The Ethnological Archive: Memory and Technology*

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Abstract: This paper presents an analysis of the ethnological archive, in relation to time, from two points of view: of the content and storing of archived information. The material encompasses two distinct, but complementary, methodological settings: the first is an anthropological study and the second one is a technical approach on the digital archive. This research is an application on the archive of the Folklore Club of the Faculty of Letters, Babeş-Bolyai University of Cluj-Napoca, Romania.

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1. The Archive – Realm of Memory

This paper presents an analysis of the ethnological archive, in relation to time, beginning with the interpretations regarding the phenomenology of memory proposed by Paul Ricoeur[1] and with Pierre Nora's[2] conceptualizations regarding the realms of memory. The present study makes an applied intercession on the archive of the Folklore Club of the Faculty of Letters, Babeş-Bolyai University of Cluj-Napoca. At the basis of this research lies various years of work in this archive. The preoccupation for means of preservation, accessibility, practical application and the re-interrogation of the cultural memory that resides here, have materialized in a project for the digitization of the archive, submitted in the year 2008. Starting with 2009 this project is in progress, financed by the National Council for Scientific Research in Higher Education, Romania.[3]

A virtual archive encompasses three ages and contains a testimony of a triple metamorphosis: from the fact of life, to the written document and to the digitized one. The study follows the cognitive, ideological, pragmatic and technological implications that these mutations inveigle.

The ethnological archive anchors in a specific way the question of temporality, because it is a specific means to recapture and preserve a segment of the past, precisely a

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[1] Paul Ricoeur, *La mémoire, l'histoire, l'oubli* (Paris: Seuil, 2000). In this volume, Ricoeur makes a triple analysis on the phenomenology of memory.

[2] Pierre Nora, "Entre Mémoire et Histoire", in *Les lieux de mémoire*, ed. Pierre Nora (Paris: Gallimard, I, 1997), 23–48.

[3] Project CNCSIS, PNII – IDEI, code 2424/2008.

cultural heritage. Borrowing Pierre Nora's expression, I consider the ethnological archive as a "lieu de mémoire".[1]

Large institutional programs, national and international, of document digitization and accessibility through internet, exteriorize an *acceleration of history*: "la conscience de la rupture avec le passé se confond avec le sentiment d'une mémoire déchirée; mais, où le déchirement réveille encore assez de mémoire pour que puisse se poser le problème de son incarnation".[2] The incubation of these realms of memory expressed the decay, sometimes even the evaporation of the settings of memory.

An ethnological archive turns into heritage the representative elements for the immaterial culture: facts of life lived in real time and space, habits practiced according to a traditional ideology, transmitted orally to insiders of folkloric collectivities.

Making the archive means moving from the oral to the scriptural and transforming the fact lived "dans la chaleur de la tradition, dans le mutisme de la coutume, dans la répétition de l'ancestral"[3] into a written document. The changes implied by this process regard multiple levels: concrete-material, ideological, methodological, of accessibility etc. Once with moving the material on a concrete support, memory is exteriorized in testimony, taking the form of declarative, discursive memory.

From a technical point of view, the chronology of ethnological field investigations has three moments: handwriting (on paper), tape recording (phonograph cylinder, magnetic tape, audio tape) and using analogue means of recording (audio and video).

The methodology of field research is marked by the ideology and scientific approach of the era, but also by the experience, thematic priorities and the skill of each researcher. From the perspective of the communication relation, the addressee of the ethnological document is not the member of the community from which the testimony has been taken, but the specialist consulting the archive. The physical space, even the original one, is no longer a limited, closed one and the time it talks about is always a past time. "Passé la porte des archives, le témoignage entre dans la zone critique où il est non seulement soumis à la confrontation sévère entre témoignages concurrents, mais absorbé dans une masse de documents qui ne sont pas tous des témoignages."[4]

The digitization marks a third stage, where the document is simultaneously the same and also different. By scanning it, the entire initial information remains intact, but in a different form. Passed through the filter of technology, the testimony receives a brand new life: a digital one. In a certain sense, the circle closes by returning to the immaterial, but the relation of communication already established is no longer organic but electronic. The metamorphosis implies not only the dematerialization but also the accessibility, the document being addressed not only to specialists, but to anyone anywhere. Depending on the purpose one has in accessing, the new format can feed the moment of reflection or it can replace it.

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[1] Nora, "Entre Mémoire et Histoire", 23–48.
[2] Ibid., 23.
[3] Ibid.
[4] Ricoeur, *La mémoire, l'histoire, l'oubli*, 182.

Ana-Maria Călinescu, *The Last Dance*, Mixed media on paper, Tempera-gouache, coloured pencil (420 × 297 mm.)

2. The ethnological archive: memory and cultural identity

The ethnological archive is at the crossroads between the question of memory and that of identity, both collective and personal. In such a place folkloric productions have been used in search of cultural identity.[1] It is a delicate and complex operation, endangered by the risk of drifts and handling: "*trop* de mémoire, dans telle région du monde, donc abus du memoire – *pas assez* de mémoire, ailleurs, donc abus d'oubli. Eh bien, c'est dans la problématique de l'identité qu'il faut maintenant chercher la cause de fragilité de la mémoire ainsi manipulée."[2] The traps of such an approach can be surpassed by questioning the concepts from a dynamic-contextual perspective, more precisely, by understanding identity as a construct constantly changing: "Il faut nommer comme première cause de la fragilité de l'identité son rapport difficile au temps; difficulté primaire qui justifie précisément le recours à la mémoire, en tant que composante temporelle de l'identité, en conjunction avec l' évaluation du présent et la projection du futur."[3]

Inside an ethnological archive the relations with time always take the shape of cultural heritage, which, in the specific case of Romanian research, is the rural heritage. *Tradition* is an important concept in the definitions of culture in general, but folklorists have especially emphasized traditionality as an essential trait of folklore, associated at first (the second half of the 19th century, but also later) with the movements made to build the nation. For a length of time, the discipline of folklore had as object of study the tradition itself, "that is the entirety of people's knowledge placed in the a-temporal continuity of tradition".[4] According to this belief, they tried to gather "texts and text fragments (customs, ballads, beliefs, proverbs, etc.) to rebuild the eponymous Urtexts of the nation, without taking into account the context of their present existence. […] Thus, separated as 'text' from the entirety of 'folkloric culture', 'the folklore' is placed in a different context, abstract and valorised: that of 'the soul of the people'."[5] Therefore, one of the major difficulties that the ethnological archives raise is that they deposit a corpus of traditional knowledge, "non seulement muet, mais orphelin":[6] the testimonies taken out of their original context, separated from their authors and their organic receivers, left to the competent ones to give them a voice (again).

Containing oral documents (originally), such an archive poses another series of delicate problems, connected to the rough trait of information and to the exigency of readability, of the possibilities of data handling and circulation. "It indirectly appears that, no matter how rich in interpretation hints, an archive is destined to remain the appanage (eventually the exclusive one) of some people who, through the nature of their job, have access to it. On the contrary, for the others, specialists in their own field, but members of other institutions, accessing its funds becomes at least a difficult problem, if

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[1] Anne-Marie Thiese, *La création des identités nationales. Europe XVIII-XX siècle* (Paris: Editions de Seuil, 1999).
[2] Ibid., 98.
[3] Ibid., 98.
[4] Vintilă Mihăilescu, *Antropologie. Cinci introduceri* (Anthropology. Five Introductions), (Iaşi: Polirom, 2007), 248.
[5] Ibid., 249.
[6] Ricoeur, *La mémoire, l'histoire, l'oubli*, 213.

not completely impossible".[1] A solution to surpass this difficulty may be the digitization of the archive and accessing it through the internet. Although pretentious, because this needs long and hard work, transposing it in digital format facilitates the access to documents by any literate and e-literate person, not just a limited number of field specialists. The digital archive represents a means through which cultural heritage can interact with the present and the future. Receding from the idea of closing it in an institutional form accessible only to experts, giving it to any internet user, tradition can find its way, through these metamorphosis and technical extensions, in the daily life of the 21st century, even if this means completely changing its original purposes and, with those, the meaning its producers and interpreters have given it.[2]

3. The Folklore Club Cluj Archive (ACFC)

3.1. History

The ethnological archive from the Faculty of Letters, Babeş-Bolyai University of Cluj-Napoca was established in 1958, related to the Literary Folklore course that was being held at that time. After the Second World War, Literary Folklore was introduced in the curricula of Faculties of Letters, and Musical Folklore in the curricula of Faculties of Music starting with the year 1949. Initially part of the Romanian Literature course, Folklore had the status of "preamble" for written literature and contained the instruments of aesthetics, theory, history, and literary criticism. This approach is part of a Romanian academic tradition from the first part of the 20th century.[3] Researching folklore was foreseen in the beginning as being directly linked to philology, so in framing this discipline, during the communist period, in the Faculties of Letters and studying it with specific means for written literature constituted the continuation of a research direction that had already existed.[4]

Literary folklore became an autonomous discipline in the academic year 1952–1953, its first tenurial at the Faculty of Letters being Professor Dumitru Pop. Treating it as part of literature is obvious even from the name it had in that period: Popular Literature. Correlative to the mainly theoretical trait of the course, there was a practical application, namely field research and collecting "in situ" and "in vivo" folkloric material. Thus, in 1955, Professor Pop founded a Folklore Club together with students that started fieldwork not only in the rural parts of Transylvania, but also in other regions of the country. Led successively by Dumitru Pop, Nicolae Bot (tenurial at the Department of Romanian Literature since 1961) and Ion Şeuleanu (member of the ethnology collective at the same department since 1961), the Club has functioned

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[1] Otilia Hedeşan, *Folclorul. Ce facem cu el?* (Folklore. What Should We Do about It?), (Timişoara: Universității de Vest Publishing House, 2001), 12.

[2] "Et c'est ainsi que la tradition populaire se perpétue originarement dans nos sociétes: non comme un ensemble de biens et de valeurs culturelles à neutralizer, à tenir à l'écart des grands projets de nos sociétés, mais kept acomme un noble matériau, comme une matière infiniment précieuse que nous allons chercher pour l'élaborer et ré-élaborer sans cesse, afin de bâtir nos projets sociaux comme peuples, et pour affirmer de la sorte nos identités respectives." Jean Cuisenier, *La tradition populaire* (Paris: Presses Universitaires de France, 1995), 124.

[3] In 1909, Ovid Densuşianu launched the first Folklore course at the Faculty of Philology from Bucharest.

[4] Regarding this, see Rodica Zane, *Etnologie la timpul prezent* (Ethnology Nowadays), (Bucureşti: Universității din Bucureşti Publishing House, 2007), 11–21.

continually for five decades, representing a place of initiation for philology students. Some of them have continued with ethnology research, as part of ethnologic institutions, and have become field specialists.

The purpose of the Folklore Club has been the registration, conservation and archiving of the main customs and traditional texts of the rural communities, especially the Romanian ones, from all parts of the country. The results are over 12,000 field slip-files gathered from all over the Romanian territory, most of them from Transylvania, organized within the Folklore Club Cluj Archive (ACFC). The documents are kept on paper, being written down, dictated or following direct field observations, or they represent magnetic tape transcripts.

3.2. Methodology

From a methodological point of view, the Folklore Club and, by default, the archive built from its unfolded activity, have covered two distinct moments: a folkloristic one and an ethnological one.

Being conceived as a means to complete the Literary Folklore course, the Club was preoccupied, firstly, only with literary texts, gathered from the field according to criteria particular to literature, the most important being the aesthetical criteria. Most of the documents from the first 10 years of research (1955–1965) contain many texts and relatively few contexts. There are, among them, descriptions of rituals, but they are often schematic. This is the folkloristic moment, and its original purpose was to draw near certain segments of traditional culture in a direct, immediate way: through affective, friendly relations, that had been formed out in the field, between the students and their interviewees. "To us it was important to have the possibility to work with students on the field, to draw them closer to researching the field live and to put them in direct contact with the peasantry. Regarding this, the results have been exceptional. Admirable ties have been made between the villagers and the students, to such an extent that students would go there, to their hosts, as a second home; and the villagers, sometimes coming to Cluj, would bring packages to campus students",[1] remembers the founder of the Club, Professor Dumitru Pop, in his biography book[2].

Starting with 1970, an important methodological change can be noticed, the folkloric texts being more and more often accompanied by descriptions of the context of the performance, notes on the context of the recording, informant slip-files, personal narratives that not only replenish and enlighten the documents, but, moreover, make them coherent and alive. Many slip-files stopped mentioning literary texts and contain descriptions of customs, information about beliefs, about how to use plants, accounts about the daily life, complex interviews. This second stage allows the passing from folkloristic to thorough ethnological research, where the main interest is no longer folklore in a narrow sense, but the *folkloric culture*, a lot more widespread and complex than artistic manifestations.

In this stage, the methodological change can be noticed by the Club's collaborations with specialists from other institutions of the same specialization: ethnologists from de Department of Hungarian Literature of the Faculty of Letters and

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[1] Dumitru Pop, *Martor atent şi modest părtaş la istorie* (Attentive Witness and Modest Participant to History), (Cluj-Napoca: Todesco, 2005), 152.
[2] Ibid.

from the "Folklore Archive" Institute of the Romanian Academy, Cluj Branch, sociologists from the Faculty of History and Philosophy of Babeş-Bolyai University, Cluj-Napoca, musicologists from the Gheorghe Dima Music Conservatory, Cluj-Napoca (which has become, after 1990, the Music Academy). Field research has been carried out, over many years, by multidisciplinary teams. Such an example is the research completed between 1974 and 1978 in Țara Oaşului, by complex teams, in a Gustian[1] manner, that made a monographic research on this particular north-western part of Romania.[2]

Both moments are defined by thoroughness, according to the rules of the ethnological research of the era. The thoroughness of the professors may be seen in their students' slip-files. The elaboration of documents complies with all the scientific parameters, containing the identification data used in the methodology of field research in that certain period: the name and surname of the informant, name before marriage (for women), nickname, village, age, main occupation, education (schools attended), information regarding the source of the text (from whom did one know it, where had one heard/learned it), the date and place of the field recording, the name of the researcher. Also, the attention put into the accurate transcription of the phonemes and the pronunciation of the interviewees particular to the areas where the ethno-folkloric research had been carried out is worth mentioning.

3.3. Archiving

The archiving has been attained following the classical folklore classifications, the thematico-typological criteria being fundamental. The texts have been ordered by species and themes, by categories: ritual and non-ritual texts: wedding songs, nuptial poems, funeral songs, laments, love songs, shepherd songs, lullabies, *doinas*, riddles, proverbs, ballades, fairy tales, stories, anecdotes, carols, charms etc.

After 1970, the investigation of folkloric culture from an ethnological perspective became apparent and the slip-files betray the precariousness of the classical typologies, using the term *information* every time the document contains something other than literary texts, enclosable in the classification system of literature encyclopaedias. Titles such as 'wedding information' or 'funeral information' appear for describing rituals, but also, 'occasional group work information' or 'dance information' – for traditional social events. *Observation* slip-files appear now: 'funeral observations', 'wedding observations', 'Sunday dance observations' etcetera.

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[1] The Gustian model was inspired by Dimitrie Gusti (1880–1955) Romanian sociologist. During the inter-war period, he initiated and coordinated the monographic research of some Romanian villages, through research made with multidisciplinary teams: sociologists, ethnologists, geographers, botanists, philosophers, etc.

[2] The monograph of Țara Oaşului was part of an extensive project, coordinated by the University of Cluj-Napoca, to which researchers from different domains collaborated: history, geography, economy, agronomy, sociology, folklore, ethnography, medicine, biology, demography, etc. The multidisciplinary research was initiated by Professor Ion Aluaş, from the Faculty of Philosophy. Under his supervision the Oaş Interdisciplinary Collective was established, that sustained field research between 1974 and 1978. During the first three years, the folklore students were guided by Nicolae Bot, joined by Dumitru Pop in 1977. Part of the results of the research was published in journals and collective volumes (articles and studies by Ion Aluaş, Nicolae Bot, Dumitru Pop).

The information becomes diverse, not only from a methodological perspective, but also from a thematic point of view: research on magic and popular demonology, subjects forbidden in the communist period, is intensified. In spite of the interdiction, these aspects of tradition have been approached in the fieldwork, even if the research results could not be published during that era. The archive has a rich content of data regarding magic, the magical protection of the house, household and domestic animals (there is, for example, ample information about the *mana* of milk, the taking and bringing of *mana*), magical medicine, charms, charmers and charming, the divination of the future husband (*orânda* – the husband is appointed by fate to each girl), etc.

The file for popular mythology encloses narratives about *Fata Pădurii* (The Girl of the Woods), *Omul Pădurii* (The Man of the Woods), *Balauri* (Dragons), *Ursitoare* (The Fates), *Strigoi* (Ghosts), *Duh Rău* (Evil Spirit), *Diavol* (Devil), *Vârcolaci* (Werewolves), *Ciuma* (The Plague) and so on. It is as well in the '70s that the archive completes an extensive file about construction rites, basic traditional occupations in the Romanian rural localities (agrarian and pastoral rites), about the folkloric-traditional calendar and the recurrent rites, about empirical medicine, about juridical customs, about popular meteorology, about beliefs and superstitions, and, not least, about dreams. It is also visible the preoccupation for popular botany, ethno-botany being a recently introduced discipline at that time in the field of ethnologic sciences. Most of the documents that express this thematic and methodological change are signed by Nicolae Bot, the most attentive, the most thorough and the most eager of the professors who completed field research together with students, as part of the Folklore Club of the Faculty of Letters, "Babeş-Bolyai" University – an ethnologist that, besides his excellent training and vast experience, had something else: a vocation for the fieldwork.

3.4. The content of the archive

The content of the ACFC numbers over 12,000 documents, fragments of the traditional Romanian culture, joining other corpora of documents that exist in other institutions of the same field: Constantin Brăiloiu Ethnography and Folklore Institute of Bucharest, The Folklore Archive Institute of the Romanian Academy of Cluj-Napoca, The University of Timişoara, The University of Iaşi, ethnographic museums, etc.. As *realms of memory*, these archives imply a fundamental relation between the present and the past: they are traces of a traditional culture, working as "holograms".[1] They suggest a recollection of "the people in time" ("les hommes dans le temps"),[2] witnessing the dissolving of a culture under the pressure of globalization and mass-media coverage: the culture of peasants, "colectivité-mémoire", using the phrase of Pierre Nora.[3]

"Lieux donc, mais lieux mixtes, hybrides et mutants, intimement noués de vie et de mort, de temps et d'éternité; dans une spirale du collectif et d'individuel, du prosaïque et du sacré, d'immuable et du mobile. Des anneaux de Moebius enroulés sur eux-mêmes. Car s'il est vrai que la raison d'être fondamentale d'un lieu de memoire est d'arreter le temps, de bloquer le travail de l'oubli, de fixer un état des choses, d'immortaliser la mort, de matérialiser l'immatériel pour – l'or est la seule mémoire de l'argent – enfermer le maximum de sens dans le minimum des signes, il est clair, et c'est

[1] Edgar Morin, *La Méthode. 4. Les Idées. Leur Habitat, leur vie, leurs moeurs, leur organization* (Paris : Seuil, 1991), 59.
[2] Paul Ricoeur, *La mémoire, l'histoire, l'oubli*, 214.
[3] Nora, "Entre Mémoire et Histoire", 23.

ce qui les rend passionnants, que les lieux de mémoire ne vivent que de leur aptitude à la metamorphose, dans l'incessant rebondissement de leurs significations et le buissonnement imprevisible de leurs ramifications."[1]

4. Digital memory

One of the forms of this metamorphosis is introduced together with the development of new technologies: the possibility of archive digitization implying the increased accessibility to the corpus of documents. Similar to classic archives, the digital repositories[2] offer access to digital files, but taking advantage of the particularities of the digital medium. Those advantages are related to the richness of digital metadata: "metadata predicates about some other thing. Such 'other thing' can be considered as 'anything' from the broadest perspective",[3] which permits the cohabitation of old structures with the new digital ones.

The ACFC faces a third moment, entering into a new "age" due to a project of documents digitization and conceptual redesign. The project started in 2009, is currently evolving and financed by the National Council for Scientific Research in Higher Education, Romania.[4] The aims of the project are increased accessibility and openness to the corpus of documents and creating a new context for it, from an updated scientific and rigorous perspective.

The new form of archive presentation consists in the transposition of the paper files on the screen of the personal computer, increasing the efficiency of research work. The digital archive management system was planned based on the original structure of the primary documents, but also taking advantage of the opportunities offered by digital technologies. One of these advantages is the possibility to add tags[5] to each document, parallel to this having the option to use a category system. It can be said a hierarchical system can coexist with a horizontal one, opening also the possibility for much needed collective collaborations: "Studies have shown there is an ongoing reluctance among both users and institutions to create metadata. The reluctance towards metadata creation causes the Web to sink into a morass of information overload and become a source of frustration and for many users."[6]

This project's proposal is to implement the new communication and information technologies as new ways of accessing the folkloric and ethnologic material available in

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[1] Ibid., 38.

[2] "A digital repository is where digital content, assets, are stored and can be searched and retrieved for later use. A repository supports mechanisms to import, export, identify, store and retrieve digital assets." Helen Hayes, "Digital Repositories", JISC, http://www.jisc.ac.uk/uploaded_documents/JISC-BP-Repository(HE)-v1-final.pdf .

[3] Miguel-Ángel Sicilia, "Metadata, semantics, and ontology: providing meaning to information resources", Int. J. Metadata, Semantics and Ontologies, 84, No. 1 (2006), http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.81.4827&rep=rep1&type=pdf

[4] Supported by CNCSIS – UEFISCSU, project number PNII – IDEI, code 2424/2008.

[5] Tags are short additional bits of descriptive information such as words, numbers, dates, places. A document can have a non-definite number of such tags attached to it. This can help in grouping documents having similar properties (for example all the documents from a certain region, between a certain period of time).

[6] Roy Lachica and Dino Karabeg, "Metadata Creation in Socio-semantic Tagging Systems: Towards Holistic Knowledge Creation and Interchange", http://roy.lachica.no/docs/TMRA07-RoyLachica-Metadata-Creation-in-Socio-semantic-Tagging-Systems.pdf

the ACFC. Those innovations at the level of memory supports will achieve the conservation of the original documents (by digitization), increased accessibility to the folkloric and ethnologic material (by implementing a digital archive system), the conceptual redesign of the corpus of documents (by classifying the archive material using new items and metadata fields) and a conceptual redesign of the preserved data.

5. Archived memory – content (information) and support

Currently, the challenges of new technologies are forcing the archivists, ethnologists, and experts from different fields to rethink their priorities and strategies, to work closer with the experts from the field of digital technologies.

This context of acceleration of history calls for a different questioning of the relation with time. The metamorphosis undergone by the archived memory nowadays, in the digital and post-digital age,[1] will be briefly analyzed. Correlative to the analysis, the suggested perspective will be mainly a technical one, focused on the basic technical and technological elements that the archive implies, as a realm of memory, and the archiving process, as a process applied to the memory. One of this basic facts is that all the documents contained in any archive hold a bit of information, – either related to history, ethnology or other disciplines, – embedded in a physical support.

Parallel to the three ages of the archive, three forms of physical support can be observed, or, put in another way, three forms of memory incarnation: analogue, digital and post-digital. The analogue format[2] involves various ways of memory preservation: handwriting, sound imprinted on wax cylinders or magnetic tapes, video recording or photography on celluloid, and many others. The digital format[3] involves memories translated into the binary code and preserved on physical supports such as floppy disks, CDs, DVDs, or HDDs. In the post-digital environment, the physical support of the encrypted binary memories becomes invisible and intangible. The memories are invoked from places inaccessible directly, from unknown, remote locations, where any hints to the physical support are hidden. The server farms are condensing into clouds[4] from where memories descend ephemerally onto the surfaces of the displays.

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[1] So far the term postdigital was used from a cultural perspective. "The term 'Postdigital' is intended to acknowledge the current state of technology whilst rejecting the implied conceptual shift of the 'digital revolution' — a shift apparently as abrupt as the 'on/off ', 'zero/one' logic of the machines now pervading our daily lives." Robert Pepperell, Michael Punt, *The Postdigital Membrane* (Intellect Books, Bristol, 2000), 2. Another announcement of the postdigital age is given by Nicholas Negroponte in an iconic phrase "Face it – the Digital Revolution is over." "Beyond Digital", *Wired*, 6 (1998) http://web.media.mit.edu/~nicholas/Wired/WIRED6-12.html. We shall approach this term from a technical perspective, focusing on the relation between the content and the support of the archived memory.

[2] "The analogue format describes a device or system that represents changing values as continuously variable physical quantities." "Webopedia", http://wifiplanet.webopedia.com/-TERM/A/analog.html

[3] "The digital format describes any system based on discontinuous data or events. Computers are digital machines because at their most basic level they can distinguish between just two values, 0 and 1, or off and on." "Webopedia", http://wi-fiplanet.webopedia.com/TERM/D/digital.html

[4] "Cloud computing enables users and developers to utilize services without knowledge of, expertise with, nor control over the technology infrastructure that supports them." Krissi Danielson interview with Barry X Lynn, "Distinguishing Cloud Computing from Utility Computing", Ebiz,

These transformations are marking successive transitions from the material to the immaterial: if in the 19th century the archives were mainly kept on paper, the 20th century brings a diversification of memory supports, but they still remain physically accessible. The last decade, the beginning of the 21st century, introduces new forms of memory preservations that have the tendency to return more and more to immaterial forms.

If we were to use a metaphor to describe concisely the metamorphosis of the digital memory supports or the evolution of archived documents from one format to another, this would be the slide from one state of aggregation to another. In the analogue stage, the memories were strongly embedded in the physical support, creating a solid document.[1] The document was simultaneously the information and the physical support. Then the binary code, the basic form of translating any information into digital language, started to be implemented, in the beginning of the '50s, imitating the analogue ways of preserving the information. The binary data was imprinted into huge magnetic disks[2] or magnetic tapes in an analogue manner. With the widespread of cheap digital support (CDs, DVDs, HDDs), the information became more independent from the storage support, more fluid, but still tangible, at hand. We are now witnessing the process of data evaporation, its hiding on remote, unknown locations. The preserved digital records are streamed from clouds, from distant servers, and any direct connection between information and physical support is lost.

Those techniques and technologies caught our interest due to their interaction with time, more precisely they are creating the opportunity for conserving the corpus of documents over time and for activating the memory in the present and in the future. Those are modern, contemporary ways of passing the heritage, equal to the main way of passing the tradition forward in the past that was the orality.

5.1. The first age: analogue memory. The organic link between content and its support.

Analyzing the analogue method of memory conservation (handwriting, light imprinting, magnetic tape recording), we can easily notice that information is deeply inscribed into the support, creating an organic unity. The document consists not only of the memory preserved, but also of its material support.[3] This way of memory imprinting does not allow the perfect reproduction of the document. In the analogue state of aggregation of memory, there is always an original, a first imprinting of memory. An analogue copy is

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http://www.ebizq.net/blogs/saasweek/2008/03/distinguishing_cloud_computing/

[1] Defining the document raises some debates. One of them can be found in the article of Roger T. Pédauque, "Document: forme, signe et médium, les re-formulations du numérique", *Archive Ouverte en Sciences de l'Information et de la Communication*, http://archivesic.ccsd.cnrs.fr/docs/00/06/21/99/HTML/index.html

[2] "In the 1950s, magnetic drums were used as non-volatile primary data storage and were replaced with magnetic core memory. Magnetic core memory used thousands of tiny doughnut-shaped ferric toroids arrayed into bits and words. They were magnetised clockwise or anti-clockwise to store a 1 or a 0." BBC, "The History of Magnetic Recording", BBC h2g2, http://www.bbc.co.uk/dna/h2g2/A3224936

[3] "A document is a bounded physical or digital representation of a body of information designed with the capacity (and usually intent) to communicate." Wikipedia, "Document-Wikipedia", http://en.wikipedia.org/wiki/Document

plagued by errors and distortions that are amplified in following reproductions. For example, a document that was typewritten could be reproduced using a photocopier. Unlike the original, small spots or uneven colour intensity may appear on the copy. If we were to repeat the process always recopying the last copy, after several steps we would end up with an unrecognizable copy of the original.[1] Another particularity of analogue documents is the direct access to the information and the physical interface. Direct physical contact with the analogue sources of memory are common: you have to take a vinyl disk, feeling the fine grooves engraved on it with your fingers, put it on the turntable, turn it on. The physical dimension of the analogue document is extremely present and important.

5.2. The second age: digital memory. Content and support – a precarious relation

The digital method of capturing memory is radically different to the analogue one. First of all, there is no privileged original, especially when it comes to from the start digitally created documents.[2] Also the information is independent from its support, this resulting in the perfect reproduction of the same document even after an undefined number of recopies. The document becomes the information, the recorded memory, and it becomes fluid. Any copy is identical to the original and even more, the original disappears. If the digital devices work properly, no errors interfere in the copying process. The information support remains locally accessible, at hand, and it is binary encoded. A processor must be used to decode the data and to access the information. The digital encoded information becomes ubiquitous and the devices to access it are widespread.[3] It can be said that the digital memory is in a liquid state, flowing from one support to another easily (from floppy disk to paper or display, printer or scanner). The typewritten document from the previous example can be easily scanned. The obtained image can be transformed into a proper digital text using OCR (optical character recognition) software and infinite copies of it can be made without any quality loss. The access to the same memory can take different forms: the text can be printed again, projected on a surface or read from a display. The information flows easily from one type of support into another, from an electronic form into a physical, tangible, but optional one.

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[1] "The deficiencies of analogue signals do not matter too much, as long as they are not copied repeatedly. A tape recording may have so little hiss on it that you hardly notice it — unless you amplify the sound, in which case you amplify the hiss and introduce some new noise too. But if you make a tape of the tape, then a tape of the tape of the tape, and so on and on, after a hundred "generations" a horrible hiss will be all that remains." Richard Dawkins, *River out of Eden*, (New York: Basic Books, 1995), 16.

[2] "Digital materials which are not intended to have an analogue equivalent, either as the originating source or as a result of conversion to analogue form. This term has been used in the handbook to differentiate them from 1) digital materials which have been created as a result of converting analogue originals; and 2) digital materials, which may have originated from a digital source but have been printed to paper, e.g. some electronic records." Digital Preservation Coalition, "The Preservation Management of Digital Material Handbook" 24, http://www.dpconline.org/pdf/advice/digital-preservation-handbook.pdf

[3] "Worldwide semiconductor industry sales have grown from US $21 billion in 1985 to $227 billion in 2005, and microprocessors are a major segment of these sales." David Money Harris, Sarah L. Harris, *Digital Design and Computer Architecture*, (San Francisco: Elsevier, 2007), 3.

5.3. The third age: post-digital memory. The reign of the content and the dismissal of the tangible support

At this stage, the information exists strictly in a binary form and the support is no longer accessible. The DVDs or the HDDs are obsolete by now, anything being directly accessible from the "clouds", an undefined virtual space from where all the information descends on the multi-touch displays.[1] Even though the information exists in analogue and digital forms, kept in the initial, original archives, those forms are not currently used. The originals can still be consulted by researchers, but only according to specific rules, meant to preserve the integrity of the physical documents. The first digital transcriptions may also be preserved on local supports (HDDs, servers, personal computers), but only as a second backup of the initial digitization process. The main content is available from a remote server and it can be accessed only online. From now on, the archive is permanently accessible without any technical restrictions. With the physical support out of the way the precautions related to the integrity of the documents can be eliminated. Once digitized, an archived document can be easily accessed, read, studied, researched, interpreted via Internet, regardless of its initial material form. The support becomes invisible, even though the encoding is still digital. This allows anyone to access a document on a personal computer, mobile phone, body or clothes, invoked from a server that we know nothing about. The access to the information is deeply mediated and simultaneously ubiquitous: we are surrounded by display-portals[2] that are offering us instant access to information. The processors, the decoders of this highly encoded information are becoming also smaller and less visible, spreading rapidly in our pockets and in the devices around us.[3] The information is in a constant flux and its ubiquity becomes the main feature. The state of aggregation corresponding to this stage is the gaseous one, immaterial and unstable.

Paradoxically, the memory returns to the initial state, having an augmented immaterial form. The access to information becomes local, each individual can access it alone in front of a screen, but the information itself is a-local, living in the clouds, on remote servers, becoming available only through an online connection. The data is spread in our surrounding environment, in a wireless, permeable and perforating form: we pass through it and it is passing through our bodies at the same time, becoming superfluous, always ready to display itself. It becomes polymorphous, taking form as a search result or as an answer to our inquiries, but always ephemeral, hiding again once our attention moves away. The classic operating systems (OS), Windows, Linux or Mac

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[1] "On touchscreen displays, multi-touch refers to the ability to simultaneously register three or more distinct positions of input touches." Wikipedia, "Multi-touch – Wikipedia", http://en.wikipedia.org/wiki/Multi-touch

[2] "Shipments of this advanced strain of touch screens are projected to jump from fewer than 200,000 units in 2006 to more than 21 million units by 2012, with the bulk of the components going to mobile phones, according to a forecast by iSuppli Corp., a market research company." May Wong, "Touch-screen phones poised for growth", USA Today, http://www.usatoday.com/tech/products/2007-06-21-1895245927_x.htm

[3] The number of transistors of a microprocessor grew according to the Moore's law from a few thousands in 1970 to 1,000,000,000, as it can bee seen in this graphic: http://www.edumax.com/assets/images/hardware_files/image010.jpg. Also, the number of microprocessors sold grew spectacularly in the same period, as it can be seen in the evolution of the shares of the Intel, AMD and IBM companies: http://bit.ly/cRPsMB

OS X, are now becoming obsolete. The new generation OS, like Google Chrome, are nothing more than a browser,[1] a minimal framework that allows direct access not only to documents online, but also to software. No more local installation of the software, the servers will run any programs we need from now on. The interface also faces a paradigm shift – the mouse, keyboard, monitor paradigm is the past, and multi-touch is the future.

6. Conclusions

We could ask ourselves which form of memory preservation will win the battle with time, what is the best way to maintain the memory in the long term. The modern technology is – apparently – the right answer. But at a closer look, we notice that the answer is not so easy: paper, the original support for documents can last for at least 500 years,[2] while the digital technologies are in a constant change, created for short term use and with a low lifespan. Paper is more suitable for the long term preservation of memory, while the digital technologies are working with a short term memory. Having a history of just a few decades, the digital technologies still have to find solutions for long term preservation.

Refocusing on archives and their relationship with time, on one hand, and with technology, on the other, we could ask ourselves if the three ages (analogue, digital, post-digital) of the archives are not somehow comparable with the three moments from the interpretation offered by Paul Ricoeur to the phenomenology of memory: memory, history, forgetting.[3] Or, we could ask, using Pierre Nora's[4] concepts, if these almost omnipresent realms of memory, immaterial, virtually accessible are not expressing exactly the fracture of the memory supports, just another form of forgetfulness?

Nowadays, the digital ethnological archive aims at constructive goals, despite fears of de-structuring tradition: increasing the accessibility to the cultural heritage, updating it, putting the spotlight on identity features in the context of globalization of culture.

What becomes obvious, as a result of archive research and of supports on which the information is preserved, is that there are two types of time. Using Claude Lévi-Strauss'[5] terminology, the first one is *cold time*, long term, in which the changes are taking place slowly, the time of traditional societies, where the memory is shared by the insiders, being alive (animated), and the second one is *warm time*, of metamorphosis sequences – an age of archiving and of information storing on different supports,

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[1] "We're designing the OS to be fast and lightweight, to start up and get you onto the web in a few seconds. The user interface is minimal to stay out of your way, and most of the user experience takes place on the web." Official Google Blog, "Introducing the Google Chrome OS", Google, http://googleblog.blogspot.com/2009/07/introducing-google-chrome-os.html

[2] "There is still nothing in the digital world like acid-free paper. Former University of California, Berkeley librarian Peter Layman points out, "When we know a book is important, we ... tell a publisher: print it on acid-free paper. And with decent library air-conditioning it will last 500 years." Stewart Brand, "Escaping The Digital Dark Age", *Library Journal* 124 (1999), 46–49, http://www.rense.com/general38/escap.htm

[3] Ricoeur, *La mémoire, l'histoire, l'oubli*.

[4] Nora, "Entre Mémoire et Histoire", 23.

[5] Claude Lévi-Strauss, La Pensée sauvage (Paris: Plon, 1962), 280.

material or immaterial, in which the memory is brought to surface and accessed only through organic, technical or virtual intermediaries (in-animated): paper, photography, magnetic tape, floppy disks, DVDs or the personal computer.