answer is yes. Apart from anything else, the above set of technical information is itself a set of codes that reference other systems and standards. If the data is to be recovered for future users, the standards and specifications behind those clever computer acronyms will have to be made clear. Our preservation metadata needs links to the standards that explain .wav, for instance. Also, if a future operating system does not include the ability to play a .wav file, then the software player will be unable to recognise the file extension and will not be able to access the file to extract the necessary information to understand it. By making this information explicit in a metadata record, we make it possible for future users to use the preservation management data and decode the information data.

In future, for which this metadata will be a vital preservation tool, it is fairly certain that the file formats we know and use today will have been replaced by something else. Technical developments, the imperative for change, not to mention market forces, will all drive this unstoppable phenomenon. Digital archivists have described two approaches to preserving the use of such items; migration or emulation. Migration is the process of sequentially converting digital files to a new format that the operating system of the future can recognise. Using emulation the digital object is not changed, instead software imitates the obsolete operating system or software to run the original file.

It is vital that our preservation metadata provide enough information to allow the incorporation of either approach, or indeed, a mixture of both.

Similarly, information which we have grouped under the headings of "Known System Requirements", "Installation Requirements", or "Storage Information" is used to describe what we currently know about the item with the same concern for future use.

An important aspect of preservation generally has always been the documentation of what has traditionally been called treatments. This has enabled conservators to reverse work done in the past, if necessary, or at least to treat the item with full background knowledge of the object they are dealing with. In the digital domain, the need to document processes is at least as critical. Every process, from the initial digitisation or recording process, through to the software applied to produce the current manifestation of the digital file.



Element Name 23. Process			
Definition	All relevant details of any process applied to a digital object or file, including software, specific settings or actions that were required to produce the current manifestation, details of all equipment and responsible agencies or persons.		
Rationale	This element documents what has happened to a particular manifestation of an object. The series of linked records pertaining to manifestations of an object builds up a change history over time. This information is essential to document what preservation methods have been applied to the object and how the various manifestations might differ from each other.		
LEVEL	COLLECTION	OBJECT	FILE
Repeatable	Yes	Yes	Yes
Obligation	Essential if applicable	Essential if applicable	Essential if applicable
Remarks	The entire element, including sub-elements, must be repeatable.		
Sub-elements	23.1 Description of Process 23.2 Name of the Agency Responsible for the Process 23.3 Critical Hardware Used in the Process 23.4 Critical Software Used in the Process 23.5 How Process was Carried Out 23.6 Guidelines Specified to Implement Process 23.7 Date and time 23.8 Result 23.9 Process Rationale 23.10 Changes 23.11 Other		

The way we keep these records, and the way a cumulative change history is built up reveals the manner in which these records have been constructed. The preservation metadata elements discussed here in this scheme are specific to a particular manifestation. In other words, each complete metadata record refers to only the one version of a particular file. The original has a metadata record, the first digital copy has a metadata record, the 21st generation access copy has its own metadata record (See Figure 2 - over). To describe a history of changes that have occurred to a particular digital copy, the linked metadata records are interrogated, and the resultant change history produced. Even if one of the digital copies of our audio file is deleted, its metadata record is still retained.

A commonly discussed alternative is to have an infinitely increasing single file that is continually added to and so keeps a record of treatment. If the approach used to preserve the collection was not linear (say we chose not to derive our preservation copy from the latest generation copy) this model could be problematic. Managing digital objects and collections over time will mean creating and managing considerable amounts of information about them. We believe that the creation of a new record for each new manifestation will organise this information more clearly and conveniently.

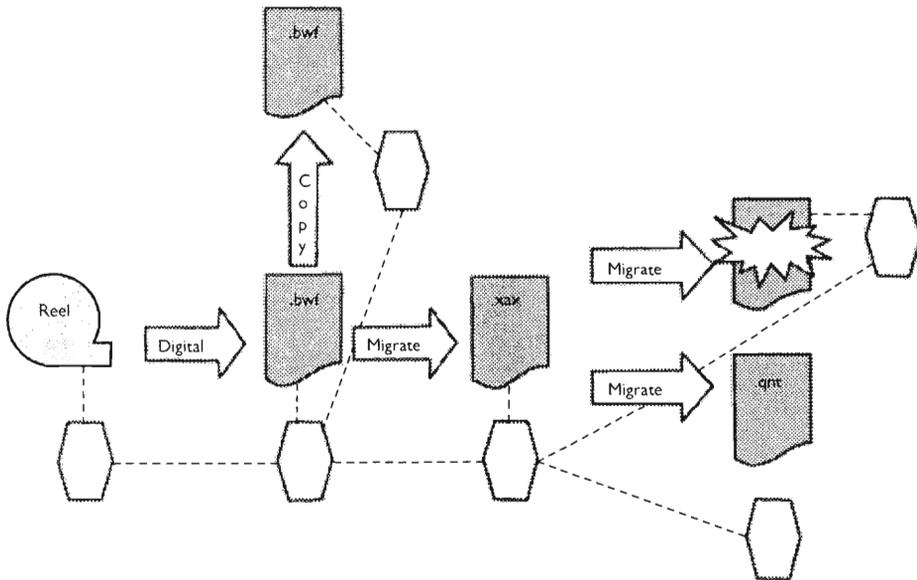
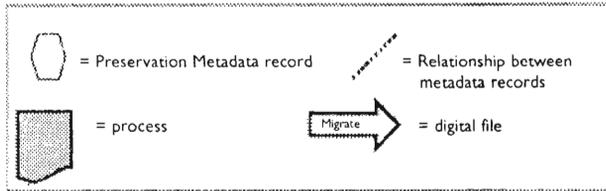
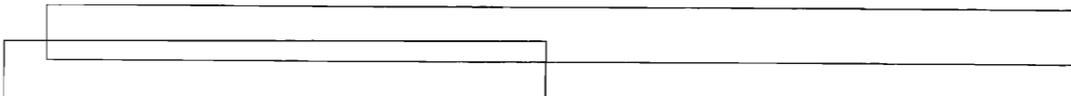


Figure 2: Illustration of life cycle showing linked preservation metadata records stored separately from the file.

If in producing the next in a range of duplicates, artefacts or unwanted additions or distortions, are added which alter the digital item, it is important that we document them. So if, for instance, the process produced a particular digital error that meant a part of the file failed to work correctly, it would be necessary to identify and explain this to the user or future archivist who might otherwise be misled. Another example might be when an original analogue recording has some unusual audio artefacts on it, groove echoes, clicks and pops or whatever, and which have become an integral part of the audio file. A sound archivist would need to identify this for future archivists who might otherwise assume that the faults were an artefact of the digital process and therefore make the error of attempting to correct them. We named this field the 'Quirks' field. Its purpose is to provide both integrity and efficiency in the management of a digital archive.



Element Name 14. Quirks			
Definition	Any characteristic that may appear as a loss in functionality or change in the look and feel of a collection, object or file. May describe quirks or provide links to quirks. Includes only descriptions of quirks that are relevant to the use of the current instance. Should include any relevant dates.		
Rationale	To assist preservation managers to assess the success or otherwise of preservation strategies and should prevent time being spent on trying to solve problems that were inherent in the object at the time the strategy was applied. This element documents changes that occur as a result of digitisation, duplication or migration, as well as those that might be inherent in the source document.		
LEVEL	COLLECTION	OBJECT	FILE
Scope	If useful, quirks at the object or file levels may be summarised at collection level.	Describes quirks at the object level.	Describes quirks at the file level.
Examples	1. For all Web documents in the collection produced prior to HTML 4, the text format tag is no longer supported.	1. The Shockwave files could not be captured from the source document.	1. The text format tag is no longer supported by many browsers due to changes in HTML 4. 2. In the transfer from the previous format, the functionality of the mpeg video was impaired. 3. The original printed item contains high levels of bleed through, which degrades the image quality.
Repeatable	Yes	Yes	Yes
Obligation	Essential if applicable	Essential if applicable	Essential if applicable
Remarks			

One final area that would bear some discussion is the 'Relationships' element. Like the file description elements, most information about relationships seems so obvious when it comes to physical objects that they are taken for granted. The relationship between the pages of a book, or between tracks on an LP all follow as a part of their physical manifestation. However, in the digital domain, those relationships must not only be made explicit, they are the very connections that make the digital collections navigable, or even link the metadata record with the object. A series of unrelated files would be a nightmare to use or make preservation decisions about. In a very real sense the relationships are the strands that bind the information together in a way that can make them useful.

Below is a list of possible relationships. It is not an exhaustive list, and could very easily be extended with examples that spring to mind as you read. They are, however, vital. When a digital archivist implements a process, the preservation of the relationships is integral to the process of preserving the digital item, for they maintain the links that help provide our collections with meaning.

Element Name 13. Relationships	
Definition	Relationships between this manifestation and other objects necessary for preservation management.
Rationale	To enable an object to be linked to its metadata, to earlier or later manifestations of it, other forms of it, and other objects, including finding aids. It is essential to maintaining a history of the change of an object by linking to the metadata of earlier manifestations, including that of the source object.
Scope and Examples	<p>Describes links relevant to a collection:</p> <ol style="list-style-type: none"> 1 Linked to previous manifestation in a migration sequence, eg, <i>was migrated from</i> [Unique Identifier and unique identifier type] 2 Linked to following manifestation in a migration sequence, e.g., <i>was migrated to</i> [Unique Identifier and Unique Identifier type] 3 Contains the lower component (must be repeatable) e.g. <i>contains</i> [Unique Identifier and Unique Identifier type] 4 Relation to the primary instance of the collection, e.g. <i>This is the 5th generation copy of</i> [Unique Identifier and Unique Identifier type] 5 Link to Preservation Master (if it exists), e.g. <i>Linked to</i> [Unique Identifier and unique identifier type of preservation master] 6 Link to Duplication Master (if it exists), e.g. <i>Linked to</i> [Unique Identifier and Unique Identifier of duplication master] 7 Link to finding aid, e.g. <i>Linked to</i> [Unique Identifier and Unique Identifier type] <p>Describes links relevant to an object:</p> <ol style="list-style-type: none"> 1 Linked to previous in a migration sequence, e.g. <i>was migrated from</i> [Unique Identifier and unique identifier type] 2 Linked to following in a migration sequence, e.g. <i>was migrated to</i> [Unique Identifier and unique identifier type] 3 Is a part of a higher aggregation, e.g. <i>part of</i> [collection unique Identifier and unique identifier type] 4 Contains the lower component (must be repeatable) e.g. <i>contains</i> [Unique Identifier and unique identifier type] 5 Relation to the primary instance of the collection, e.g. <i>this is the 5th generation copy of</i> [unique identifier of primary instance and unique identifier type]. 6 Related to accompanying material, e.g. <i>accompanied by book</i> [call number] 7 Link to Preservation Master (if it exists), e.g. <i>Linked to</i> [Unique Identifier and unique identifier type of preservation master] 8 Link to Duplication Master (if it exists), e.g. <i>Linked to</i> [Unique Identifier and unique identifier type of duplication master] 9 Linked to a previous object in a sequence in a periodic capture process e.g., <i>sequential copies of a web page.</i> 10 Linked to a previous object in a sequence related to content, e.g. <i>page in a book</i> 11 Linked to a following object in a sequence in a periodic capture process, e.g. <i>sequential copies of a web page.</i> 12 Linked to a following object in a sequence related to content, e.g. <i>page in a book</i> 13 Number in sequence and number of total in the sequence e.g., <i>3 of 54.</i> 14 Linked to items derived from the same instance, e.g. <i>high definition copy available at</i> [Unique Identifier and unique identifier type]. 15 Linked to a database specification in accordance with ISO 11179. <p>Describes links relevant to a file:</p> <ol style="list-style-type: none"> 1 Linked to previous in a migration sequence, e.g. <i>was migrated from</i> [Unique Identifier and unique identifier type] 2 Linked to following in a migration sequence, e.g. <i>was migrated to</i> [Unique Identifier and unique identifier type]

	<p>3 Is a part of a higher aggregation, e.g. part of [collection unique Identifier and unique identifier type]</p> <p>4 Relation to the primary instance of the collection, e.g. this is the 5th generation copy of [unique identifier of primary instance and unique identifier type].</p> <p>5 Link to Preservation Master (if it exists), e.g. Linked to [Unique Identifier and unique identifier type of preservation master]</p> <p>6 Link to Duplication Master (if it exists), e.g. Linked to [Unique Identifier and unique identifier type of duplication master]</p> <p>7 Linked to a previous object in a sequence in a periodic capture process e.g., sequential copies of a web page.</p> <p>8 Linked to a previous object in a sequence related to content, e.g. page in a book</p> <p>9 Linked to a following object in a sequence in a periodic capture process, e.g. sequential copies of a web page.</p> <p>10 Linked to a following object in a sequence related to content, e.g. page in a book</p> <p>11 Number in sequence and number of total in the sequence e.g., 3 of 54.</p> <p>12 Linked to items derived from the same instance, e.g. high definition copy available at [Unique Identifier and unique identifier type].</p> <p>13 Linked to a database specification in accordance with ISO 11179.</p>
Repeatable	Yes
Obligation	Essential if applicable
Remarks	These examples are not definitive: there will be others.

When this draft preservation metadata set was being developed, it seemed that the major concern of schemes that had already been developed was with managing image digitisation, and failed to concern themselves with either preservation, or with digital objects other than a scanned image. Our intention was to develop a set that was neutral with regard to the type of digital object that was being managed. However, if our set had one type of item that predominated, it was the web document, which could potentially contain every type of encoded information that is digitisable.

There has been a lot of international discussion in this area over the past few months, and the NLA has joined with RLG and OCLC in attempting to produce a document that specifies preservation metadata, and will incorporate the intention of the fields described here, if not the form. This paper only canvasses some of the twenty-five fields incorporated in the National Library of Australia's draft metadata document (<http://www.nla.gov.au/preserve/pmeta.html>). We encourage you to read it, as well as the Library's PADI site (Preserving Access to Digital Information <http://www.nla.gov.au/padi/>), which apart from many other pages with links and data about digital preservation, has a page devoted to Preservation Metadata (<http://www.nla.gov.au/padi/topics/32.html>).

Notes

- 1 Michael Day. *Issues and Approaches to Preservation Metadata*. - UKOLN: The UK Office for Library and Information Networking. In: Joint RLG and NPO Preservation Conference: Guidelines for Digital Imaging (Last Updated: 24 Feb 1999) <http://www.thames.rlg.org/preserv/joint/day.html>

A framework for the harmonization of multimedia metadata models

Jane Hunter, DSTC Pty Ltd [24]

Abstract

Audiovisual archives today are seeking new and complex technical solutions to enable the publication, management and delivery of multimedia content over the Internet. One of their major requirements is a framework for the integration of diverse application and community-specific metadata vocabularies that may be associated with resources. New initiatives such as TV-Anytime, MPEG-21 (Multimedia Framework) and the Open Archives Initiative (OAI) are demanding metadata schemes which combine elements from multiple existing metadata models and vocabularies (such as MPEG-7, SMPTE, Dublin Core, CIDOC CRM, <indecs>) to satisfy the diverse requirements of content creators, distributors and consumers without compromising interoperability.

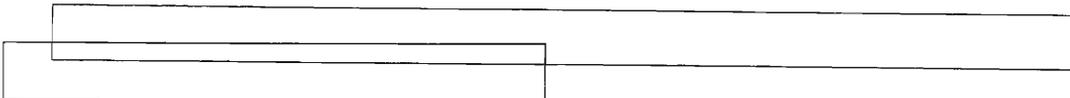
The Harmony project is a collaborative International Digital Library Initiative investigating models and tools for multimedia resources to facilitate interoperability between metadata models from different domains. This paper begins by describing the ABC model and vocabulary developed within the Harmony project, to enable semantic interoperability between disparate domain-specific metadata descriptions. A hybrid mapping approach which combines the structural and syntactic mapping capabilities of XSLT with the semantic knowledge of MetaNet is described. MetaNet is a metadata term thesaurus based on the ABC model and expressed using RDF Schema, which was developed to enable flexible and dynamic semantic mapping between mixed vocabulary metadata descriptions. The paper then describes how XML Schema can be used to provide the syntactic and structural glue between elements from different metadata schemas. Finally the paper concludes with a proposal for a metadata web architecture which uses both the RDF Schema and XML Schema languages to optimize metadata modularity and interoperability.

Introduction

Metadata is essential in any multimedia asset management system to enable:

- content description for searching, browsing, selection and filtering of multimedia content;
- content referencing to identify, locate and acquire relevant content;
- rights management and protection.

The Dublin Core [1], bibliographic [2], museums [3], archival [4], MPEG-7 [5] and SMPTE [6] communities are developing international metadata standards for describing textual, physical and audiovisual resources to enable their resource discovery over the Internet. The <indecs> organisation [7] is developing metadata standards to support network commerce in intellectual property. Managing the new heterogeneous multimedia resources which are being developed and traded via the Internet is going to require interoperability between



these disparate standards. New initiatives such as MPEG-21 [8], TV-Anytime [9] and OAI [10] are demanding schemas which integrate metadata elements from these different domains without loss of interoperability. Maintaining metadata interoperability is essential to enable:

- a single search interface across heterogeneous distributed resources and descriptions;
- merging of metadata elements from different domain-specific schemas onto a single underlying metadata model to satisfy the requirements of and enable communication between content creators, distributors, consumers and archivists;
- metadata transformations or projections from the single underlying canonical description to specific user or domain views.

This paper proposes a framework for the integration of diverse application and community-specific metadata vocabularies that may be associated with multimedia resources. Section 2 describes the ABC model developed within the Harmony project [11] and its role in enabling semantic interoperability between metadata domains. In section 3, I demonstrate using a simple example, the structural and semantic steps required to map between domain descriptions. Section 4 describes a hybrid mapping approach which combines the structural and syntactic mapping capabilities of XSLT [12] with the semantic knowledge of MetaNet [13]. MetaNet is a metadata term thesaurus (based on the ABC model and expressed in RDF Schema [14]) which was developed to enable flexible and dynamic semantic mapping between mixed vocabulary metadata descriptions. Section 5 illustrates how the W3C XML Schema language [15-17] is ideal for providing the syntactic and structural glue between metadata elements from different domains or namespaces. Finally the paper concludes in Section 6 with a metadata web architecture proposal which combines all of the components into a framework which exploits the best features of both the RDF Schema and XML Schema languages to optimise both metadata modularity and interoperability.

The ABC Event-Aware Metadata Model

Metadata packages are by nature not semantically distinct, but overlap and relate to each other in numerous ways. Achieving interoperability between these packages via one-to-one crosswalks is useful, but this approach does not scale to the many metadata vocabularies that will continue to develop. A more scalable solution is to exploit the fact that many entities and relationships - for example, people, places, creations, organisations, events, and the like - are so frequently encountered that they do not fall clearly into the domain of any particular metadata vocabulary but apply across all of them.

The Harmony Project is investigating this more generic approach towards metadata interoperability and, in particular, its application to multimedia digital libraries by attempting to:

- formally define common entities and relationships underlying multiple metadata vocabularies;
- describe them (and their inter-relationships) in a simple logical model;
- provide the framework for extending these common semantics to domain and application-specific metadata vocabularies.

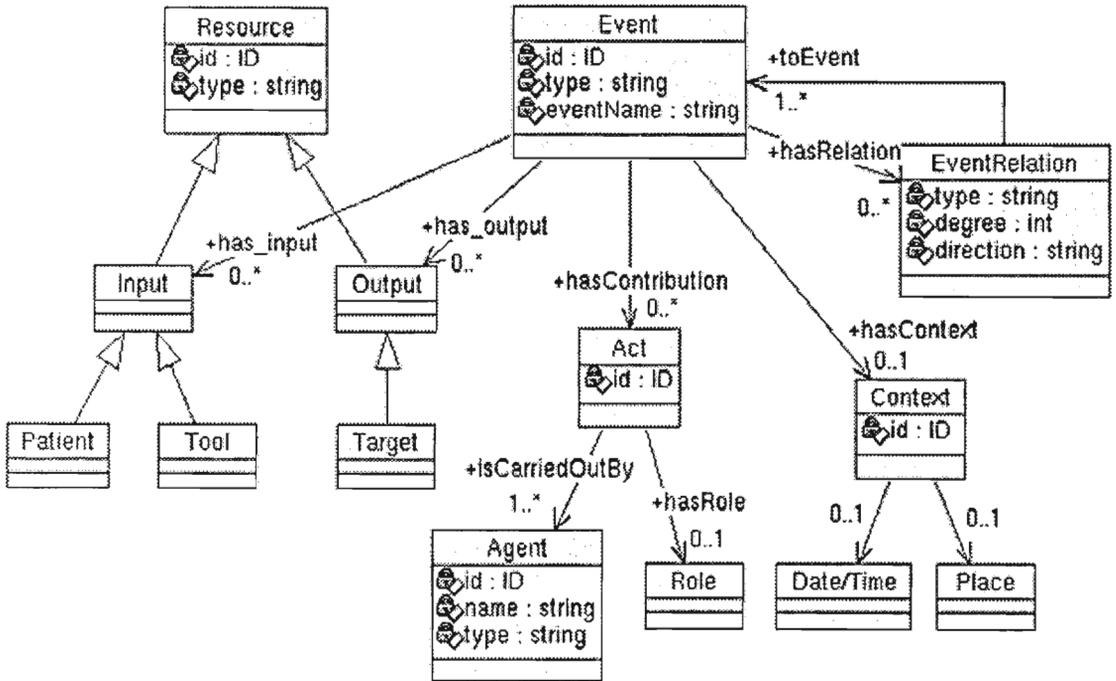
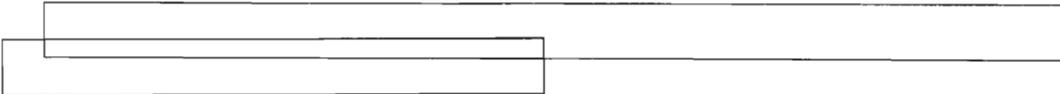


Figure 1: UML Representation of the ABC Metadata Model

The ABC model [18], shown in Figure 1, defines a set of fundamental classes which provide the building blocks for expression (through sub-classing) of application-specific or domain-specific metadata vocabularies. The base classes, listed below, were determined by analysing commonalities between different communities' metadata models (including Dublin Core [1], IFLA FRBR [2], CIDOC CRM [3], MPEG-7 [5]):

- Resources
- Events
- Inputs and Outputs
- Acts
 - Agents
 - Roles
- Context
 - Time
 - Place
- Event Relations



In addition, ABC adopts an event-aware view for modelling the relationship between the various manifestations of a creation. This event-aware view provides semantically clear attachment points for the association of properties amongst the various manifestations, events and contributors (agents) involved in a resource's lifecycle. ABC also provides a multiple views philosophy for metadata modelling and recipes for inter-conversion between those views. If rich information is required, the event model can be used. When concise, simple resource-centric metadata is needed, flattened structures are used. The next section uses a simple example to illustrate the steps involved in mapping from an event-aware view of a multimedia resource to different domain-specific resource-centric views.

A Simple Example

In order to test the ABC model and evaluate XSLT for metadata mapping, the following simple example was considered: "A resource, with the unique identifier 'audio821', is a 130 min audio (MP3) recording of a *Live at Lincoln Center* performance. The orchestra is the New York Philharmonic. The performance was on April 7, 1998 at 8PM Eastern Time. The musical score which is performed is the *Concerto for Violin* composed by Philip Glass. Copyright for the entire performance is held by Lincoln Center for the Performing Arts."

First I describe this resource using the ABC model. Secondly I attempt to map from the event-aware ABC description to resource-centric Dublin Core [1], MPEG-7 [5] and ID3 [19] descriptions respectively, using XSLT. Figure 2 illustrates the two steps involved in the mappings:

- 1 the structural mapping step involves transferring event properties to the output resource and creating a relationship between the output and input resources associated with the event.
- 2 the semantic mapping step involves mapping the properties attached to the output resource to semantically-equivalent properties in the output domain.

Structural Mapping Rules

For events which generate an output resource from an input resource, the transformation from an event-aware metadata model to a simple resource-centric metadata model consists of the following steps:

- the Date, Time and Place properties within the Event's Context node can be qualified using the Event Type and transferred to the target output resource e.g. Date.Performance, Time.Performance, Place.Performance;
- the Role property of each Act associated with an event, becomes a qualifier on the Agent property which is attached to the target output resource and its value is the Act's Agent Name e.g. the Agent.Orchestra property has value *New York Philharmonic*;
- a Relation property arc is generated from the event type (e.g. Performance -> Relation.isPerformanceOf) and is attached to the target output resource. The value of this property is the patient input resource of the event (e.g. "comp523");
- all other existing properties of the input and output resource remain the same.

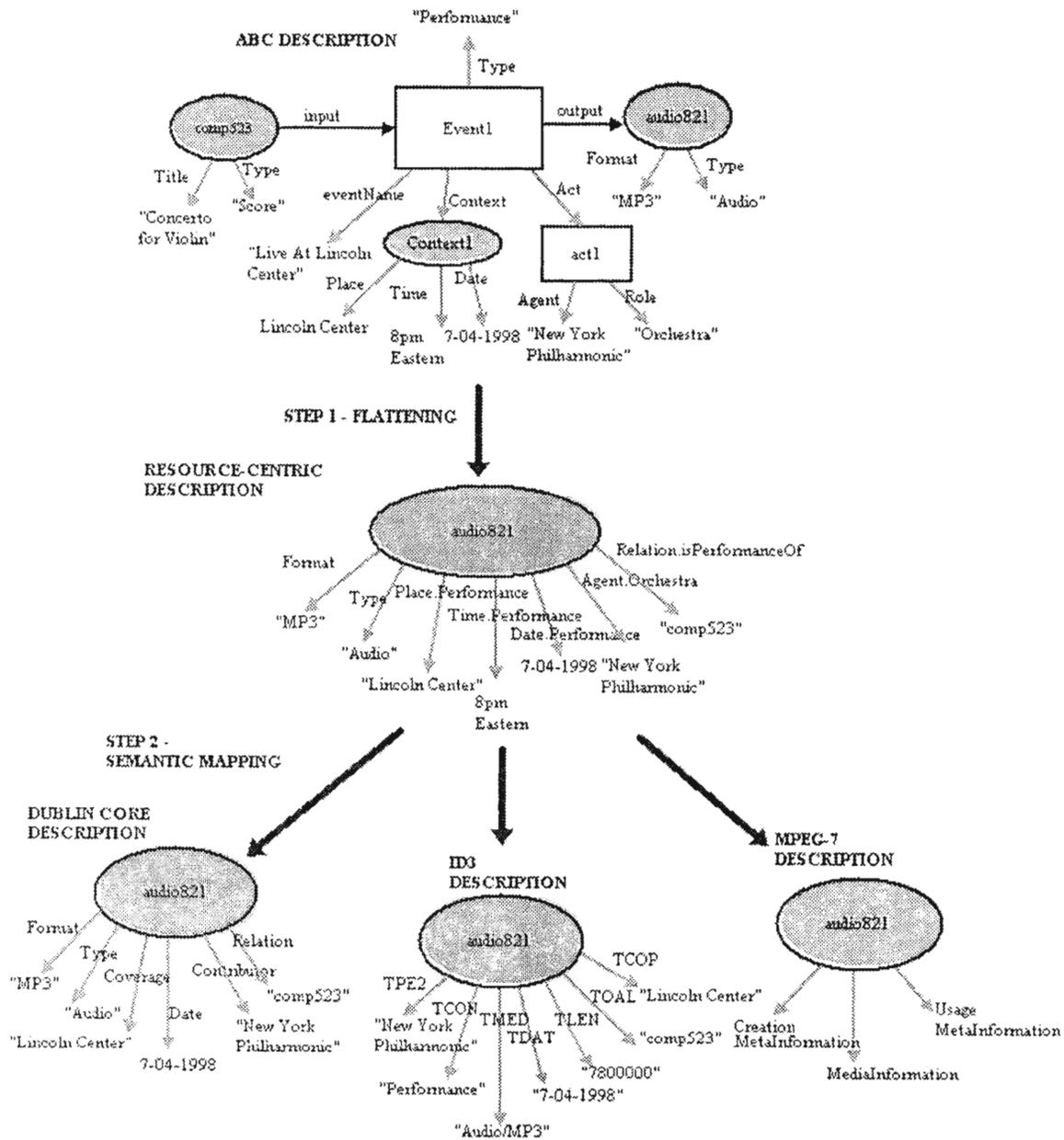
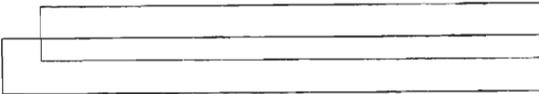


Figure 2: Transformation from the ABC Event-aware Model to Dublin Core/ID3/ MPEG-7 Descriptions



Other inheritance and metadata derivation rules may be possible but these require further investigation. For example, a Description property for the output resource can be generated from the Event Type and the input resource's Title e.g. "Performance of *Concerto for Violin*". Or in many cases, the Title property can be inherited by the output resource directly from the Title property of either the input resource or the event.

Semantic Mapping using XSLT

The Extensible Style Transformation Language's (XSLT) [12] ability to transform data from one XML representation to another appears to make it ideal for metadata interchange applications.

Using XSLT and the Xalan [20] XSLT processor, XSL programs were developed for transforming from the ABC model to DC, MPEG-7 and ID3 descriptions. The mapping implementations revealed that although XSLT works very well for performing the structural and syntactic mappings between metadata descriptions (as described in Section 3.1), the semantic mappings require human intervention and must be hardwired into the code. The non-existence of machine-understandable semantic information in declarative XML-encoded metadata descriptions precludes the kinds of flexible dynamic semantic mappings required between metadata vocabularies from different domains.

Consequently MetaNet [13] was developed. MetaNet is a metadata term thesaurus based on the ABC vocabulary, to provide the semantic knowledge required to enable flexible, dynamic mapping between XML-encoded mixed vocabulary metadata descriptions.

MetaNet – A Metadata Term Thesaurus Based on the ABC Model

The objective of the MetaNet thesaurus is to provide the semantic knowledge required to enable machine understanding of equivalence and hierarchical (subtyping) relationships between metadata terms from different domains. The scope of this thesaurus is limited to the significant metadata vocabularies from the bibliographic, museum, archival, record keeping and rights management communities. It has been developed by performing WordNet [21] searches using the core terms from the ABC vocabulary and extracting those synonyms and hyponyms which could conceivably be used in a metadata scheme to represent the original core term. In addition the majority of metadata terms from the vocabularies of the DC, INDECS, IFLA and CIDOC CRM have been semantically compared with the ABC vocabulary and manually incorporated into the thesaurus to reflect their semantic relationship.

The core ABC vocabulary developed by the Harmony project has been used as the starting point, providing the top-level preferred terms. This has then been extended by defining equivalent/ overlapping terms (ET), narrower terms (NT) and broader terms (BT) which encompass most of the significant metadata models/vocabularies/standards.

For example, consider "Agent" which is a core entity of the ABC model and a core term of the ABC vocabulary [18]. Semantically equivalent terms for "Agent", which are used within other metadata vocabularies include: *actor, contributor, player, doer, worker, performer*. Possible narrower terms or hyponyms for "Agent" include: *creator, author, composer, artist, musician, ... etc..*

An RDF Schema [14] representation of this thesaurus has been developed. The RDF and RDF Schema elements, *Class, subclassOf, Property, subPropertyOf* are used to define the type hierarchy and entity/attribute relationships between metadata elements. The RDFS *label* element is used to specify terms which are considered to be semantically equivalent. Below is an excerpt from the RDF Schema which illustrates the representation for the ABC Agent core term as well as its equivalent terms and a partial hierarchy of its narrower terms.

```
<?xml version="1.0"?>
<rdf:RDF xml:lang="en"
  xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#">

<rdfs:Class rdf:ID="Agent">
<rdfs:comment xml:lang="en">The resources which contribute to or act
  in an event. Typically agents are people, groups of people,
  organisations or instruments.</rdfs:comment>
<rdfs:label xml:lang="en">Actor</rdfs:label>
<rdfs:label xml:lang="en">Contributor</rdfs:label>
<rdfs:label xml:lang="en">Player</rdfs:label>
<rdfs:label xml:lang="en">Doer</rdfs:label>
<rdfs:label xml:lang="en">Worker</rdfs:label>
<rdfs:label xml:lang="en">Performer</rdfs:label>
<rdfs:subclassOf
  rdf:resource="http://www.w3.org/2000/01/rdf-schema#Resource"/>
</rdfs:Class>

<rdfs:Class rdf:ID="Author">
<rdfs:label xml:lang="en">Writer</rdfs:label>
<rdfs:label xml:lang="en">Wordsmith</rdfs:label>
<rdfs:subclassOf
  rdf:resource="#Agent"/>
</rdfs:Class>

<rdfs:Class rdf:ID="Journalist">
<rdfs:label xml:lang="en">Columnist</rdfs:label>
<rdfs:label xml:lang="en">Reporter</rdfs:label>
<rdfs:subclassOf
  rdf:resource="#Author"/>
</rdfs:Class>

</rdf:RDF>
```

A web search and browse interface to MetaNet has also been developed [13]. Users can search on any common metadata term and retrieve a list of equivalent terms, broader terms and narrower terms. Figure 3 shows the results of a search on the term *author*.

Results of Search for metadata term: *author*

Core Term :

agent

Synonyms/Equivalent Terms:

actor, contributor, player, doer, worker, performer

Hyponyms/Narrower Terms:

author, writer, wordsmith

Hypo-hyponyms/Narrowest Terms:

novelist, playwright, dramatist, essayist, poet, scriptwriter, copywriter,
journalist, columnist

Figure 3: MetaNet Web Interface Search Results

Although MetaNet has been generated manually, it would ideally be machine-generated. If the semantic relationships between the metadata terms from each domain's vocabulary are expressed as an RDF Schema, then MetaNet could theoretically be machine-generated by automatically merging the separate RDF schemas using inferencing. The Ontology Inference Layer (OIL) [22] proposes precisely such a process.

Linking MetaNet to XSLT

The semantic information represented by the MetaNet thesaurus (described above) now needs to be made accessible to the XSLT program performing the mappings between metadata descriptions.

Using XSLT, it is possible to parse an input XML description and for each new element encountered, call a Java procedural code extension which determines the equivalent term in the output domain from the MetaNet thesaurus. For example, suppose the Java program, *Mapping.java*, contains a *readMetaNet* function. For each element encountered during parsing, the input element name (e.g., 'dstc:author') and the output domain (e.g., 'dc') are passed to the *readMetaNet* function. This function searches the MetaNet RDF Schema file for the equivalent output domain element (e.g., 'dc:creator'), returns this value and XSL creates a new output element with this name in the output description. Figure 4 below illustrates the program flowchart.

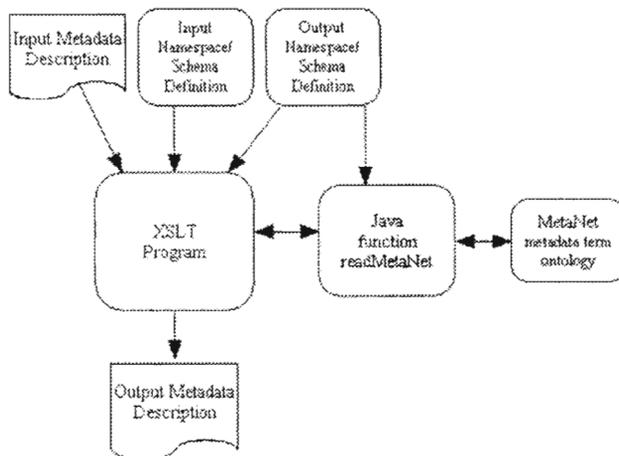


Figure 4: Program Flowchart for Metadata Description Mappings

Below is a high-level simplistic algorithm describing the mapping process which is performed within the *readMetaNet* Java function in Figure 4. By adding a procedural code extension to XSLT which performs the semantic mapping (by accessing the information on semantic relationships between metadata terms in MetaNet), it has been possible to execute dynamic, flexible mappings between XML-encoded instantiations of application profiles.

For each element in the input description

```

{
  Search for the input element name in the output domain schema;
  if (found) {
    Map the input element to the equivalent output domain element;
  }
  else {
    Extract the Equivalent Terms(ETs)for the input element from MetaNet;
    Search the output domain schema for each of the ETs;
    if (an ET is found)
    {
      Map the input element to the equivalent output domain element;
    }
    else {
      Extract the Broader Terms(BTs) for the input element from MetaNet;
      Search for each BT in the output domain namespace;
      if (a BT is found)
      {
        Map the input element to the broader output domain element;
      }
      else {
        Extract the narrower terms(NTs)for the input element from MetaNet;
        Search for each NT in the output domain namespace;
        if (a NT is found)
        {
          Map the input element to the narrower output domain element;
        }
      }
    }
  }
}
} endFor

```

Mixing Metadata Vocabularies Using XML Schema

Using XML Namespaces [23] and the 'import' feature of XML Schema language [15-17], users can import elements from multiple domain-specific namespaces and combine them into application-specific metadata description schemes (or "application profiles"). In addition, metadata schema designers can refine, restrict or extend types or elements imported from the remote namespaces and add their application-specific structural, cardinality and datatyping constraints. Below is a simple example of an application profile expressed in XML Schema language which combines Dublin Core for simple resource discovery with MPEG-7 for fine-grained content-based search and retrieval of audiovisual content. It defines a schema in the DSTC namespace which imports the Dublin Core *Title*, *Contributor* and *Source* elements and combines them with the MPEG-7 *UsageMetaInformation* DS. This schema also applies its own local cardinality constraints on the imported elements.

```
<schema xmlns="http://www.w3.org/1999/XMLSchema"
  targetNamespace="http://www.dstc.edu.au"
  xmlns:dstc="http://www.dstc.edu.au"
  xmlns:dc="http://purl.org/dc/elements/1.1/"
  xmlns:mpeg7="http://www.mpeg.org/MPEG7/2000/">

  <import namespace="http://purl.org/dc/elements/1.1/">
  <import namespace="http://www.mpeg.org/MPEG7/2000/">

  <element name="myDescription">
    <complexType>
      <sequence>
        <element ref="dc:title" minOccurs="1" maxOccurs="2">
        <element ref="dc:contributor" minOccurs="1" maxOccurs="3">
        <element ref="dc:source" minOccurs="0" maxOccurs="10">

        <element ref="mpeg7:UsageMetaInformation"
          minOccurs="0" maxOccurs="unbounded"/>
      </sequence>
    </complexType>
    <attribute name="about" type="uriReference"/>
  </element>
</schema>
```

Below is an instantiation of the XML Schema defined above.

```
<?xml version="1.0"?>
<myDescription xmlns="http://www.dstc.edu.au"
  xmlns:dc="http://purl.org/dc/elements/1.1/"
  xmlns:mpeg7="http://www.mpeg.org/MPEG7/2000/"
  xmlns:xsi="http://www.w3.org/2000/10/XMLSchema-instance"
  xsi:schemaLocation="http://www.dstc.edu.au [URL1]
    http://purl.org/dc/elements/1.1/ [URL2]
    http://www.mpeg.org/MPEG7/2000/ [URL3]"
  about="urn:isbn:0-89887-113-1">

  <dc:title>Live At Lincoln Center Performance</dc:title>
  <dc:contributor>New York Philharmonic</dc:contributor>
  <dc:source>Concerto For Violin by Philip Glass</dc:source>
  <mpeg7:UsageMetaInformation>
```

```

<mpeg7:Rights>
  <mpeg7:RightsId IdOrganization="LCPA" IDName="Lincoln Center">
    lcpa:19980407:td2
  </mpeg7:RightsId>
</mpeg7:Rights>

<mpeg7:UsageRecord>
  <mpeg7:Type CSName="MPEG_UsageType_CS" CSTermId="7">
    <mpeg7:Label xml:lang="en">Broadcast</mpeg7:Label>
  </mpeg7:Type>
  <mpeg7:Channel CSName="MPEG_Channel_CS" CSTermId="47">
    <mpeg7:Label xml:lang="es">CBS:US</mpeg7:Label>
  </mpeg7:Channel>
  <mpeg7:Place>
    <mpeg7:Country>us</mpeg7:Country>
  </mpeg7:Place>
  <mpeg7:Date>1998-04-07T20:00+00:00</mpeg7:Date>
  <mpeg7:Audience>2345747</mpeg7:Audience>
</mpeg7:UsageRecord>
</mpeg7:UsageMetaInformation>
</myDescription>

```

A Multimedia Metadata Web Architecture Proposal

There are currently two possible methods for defining application-specific metadata sets: RDF Schemas [14] and XML Schemas [15-17]. (XML DTDs cannot seriously be considered as a solution since they do not explicitly support namespaces [23]). The two schema languages each have associated advantages and disadvantages:

- RDF Schemas provide support for rich semantic descriptions but provide limited support for the specification of local usage constraints (i.e., structural, cardinality and datatyping constraints);
- XML Schema language provides rich support for explicit local usage constraints such as content model, cardinality and datatyping constraints (which makes it ideal for defining mixed vocabulary "application profiles"), but it provides little of the semantic knowledge necessary to enable flexible dynamic semantic mapping between metadata domains.

Hence the most logical approach is to attempt to use both RDF Schemas and XML Schemas so as to exploit their complementary features.

My proposal is that if each metadata community defines both an RDF Schema and an XML Schema in their registered namespace to completely describe their domain's metadata element set, then both metadata diversity and interoperability will be more easily accommodated across the WWW. The RDF Schema file should define the domain-specific semantic knowledge by specifying type hierarchies and definitions - based on the ISO/IEC 11179 standard for the description of data elements. The XML Schema file should specify recommended encodings of metadata elements and descriptions by defining types and elements, and their content models, structures, occurrence constraints and datatypes.

In addition, the XML Schema will contain links to the corresponding semantic definitions in the RDF Schema file in the same namespace. Currently this is only possible using the XML Schema extensibility method based on *annotation* and *appinfo* tags but ideally a specific built-in "semantics" attribute would be provided for simple and complex types. This attribute would specify a uriReference to the RDF Schema semantic definition for that type. For example:

```
<simpleType name="originator"
  semantics="http://purl.org/dc/elements/1.1/dcmes.rdf#creator"/>
  <restriction base="string"/>
</simpleType>
```

By expressing the semantic knowledge of each domain in a machine-understandable RDF Schema, it then becomes possible to merge these separate domain ontologies or vocabularies onto a single encompassing ontology or vocabulary (ABC), also expressed as an RDF Schema, which I call the MetaNet ontology. XSLT provides the language for transforming between XML-encoded metadata descriptions. When combined with the semantic knowledge provided by MetaNet, XSLT is capable of performing both the semantic mapping and the structural and syntactic mapping required between metadata descriptions conformant with mixed-vocabulary schemas.

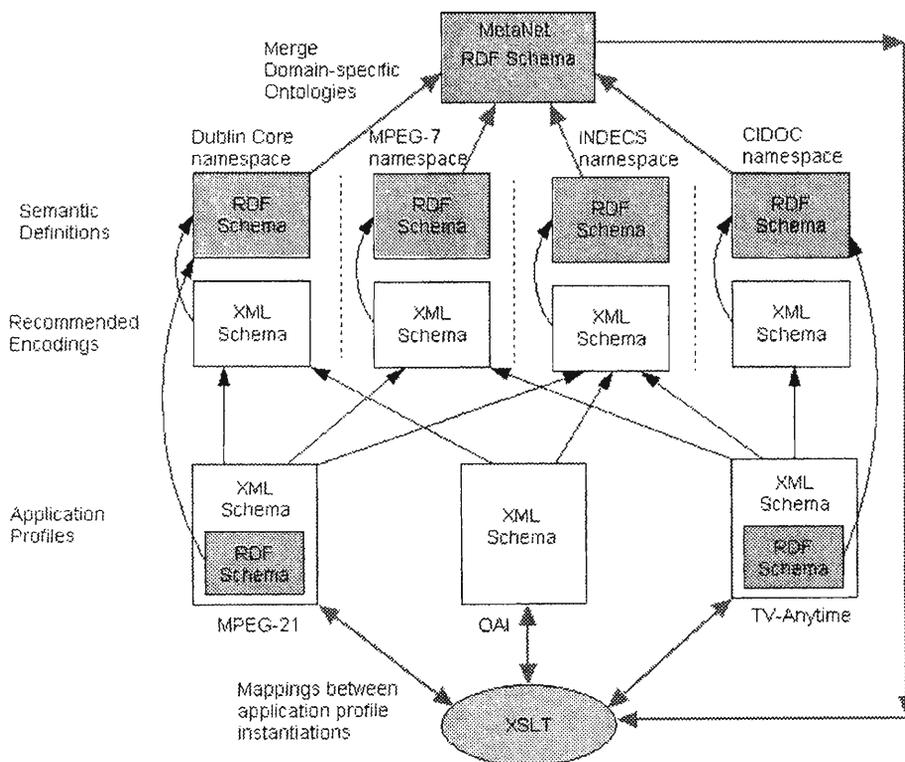
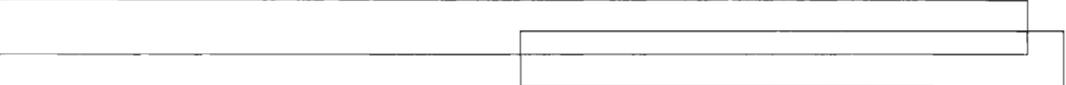


Figure 5: Proposed Web Metadata Architecture



Hence the key components of this architecture, as illustrated in Figure 5 (over), are:

- Domain-specific namespaces which express each domain's metadata model and vocabulary using both an RDF Schema and an XML Schema. Each XML Schema contains links to the corresponding RDF Schema;
- MetaNet - a single metadata ontology, expressed as an RDF Schema and based on a common underlying, extensible model and vocabulary (ABC). This has been generated by merging the domain-specific ontologies (RDF Schemas) from each namespace onto the ABC model;
- XSLT - a language for transforming between XML-encoded metadata descriptions. Combined with the semantic knowledge of MetaNet, XSLT is capable of flexible dynamic mappings between application profile instantiations;
- Application Profiles - XML Schema definitions which combine, restrict, extend and redefine elements from multiple existing namespaces. In addition, application profiles may also embed RDF Schema definitions of new Classes or Properties which are subClasses or subProperties of classes and properties defined in the domain-specific RDF Schemas.

Although this is the ideal approach, there are certain difficulties associated with using both schema languages in conjunction:

- There is a degree of functional overlap between RDF Schema and XML Schema which must be resolved by:
 - either developing a hybrid RDF+XML schema parser which is capable of checking for consistency between RDF Schema and XML Schema constraints;
 - or clearly demarcating the responsibilities of each schema language to prevent duplication or inconsistency between constraints;
- There are currently no clearly defined mechanisms for smoothly and cleanly meshing RDF Schema and XML Schema definitions;
- The extensibility mechanisms for RDF Schema and XML Schema require clarification, simplification and implementation examples.

In the long-term this approach requires a re-examination of the two schema languages and possible modifications to enable a cleaner, more efficient integration of their complementary functionality.

Acknowledgements

The work described in this paper has been funded by the Co-operative Research Centre for Enterprise Distributed Systems Technology (DSTC) through the Australian Federal Government's CRC Programme (Department of Industry, Science and Resources). The author wishes to acknowledge the valuable contributions made to this paper by Harmony collaborators Carl Lagoze and Dan Brickley.

References

- [1] *Dublin Core Metadata Initiative*, <http://purl.org/DC>.
- [2] *Functional Requirements for Bibliographic Records*, International Federation of Library Associations and Institutions, <http://www.ifla.org/VII/s13/frbr/frbr.pdf>, March 1998.
- [3] ICOM/CIDOC Documentation Standards Group, *CIDOC Conceptual Reference Model*, <http://www.ville-ge.ch/musinfo/cidoc/oomodell/>.
- [4] D. Bearman and K. Sochats, *Metadata Requirements for Evidence*, Archives & Museum Informatics, University of Pittsburgh, School of Information Science, Pittsburgh, PA <http://www.lis.pitt.edu/~nhprc/BACartic.html>, 1996.
- [5] *MPEG-7 Home Page*, <http://www.darmstadt.gmd.de/mobile/MPEG7/index.html>
- [6] Proposed SMPTE Standard, *Metadata Dictionary Structure*, SMPTE 335M, January 2000, <http://www.smpte.org/>
- [7] <indec> *Home Page: Interoperability of Data in E-Commerce Systems*, <http://www.indec.org/>.
- [8] *MPEG-21 Multimedia Framework*, http://www.csel.it/mpeg/public/mpeg-21_pdtr.zip.
- [9] *The TV-Anytime Home Page*, <http://www.tv-anytime.org/>.
- [10] *The Open Archives Initiative*, <http://www.openarchives.org/>
- [11] *The Harmony Project*, <http://www.ilrt.bris.ac.uk/discovery/harmony/>.
- [12] J. Clark, *XSL Transformations (XSLT)*, World Wide Web Consortium, W3C Recommendation REC-xslt-19991116, <http://www.w3.org/TR/xslt>, November 16 1999.
- [13] *The MetaNet Search Page*, <http://sunspot.dstc.edu.au:8888/Metanet/Top.html>.
- [14] D. Brickley and R. V. Guha, *Resource Description Framework (RDF) Schema Specification*, W3C Candidate Recommendation CR-rdf-schema-20000327, <http://www.w3.org/TR/2000/CR-rdf-schema-20000327/>, March 27 2000.
- [15] *XML Schema Part 0: Primer*, W3C Candidate Recommendation, 24 October 2000, <http://www.w3.org/TR/2000/CR-xmlschema-0-20001024>
- [16] *XML Schema Part 1: Structures*, W3C Candidate Recommendation, 24 October 2000, <http://www.w3.org/TR/2000/CR-xmlschema-1-20001024>
- [17] *XML Schema Part 2: Datatypes*, W3C Candidate Recommendation, 24 October 2000, <http://www.w3.org/TR/2000/CR-xmlschema-2-20001024>
- [18] C. Lagoze, J. Hunter, and D. Brickley, *An Event-Aware Model for Metadata Interoperability*, ECDL 2000, Lisbon, Sept. 2000
- [19] *The ID3 Home Page*, <http://www.id3.org/>
- [20] *Xalan-Java Overview Page*, <http://xml.apache.org/xalan/overview.html>
- [21] *WordNet - A Lexical Database for English*, <http://www.cogsci.princeton.edu/~wn/online/>
- [22] D. Fensel, I. Horrocks, F. Van Marmelen, S. Decker, M. Erdmann, and M. Klein, *OIL in a Nutshell*, Vrije Universiteit Amsterdam, Amsterdam <http://www.cs.vu.nl/~dieter/oil/oil.nutshell.pdf>, 1999.
- [23] *Namespaces in XML*, W3C Recommendation 14 January, 1999. <http://www.w3.org/TR/REC-xml-names>.
- [24] This paper describes the most recent advances made to the work outlined in the presentation by Jane Hunter at the IASA-SEAPAVAA conference in Singapore, July 2000. The Singapore presentation was primarily on an Oral History Archive testbed project. The paper 'J. Hunter, D. James, *The Application of an Event-Aware Metadata Model to an Online Oral History Project*, ECDL 2000, Lisbon, September 2000' can be read at <http://archive.dstc.edu.au/RDU/staff/jane-hunter/OralHistory/paper.html>. The author can be contacted at jane@dstc.edu.au

'Personal' Digital Mass Storage Systems – a viable solution for small institutions and developing countries

Dietrich Schüller, Phonogrammarchiv, Austrian Academy of Sciences, Vienna

Paper prepared for the Annual IASA-Seapavaa Conference, Singapore, 2-7 July 2000

This is a revised English version of: 'Digitale Massenspeicher: Von der Pilotphase zur Einführung auf breiter Front'. - Das Audiovisuelle Archiv (45/1999) pp 73-77

In 1989/90, Digital Mass Storage Systems (DMSSs) were discussed for the first time by sound archivists (1) but it was the Tonmeistertagung of 1992 which proved to be the catalyst for German radio sound archivists to start pilot projects to explore the potential of such systems for sound archiving. By the mid-nineties this way of safeguarding audio materials had moved from "science-fiction" to become "state of the art"(2). The Digital Mass Storage movement has also been joined by some national sound archives. Video archivists have also begun to move in this direction, although - due to the very large storage requirements - few installations have been started.

After one decade, it is clear that the concept has been accepted and the systems installed so far have proved the viability of the technology. Mass Storage Systems are very efficient tools in bringing new dimensions of access to sound archives while simultaneously solving the problems of checking the data integrity of the digitally stored contents. It should not be forgotten, however, that the migration of great quantities of audio data to new systems has not yet been undertaken on a large scale.

The number of installations is, so far, small and the costs are large. All current systems are individually assembled and tailor-made to meet the specific needs of each archive. Even small systems require an initial investment of at least US \$ 100,000 with additional, considerable, annual costs for licence fees and support. Hardware is one of the less expensive components of the overall cost. The software determines the total price to a strong and ever increasing degree. One reason is the individual adaptation of the metadata to the system design. Another cost-intensive factor is the software for managing the 'eternal life cycle' of the stored information. This software is actually the brain of the system. The reason for these high costs is the low number of systems installed so far. In addition, software developers have been spoiled by the typical clientele who have purchased the existing large storage systems - banks, insurance companies, internet providers and defence departments. To them the purchase costs of such systems are of relatively minor importance.

However, the era in which DMSSs are solely large investments made by wealthy radio and national archives may soon be at an end. There is an impressive number of potential clients who are in need of 'small' DMSSs. Typical are the many small sound archives and music libraries that have a collection of between several hundred and a few thousand hours of material. Today, these archives are either forced to stick to the conventional, expensive and

space consuming method of using analogue tape for archival masters, or to take preliminary steps towards digitisation by using R-DAT or CD-R as intermediary carriers. The production of conventional analogue archival tapes is a proven procedure that is employed, however, at the cost of accepting the loss of original quality when used to safeguard digital originals. The use of intermediary digital carriers, on the other hand, is only acceptable if quality checks of such carriers are made manually, immediately after their production and at regular intervals thereafter, to check their data integrity and to organise transfer onto new carriers, whenever further retrievability is at risk. Unfortunately, such stringent procedures are the exception rather than routine. Therefore, most current digitisation activities gamble with the retrievability of their holdings. This situation will not improve with the advent of new data carriers such as the DVD, or whatever format comes next.

Beyond applications in sound archives, small DMSSs have a world-wide potential for applications within innumerable research and teaching institutions which, typically, deal with much higher quantities of digital data than are normally generated in offices. This is especially the case where digital image files and multimedia data are handled. Museums, art history institutions, architects, photographers: they all would profit enormously if they could manage the safeguarding of, and access to, their data in this entirely new way. DMMS also provide a viable solution for what are called electronic documents (3).

Let us imagine a scalable system which starts at a few hundred Gb of storage space and which can expand at the annual growth rate of the user. Access times of a few minutes are not a problem to the users. Simple and robust tape drives with low service costs and proven reliability, e.g. DLT, can be used. Standardised hardware/software packages running under universal operating systems such as Windows NT would drastically reduce prices. This would create systems affordable for literally everybody who would benefit from such a solution today. It can be assumed that within a period of a few years, the price of a basic version of such a system will be available for a sum which audio archives used to spend on a professional analogue archiving unit.

DMSSs would be enormously beneficial for developing countries, especially those with hot and humid climatic conditions. Today, conventional archiving of discrete data carriers of any format is affordable, in practice, only in places with a temperate climate. Even in such places, most of the archives have to use machine controlled air conditioning. Under tropical conditions, only a few, rich institutions can afford effective temperature and humidity control throughout the year. In addition, this is an enormous waste of energy. The majority of audiovisual archives in tropical countries will lose their holdings prematurely because, due to financial constraints, the necessary storage conditions cannot be maintained. This is especially deplorable in those countries that have a strong, orally transmitted culture. Such cultures can only be documented adequately by using audiovisual technologies. The space occupied by a DMSS is small compared to that occupied by a conventional archive and, therefore, can be kept at favourable climatic conditions with comparatively low energy consumption. Thus, DMSSs are an ideal and viable solution for the safeguarding of audiovisual holdings in tropical countries.

We find ourselves in a situation similar to that of two decades ago when the transition from mainframe computers to individual micro-computers and PCs took place. Today, the time is ripe for 'Personal' Mass Storage Systems which provide the solution to the needs of an enormous number of users from different fields in business, research, and professional archiving. This does not mean a complete decentralisation in the storage of large amounts of digital data because safeguarding of cultural and intellectual data of national and even world-wide importance calls for uncompromising measures. Big computer centres will, therefore, have to function as backup repositories for small decentralised storage units.

Technically, "Personal" Mass Storage Systems are readily available today. Their practical implementation, however, is obstructed by the high initial investment and annual running costs - mainly in the provision of software.

The ball is now with the industry. The company that grasps the enormous potential of these new markets first will have a considerable advantage over its competitors.

Endnotes

- 1) The first traces of this idea can be found in the report on the *Second UNESCO Consultation*, Vienna, May 1989. The first broad public debate within the realm of audiovisual archives took place at the Joint Technical Symposium in Ottawa 1990 (Schüller 1992). The principles expressed at that time are still valid. The view, however, that lower sampling and quantization rates than those used for modern recordings would be sufficient for historical sound recordings is outdated.
- 2) It was Albrecht Häfner and the Arbeitsgruppe Archivwesen of the ARD, the union of German public broadcasters, under the chairmanship of Andreas Matzke, who pushed the idea forward. Thanks to their efforts, the archiving of linear, unreduced signals became state of the art in broadcast archives at a time, in the early nineties, when the use of data reduction was widely suggested.
- 3) It must be understood, however, that storing electronic text documents may have an additional challenging dimension. The safeguarding of the original formatting of a text may be a desirable aspect for many documents, e.g. electronic "manu"scripts of writers, politicians, etc. These problems do not occur with audio documents. Cf. Rothenberg 1999.

Selected bibliography

- Häfner, Albrecht 1994: The Introduction of Digital Mass Storage Systems in Radio Broadcasting. A Report on the Progress Within the ARD. In: *IASA Journal* 3, 50-55.
- Heitmann, Jürgen 1996: Zukunftsige Archivierungssysteme. In: *Fernseh- und Kinotechnik* 50/7, 374-380.
- IASA Technical Committee - The Safeguarding of the Audio Heritage: Ethics, Principles and Preservation Strategies (= Standards, Recommended Practices and Strategies, IASA-TC 03).
- Rothenberg, Jeff 1995: Ensuring the Longevity of Digital Documents. In: *Scientific American* 272, 42-45.
- Rothenberg, Jeff 1999: Avoiding Technological Quicksand: Finding a Viable Technological Foundation for Digital Preservation. European Commission on Preservation and Access. Amsterdam.

Schüller, Dietrich 1989: "Second UNESCO Consultation" im Mai 1989 in Wien. Ein Kurzbericht. In: *Das Audiovisuelle Archiv* 25, 41-44.

Schüller, Dietrich 1992: Towards the Automated "Eternal" Sound Archive. In: Boston, G. (Ed.), *Archiving the Audiovisual Heritage. Proceedings of the Third Joint Technical Symposium*. Ottawa 1990, 106-110.

Schüller, Dietrich 1993: Auf dem Weg zum "ewigen", vollautomatischen Schallarchiv. In: 17. Tonmeistertagung Karlsruhe 1992, Bericht. München, 384-391.

Schüller, Dietrich 1994: Strategies for the Safeguarding of Audio and Video Materials in the Long Term. In: *IASA Bulletin* 4, 58-65.

Schüller, Dietrich 1996: Preservation of Audio and Video Materials in Tropical Countries. In: *IASA Journal* 7, 35-45.

Schüller, Dietrich 1999: Preserving the Facts for the the Future: Principles and Practices for the Transfer of Analog Audio Documents into the Digital Domain. Paper read at the 106th Convention of the Audio Engineering Society (AES), Munich, May 1999. AES Preprint 4886

Factors affecting the management of sound archives at the Zimbabwe Broadcasting Corporation

*Timothy Tapfumaneyi, Library Supervisor: Radio Three Music Library
Zimbabwe Broadcasting Corporation, Harare, Zimbabwe
Paper presented at IASA Conference, Singapore 2000*

Background

Zimbabwe has operated a broadcasting service since 1933 when the country was known as Southern Rhodesia. It all started when post office engineers approached their superiors to ask for permission to use a transmitter that had been lying around unused for some time. As soon as permission had been granted, the engineers started broadcasting. Their emphasis was on signal strength rather than on programme content. Because they did not have a music library, the engineers relied on music borrowed from local music shops.

In 1948, Lusaka the capital city of Zambia officially became the focal point of broadcasting to black Africans in Zambia, Malawi and Zimbabwe (formerly Northern Rhodesia, Nyasaland and Southern Rhodesia respectively), while Harare, then Salisbury, became the centre for broadcasting to whites in the region. Following a recommendation by a commission headed by Sir Hugh Green to establish a broadcasting corporation as an independent statutory body, the 1st of February 1958 saw the establishment of the Federal Broadcasting Corporation which was succeeded at the break-up of the Federation by corporations in Southern Rhodesia, Zambia and Malawi. Thus was born on first January 1964 the Southern Rhodesia Broadcasting Corporation, later to be renamed the Rhodesia Broadcasting Corporation (RBC) which became the Zimbabwe Broadcasting Corporation (ZBC) at Zimbabwe's independence in 1980.

In the 1960s, the RBC played a major role in the promotion of Zimbabwe's cultural heritage. Part of a report published by the RBC entitled *Broadcasting in the Seventies* reads,

"...Indigenous cultures are in danger of being trampled under foot in the march of progress. As an article of policy, the RBC nurtures African musicianship and a knowledge of folklore. The hits in the pop parade have their place in the schedules, so too does the tribal drummer, mbira and marimba player. The old people are encouraged to tell their tales and listener surveys reveals that the younger people still find them fascinating." (1)

Because of bulging schedules the RBC introduced African service channels, which broadcast in the indigenous Shona and Ndebele languages. The early generation of African broadcasters pioneered the recording of African musicians. The recordings were done by a mobile van from the RBC using a simple one-track tape recorder with a microphone. The music was stored on tape and was used mainly for the African service radio broadcasts to entertain blacks. The van used to go round the country to record talented musicians who were paid a royalty of one penny per song if it was played on radio.

At Zimbabwe's independence in 1980 when RBC became ZBC, the radio stations General Service, African Service and Radio Jacaranda became Radio One, Radio Two and Radio Three respectively. An additional educational radio station, Radio Four, was later established and today ZBC runs four radio stations. Radio One caters for listeners who prefer to listen to programmes presented in English, for example specialist music, light entertainment, sports quizzes and drama. Radio Two's audience is made up almost entirely of vernacular language speakers who are largely black. Radio Three is a commercial station aimed at the young generation: it is an entertainment channel, blending information and educational programmes.

The Zimbabwe Broadcasting Corporation's four radio stations have a task of satisfying the corporation's mission through a variety of programmes produced by the stations. To make sure these programmes are produced according to the target audiences' needs, each station maintains its own library. The history of these libraries can be traced back to 1964, when the Federal Broadcasting Corporation became the Southern Rhodesia Broadcasting Corporation (SRBC). Initially it was a single library, a rudimentary establishment that left much to be desired. The library was run by inexperienced people who had no special training. Another music library was later established when the African Service radio station was introduced in 1965.

The break-up of the Federation saw the disappearance of a lot of recorded material. During the Federation period all programmes produced in Rhodesia were sent to Lusaka and these never found their way back home. Zambia successfully argued that a major share of FBC resources be retained by its corporation and the new corporation (RBC) had to yield a proportion of its equipment including much needed tape recorders and this saw a number of programmes slipping off the schedules.

Problems

Though the ZBC made a commitment to establish music libraries for its various radio stations not enough has been done to safeguard the musical, political, social and various other programmes that merit preservation. The current situation in these libraries is not conducive to the safe keeping of programme assets of the ZBC. It is sad to note that many of the earlier programmes and recordings of pure Zimbabwe traditional music kept in the African Service music Library no longer exist. These have either been misplaced or totally lost. Few recordings that managed to survive are now in the safe custody of the Zimbabwe National Archives. These are mostly 78rpm discs and reel-to-reel tapes. At the moment there is a considerable amount of material lying unprotected in offices and storerooms at ZBC's stations at Mbare, at Pockets Hill Studios in Harare and at Montrose Studios in Bulawayo, Zimbabwe's second largest City.

The librarians are doing their best to try and preserve some archival material but due to some operational problems minimal achievements have been made. Most of the material that

survives is found on cassettes and reel-to-reel tapes and the majority of these tapes are no longer in suitable condition due to poor handling. Again, most of the material found on these tapes was recorded in analogue format and the playback machines are now too old to be of any use. Also, most of the manufactures have stopped production due to declining sales and spares for these machines have become 'antique' making them too expensive to purchase.

Listed below are some of the problem areas that have impeded the development of sound archives at ZBC.

I Acquisition

Acquisition of archival material at the Zimbabwe Broadcasting Corporation has been severely affected by the lack of an acquisition policy. There are no detailed technical guidelines for identifying, documenting and preserving sound documents. ZBC is currently the sole broadcasting institution in Zimbabwe serving the public interest by ensuring the safekeeping of all programmes deemed to be of continuing value to the society. The music libraries, which are the information powerhouses for the ZBC, have not been fully mandated to carry out their collection and preservation responsibilities. This poses a serious threat to the survival of important sound archival materials. This lack of an acquisition policy has seriously affected the programming process by radio announcer/ producers who, most of the time, fail to locate audiotapes containing actuality relating to important previous events.

The relationship between ZBC and the National Archives of Zimbabwe, insofar as safeguarding historical sound recordings is concerned, still needs consolidation. Apart from the authority granted by the ZBC-TV to the National Archives to dub off air all valuable television programmes, there is no definite agreement between these two parties as to what mechanisms should be followed to ensure the safeguarding of all radio and television programmes of national interest.

The '*Printed and Publications Act*' (3), which, ensures the safekeeping of all books printed and published in Zimbabwe does not encompass the collection and preservation of Zimbabwe's sound heritage. Entertainment material and programmes are listed among material exempted from automatic donation and delivery to the National Archives free of charge, threatening the survival of important material of public interest.

Methods currently being applied in the acquisition of archival material at the ZBC are as follows-

Off air

A number of good programmes are being recorded off air and these include interviews with musicians, political and civic group leaders, etc. Other examples include the recent discussions on the rejected Zimbabwe draft constitution and the controversial land question.

Searching

As indicated earlier, some archival material is lying unprotected in some ZBC offices and store rooms and searches are being carried out to make sure that relevant and vital recordings are identified, documented and preserved accordingly so as to ensure that they are more easily accessible in future. Most of this material is found on reel-to-reel, tapes and cassettes. It is our intention to transfer this material to CD-R.

Donation

ZBC acquires all its music through donations. Record companies supply ZBC music libraries with a copy of every published phonogram in the form of cassettes and vinyl records. This however is causing a lot of problems as most of the time material donated to the libraries fails to meet the needs of the listeners. Most of the material that corresponds to listeners' musical tastes is issued on CD and due to the higher costs of producing CDs record companies are not prepared to donate these free of charge.

2 Training

The employment of untrained personnel has been and still is a major problem affecting the management of sound archives at the ZBC. According to the results of a recent study of the operations and functions of ZBC music libraries, out of a total of eighteen music library staff, including library supervisors, only one is a trained librarian. This problem has been further exacerbated as follows.

The training of librarians and records managers in Zimbabwe only started in 1985 and some of the senior library staff may have felt it was too late to go back to school and get out of important family commitments. The failure by junior library staff to upgrade their skills is therefore simply due to lack of interest.

Apart from seconding staff to attend conferences and workshops, the training department is not doing enough to ensure that library personnel are kept abreast of the new technological changes. No in-house training has ever been conducted to teach library staff basic principles of music librarianship, even new staff joining the library do not receive adequate induction to encourage a sense of belonging and participation and to familiarise them with the library set up.

3 Equipment

Budget constraints and foreign currency fluctuations continue to place the development of archives of the ZBC at a disadvantage. The rising costs of equipment and foreign currency to buy spares to repair old machines are some of the factors that have severely affected sound archiving at ZBC. Our libraries have also been hit by lack of computing facilities. While our

counterparts in the developed countries are talking of introducing digital mass storage systems, technological infrastructure is still a taboo in ZBC Music Libraries. If this situation continues, the plan to introduce a well-managed Radio sound Archive at ZBC will remain a pipe dream.

Future Plans

Two project proposals have been submitted to ZBC management and are awaiting approval. The first one concerns training. As music libraries and archives continue to embrace new technological forms such as the Internet, world wide web and computerised systems, it is important that ZBC library staff are trained commensurate with these technological advances.

The second project concerns the establishment of a collective Radio Sound Archive. Unlike other regional and International Broadcasting Institutions, ZBC does not have a fully established Radio Sound Archive to hold its sound archival material. Space to house the archives has already been identified and in preparation for this taxing exercise, we have already started identifying and grouping together material that we think is worth preserving.

Notes

1 *Broadcasting in the Seventies* Rhodesia Broadcasting Corporation, 1975

2 Sue Mckemmish...et al *Keeping Archives*, Melbourne, 1993.

3 *Printed and publications Act*, Chapter 25:14, Harare, 1995

Von FIP zu IASA (1967-1969): Episoden der Geburt der Internationalen Vereinigung Der Schallarchive

Israel Adler

“... du sollst mit Schmerzen Kinder gebären.” (Genesis 3:16)

English summary

Professor Israel Adler (Jerusalem) was a member of the Executive Board of the International Association of Music Libraries (IAML) in the 1960's. Along with Harald Heckmann, Donald Leavitt, Patrick Saul, Rolf Schuurmsma and Claes Cnattingius he was one of founding members of IASA. In this article which was conceived as a birthday message to Harald Heckmann on the occasion of his 75th birthday in December 1999, Israel Adler describes the complicated history of IASA's foundation in the years 1967 to 1969. It was not easy for IAML to establish the new association as a source of information for sound archives because within IAML it was feared that the new organisation could later become a competitor. The main objectives of IASA were to study and organise the field of the historiography of audio recording (which up till then had been very unsystematic) and to examine and become involved in the development of old and new recording and archival technology. At the same time IASA was intended to be a discussion and contact forum for audio archives all over the world. At the end of 1968 the first draft of the statutes for a 'Fédération Internationale des Phonothèques' (FIP) was drawn up, and it was discussed in detail until the summer of 1969. At that time, and this is a testimony to the foresight of some of those involved, the issue of the future participation of broadcasting archives with video and television material, as well as radio recordings, in their care was openly addressed. Under the name *International Association of Sound Archives* (IASA) the association was founded at the IAML conference in Amsterdam in August 1969. At the first general meeting of IASA on 22nd August 1969 the constitution governing its foundation was approved. Donald Leavitt from the Library of Congress in Washington became its first President and Rolf Schuurmsma, then at Utrecht, its first Secretary General. The long and difficult preparatory stage leading to the establishment of IASA had reached its successful conclusion.

Harald Heckmanns Ruf als einer der hervorragenden Persönlichkeiten auf dem Gebiet der internationalen Musikdokumentation ist allgemein anerkannt. Unsere Zusammenarbeit – die sich im Laufe der Jahre zu einer immer engeren Freundschaft entwickelt hat – spielt sich hauptsächlich im Rahmen von AIBM und RISM ab. Doch bezeugt Harald Heckmann immer auch besonderes Interesse für das Dokumentationsgebiet der Schallarchive. So unterstützte er aktiv die Initiativen der AIBM, die unter Führung unseres verehrten Mentors Vladimir Fédorov zuerst zur Gründung der FIP (Fédération Internationale des Phonothèques) und dann der IASA (International Association of Sound Archives) führten. Die folgenden Zeilen sollen als ein persönliches Zeugnis eines an der Umwandlung von FIP zu IASA beteiligten

Mitgliedes aufgefaßt werden. Eine vollständige Dokumentation der Gründungsgeschichte der IASA wird die Aufgabe der von Dr. D. Lotichius auf der Jahrestagung der IASA in Como gebildeten Arbeitsgruppe sein.

Zur Vorgeschichte (1963-1967)

Die FIP wurde im Mai 1963 während der Jahrestagung der AIBM in Mailand gegründet. Dieses war die Krönung, insbesondere der mehrjährigen Bemühungen der "Commission des Phonothèques", im Rahmen der AIBM auch außermusikalische Schallarchive in die internationale Zusammenarbeit auf diesem Gebiet einzuspannen. Neben Vladimir Fédorov war Roger Décollogne, der dynamische Direktor der Pariser Phonothèque Nationale, der Motor dieser Bemühungen. Kurz vor der Mailänder Tagung traf sich in Paris (UNESCO) die von der AIBM einberufene Kommission im Februar 1963 zur Vorbereitung der FIP Statuten (1). Aus dem aufschlußreichen Resumé, das V. Fédorov über die historischen Hintergründe darlegte, soll folgendes Zitat herangezogen werden:

"En avril 1963, la Commission Internationale des Phonothèques fut créée au sein de l'AIBM, sous la présidence de M.A. Schaeffner. Elle eut une activité très positive: recensement, question des échanges, de la conservation, du catalogage, des bibliographies. Mais en 1961 [...] on constata qu'une association des phonothèques, et des archives sonores, dans un cadre plus vaste que celui de la musique seule, était souhaitable. Les dirigeants de l'AIBM décidèrent, d'une part, que leur Commission Internatioinale des Phonothèques continuerait d'une Fédération Internationale des Phonothèques qui réunirait toutes les branches intéressées. Un des premiers promoteurs de cet élargissement fut M. Décollogne a qui fut confié le soin de rédiger le projet des statuts. [...] C'est ce projet qui va être discuté..." (2)

Die Resultate der Pariser Tagung führten kurz danach zur Ratifizierung der Statuten von der in Mailand während der AIBM Tagung im Mai 1963 einberufenen "Assemblée constitutive", und zur Wahl der führenden Gremien: Direktorium ("Comité executif") und Vorstand (Bureau) der FIP. Zum Präsidenten wurde R. Décollogne (F), als Vizepräsidenten H. Spivacke (USA) und E. Zwirner (D-BRD), als Generalsekretär J. Salkin (B) und als Schatzmeister F. Vandeleene (B) gewählt. So war die juristische und organisatorische Basis für eine fruchtbare Zusammenarbeit der Schallarchive auf internationaler Ebene scheinbar gelegt worden. Doch sollte schon nach relativ kurzer Zeit klar werden, daß die FIP ignorierende Durchführung der Aufgaben, brachte das bereits seit einiger Zeit schlummernde Unbehagen während des in Paris von dem Präsidenten der FIP, R. Décollogne, veranstalteten "Premier Congrès Mondial des Phonothèques im Juni 1967 zum offenen Ausbruch.

Bei der am letzten Tage des Kongresses einberufenen Sitzung des Direktoriums am 10.6.1967, stellte sich heraus, daß die für denselben Tag geplante Generalversammlung mit der Wahl eines neuen Voratndes und Direktoriums, nicht stattfinden konnte, da keine Vorbereitungen für die Einberufung einer statutengemäßen Generalversammlung aller

wahlberechtigten Mitglieder getroffen worden waren. Ferner wurde offensichtlich, daß unter den derzeitigen Bedingungen keine reguläre Aktivität der FIP auf einer internationalen Basis möglich war. Besonders wurde u.a. beanstandet, daß dem Direktorium keine Möglichkeit in die Hand gegeben wurde, seine statutenmäßigen Aufgaben zu erfüllen: Es fanden weder die vorgeschriebenen jährlichen Sitzungen und Abstimmungen noch eine regelmäßige Korrespondenz statt. So wurde die Generalversammlung im Jahre 1966 gar nicht einberufen und für die die Organisation des Pariser Kongresses war weder das Direktorium konsultiert, noch ein internationales Organisationskomitee vorgeschlagen worden. (3)

Das Reorganisationskomitee (Juni 1967-Juni 1968)

Unter diesen Umständen konnte das Direktorium nur vorübergehende also für eine kurze Zeitspanne bestimmte Maßnahmen treffen, und zwar:

- 1 De ne pas renouveler, comme l'imposeraient les ststuts, ni le Comité exécutif ni le Bureau;
- 2 De charger le Bureau sortant d'assurer pendant une période transitoire d'un an au maximum les affaires courantes de la FIP en consultatioon étroite avec le Comité exécutif sortant;
- 3 De nommer pour cette même périod transitoire un Comité special de réorganisation de la FIP avec mandat de soumettre au Comité executif sortant, dans les meilleurs delais, un rapport sur l'organisation future de la FIP, portant notamment sur l'amendement des statuts, la formation du nouveau Comité exécutif, la constitution des commissions internationales de travail..." (4)

Zum Reorganisationskomitee (RC) wurden drei der in Paris anwesenden Mitglieder des Direktoriums ernannt: Cl. Marcel-Dubois, P. Saul und I. Adler. Auf der ersten Sitzung des RC am 11.6.67 in Paris wurde beschlossen, an alle Mitglieder des Direktoriums einen detaillierten Bericht über die Sachlage zu schicken mit der Bitte, dem RC in einer schriftlichen Stellungnahme Vorschläge betreffens der Reorganisation der FIP zukommen zu lassen. Außerdem wurde beschlossen, eine Tagung des Direktoriums so schnell wie möglich nach der Erstellung des Endberichts des RC ("final report") einzuberufen. Bis zu diesem Zeitpunkt sollte der verbleibende FIP-Vorstand keinerlei neue Aktivitäten einleiten. Anfang Juli wurde der erste Bericht des RC verschickt. (5)

Die Hauptlast der Arbeit lag während der elfmonatigen Existenz des RC auf den Schultern des tüchtigen Direktors des British Institute of Recorded Sound, Patrick Saul. Die schwierigen und oft heiklen Verhandlungen leitete er in rücksichtsvoller, jedoch auch kompromißloser Art und zwar immer dann, wenn es um Prinzipien ging, die ihm wichtig erschienen. Einer der problematischen Verhandlungspunkte war dabei die Frage, wie sich das Verhältnis zwischen AIBM und FIP in Zukunft gestalten würde. Diese Problematik nahm

einen breiten Raum in der Korrespondenz ein (6) und sei anhand eines Schreibens von K. Dorfmueller beispielhaft verdeutlicht:

“Zweifellos will niemand unnötige Doppelarbeit. Wie läßt sich diese vermeiden, da sich die Phonotheken überwiegend mit Musik befassen, so daß die meisten Phonothekare sowohl der AIBM wie auch der FIP angehören müßten...? Ein solches Doppel-Engagement wird sehr oft schon aus praktischen Gründen nicht möglich sein. Der Pariser Kongreß war ein praktisches Beispiel: Zum Teil wurde uns [...] keine Reise nach Paris genehmigt, zum Teil war es zeitlich unmöglich, im selben Jahr zu FIP und zu AIBM nach Salzburg zu fahren”. (7)

Sodann erwähnt Dorfmueller das Projekt des AIBM, ein Regelwerk zur Schallplattenkatalogisierung herauszubringen. Es wäre zwar zweckmäßig, sich auch mit den Problemen der Archivierung von Sprech-Dokumenten u.a. zu befassen “... aber es wäre wohl zuviel, nun eine Katalogisierungskommission der FIP zu gründen... FIP kann eine Dachorganisation sein, die Kontakte zwischen Gruppen fördert, die sonst wenig miteinander zu tun haben ... die eigentlichen fruchtbaren Arbeitsergebnisse aber erwarte ich von den engeren Interessengruppen, wie beispielsweise den Rundfunkarchiven, ethnologischen Archiven, Musikbibliothekaren usw. In der AIBM ist deshalb schon öfters die Frage diskutiert worden, ob es nicht besser sei, die Aufgaben der AIBM so zu erweitern, daß sie auch die Interessen der nichtmusikalischen Phonotheken mit wahrnehmen kann. Das müßte auch durch Namensänderung zum Ausdruck kommen. Ob die Idee glücklich ist, kann ich nicht überblicken. Daß aber das Nebeneinander von AIBM und FIP ebenfalls Probleme aufwirft, scheint mir klar...”

Außer dieser Frage, die noch lange später, und vielleicht bis heute keine allgemeinbefriedigende Antwort gefunden hat, tauchten damals auch schon die Fragen wie die der Mitgliederschaft (“offene” versus “geschlossene”; d.i. exklusive Aufnahmebedingungen) und die der eventuellen Namenänderung auf. Um in seiner Aufgabe vorwärts zu kommen, mußte das RC in solchen umstrittenen Fragen von radikalen Standpunkten Abstand nehmen. So wurde z.B. der Vorschlag abgelehnt, FIP provisorisch als unabhängige Organisation wieder aufzulösen, und seine Aufgaben in die “Commission des Phonothèques” zurückzuführen. (8)

Der Beschluß, die Arbeitsphase des RC zeitlich zu begrenzen, erwies sich taktisch als eine vorteilhafte Maßnahme: Der Termindruck wirkte sich nämlich förderlich für die Erarbeitung von Kompromißformeln aus. Die Arbeit mußte bis zum Juni des Jahres 1968 abgeschlossen sein, und es gab keine Zeit, sich in umstrittene Fragen zu verstricken.

Das RC leitete seine Autorität vom FIP-Direktorium ab, welches selbst ein ziemlich gebrechliches und international kaum repräsentatives Gremium war. (9) Es handelte sich aber um das einzige Gremium, das nach dem Schiffbruch des FIP die juristischen Maßnahmen entscheiden zu können. Deshalb erschien es dem RC als eine der dringendsten Aufgaben, ein

erweitertes, international repräsentatives Organ zu schaffen, das als provisorisches Zwischenstadium gedacht war, um für den Aufbau einer neuen wirklich internationalen Vereinigung von Schallarchiven die Führung zu übernehmen.

Im Mai 1968 wurde der Endbericht des RC den Mitgliedern des ausgehenden FIP Direktoriums (also ca. einen Monat bevor dessen Mandat am 10.6.1968 auslief) vorgelegt. In diesem Dokument wurden, außer der Analyse der Vorgeschichte und gegenwärtigen Situation des FIP, u.a. folgende Maßnahmen vorgeschlagen (10): Für die Periode vom 1.1.1968 bis spätestens zum 31.12.1969 solle eine "Provisional Council" (PC) ernannt werden, das folgende Aufgaben zu erfüllen habe:

"(a) to build up a new and genuine **International Association of Sound Archives**; (b) to settle the proper nature and function of the new association; (c) to provide it with a suitable constitution; (d) to establish proper collaborations with the AIBM ...; (e) to make contacts...with...other organisations as may be appropriate; (f)...to establish a list of...[members] eligible...to join the new Association; (g) to take...steps...including the calling of a General Assembly...to constitute the new Association as a legal entity not later than December 31st, 1969".

Für die Mitgliedschaft im PC wurden 16 Repräsentanten von Schallarchiven aus 9 Ländern vorgeschlagen. (11) Diese Vorschläge wurden von dem sich verabschiedenden FIP-Direktorium per schriftlicher Abstimmung ratifiziert; zum Präsidenten wurde I. Adler und als Schriftführer P. Saul gewählt. (12)

Vom "Provisional Council" zur Gründung der IASA (Juni 1968-August 1969)

Das PC führte zwar die Geschäfte unter dem Namen des FIP weiter, jedoch hatte der Abschlußbericht des RC klargemacht, daß dies nur ein Provisorium bedeutete, das zu der Gründung einer neuen Vereinigung führen würde, deren neuer Name bereits in diesem Dokument angedeutet worden war. Zu den dringenden Aufgaben des PC gehörte: zu einem Konsensus über die Frage der "offenen" oder "exklusiven" Mitgliedschaft zu kommen, das Verhältnis zur AIBM zu definieren, die Amtszeit der Vorstandsmitglieder rigoros zu begrenzen, usw. Diese und ähnliche Fragen waren ja bereits in den früheren Diskussionen aufgetaucht und sollten in den Statuten der neuen Vereinigung berücksichtigt werden. Zu diesem Zweck schlug der Vorstand die Einberufung zweier Kommissionen vor: a) eine Statutenkommission und b) eine Mitgliedschaftskommission.

Die Diskussion nahm das PC in zwei dicht aufeinanderfolgenden Sitzungen auf. Aus praktischen Gründen wurde eine preliminäre Sitzung am 4.9.1968 in Paris einberufen, da nicht alle europäischen Mitglieder des PC der offiziellen Sitzung am 8.9.1968 in New York, die im Rahmen des AIBM Kongresses stattfinden sollte, beiwohnen konnten. An der Pariser Sitzung nahmen acht Mitglieder des PC oder ihre Vertreter teil, (13) zu der Sitzung in New York kamen vierzehn Mitglieder. (14) Auf diesen beiden Sitzungen wurden folgende

Beschlüsse gefaßt: a) es sollte eine Kommission ernannt werden, (Constitution Committee), die sich mit den konstitutionellen Fragen für die Erstellung der Statuten der neuen Vereinigung auseinanderzusetzen habe und ihre Vorschläge dem PC zu unterbreiten habe; den Vorsitz übernahm D. Leavitt (15); b) eine zweite Kommission (Membership Committee) wurde beauftragt, die Frage nach der Qualifikation für eine Mitgliedschaft zu behandeln und außerdem eine Anzahl von amerikanischen und europäischen Schallarchiven ausfindig zu machen, die Willens seien würden, der neuen Organisation als Gründungsmitglied beizutreten; den Vorsitz übernahm Cl. Marcel-Dubois. Die Schwierigkeiten amerikanischer Schallarchive aus juristischen Gründen der neuen Organisation nicht als "Institutional Members" beitreten zu können, mußten gelöst werden: "those institutions where such memberships are not legally possible ... [would join the association] in the name of the director or designated officer of the institution with his title". (16)

Bei der Debatte über das Verhältnis zur AIBM wurde betont, daß eine enge Koordination, besonders für die erste Phase der Existenz der neuen Vereinigung, wichtig sei. Folgende Beschlüsse wurden einstimmig angenommen: (1) "Until December 1969, the Secretary of FIP shall be a *membre attaché* of the [Council or Bureau] of AIBM; and...the Secretary of AIBM be a *membre attaché* of the Council of FIP...; the planning of FIP programs and meetings (e.g. dates and places) should be coordinated with the plans of AIBM..." (17)

"Further discussion revolved around relations between FIP and the Record Library Committee of AIBM. It was agreed only that overlapping interests were inevitable..." (18)

Die Berichte des "Membership Committee" und des "Constitution Committee" sollten dem PC früh genug vorgelegt werden, damit bis zum nächsten Sitzungstermin des PC in Rahmen der Jahrestagung der AIBM im August 1969 in Amsterdam genügend Zeit für eine schriftliche Diskussion und Abänderungsvorschläge gegeben würde.

Notes

- 1 Das sechzehnteitige Protokoll dieser Tagung befindet sich im voluminösen, chronologisch geordneten Aktenstoß des Archivs der Musikabteilung der Jewish National and University Library, unter der Signatur F/I (= FIP/IASA). Datum: 7.-9.2.1963.
- 2 F/I, 7.-9.2.1963, S.3
- 3 Siehe F/I, 3.7.1967; das Dokument RC 2, 2-3 §6-7.
- 4 F/II, 10.6.1967.
- 5 Siehe F/I 3.7.1967; die Dokumente RC 2-3.
- 6 Z.B. F/I 17.7.1967 (Saul), 21.7.1967 (Spivacke), 27.7.1967 (Saul), 2.8.1967 (Adler), 10.8.1967 (Fédorov), 29.9.1967 (Adler).

7 F/I 24.7.1967.

8 F/II 4.4.1969 (Fédorov), 8.4.1968 (Saul), 11.4.1968 (Adler).

9 Dr. Kunath war von seinem Dienst am Lautarchiv des Deutschen Rundfunks ausgeschieden: Prof. Zwirner, einer der Vizepräsidenten der FIP teilte mit, daß er der FIP nicht angehöre; keine Antworten auf die Rundschreiben des RC kamen von Werner, Hrebek, Salkin und Vandelene (die beiden letztgenannten hatten ihre Ämter als Schriftführer und Schatzmeister der FIP niedergelegt).

10 F/I 10.5.1968 (RC, final report).

11 Adler (I), Barone (I), Cnattingus (S), Décollogne (F), Dorfmueller (D-BRD), Ellis (GB), Leavitt (US), Lindberg (S), Marcel-Dubois (F), Miller (US), Nataletti (I), Rosenberg (DK), Saul (GB), Schuurisma (NL), Spivacke (US), Veistein (F).

12 F/II, Dokument CP2 (Juli 1968).

13 Adler, Décollogne, Dorfmueller, Marcel-Dubois (vertreten von Fédorov), Nataletti, Rosenberg, Schuurisma, Saul; siehe F/I, Protokoll der Pariser Sitzung.

14 Adler, Barone (vertreten von Adler), Cnattingus, Décollogne (vertreten von Bloch), Dorfmueller, Leavitt, Lindberg, Marcel-Dubois (vertreten von Adler), Miller, Nataletti (vertreten von Fédorov), Rosenberg (vertreten von Kijaer), Saul (vertreten von Eckersley), Schuurisma (vertreten von Eckersley), Spivacke; siehe F/I, Protokoll der New-Yorker Sitzung.

15 Andere Mitglieder der Kommission waren Dorfmueller, Eckersley, Heckmann, Nataletti, Rosenberg, Schuurisma, und ex officio der Präsident und der Schriftführer des PC.

16 Protokoll der New-Yorker Sitzung.

17 ebd.S.2-3.

18 ebd.S.2.

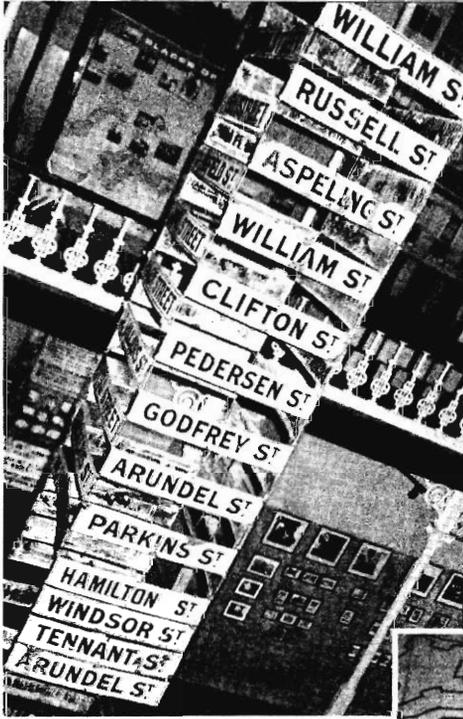
Report From South Africa

Rob Perks, Curator of Oral History at the British Library National Sound Archive was invited to give one of the keynote speeches at the South African Society of Archivists (SASA) conference in Johannesburg, September 2000. This is his report on some of the highlights of his visit.

Oral history has taken to me into a number of prisons over the years - in Romania, Australia, Gambia, Ukraine and Russia - but few as moving as Robben Island. The island prison of the prominent opponents of the South African apartheid regime, a half-hour fast boat-ride from Cape Town, is world famous for its incarceration of Nelson Mandela. Mandela's former cell is a 'highlight' of the visitor tour of the maximum security prison. But, as Harriet Deacon, Robben Island Museum's research manager, is keen to emphasise, the island has been a place of exile for four hundred years stretching back to Dutch and British colonial rule. (1) Four years ago the entire island (and its surrounding waters) was designated a 'living museum', and with significant government funding (and income from half a million tourists), it has placed oral history very much at the centre of its interpretation. Through an impressively resourced programme of interviews with former political prisoners the stories of lesser-known prisoners are presented in 'A' section of the prison. *Cell stories* takes forty isolation cells and tells an individual story in each one. The approach is movingly simple: a photo portrait, the dates of imprisonment, a significant single object from each inmate, and in some cases oral history extracts, ingeniously replayed through the original cell intercom. It's an intimate engagement and if you are left in any doubt about the bleakness and brutality of prison life, former prisoners act as guides feeding in their own personal testimonies. No one visit is the same.

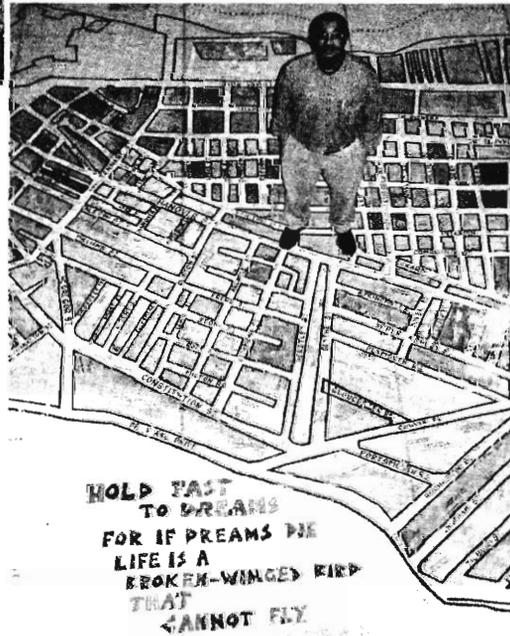
If Robben Island is ultimately a symbol of triumph over adversity, the District Six Museum in Cape Town celebrates a community that was almost completely scoured from the city. In 1966 District Six, at the foot of Table Mountain, was declared a 'whites only' area by the apartheid government under the notorious Groups Areas Act. By 1980 60,000 people had been forcibly removed and their houses and shops bulldozed. All that remained were memories until 1994 when a group of former residents opened an impromptu museum in an old Methodist mission, one of the few buildings left standing. Today it remains very much a museum owned and driven by the community but overseas funding in recent years has introduced some more modern museological interpretation and design, and a host of new displays were due to be opened by South Africa's President shortly after my visit. All are representations of how the community had been: a barber's shop, a tribute to local 'langarm' music, and a reconstructed domestic interior with a radio playing a period soundtrack. Some of the more 'home-made' elements of the original museum have fortunately been retained: the huge floor-map of the district with the names of streets, houses, alleyways, shops and people, written in from memory by former residents; the embroidered banners of messages; and the street signs, rescued from someone's cellar. It's a triumph of such a small space that so much is covered, with space also for more artistic treatments of displacement and dispossession, including a huge mural, still in progress. Valmont Layne is the museum's sound archivist and leads the oral history team. He has won funding for a well-equipped studio and

archive store, and has also been keen to introduce audio into the displays and establish an oral history archive of international standing. (2)



At District Six Museum in Cape Town street signs from streets long ago bulldozed are a reminder of the way in which the community has been reconstructing itself after years of forced removals (photo Rob Perks)

Valmont Layne, Sound Archivist at District Six Museum in Cape Town, with the annotated map of District Six that forms the centrepiece of the museum (photo Rob Perks)



Like Robben Island, District Six Museum gets large numbers of tourist visitors from overseas. The difference is that it doesn't charge for entrance, and indeed Robben Island has been criticised for pricing itself out of the pockets of the average black South African whose struggle it depicts. For me, mindful of these international visitors, District Six Museum is impressive in many ways but lacks a sense of context: even within an essentially community space it should be possible to convey the message that what happened in District Six was happening everywhere in South Africa: that it was but one of thousands of forced removals. And, as Valmont admits, the museum is (perhaps rightly) the story of the oppressed. The apartheid regime's architects, planners, bureaucrats and bulldozer drivers remain faceless and voiceless, largely absent from the museum, just as there is a conspicuous absence of warders' stories at Robben Island. Interestingly this was less apparent at the newly-opened Cape Town Holocaust Centre where the Jewish experience has been very effectively contextualised within anti-Semitism, intolerance and persecution in Europe and South Africa, through linked displays about both the pre-war 'Grey Shirts' (South Africa's version of the Britain's Mosleyite Blackshirts) and apartheid itself. Again oral history accounts (in textual, oral and video form) were much in evidence, in this case from survivors from Rhodes in Greece who make up a large percentage of Cape Town's modern Jewish community. A butterfly design motif denotes a child's experience and the whole exhibition opens with a stunning glass memorial engraved with the names of some of the one and a half million children that died in the Holocaust.

These different museological treatments raise one of the rarely-spoken questions about post-apartheid South African oral history: to what extent and for how long should the main emphasis for research and funding focus on the political struggle against apartheid? Certainly no-one can doubt the enormous value of oral history in reconstructing hidden histories and all eyes are on the ANC government's new National Oral History Programme established recently under the Department of Arts, Culture, Science and Technology 'to reconstruct those aspects of the nation's memory that are not recorded and conserved'. I was reminded of oral history's role in the former Soviet Union both in forging new political identities and in publicly recognising and recording state murder and repression (3). There too the idea of archives had been to an extent discredited by association with political distortion, manipulation and repression. There had been much talk in Ukraine in 1991 of public trials of Communist mass murderers but nothing had transpired, perhaps because in the end so few people were blameless, including the new political elite. South Africa on the other hand has had a Truth and Reconciliation Commission (TRC), the implications of which are still resonating, but which foregrounded oral testimonies as part of reconstruction (4). Whether the TRC has brought reconciliation or not, it *has* gathered hundreds of hours of heartbreaking testimony, revealing atrocities on both sides, and creating a unique public oral archive in its own right. A more digestible multi-CD audio-publication is already available, fittingly presented in a cage. (5)

The first fruits of the new national oral history programme were displayed at the annual conference of the South African Society of Archivists (SASA) in Johannesburg to which I had

been invited to speak about oral history and archiving in Britain. Sue Krige led a group of trainees based at the National Archives of South Africa in a detailed report on a pilot project which had interviewed participants in the 1956 women's anti-pass laws march. The goal had been to 'redress, reconstruct and reorientate our society' through rescuing the stories, and a CD of edited interview highlights had been presented to the women by the state president. Apart from its interviewing work the project had also addressed skills and capacity building for the trainees, and Sean Field who heads the long-standing Western Cape Oral History Project at the University of Cape Town, and who sits on the organising group for the next International Oral History Association conference to be held in South Africa in 2002, provided feedback training. (6)

Another highlight for me at the conference was an innovative presentation from the South African Sign Language 'Oral' History Project, funded over three years by improbably-named Dutch organisation SANPAD. A number of semi-structured video interviews had been recorded in South African Sign Language and sophisticated 'sign stream' software was being used to produce transcripts, matching signs to English words on-screen. Whilst marvelling at the technology the group reminded us that hearing disability, in common with many forms of disability in South Africa, is still largely taboo and they had experienced some problems getting a good balance of interviewees. The same thing had struck me in discussion with conference delegates about HIV/Aids, very much at the top of the political agenda during my visit as a result of President Mbeki's speech which had appeared to deny a link between HIV and Aids. During the conference there had been an acrimonious confrontation on public radio about government policy towards Aids between an interviewer and a health minister, which had led to a demand by the ANC that the presenter be sacked for 'disrespect'. Whilst this neatly fed into the conference debates about interviewing techniques more worryingly it raised questions about whether the ANC government respected the basic freedoms of the media. In the event the call for dismissal was withdrawn and both sides backed down. It was a reminder of the political disquiet and insecurity that lies just beneath the surface of the new South Africa, brought home forcibly to me in Cape Town when a car bomb went off a few streets from where I was having dinner.

An excellent conference presentation by Verne Harris, Deputy Director of the National Archives of South Africa (NASA), sought to make sense of these insecurities for archivists. Remembering had been 'an instrument for liberation, a voice for the silenced' but many of apartheid's systemic barriers remained in place. Archives had done little to adapt to post-1994 conditions and the government was understandably reluctant to resource an archival community that had conspicuously failed to capture the imagination of the political leadership. Public access was still restricted to an elite, and security archives (or at least those that had survived the programmes of shredding and destruction in the closing months of apartheid) remained outside the mainstream. He argued that archivists needed to 're-imagine themselves' and embrace a broader definition of record-keeping to encompass a post-custodial approach in which archival impartiality is challenged and a continuum (as opposed to life-cycle) archival model considered. More mysteriously he called for archivists

to admit 'indigenous ways of knowing' to archival policy as part of deconstructing the dominant western orthodoxy. In discussion he was vague about what these 'ways of knowing' might be, but oracy and story-telling seemed to figure, though he could be arguing himself out of job by suggesting that archives can reside within people and don't require legitimising by being made permanent and placed in an archive. His comments echoed a remark that Ezra Tisani (Chairman of the Archives Commission) had made in an earlier conference session that 'oral history in South Africa can be a tool for transformation' but that 'it can ill-afford to be an academic exercise'. In fact Tisani had gone further than Harris in criticising so-called 'experts appropriating the black struggle...and making careers out of trivialising the experiences of poor people'.

It will be interesting to see whether Harris's philosophy makes headway at NASA. One thing that was clear following a visit to the national sound archive, where I met Mandy Gilder and colleagues, was that the public archive sector is in desperate need of funds for its existing collections. With funding being channelled into new fieldwork projects (such as the new oral history initiative) it remained unclear to me whether the government had fully appreciated that it also needed to provide an underpinning support framework to look after that material for the generations to come. And how long could well-established, but less politically-correct, oral archives - such as the collection of 16,000 interviews at the University of Stellenbosch (traditionally an Afrikaans-speaking training ground for the National Party leadership) - keep going without adequate funding? Tellingly one of the best-resourced and organised archives I visited was the Sound Archives and Audio Library at SABC (South African Broadcasting Corporation). This, at least, seems to have made the leap into a post-apartheid world with admirable agility, earning its own sobriquet 'The Pulse of Africa's Creative Spirit'.

Acknowledgements

Thanks to Ilse Assmann (SABC), Sean Field and Jonathan Grossman (University of Cape Town), Valmont Layne (District Six Museum) and Harriet Deacon (Robben Island Museum)

Notes

- 1 See Harriet Deacon's chapter in Sarah Nuttall and Carli Coetzee (eds) *Negotiating the past: The making of South Africa*, Oxford: Oxford University Press, 1998, chapter 11.
- 2 See *Oral History* vol 27 no 1 pp 17-18; also Valmont Layne, 'The Sound Archive at District Six Museum: a work in progress', *SA Archives Journal*, vol.40 (1998), pp 22-26.
- 3 Rob Perks, 'Ukraine's Forbidden History: Memory and Nationalism', *Oral History*, vol 21 no 1 (Spring 1993), pp 43-53.
- 4 See Antjie Krog's stunning account of the TRC, *Country of my skull*, London: Vintage, 1999.
- 5 *South Africa's Human Spirit: an oral memoir of the Truth and Reconciliation Commission*, South Africa: SABC News Production, 2000, 5 CD set.
- 6 See Sean Field's report in *Oral History*, vol 28 no 2 (Autumn 2000) p 19; also his piece on his own oral history work in Cape Town in Kim Lacy Rogers, Selma Leydesdorff and Graham Dawson (eds), *Trauma and Life Stories: international perspectives*, London: Routledge, 1999.

Martin Elste. *Meilensteine der Bach-Interpretation 1750-2000. Eine Werkgeschichte im Wandel.* - Stuttgart, Weimar : Metzler, Kassel: Bärenreiter, 2000. - 460 Seiten, 87 Abbildungen und 1 CD. Preis DM 78, öS 570, sFr 71.

Dieses Buch vereint Gegensätzliches, gelegentlich auch Widersprüchliches in sich: Musikwissenschaft und Musikkritik, Anspruch auf Übersicht und aus praktischen Gründen immer wieder eingeschränkte Blickwinkel, Interpretations- und Schallplattengeschichte. Was Elste unternimmt, ist ein methodisches Abenteuer. Kennt man die Materie, spürt man es fast auf jeder Seite, man leidet und triumphiert mit dem Autor auf seinem beschwerlichen Weg.

Elstes Buch hat zwei Teile, einen ersten, bezeichnenderweise ohne Obertitel, der essentielle Fragen quer durchs Material bespricht: "Vom Gesangverein zum Kammerchor", "Bachs Musik zwischen Handwerk und Mechanisierung", "Bachs Instrumentarium" u.s.w. Das ist, meiner Ansicht nach, der gelungenste und interessanteste Teil des Buchs. Der zweite Teil, mit dem Titel "Das Werk und seine Interpreten", ist dagegen der nützlichere, aber die kontinuierliche Lektüre fällt schwer; es ist ein Nachschlagewerk zur Interpretations- und Schallplattengeschichte vieler Werke Bachs, in der praktischen Anwendung etwa nützlich für Gestalter von Musikprogrammen am Rundfunk. Hier schreitet der Autor von Werkgruppe zu Werkgruppe (Vokalwerke, Orchesterwerke, Kammermusik, Werke für ein Tasteninstrument) und entfaltet seine reiche Erfahrung als Schallplattenhistoriker und-kritiker.

Bei kontinuierlicher Lektüre kommen die eingangs genannten inneren Spannungen des Texts als gelegentliche Ungereimtheiten zum Vorschein. Da fällt einmal auf, dass Elste sich wesentlich auf deutsches und angelsächsisches Material stützt; der französische und italienische Sprachraum kommen zu kurz. Das wäre nicht weiter schlimm, hätte es der Autor spätestens in einem einleitenden Kapitel eindeutig angekündigt und begründet. Ein weiteres Problem ist schwerwiegender. Wenn mir ein Buch mit diesem Titel von einem ausgewiesenen Musikwissenschaftler vorliegt, dann erwarte ich mehr, als wenn ich ein Heft von FonoForum oder Gramophone aufschlage. Elste ist sich des Problems bewusst und beschreibt es auch in einem einleitenden Abschnitt "Wie wissenschaftlich sollte Musikkritik sein?" (xix), ohne allerdings einen methodischen Weg aus dem Dilemma aufzuzeigen. Gewiss darf eine solche Untersuchung nicht im nur Beschreibenden und Statistischen stecken bleiben (auch wenn dies im zweiten Teil gelegentlich der Fall ist), aber mit Sätzen wie "Seine Aufnahme ... strahlt gediegen Neutralität aus." (230) kann ich als Leser einer wissenschaftlichen Publikation nicht viel anfangen, und mit Aussagen wie "Eine anregende, wenn auch seitens der Traversflöte etwas ätherisch-lahme Interpretation..." (319) sind wir vollends im Stil der monatlich erscheinenden Schallplattenpresse gelandet.

Das Buch ist dort am interessantesten, wo sich die instrumentenkundlichen und schallplattengeschichtlichen Kenntnisse des Autors kreuzen, so etwa bei den einleitenden Abschnitten über das Orgelwerk (325 - 330). Gelegentlich sind auch Ansätze zu einer Geschichte der Musikkritik auszumachen. Der Blick nach Frankreich öffnet sich etwas, wenn von Wanda Landowska die Rede ist. Die wirtschaftsgeschichtliche Komponente der

Schallplattengeschichte kommt vor allem im Hinblick auf die Nachkriegszeit zur Sprache, und auch die Geschichte der Aufnahmetechnik ist immer wieder präsent. Aber leider gelingt es dem Autor nicht - und daran dürfte das Übermass an Material schuld sein - diese Elemente zu einem überzeugenden methodischen Ansatz zu vereinen.

Sehr nützlich ist die dem Buch beiliegende CD, welche, aufmerksam angehört, viele Informationen enthält. Es entsteht allerdings der Eindruck, dass an der Technik gespart wurde. Gewiss darf der Klang des historischen Tonmaterials nicht nach heutigen Klangvorstellungen modernisiert werden; aber wie viel man einem historischen Tonträger auch ohne Manipulation entlocken kann, haben heute schon verschiedene ausgewiesene Spezialisten bewiesen - auch ein Stück Interpretationsgeschichte.

Kurt Deggeller

**Sound Documents from the Phonogrammarchiv of the Austrian Academy of Sciences
The Complete Historical Collections 1899-1950 Series 3: Papua New Guinea (1904 -
1909): The collections of Rudolf Pöch, Wilhelm Schmidt, and Josef Winthuis.**
Österreichischen Akademie Der Wissenschaften OEAW PHA CD 9

One of the first things that struck me when I began to work through this 5-CD set was the consistent use of terminology reminding us of the purpose of archives: listeners are referred to as 'users', recordings as 'documents'. These two words seem to instantly, if subliminally, equate the material with libraries and conventional manuscripts, places and items situated comfortably at the centre of an existing concept of scholarship, and as such the publication is immediately academic. Within the ever-growing market for 'world music' publication, with its requisite sales pitching, it is like a breath of fresh air to have recordings presented in this honest and complete manner.

Of course these CDs, and those in Series 1 and 2 out before them, cannot fairly be considered within the world music market. The opening statement describing the *Guiding principles of the edition* makes clear that "[t]he present edition intends to provide the academic community with easy and complete access to the historical sound documents in the Phonogrammarchiv" (p11). Over 150 sound recordings are presented, including 94 made between 1904 and 1906 by Rudolf Pöch, pioneering anthropologist and first scholarly employee of the Phonogrammarchiv. The remainder features recordings made in 1907 by Father Wilhelm Schmidt (founder of the Vienna School of Anthropology), and by Josef Winthuis (Sacred Heart priest who spent twelve years in Tavuilu) in 1908 and 1909. These recordings exemplify the level of involvement of missionaries in ethnographic research, and the large part they played in the documentation and preservation of vernacular traditions world-wide. Although Pöch was not himself a clergyman, his work in 1904 in Potsdamhafen was done with the assistance of Father Franz Vormann, a priest of the Society of the Divine Word, and in 1905 he based himself in Sattelberg (in Morobe Province), a place where Lutheran missionaries could recover from malaria.

The recordings focus primarily on music, though Pöch did record some speech, to demonstrate the Sulka and Tok Pisin languages for example. Dances and songs for a variety of social purposes, slit-drum signals, and instrumental pieces for flutes, jaw's harps and panpipes were recorded.

It may be interesting to note that the recordings in these collections were not the first to be made in Papua New Guinea. Members of the British anthropological expedition led by A.C. Haddon in 1898 visited Papua (then British New Guinea). Charles Seligman, one member of this expedition, returned in 1904 as a participant in the Daniels Ethnographical Expedition. He recorded some of the same genres and even informants as Pöch did two years later. The Haddon and Seligman recordings are housed in the International Music Collection at the British Library National Sound Archive as C80 and C62 respectively.

And it's not only sound recordings that are presented. The 223-page booklet includes extensive notes on the recordists, recordings and contexts written by Don Niles, as well as newly prepared transcriptions, by Erna Mack, to assist the user in making sense of the audio. The biographical information on the recordists reveals highly motivated individuals: Pöch's 22-month stay in Papua New Guinea, for example, was almost entirely self-funded, and Schmidt established the renowned journal *Anthropos* to encourage ethnographic writings by missionaries. Fascinating photographs drawn from many sources outside the Phonogrammarchiv are included. These are remarkable not only for their content, but also for their technical quality: the sharpness of the images points to highly skilled photographers (almost all taken by Pöch) and conservators. Individual recordings are described in detail, with additional information (linguistic, contextual) to be found on the CD-ROM containing digitised images of the original documentation that accompanied the recordings.

Don Niles' notes also include updates on orthography, including genres and place names. His extensive list of references contains current and historic literature on a broad range of subjects in relation to Papua New Guinea. Books and articles on birds, canoes, and languages sit alongside writings, including many by the recordists themselves, on music.

As with all very early sound recordings, despite the high reproduction quality that can be achieved today, untrained listeners may find it difficult to orientate themselves using the notes alone. To assist them Erna Mack has painstakingly transcribed many of the recordings in western staff notation. These do not cover the Winthuis recordings for the sound quality of these is too poor even for such trained ears. (The inclusion of recordings the content of which can barely be made out is evidence of the editor's commitment to completeness.)

While writing this review I was following and participating in a discussion on the Society for Ethnomusicology e-mail discussion group. The question initially raised concerned the place of transcription within ethnomusicology today. The question was motivated by the perception that since the discipline has moved so far to contextual and anthropological issues, work including actual musical analysis for which transcription is necessary if not essential, has become redundant. Many examples of current uses of transcription were given as a counter-argument, but none mentioned this very specific use to assist in the hearing of the music recording itself. The inclusion of the transcriptions in this publication thus not only achieves this aim; it also represents, in conjunction with all the other elements in the package, an exhaustive and model ethnomusicological study of the music of Papua New Guinea.

Janet Topp Fargion

Büchele, Christian; Helga König & Cordula Schütz: *Die historischen Tonträger der Universitätsbibliothek Eichstätt*. Beschrieben v. [...]. Tützing: Hans Schneider 1999. XVII, 447 S., 29 x 21 cm (= Kataloge der Universitätsbibliothek Eichstätt. Bd. 10.) ISBN 3-7952-0967-6: EUR 73,63 (geb.)

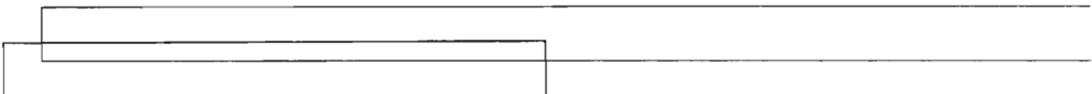
Dieser großformatige Band ist ein nach dem von Christian Büchele zusammengestellten und 1986 erschienenen Bestandskatalog bis 1925 der Schellackplattensammlung der Universitätsbibliothek Eichstätt (= Schriften der Universitätsbibliothek Eichstätt. Bd. 8.) neu publiziertes – aktualisiertes und erweitertes – Bestandsverzeichnis von jetzt 1050 historischen Tonträgern aus der Zeit von ca. 1880 bis ca. 1955, die nach RAK-Musik katalogisiert sind. Der Band hat, wie schon sein Vorgänger, einen reichen Registerteil: Bestellnummern, Katalognummern, Matrizennummern, Toningenieure der Gramophone Co., Literatur und Quellen, Namen und Titel. Außerdem sind 26 Abbildungen vorhanden, und als Faksimile ist Emile Berliners Patentschrift "Verfahren und Apparat für das Registriren und Wiederhervorbringen von Tönen" (1887) abgedruckt.

Martin Elste

Monika Wolf: Dietrich Fischer-Dieskau. Verzeichnis der Tonaufnahmen. Tutzing: Hans Schneider 2000. XI, 539 S., 24 x 17 cm, ISBN 3-7952-0999-4 (brosch.)

Die künstlerische Karriere des bekanntesten deutschen Sängers in der zweiten Hälfte des 20. Jahrhunderts wird zeitlich von der Einführung des Magnettonbandes und der Langspielplatte einerseits und der Etablierung der Compact Disc andererseits begrenzt. Sie umfasst also eine innovative Zeit, in der nicht nur die Klangästhetik einen enormen Wandel durchgemacht hat – man denke an den Sprung von der Mono- zur Stereophonie –, sondern das Medium dank der zunehmenden Miniaturisierung auch ganz neue Vermarktungsaspekte initiiert hat: Die Langspielplatte hat zunächst das Interpretens-Sammelprogramm (etwa wie "Fischer-Dieskau singt deutsche Lieder der Romantik") zum Standard gemacht, später dann enzyklopädische Projekte ermöglicht (wie beispielsweise sämtliche Schubert-Lieder), ein Vermarktungsformat, das die Compact Disc nochmals vereinfacht hat. Und es gibt wohl keinen zweiten Sänger, dessen Karriere ähnlich universell wäre und dessen Leistung annähernd umfassend auf Tonträgern festgehalten ist. So gibt es mit Fischer-Dieskau allein neun Tondokumente von Bachs Matthäuspassion, davon drei Studioproduktionen, zwei veröffentlichte Konzertmitschnitte und vier unveröffentlichte Mitschnitte. Als Graf Almaviva in Mozarts *Nozze di Figaro* ist er sogar in mehr als zwanzig Tondokumenten der Oper zwischen 1951 und 1978 festgehalten. Des Sängers Repertoire reicht, auf musikgeschichtliche Grenzen bezogen, von Gesängen aus dem Lochamer Liederbuch um 1450 (in WDR-Aufnahmen) bis zu Werken von Zeitgenossen wie Aribert Reimann, Wolfgang Rihm und Peter Ruzicka. Aber auch der Dirigent Fischer-Dieskau ist in diesem Buch vertreten, so beispielsweise im Fall der 5. Symphonie von Franz Schubert mit einer Schallplattenproduktion und zwei Mitschnitten, darunter dem einer Probe.

Der Titel von Monika Wolfs Buch ist also wörtlich zu nehmen: Die Autorin listet nicht nur kommerziell vermarktete Tonträger auf – was der Erfassungsrahmen einer Diskographie wäre –, sondern auch Privat- und Rundfunkaufnahmen. Das 539 Seiten lange Verzeichnis ist demnach vollgefüllt mit Informationen, die anderweitig nicht greifbar sind, teilweise aber zwangsläufig den Benutzer unbefriedigt lassen, weil mit der Angabe "Privatbesitz" dem potentiellen Benutzer vorerst nur wenig gedient ist. Andererseits wäre die unverschlüsselte Standortangabe von Privataufnahmen eine heikle Angelegenheit. Es gibt freilich dennoch einen guten Grund für die Auflistung auch solcher Aufnahmen: Da es sich bei ihnen in der Regel um Konzertmitschnitte handelt, ist das Verzeichnis in gewissem Rahmen dadurch auch ein – freilich unvollständiges – Repertoire- und Aufführungsregister des Sängers. Vor allem wegen dieser bisher nicht zugänglichen Informationen hebt sich dieses monumentale Tonträgerverzeichnis von der ansprechend mit Coverabbildungen gestalteten Diskographie *Dietrich Fischer-Dieskau. Verzeichnis seiner Schallplattenaufnahmen von 1948 bis 1984 [...]*. München: Max Hieber © 1984, ab. Wie jenes Verzeichnis ist der Aufbau des neuen Buchs nach Komponisten und Werken angelegt. Doch während das Verzeichnis von 1984 lediglich das Label anführte, ist nun bei kommerziellen Veröffentlichungen in der Regel die aktuelle Plattennummer angegeben (wenn auch immer nur eine einzige). Was man angesichts der enormen Datenmasse allerdings damals wie heute wieder schmerzlich vermisst, sind ein



Interpreten- und ein Bestellnummernregister sowie eine Chronologie der Aufnahmen. Aber vielleicht ermöglicht der Verleger einen solchen Indexband in absehbarer Zeit? Dann wäre eine verlegerische Großtat auf dem Gebiet der Diskographie aus Tutzing zu vermelden!

Martin Elste

Weber, Jerome F.: *Schubert's Great C Major Symphony, D. 944. A discography.*
Compiled by [...]. Utica, NY: J. F. Weber 2000 (= *Discography series. xxi.*); 218 pp., 23 x 15 cm,
ISBN 0-9624148-1-6: \$ 30.00 (soft cover)

(Address of publisher: 1613 Sunset Avenue, Utica, NY 13502-5437, USA)

Every discographer in classical music knows the legendary *Discography series* which was begun in 1970 and helped to establish a standard for discography, not by talking about guidelines, but by adopting them to the actual task in nineteen useful brochures most of which were compiled by Jerome F. Weber, the founder, editor, and publisher of the *Discography series*. In 1990, the important Gregorian Chant discography published in two hard-bound volumes became the highlight of this series. Now Jerome Weber has added another gem: an international discography of the "Great" C Major Symphony by Franz Schubert. Although the layout is very different from the previous volumes and shows the advantages of modern desk-top publishing facilities, the actual discographical method and display of data is, all the same, very similar to the established standard of the series. One of Weber's essentials in discography is the listing of all record numbers, and not only of first, recent or American releases, as so many other discographers limit their discographical data to. Weber lists all commercial and non-commercial but mass-produced recordings of the symphony in chronological order, each of which has been generously given a full page in the book. The first recording consisted of one movement only and was made in 1924 by the Vienna Philharmonic Orchestra conducted by Dirk Fock. This was followed in 1927 by the first "complete" recording of the work, strangely with a cut of seventeen bars in the third movement, which was not at all required by the limitations in playing time of shellac discs in those days. The latest recording – number 172 of the chronological sequence – dates from 1998 and is by Charles Mackerras conducting the Scottish Chamber Orchestra.

Although this book is merely a discography and not an analytical study of the performances of the work, despite a knowledgeable analytical summary of performance trends written by José A. Bowen, it contains information that proves invaluable for any study leading to performance analysis and discology. It is therefore an essential addition to the library of any professional sound archive of western art music.

Martin Elste

**IASA Journal is constantly looking for material to publish:
articles, reviews, reports of meetings or new developments.**

Please send articles, letters or reviews that you consider to be of interest to IASA to the Editor at the address on the front inside cover. Please send text copy on PC floppy disk in ASCII format or Word for Windows version 2 or version 6 or simply as text in an e-mail. If this is not possible, then please send good quality hard copy, double spaced. Abstracts (maximum 250 words each) must be in French, German or English. Images can be sent as photographs or drawings to be scanned or as digital images in GIF or TIFF formats.

The final date for copy of the next issue, Number 17, to be published in June 2001 is
15 May 2001

