

Journal of Interdisciplinary & Multidisciplinary Research

Volume 1, Issue 1, 2007

The Electronic Storage of Cultural Heritage: Challenges and Uncertainties

William W. Bostock, University of Tasmania, bostock@utas.edu.au

Abstract

The electronic storage and retrieval of cultural heritage is a great challenge because of the need to maintain components of social memory which is the basis of identity and which is therefore a necessary condition of health and survival. In many countries, cultural heritage has been lost or is endangered, but electronic storage offers the possibility of retention. However there is great uncertainty over the ethics of ownership of cultural property. Debate often takes place in terms of rightful but neglectful ownership versus acquired benevolent custodial ownership often with colonial origin. Virtual ownership may appear to provide an answer but in view of the psychological significance of memorabilia including actual human bodies and body parts, this would seem highly unlikely. However, in other areas, such as the archiving of text and voice of endangered languages, electronic storage offers a challenge of immense value.

Keywords: cultural heritage, electronic storage, social memory, collective memory, collective identity

"...the cultural heritage of a people is the memory of its living culture." H.E. Mr. Jan Kavan, President of the Fifty-seventh Session of the United Nations General Assembly, 4 December 2002.

1. Identity Aspects

Memory as expressed in cultural heritage is of fundamental importance to continued human existence in the same way as memory is to the operation of a computer, which is an excellent analogue of the human brain. Cultural heritage is important therefore to the survival of organizations, from families to states and whole civilizations.

Cultural heritage was richly developed by the ancient Chinese, the ancient Greeks and many other peoples including the Aboriginal Australians, whose cultural heritage was stored and transmitted orally but with reference markers in the physical landscape. Rock art was also used in Africa, Europe, and most other part of the world.

Colonising powers took possession of extensive cultural heritages. Many of today's challenging issues are ones of disputed ownership of cultural heritage, arising from the actions of colonizing powers in earlier times.

While cultural heritage is essential to continuity, the actual medium of storage is highly variable, having been at various times, stone, cellulose, metal, paper, celluloid, optical, magnetic, electronic or simply oral. Among these, the oral is of particular importance because "...when an old man dies, a library disappears" (Madou Hampate Ba, quoted by Raseroka, 2001: 4). In the present knowledge of DNA, genetic records could also be considered an item of cultural heritage, as demonstrated in the case of Iceland's genome, the rights to which were recently purchased for US\$200 million (Kahn, 1999).

The futurologist Toffler stressed the importance of "social memory" as "the secret of our species' evolutionary success" (Judge, 2001: 3) and sociologists have also affirmed that cultural heritages as the essential basis of collective memory (Lavarbre, 2001).

While very much aware of the political significance of cultural heritage, many times political leaders have destroyed cultural heritage with the purpose of devaluing or replacing previous regimes. In an edict of the

26th of February 2001, the then ruling Taliban regime ordered the demolition of Afghanistan's cultural heritage, specifically to destroy pre-Islamic and Buddhist objects—including the world's largest standing Buddha statue at Bamiyan, which was carried out. (UNESCO, 2001). This ran counter to all the basic principles of respect, tolerance and the wisdom upon which Islam is based, and was a breach of the Taliban pledge made in 1999 to Safeguard All Afghan Cultural Heritage.

Collective national identity and state stability have a close contingent relationship, analogous to the mind/body relationship, such that a strong sense of collective national identity will be congruent with a highly stable state, and vice versa, and thus cultural heritage is of national importance, as it has an important role to play in matters of state stability, even though psychological needs may appear less pressing than physiological ones.

2. The Possibility of Electronic Storage

The need to process vast amounts of information During World War II provided the impetus to create the world's first electronic programmable digital computer, the Colossus. British scientists developed in 1943 the Colossus, the first example of information processing by electronic means, though the fact was kept secret for many years after the end of World War II. The development of Colossus was closely followed by the American ENIAC, first used in late 1945, and was a much larger and faster machine using about 18,000 valves. ENIAC was used for ballistic calculations, atomic energy, thermal ignition, weather prediction, random number studies, wind tunnel design, as well as other applications where there was a need to glean information by huge calculation. Both Colossus and ENIAC were program-controlled, and from ENIAC was developed EDVAC, the world's first stored-program computer (Randell, 1980).

In the late 1960's, the United States Defense Advanced Research Project Agency (ARPA) commenced a project called ARPANET to establish new networking technologies which were linked to many universities and research centers, and from this was born the Internet or 'interconnected network'. The subsequent invention of the World Wide Web in 1990 fundamentally changed the possibility of storage, dissemination and retrieval of cultural heritage, using software based on digital technology. The inventor of the World Wide Web, Tim Berners-Lee, has described it as an "interactive sea of shared knowledge" and noted its challenge of enabling collective teamwork, which can work towards collective survival (Berners-Lee, 1995). Since then, information and communication technology (ICT) specialists have been working on the fundamental problem of distributed collective memory for multi-agent systems (Garland and Alterman, 1998).

In Europe a major initiative called *DigiCult* (**D**igital Heritage and **C**ultural Content) is under now way (DigiCult, 2004: 1-2). DigiCult is a project of research activity in the Information Society Technologies (IST) Programme, a European Commission programme addressing the presence of ICT in all aspects of European life. This programme was part of the Fifth *Framework Programme for Research and Technological Development* (RTD), which run from 1998-2002, and existed as a priority area within the 6th Framework Programme (2002-2006).

Research in the *DigiCult* project aims to develop technological tools and systems for the recording and archiving of both traditional and digital cultural heritage resources. The latter comprise resources that have either been created as digital substitutes to the original objects held by cultural or scientific institutions (i.e. libraries, museums, cultural heritages, research centres, universities etc.) or are initially digital, that is they have been created with the help of ICT and exist only in digital form.

Based upon an understanding that cultural and scientific heritage resources are of fundamental importance in maintaining Europe's identity, *DigiCult* research is motivated by the need to ensure that institutions holding such resources fully exploit the opportunities created by the advent of digital technologies for providing widely-based access to them, as well as for preserving them for the future (DigiCult, 2004: 1-2).

While recognising that knowledge of the nature of collective memory is far from complete, it is clear that the common memories stored and maintained in cultural heritage are not only essential for continued organisational survival but also essential to the development and maintenance of identity, as either an

individual or as a group. To maintain a sense of identity, memory is therefore an essential condition, and social memory is stored in precious items of cultural heritage.

3. Ethical Uncertainties

At present there is no single code of ethics covering electronic recording and storage activities but there are a number of codes that have relevance. Most universities have Human Investigation Committees or Ethics Committees, but their guidelines are generally based on a medical model of disease and insist of the well-being and anonymity of the subjects, stressing consent and confidentiality over other considerations.

Electronic storage in the cultural field is about recording cultural items, which are often based on personal narrative where anonymity is not possible or desirable, thus preventing the validation of the cultural material presented. Though anonymity cannot always be guaranteed, participants where known must always be given the right to withhold consent to reveal their identity.

In the case of endangered languages, there are some special ethical considerations. For example, where a language was taped before the Internet was invented, does that confer a right to transcribe and publish a text on the Web? Where cultures are based on secrecy and hiding, can this be compromised? Another area of uncertainty that might arise is when a speaker has given permission to have a text placed online and later changes his or her mind? Lastly, is an original agreement still binding on a grandchild? (Whalen, 2001: 2).

Ethical considerations generally involve to questions of intellectual property, which can sometimes become a matter of life and death. Here one could point to the case of the Bobo priests of Burkina Faso who were driven to suicide by the depth of their anguish after the theft of their village's store of ritual objects (Shyllon, 2000: 14). Given the importance of social memory, and of cultural items as signifiers and stores of information and identity, this is not at all an unprecedented situation.

Possession of items can be of the utmost significance, and where possession is by a foreign power, it can be a political and moral affront to the self-respect of an entire nation-state. A prominent case of this is that of the Benin Bronzes and Ivories, taken from West Africa in controversial circumstances at the end of the nineteenth century and now held in various sites, notably the British Museum, the Museum of Mankind and the Glasgow Museum (ARM, 2001). British authorities have argued that while within their care, these items receive better curation than would be the case if returned, because of lack of expertise and also the problem of corruption in Nigeria (ABC News, March 3, 2000).

Another case is that of the Aksum Obelisk, removed from Ethiopia by Fascist Italy in 1937 while Ethiopia was still an Italian colony, and relocated to Rome where it remains, despite a promise of return by the Italian Government, (Africaonline, 2001).

So great has been the international traffic in cultural heritage in recent times that African archaeological sites and historical monuments are now considered to be under as great a threat as during colonial period.

It also needs to be noted that the holding of human relics, such as those of the Tasmanian Aborigines, can be particularly affronting to the dignity of surviving individuals and communities. Although the UK has a Human Tissue Act (2004), which prescribes the conditions for the holding, testing and transfer of human remains, it has not completely resolved the issue in this matter. A UK High Court case to stop tests on the remains of 17 Tasmanian Aborigines has been considering the case of whether London's Natural History Museum, which currently holds the 19th Century remains, should be allowed to carry out tests prior to the return the specimens. The Museum has argued has accepted to return the remains but not until tests are complete, arguing that the tests will help the study of human evolution.

The Tasmanian Aboriginal Centre (TAC), which has brought the legal action, complained the tests desecrated the beliefs of its community. The dead are said to be "souls in torment" until properly buried, according to aboriginal custom (BBC News, 2007). It is possible that some electronic measures could play a role here, if agreed to by the descendents.

The ethics of ownership of cultural heritage are the same as for any other intellectual and cultural property, and there are remedies provided by international treaty and law. However, as the continuing nature of disputes concerning the several examples above indicate, these are not yet fully effective.

Is access to an electronic version of a cultural artefact a satisfactory solution to the problem of lack of physical ownership? This would seem unlikely, but the recording and archiving of virtual cultural heritage may strengthen the preservation of actual cultural heritage by increasing awareness and access on a global scale.

Various important international bodies are working for the preservation of cultural heritage through conventions. In 1972 a UNESCO Convention on the means of Prohibiting and Preventing the Illicit Import, Export and Transfer of ownership of Cultural Property came into effect, but unfortunately the majority of African countries that could benefit by becoming States Parties did not. Similarly, the majority of African states were absent from the conference that adopted the UNIDROIT Convention on Stolen or Illegally Exported Cultural Objects in 1995 (Shyllon, 2000: 1). Action for recovery in foreign courts is a possibility but not highly feasible because of the reluctance of such courts to apply extraterritoriality and the cost involved (Shyllon, 2000: 2).

The International Council of Museums (ICOM) is particularly concerned at the looting of African items and destruction of sites and aiding in the fight against the illicit traffic of African cultural property (ICOM, 2001).

There is also the World Intellectual Property Organization (WIPO) that works with UNESCO for the protection of traditional knowledge as intellectual property (WIPO, 2001) (Blakeney, 1999).

These initiatives have yet to impact greatly on the wholesale removal of cultural heritage from developing countries, in what has been referred to in the case of Africa as "...the magnitude of the cultural tragedy now being played out..."(Shyllon, 2000: 14).

However, a significant benefit that has emerged from this process is the assembling of a number of databases archiving the range and depth of African cultural heritage.

A very important area of threatened cultural heritage with strong identity implications is that of language: over 5,000 language names have been identified in sub-Saharan Africa (Spencer, 1985: 387), but many of these languages are now dead, and of the current languages, nearly 200 are now facing extinction (Sasse, 1992: 7). The implications of anticipated grief over language death are severely disruptive and the continued archiving of endangered languages could play a therapeutic role in helping these communities to adjust. South Africa's current language policy is an example of a state attempting to bring about stability through language preservation.

Another ethical issue present in considering electronic storage of cultural heritage in developing countries is that it must be done in a context of the "digital divide", that is, the non-availability of computing facilities and infrastructure such as reliable and inexpensive electricity and telephony to a majority of those in need, and that it must be provided at the expense of more urgent needs such as disaster relief, public health and education.

Although there are many impressive public and private archival holdings in many nonwestern countries, the comment has been made that '...developing countries are ...focused on primary survival needs, (and) lack national information policies, finance and human resources to create suitable infrastructures' (Raseroka, 2001: 4).

Although initiatives to assist with the problem are in progress from governmental bodies such as The Education for Development and Democracy Initiative (EDDI, 2004) and private corporations such as IBM, Xerox, Kodak and Microsoft (IWS, 2001), the ethical uncertainties have created a huge challenge at all levels. They are also a challenge to the individual and his or her own conscience.

4. Technical Challenges

The promise offered by the electronic storage and display of cultural heritage is enormous but the challenge of handling electronic materials creates great uncertainties. For example, their fragility and short durability

has meant that many significant losses have already occurred even in countries that have been advanced in the implementation of this technology. For example, the first electronic mail message of 1964, part of the U.S. census of 1960, and the satellite observations of Brazil taken in the 1970s are all now lost (Task Force, 1996:2). The technical issues of the fragility of the medium and the incompatibility of software and hardware are generally solved by periodic refreshment where information is migrated from one hardware/software configuration to another. However, "backward compatibility" is rarely available because by reasons of cost (Task Force, 1996: 1). In addition to the problems of obsolescence and decay through "benign neglect" (Exon, 1995: 4), there is the problem of deliberate and accidental corruption through viral infection. The technical issues are thus considerable, but solutions are being proposed through refreshment and critical fail-safe mechanisms (Task Force, 1996: 3) and the standardization of formats, such as the Text Encoding Initiative (TEI) (Popham and Burnard, 1999:1), Computer Aided Design (CAD), geographic information systems (GIS) (Task Force, 1996:1) and also the initiatives under consideration by the International Standards Organization (ISO, 2000). These techniques require considerable inputs of resource, so that the technical uncertainties can be magnified among the less wealthy countries.

In a report in 2002, the US Library of Congress discussed the challenges of electronic archiving. Technical problems were seen as less severe than financial and legal constraints (MINERVA, 2004)

As well as official initiatives, a number of private initiatives towards perfecting the means of gathering archival information are in progress. The major example is the Dublin Core Metadata Initiative (Dublin Core, 2000), which is a metadata element; set intended to facilitate the discovery of electronic resources. From its origin at a meeting in Dublin, Ohio, the Core has grown to a series of meetings and ongoing contacts of participants in some 20 countries.

Private holdings of electronic cultural heritage also play a role in responding to the needs of maintenance of digital information about cultural heritage. It is difficult to estimate the number of general private or semi-private digital holdings of cultural heritage in existence but their variety and significance is great. One could cite for example the Computer Aided Design (CAD) model of the Athenian Acropolis, the Hurva Synagogue in Jerusalem (CSA, 2000), or the *Electronic Beowulf*, a joint Anglo-American initiative to store and provide access to the famous medieval text (Kiernan, 1995). The storage, transmission and instant availability of the visual image, as in photographs, is immense benefit of electronic archiving, as shown in, for example, the photographic cultural heritages of Swaziland (Swaziland Digital Cultural heritages, 2001). Impressive though these virtual versions of constructions of cultural heritage may be, it is doubtful that these virtual replications could ever satisfy the identity needs of the people who have authentic association with them.

With regard to information needs, as distinct from heritage needs, the position is very positive. The electronic age has created an explosion in the availability of information with enormous potential to help all countries, but with it has come a complex range of uncertainties of a technical, conceptual and organizational nature, and specifically that of cost. While these issues are still far from resolution, many governments and some intergovernmental bodies such as ISO and UNESCO are actively searching for solutions.

5. Conclusion

Cultural heritage is important for its function in maintaining those parts of social memory which are the basis of identity, and therefore the continued existence of organizations including communities and whole societies, and the electronic age has offered an immensely valuable challenge of a new concept of storage and retrieval. The problem for many developing countries is that much of their cultural heritage has been removed from its original location and its ownership is now disputed. A debate is often formulated in terms of acquired benevolent custodial ownership (with possibly a colonial overlay), versus rightful but under-resourced ownership. Technology may appear to provide an answer through virtual ownership but in view of the psychological significance of the collective record this is unlikely. However, in some specialized areas such as the archiving of endangered languages, electronically stored cultural heritages have an extremely valuable role to play. The present electronic holdings of much of the world's cultural heritage and many new initiatives are impressive in the promise that their challenge holds but the cost, the still emerging technology and the unresolved ethical uncertainties remain limiting factors.

6. Acknowledgement: The author would like to thank two anonymous reviewers for their invaluable comments.

7. References

- ABC (Australian Broadcasting Commission), 2000. News Bulletin, 1200, March 3.
- AfricaOnline.com, 2001. *Return the Aksum Obelisk to Ethiopia*.
<http://www.africaonline.com/site/Articles/1,10,18792.jsp> (Sighted December 6, 2001).
- ARM (Africa Reparations Movement), 2001. *The British and the Benin Bronzes*.
<http://www.arm.arc.co.uk/britishBenin.html> (Sighted December 6, 2001).
- BBC News, 2007. "Aborigines' court fight delayed." (22 February 2007).
<http://news.bbc.co.uk/1/hi/sci/tech/6383465.stm> (Sighted March 6, 2007).
- Berners-Lee, T., 1995. Hypertext and Our Collective Destiny. http://www.w3.org/Talks/9510_Bush/Talk.html
(Sighted December 6, 2001).
- Blakeney, M., 1999. Intellectual Property in the Dreamtime. www.oiprc.ox.ac.uk/EJWP1199.pdf (Sighted December 6, 2001).
- CSA Newsletter, (1997). *CSA Newsletter*, Feb '97 "Architectural History with Computers,"
(<http://www.csanet.org/newsletter/feb97/nl029701.html>)
(Sighted March 18, 2004).
- DigiCult, 2004. *Information Society Technologies (IST), 'Digital Heritage and Cultural Content'*, 2004,
<http://www.cordis.lu/ist/ka3/digicult/home.html> (Sighted March 18, 2004).
- Dublin Core, (2000). Dublin Core Metadata Initiative (DCMI). <http://purl.org/dc> (Sighted 3 March 2004).
- Durkheim, E., 1964. *The Rules of Sociological Method*. New York: Free Press and London: Collier-Macmillan.
- EDDI, *Education for Development and Democracy Initiative*, 2004. <http://www.eddionline.org/> (Sighted 5 June 2003).
- Erikson, E.H., 1968. Identity, Psychosocial. In D.R.Sills (ed.) *Encyclopaedia of the Social Sciences*. New York: Macmillan and Free Press: 61-65.
- Exon, M., 1995. Long-Term Management Issues in the Preservation of Electronic Information. Paper presented at 2nd National Preservation Office Conference: Multimedia Preservation – Capturing the Rainbow, Brisbane, 28-30 November. <http://www.nla.gov.au/niac/meetings/np095me.html> (Sighted 5 June 2000).
- Garland, A. and Alterman, R. 1998, Preparation of Multi-Agent Knowledge for Reuse.
<http://www.cs.brandeis.edu/~aeg/aaaifs95/> (Sighted December 6, 2001).
- ICOM, *International Council of Museums*, 2001, RedList / ListeRouge.
<http://www.icom.org/redlist/> (Sighted December 6, 2001).
- ISO, *International Organization for Standards*, 2004. <http://www.iso.ch/iso/en/ISOOnline.frontpage> (Sighted March 17, 2004).
- Internet Cultural Heritage, The, 2004. <http://www.culturalheritage.org/> (Sighted March 17, 2004).
- IWS (Information Warfare Site), 2001. US Program Helping to Bridge Digital Divide With Africa.
<http://www.iwar.org.uk/news-culturalheritage/2001/internet/04-12-01.htm>
(Sighted December 6, 2001).

- Judge, A., 2001. Societal Learning and the Erosion of Collective Memory, a critique of the Club of Rome Report: No Limits to Learning. <http://www.uia.org/infodocs/uninfo.htm> (Sighted December 6, 2001).
- Kahn, J. P. 1999. Attention Shoppers: Special Today - Iceland's DNA. *CNN.com* <http://www.cnn.com/HEALTH/bioethics/9902/iceland.dna/template.html> (Sighted December 6, 2001).
- Kiernan, K. S., 1995. The electronic Beowulf." *Computers in Libraries*, 15 (2): 14(2). <http://web5.infotrac.galegroup.com/itw/infomark/242/178/66362747w3/purl=>. (Sighted 27 June 2000).
- Lavabre, M.-C., 2001. For a Sociology of Collective Memory. <http://www.cnrs.fr/cw/en/pres/compress/memoire/lavabre.htm> (Sighted December 12, 2001).
- Le Bon, G., 1960. (First published 1895). *The Mind of the Crowd*. New York, Viking.
- MINERVA, (Mapping the Internet Electronic Resources Virtual Cultural heritage) 2004. <http://www.loc.gov/minerva/aboutmin.html> (Sighted March 17, 2004).
- Minow, M. 1999. The Uses of Memory. *Harvard Magazine*, Commencement 1999. <http://www.harvardmagazine.com/issues/ja99/jh.minow.html> (Sighted December 6, 2001).
- Myerson, G., 1998. The Electronic Cultural Heritage. *History of the Human Sciences* 11 (4): 85-101.
- Popham, M. and Burnard, L., 1997. "Putting our headers together: a report on the TEI Header Meeting of 12 September 1997". www.stq.brown.edu/conferences/tei10/tei10.papers/popham.html (Sighted December 6, 2001).
- Randell, B., (1980). The Colossus. In N. Metropolis, J. Howlett and GC Rota, (Eds.). *A History of Computing in the Twentieth Century*. London: Academic Press, 47-92.
- Raseroka, K. 2001. The Right to Memory. *Videazimut*. <http://composite.uqam.ca/videaz/docs/karaen.html> (Sighted December 6, 2001).
- Robertson, D., 1993. *The Penguin Dictionary of Politics*. London, New York, Ringwood, Toronto, Auckland: Penguin.
- Sasse, H.-J., 1992. Theory of Language Death. In Matthias Brenzinger, (ed.), *Language Death: Factual and Theoretical Explorations With Special Reference to East Africa*. Berlin: Mouton de Gruyter: 7-30.
- Schwirtlich, A.-M., 1987. Introducing Cultural heritages and the Archival Progression. In Anne Pederson, (Ed), *Keeping Cultural heritages*, Sydney, Australian Society or Archivists: 1-20.
- Shyllon, F., 2000. The Recovery of Cultural Objects by African States through the UNESCO and UNIDROIT Conventions and the Role of Arbitration. <http://www.unidroit.org/english/publications/review/articles/2000-2a.htm> (Sighted December 6, 2001).
- Spencer, J., 1985. "Language Development in Africa: The Unequal Equation." In Wolfson, N., and J. Manes (eds.), *Language of Inequality. Contributions to the Sociology of Language* 36. Berlin, New York, Amsterdam: Mouton: 387-398.
- Swaziland Digital Cultural heritages, 2001. <http://www.sntc.org.sz/sdphotos/> (Sighted 5 June 2000).
- Task Force 1996. *Preserving Digital Information*. Report on the Task Force of Archiving of Digital Information. Commissioned by The Commission on Preservation and Access and the Research Libraries Group, Inc. <http://lyra.rig.org/ArchTF/tfadi.index.htm> (Sighted 5 June 2000).
- UNESCO, (2001) International Petition to Safeguard Afghanistan's Cultural Heritage <file://localhost/http://www.unesco.org/opi2/afghan-crisis/petitione.htm> (Sighted 5 March 2006).

Whalen, D. H., "Report on the SALSA Special Colloquium on Archiving Language Materials in Web-Accessible Databases: Ethical Challenges, Sunday, 22 April, 2001." <http://sapir.ling.yale.edu/~elf/ethics.html> (Sighted March 17, 2004).

WIPO, *World Intellectual Property Organization*, 2001.
www.wipo.org/ (Sighted December 6, 2001).