ARCHIVAL TIMES.
TEMPOR(E)ALITIES OF MEDIA MEMORY

[Lecture at the National Library in Oslo, 6th October 2010, on occasion of the book presentation of: Eivind Røssaak (ed.), The Archive in Motion. New Conceptions of the Archive in Contemporary Thought and New Media Practices, Oslo (Novus) 2010

Abstract

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Abstract

Media-theoretical analysis focuses on the message of the medium itself. Applied to memory agencies and especially the "digital archive", this method demands not only a close analysis of its technology but a new interpretation of its different epistemological and aesthetical dimension as well. While the traditional archival format (spatial order, classification) will in many ways necessarily persist, the new archive is radically temporalized, ephemeral, multimodal, corresponding with a dynamic user culture which is less concerned with records for eternity but with order in fluctuation. "Memory is transitory." New kinds of search engines will not only answer the needs of knowledge retrieval but develop into a creative "art of the archive" itself.

On occasion of the book publication

When I had the priviledge to participate at *The Archive in Motion* conference here at the National Library in March 2009, when cold temperatures and snow reminded of the "frozen time" aesthetics of the traditional archive and practically even of the conservation conditions of audiovisual records in cool rooms (probably like in Mo I Rana, the storage facility for audiovisual records of the Norwegian National Library).

I am now proud to figure among the authors of the book whose publication we celebrate today, I am of course partial to this enterprise, and if I enthusiastically greet this publication this might look too obvious. But allow me to be enthusiastic, since this is a manifestation that the National Library at Oslo with its Department of Research in fact belongs to the avantgarde of rethinking the issues of information heritage in Europe.

¹ Vannevar Bush, As We May Think [*1945], *online* http://www.isg.sfz.ca/~ duchier/misc/vbush/vbush-all.shtml, 6

I do not have to repeat the brilliant introduction written by the editor Eivind Rossaak and the highly reflective summary composed by Trond Lundemo which frame the conference publication and which you are willing to read yourself. But I may refer to the preface contributed by the National Librarian Vigdis Moe Skarstein which proudly claims nothing less than the mandate to preserve and give access to Norwegian memory into the future - like the trajectory of a cultural missile, transmitting knowledge, the mission of this National Library. This claim is justified, since the updated Legal Deposit Acts from 1989 have achieved for Norway what the Institut National Audiovisuel (INA) in Paris achieved only years later and what a German media archivist could still only dream of. In 1989, when the Iron Curtain dividing West and East Europe opened in so many ways, the wall which separates the Gutenberg Galaxy of printed publication from the emerging new media of the 20th century, fell here in Oslo, opening a fundamentally new concept of the multimedia collection. The Oslo 1989 Legal Deposit Acts opened a new horizon of a national library for the 21st century; 200 years after the French declaration of human rights, this was a delaration of "media indepence" in the overall task of receiving, preserving and transmitting public knowledge from overall in Norway.

The emphasis here is not only on preservation of such heritage in its most obvious way, as known to museum, libraries and archives for generations. The Oslo policy adventurously faces the challenge of the new "digital structures" (and poststructurally: dynamic, temporalized structures) which transform such knowledge. This requires both technical and theoretical knowledge. Maybe there is nothing as practical as a good theory indeed; but let me envision here for a moment that conferences on archival theory and others which face the more practical challenges of preserving the new kinds of records, while being of highest quality in themselves, will not be conceptually separated any more, but f. e. the engineering questions of how to organize digitized phonographic records (like Edison cylinders) might be directly coupled with the theorems of media-archaeologist, thus short-circuiting the "two cultures" which do not only traditionally separate the Philosophical Faculties at universities from the Faculties of Science, but which separate the theoretical musing about archives from the practice of actually running them. Let us not set the semingly purely practical questions of technical conservation apart from the theory of archival transmission in culture, but rather tackle it in the context of theoretical issues, by integrating technical expertise with epistemological reflection.

I am sure electro enginners, technical conservator and computer programmers are much more open for such an immediate coupling with theory than usually assumed, and in reverse academics from the so-called humanities, we know, dream of "grounding" their theories and knowledge in what actually happens and to have a transitive, object-related implication of their theories. So if the book *The Archive in Motion* is meant as the opening of an on-going reflection on the preservation and transmission of cultural

knowledge, it might directly be juxtaposed with the book which probably will document the practical conservation conference. To join those two approaches together might be a unique option of this institution here.

"Temporalities" and "tempo-realities"

The key term heading my talk oscillates between "temporalities" and "tempo-realities" of the achive. Archival usage becomes time-critical. The temporalities of archives refer to the inherent temporal essence (the *Eigenzeit*) of archives as memory institution and storage media, wherease the tempo-realities refer to the function of the archive as a priori condition of historiography and cultural memory.

There are three conflicting time orders in the archive: on the one hand, it is meant to suspend time to transfer information for future memory (negentropic time); on the other hand, it is subject to time at work (entropic processes, material decay); thirdly, the speed of access, migration², short-time memorial functions of the archive increases with its digitization.

There is a symbolical (code level), time-invariant and an entropical, temporally decaying ("historical") physical real(ity) of the archive.

The negentropic "cultural" effort (Vilém Flusser) is meant to be that libraries and archives stem the tide of cultural memory loss. Let us precisely differentiate in that context between Shannon entropy and Boltzmann entropy; two different times are at work here: a) information time, invariant towards historical change, and b) physical time (the "tempus edax" known from allegories of Chronos in the Baroque). Let us have a look at Anton Raphael Mengs' ceiling painting in the Vatican Library in Rome, an allegory of history (1772/73).

<Fiq.>

In this scenario, the archive equals the function of the channel ("merely the medium") in Shannon's techno-mathematical theory of communication; being the macro-temporal "inbetween" of what is generally called tradition: of (alphabetically) coded records. In hermeneutic reading it is part of a communicative structure, thus containing messages to posterity, with the historian (and other readers) placing themselves as the "reveiver" of the archival content; in an anti-hermeneutic perspective, though, the archive is a set of multimedia monuments taken out of the consumptive economy of (historical and actual) time.

But the "time inbetween" ("media" time in its Aristotelean sense of to metaxy - the physical "inbetween" which he remarkes by the

² See Dietrich Schüller, Von der Bewahrung des Trägers zur Bewahrung des Inhalts, in: Medium Nr. 4 (1994), 28-32

See http://lyra.rlg.org/ArchTF/tfadi.intro.htm#fragility

delay echo sound takes between sender and reveiver) replaces the monumental claim of virtually eternal storage of documents by the classical archive (and its records) on severel levels: both as an institution of temporality and in its material sense (the vulnerability and volatility of electronic data).

For serveral reasons Meng's painting on the ceiling of the room containing ancient papyri (appropriately linking the Vatican Museum with the Vatican Library) is remarkably conscious of the mediality of (cultural, legal und religious) tradition. The tombstone of an archivist from the times of the Roman empire is shown at the moment of its archaeological rediscovery. The fact that the inscription can be read hints to the astounding invariance of symbolic inscription (the archival regime) against historical ("passing") time.

On the other hand, fame is proclaimed by a brass instrument. What could be transmitted for centuries was the apparatus for producing sound, but - contrary to the still readable alphabet inscription - not the sound itself. This changed with the arrival of media of audio recording.

Audiovisual memory: the moving archive

Only with the arrival of chrono-photography (Muybridge, Marey) and with cinematography an impossible dream came true: to catch the dynamic element in movement, the kinetic. Technical media (both for acoustic and visual movements) have created a new kind of archiv(e-)ability.

Whereas the scripture-based classical archive is a static array of records on the grand scale and letters on the microscale, which could be brought in motion only by the act of human reading line by line, the Edison phonograph at first glance looks like the first form of "archive in motion", since its recording and re-play is based on a continuously rotating, technically moved apparatus, parallel to discrete recording and projection in mechanical cinematography.

One of the ealiest application of sound film for ethnomusical research, a recording of the oral poet Avdo Medejowitch in former Yuguslawia by Milman Parry and Albert Lord around 1935. The archival way of preserving such cultural memory has been the transcription of oral poetry so far, as still practiced by Béla Bartók when transcribing the phonographic records into a musical score (with himself being literally the medium of analog-to-digital conversion, coupled inbetween the Edison phonograph and the paper).

But only when the original media record is being preserved, unexpected new computer-based ways of interpreting the event on

its acoustic level can be applied⁴ - an information which is lost in transcription, such as the bodily noise (f. e. Avdo's sudden coffing) which helps to answer the question whether the temporal rhythm of a sung stanza is more an effect of bodily economy (breathing), of cognitive notions, or of neuro-physiological embodiments of a time-window called presence.⁵

Is there a need for a museum of hardware?

The migration problem of digital media data and the physical vulnerability of electronic storage media is not just a technical question, it has an epistemological dimension as well. Consider, for example, the case of the 1960 Census in the United States of America:

As it compiled the decennial census <...>, the Census Bureau retained records for its own use in what it regarded as "permanent" storage. In 1976, the National Archives identified seven series of aggregated data from the 1960 Census files as having long-term historical value. A large portion of the selected records, however, resided on tapes that the Bureau could read only with a UNIVAC type II-A tape drive. By the mid-seventies, that particular tape drive was long obsolete, and the Census Bureau faced a significant engineering challenge in preserving the data <...>. By 1979, the Bureau had successfully copied onto industry-standard tapes nearly all the data judged then to have long-term value. <...> the data rescue effort was a signal event that helped move the Committee on the Records of Government <...> later to proclaim that "the United States is in danger of losing its memory".

From spatial to time-based archives

What the French historian Michel de Certeau used to call "l'espace de l'archive" becomes radically temporalized. Read with Marshall Mcluhan, this is due to the fact that archives and libraries change from the "Gutenberg galaxy" to the electric, or to be more precise: the electronic age where streaming itself is both the technical condition and the phenomenon of archival information.

From a media-archeological point of view, the traditional archive (as indicated above) gets deconstructed by the implications of digital techniques. Since antiquity and the Renaissance, mnemotechnical storage has linked memory to space. But nowadays the static residential archive as permanent storage is being replaced by dynamic temporal storage, the time-based archive as a topological place of permanent data transfer. Critically the archives transforms from storage-space to storage-time. The archival data lose their spatial immobility at the moment when they are being provided with a truly temporal index (literally dated). In closed circuits of networks, the ultimate criterion for the archiv - its separatedness from actual operativity - is not given any more. The essential feature of networked computing is

See Meinhard Müller / Peter Grosche / Frans Wiering, Automated analysis of perfomrance variations in folk song recordings, in: Proceedings of the International Conference on Multimedia Information Retrieval (MIR'10), Philadelphia, Pennsylvania, 247-256, 2010

Siehe Fred Turner / Ernst Pöppel, The neural lyre. Poetic meter, the brain, and time, in: Poetry (August 1983), 277-309

⁶ http://lyra.rlg.org/ArchTF/tfadi.intro.htm#fragility

its dynamic operativity. Cyperspace is an intersection of mobile elements, which can be transferred by a series of algorithmic operations. In electronic, digital media, the classical practice of quasi-eternal storage is being replaced by dynamical movements "on the fly" as a new quality. Classical archival memory has never been interactive, whereas documents in networked space become time-critical to user feed-back.

Database art (George Legrady)

Following Marshall McLuhan, let us describe media art as an "early warning system" of ongoing changes in media culture. Current media art displays a hightened sensibility for temporal and time-cricital processes taking place in media as opposed to traditional, museum- or archive-orientated forms of expression.

The prosopopoietic, "dialogic" rhetoric of the archive is currently being replaced by operational archival interaction, as illustrated by Pockets Full of Memories, an online and museum installation by the media artist George Legrady in which the audience creates an archive by contributing a digitized image of an objekt in their possession at the time of the exhibition visit. Interaction is an aspect Bertolt Brecht pointed at already in the 20s for the emerging medium radio, insisting that it can technically - on the (feed-)back channel - be used in a bidirectional way as well by the receivers to communicate instead of being unilaterally being distributed as broadcast. 7 The unidirectional communication of books still dominated the user experience. With different hierarchives, a network is not a text any more, rather an archi(ve)-tecture. As long as the key-board of computers is alphabet-based like a type-writer for printing just letters, the paradigm of printing remains dominant; progressively though the mouse-click replaces the key-board for directing the monitor, and orientation shifts to visually perceived information landscapes; in multi-media space, however, the act of reactivating the archive can be dynamically coupled with feedback.

The hybrid "classification" in self-organizing maps as applied by Legrady is that it translates both keywords (semantic information) which can be manually tagged by the human contributors and the algorithmized object description, and turns them into numbers; this is how the mathematically determined organization happens. "Many of the other metadata also influence the location, for instance, the date, possibly the object's origins, I now forget what else."

In his more recent, technologically up-dated version called *Cell Tango*, George Legrady (with Angus Forbes) displays an installation (projection) of constantly changing cellphone photos (sent by

Bertolt Brecht, Der Rundfunkt als Kommunikationsapparat, in: Gesammelte Schriften, vol. 18, Frankfurt/M. 1967, 117-134

⁸ George Legrady, e-mail to the author, 29th July 2010

individuals to pix@celltango.org), projected rhythmically over a large, black screen in a variety of patterns. Fresh snapshops swiftly adjust to that mosaic according for formal criteria (image-based matching) and according to their tags (meta-data), thus mingling with photos taken from Flickr (the photo-sharing website). A gap between the visually associative and the linguistically semantic field opens - retrieval based on similarities (like in Renaissance curiosity cabinets) rather than on archival or library classification.

In one of the four modalities of the installation, "Cell_Bin", first the most recent images are placed on the black screen, and an algorithms randomly distributes them. The space left inbetween is successively filled by smaller incoming photographies. This loosely coupled patterns evolve dynamically. This form of media art is called "Database art".

"'Database art, in which infomation is the artist's main medium, has been around for 20 years, and especially active in the last decade."¹⁰ Legrady collects the ephemera of everyday life and databases them it in a rather associative than rigid way, combined with a cognitive influence by user tagging - a hybrid of intuitive (aesthetic) and cognitive classification.

This, of course, is different from a stricly ruled-governed classical archival structure. In fact, the archive derived its authority from the "veto" against permanent change, such like a book which is meant to last for decades is a rock of enduring textuality against the permanent up-dating of Wikipedia articles. Dynamic interaction between reader/user/visitor and the database is one thing; the resistance of a body of knowledge against permanent re-constellation is another (the task of libraries and museums and archives).

"The images arise and disappear in a hypnotiv rhythm. Tags come up in groups, in a kind of free association. Images that you wouldn't think gelong together somehow link up, leading the viewer down strange <...> pathways" <The Boston Globe review> - which turn out the be rather non-narrative. This is a contemporary, dynamical version of the rather spatial modernist aesthetics of montage (cut-up) and collage: close to Vannevar Bush's 1945 vision of a Memory Extender (which by Theodor Holm Nelson was developed into the the Hypertext practice). But let us not forget: The basis of this artful archive is an algorithm, the Self-Organizing Map (SOM) once developed by Teuvo Kohonen - which represents the mathematized archive. Let us have a close look: archive(s) with and without "s". In French, Michel Foucault's use of the word archive in the singular is not idiomatic; the institutional archive is always a plurale tantum "archives". L'archive, Foucault's singular, has a different meaning: the prediscursive condition of something to be articulated at all. For the case of

⁹ See www.suchbilder.de: Pixel sorting at work according to colour affinity

George Fifield, director of Boston Cyberarts Inc., as quoted in: "Can you see me now?", report on the Wellesley College installation, in: The Boston Globe; online: http://www.welleslev.edu/DavisMuseum/exhibitions/exhibitions celltango.html; accessed August 2010

the Internet, this is the communication protocols. 11 Central for finally archivizing *streaming media* are the codecs which compress digital media formats (like sound and moving image) - the archive of motion in its algorithmic sense.

From space-based to time-based archives

To express my central argument once more: While the traditional archive of predominantly textual records provides a spatial order, to be transformed into "history" by the very act of writing, the audio-visual archives themselves take place in time, beyond the scriptural regime.

AV media address us at the existential essence of our sensation of being which is the temporal sense. They re-generate temporal experience, thus addressing the human on the sensory (aisthetical, physiological) level as radically present, while our cognition puts it into a "historical" context: here, a dissonance takes place, a gap opens.

Media archaeologists describe the non-discursive practices of the techno-cultural archive. Media phenomenologists analyze how phenomena in various media appear to the human cognitive apparatus, that is, to the mind and senses." Roland Barthes' notorious identification of the two disctinct qualities of photography when under analysis by humans, the *studium* (the rational contextualization) and the *punctum* (the touching affect time-tunneling the difference between past and present) can be applied to archival times as well. While the media-archaeological reading of the archive is biased by the technomathematical analysis (the techno-*studium*), not mistaking storage for remembrance, the phenomenological reading of the archive corresponds with the *punctum* when miracolously something like a flash crossing and short-circuiting the temporal gap between the record from the past and its present reading happens.

From archival statistics (memory) to stochastic time series analysis (dynamic remembrance)

We can observe a transformation of an epistemological dimension: the transformation of the classical, datacarrier-based, material storage-"archive" into an "e-motional" archive in electronic motion, in electromagnetic ephemerality and latency. The gain of flexibily and computability is paid with a loss of durability.

When recently the Cologne Municipal Archive materially collapsed, it became apparent that most records, though being dirty and

Alexander Galloway, Protocol. How Control Exits after Decentralization, Cambridge, Mass. / London (MIT) 2004

Kjetil Jakobsen, Anarchival Society, demnächst in: Eivind Røssaak (Hg.), The Archive in Motion. New Conceptions of the Archive in Contemporary Thought and New Media Practices, Oslo (Novus) 2010, 127-154 (141)

mutilated, materially survived this catastrophe, astonishingly resistabe agains the pressure of stones. In a similar way the first-generation ("analogue") audiovisual storage media turned out to be surprisingly resistant against temporal entropy (like the Edison-cylinder and grammphone records, as well as daguerreotypes, photographic negatives and film on celluloid). More delicate is the destiny of cultural memory based on electromagnetic storage; digital media, finally, tend to divest themselves completely from their material embedding - loosing the "touch ground" by getting technically "virtual".

Traditional physical storage media (whether with spatial or with temporal "bias" as described by Harold Innis) have been orientated towards being literally inscribed (graphein in its old Greek sense): "There must be a writing means by which the information to be stored is introduced into the device" is against this latent storage devices (such as magnetic tape for audio and video) only reveal their memory content in the dynamics of the electro-magnetic field (thus rather "induced" than "introduced" in the traditional way of writing power and violence). Electrotechnical storage media have take place in a sphere which is different from the scriptural regime of the classical archive - a regime which, on the level of alpha-numeric codes, unexpectedly returned in techno-mathematical machines.

Adapting and modifying Marshall McLuhan's major theses on media culture, the message of the traditional storage agency "archive" is the typographic world of alphabetic records (the symbolic ORDER of administration), with the discreetness of elementary units privileging analytic reading and classificatory listing.

"THE/PRESENT/ORDER IS/THE/DISORDER OF/THE/FUTURE SAINT-/JUST"

"Cut around outlines. Arrange words in order", the artist advises the reader in his suscriptio to the photographic reproduction of the monumental ensemble of stone inscriptions in his garden. 14 Both in stone and on paper reigns the alphabetically induced combinatorial aesthetics of collage, cut-up, actually opposed to the electronically induced aesthetics of flow (the streaming archive). But with the concept of a dynamic, relational archive, a problem remains. How can the archive be opened to "heterochronic" experimentation and at the same time fulfil its traditional task of keeping a well-defined order intact for transmission into future memory?

For sure, what is new in the so-called digital age, is the radical temporalization not only of the archival records themselves but of its archival infrastructure (called hardware and software) as

¹³ Ira M. Sage, Making Machines Remember, in: Product Engineering, Bd. XXIV (April 1953), 141-149 (141)

¹⁴ Ian Hamilton Finlay und Nicholas Sloan, für das Committee of Public Safety, Little Sparta. Siehe Yves Abrioux, Ian Hamilton Finlay. A visual primer, Edinburgh 1985

well. So the traditional "space" of archive itself becomes a function of temporal change, requiring a differential analysis.

Different from the traditional script-based institutional archive, the multimedia archive (as organized by the internet) becomes radically temporalized. It is rather hypertemporal than hyperspatial, being based on the aesthetic of immediate feedback, recycling and refresh rather than on the ideal of locked-away storage for eternity. The aesthetics of recycling, sampling and cultural jamming is a direct function of the opening / the openness / the online-availability of (multimedia) archives.

Contrary to the traditional occidental culture of knowledge storage and transmission, the age of electric media generated what the art world spotted as "Fluxus", literally: the flow. Instead of managing static words and images, Fluxus interprets life primarily in "musical" terms of overlayed waves, resonances, changing patterns.

What looks like a static electronic video or TV image to us, is in fact a dynamic event, unfolding waves in micro-time.

Does "the archive in motion" lead to Fluxus Arc, to the floating archive?

The video artist Bill Viola in 1973 created a video installation with 20 miutes of just visual noise. But this highly improbable flimmering of electrons on the screen, according to the mathematical theory of communication as developed by Claude Shannon in 1948 as the basis of all our today media communication systems, contains the highest degree of possible surprise; that is why Viola calls his piece *Information*.

The most informative archive is the one which does not produce what we are looking for exactly.

Two archival tempor(e)alities

Archives emerged with the symbolical code of writing. The symbolical code can be transmitted (now "migrated") with a high degree of fidelity in copying, regardless the material support. The symbolic code, esp. in the alphabet, is mostly invariant towards historical, i. e. entropical time. Digital data, which is: "information", per definitionem (Norbert Wiener) are neither matter nor energy. 15

Documentary science has developed the notion of "logical preservation" 16.

See Rudolf Gschwind / Lukas Rotenthaler (interviewed by Ute Holl), Migration der Daten, Analyse der Bilder, Persistente Archive, in: Zeitschrift für Medienwissenschaft 2, 1/2010, 103-111 (104)

Hans-Joergen Marker, Data Conservation at a Traditional Data Archive, in: Edward Higgs (ed.), History and Electronic Artefacts, Oxford (Clarendon Press) 1998, 294-303 (296)

"Prentice Hall's Illustrated Dictionary of Computing (Nader 1992: 412) irreversibly severs the material link by noting that 'software is independent of the carrier used for transport'." But the Floppy Disc as a material support for the software is itself a hint to the material link. Any information must take place in or on a material support (storage medium), which introduces another, different tempor(e)ality: entropy.

If past media records are not just symbolically emulated, their temporal (entropic) qualities must be archivized as well - like the scratch, the noise of an ancient Edison phonographic cylinder when being digitized.

With an ancient phonographic record, the media archaeological ear listens to the noise of the recording device as well (the ancient wax cylinder) besides the recorded voice or music. Here, the medium talks both on the level of enunciation and of reference: message (the formerly recorded songs) and noise (the wax cylinder scratch and groove).

Archival resistance once more: monumentality as epoché

With its massive going *online* the archive loses its traditional power: its *secrecy*, its informative temporal difference to the immediate usage and consumption in the presence.

What if the Norwegian public will rather use Google than the internet portal of the National Library or the Europeana portal to get access and information on Norwegian memory? Will WWW, Web.2 and the emerging Realtime Net replace the traditional guardians of memory (archives, libraries) like Internet radio and IP-TV is about to replace the traditional broadcasting of information media?

Archival endurance is undermined when a record is not fixed any more on a permanent storage medium but takes places electronically; flow replaces the inscription. All of the sudden, an archival virtue might be - counterstrategically - archival resistance against complete mobility. The archive should stay both inside and outside the "Web 2.0" economies; both opening archival services and defending archival secrecy (the arcanum).

The so-called real-time Internet is a set of technologies and practices which enable users to receive information as soon as it is issued, rather than requiring that they check a source periodically for updates. Among this figures instant messaging; in McLuhan's sense the message of the communication medium here is: immediacy. With all that getting-in-motion of the traditional archive, it may now (as a retro-effect) rediscover its virtue as institutional monument: to take out data values from the ever accelerating circulation and electronic economy, to arrest and fix

Doron Swade, Preserving Software in an Object-Centered Culture, in: ibid., 195-206 (195)

http://en.wikipedia.org/wiki/Real-time_web (Stand: 20. Januar 2010)

and maintain chosen items, thus turning floating records (documents, files) into monuments (in Foucault's sense¹⁹), into spatio-temporal chronotopes (Michail Bachtin), *epoché* as sublation, taken out of time.

 $^{^{\}rm 19}$ $\,$ "Introduction" to his Archaeology of Knowledge