# Memory as Concept in the Design of Digital Recording Devices

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*Theuth is the Egyptian god Toth, the 'scribe of the gods', to whom was attributed the invention of writing [...] When it came to writing, Theuth declared: 'Here is an accomplishment, my lord the king, which will improve both the wisdom and the memory of the Egyptians [...] The King replied [...] 'you, who are the father of writing, have out of fondness for your offspring attributed to it quite the opposite of its real function. Those who acquire it will cease to exercise their memory and become forgetful [...] What you have discovered is a receipt for recollection, not for memory.' Plato 1973:96*

Human memory, the ability to capture, to store and to retrieve personal experiences, is considered essential for the performance of everyday tasks, as well as for the creation of an individual's sense of self and community. At the same time, it is characterized as elusive and fallible. In the past decade recording technologies have become ubiquitous and a growing number of individuals have expressed anxiety when separated from their cameras, mobile blogs and voice recorders, devices that grant them the capacity to capture, to document, and to publish. Hewlett Packard advertisements entice us to create and to share our memories. As their slogan says: "document your life… now! Anything is possible!" Flickr hosts a group called "a day in the life of …" where users post and share pictures that document their life on a specific day.[1] Since 2004, scientists have gathered at a yearly event cleverly entitled CARPE, a symposium centered on the Capture, Archival and Retrieval of Personal Experiences, where they discuss digital computer systems and wearable sensors that are currently being developed with the hope that they will expand and supplement the limits of biological human memory. In today's context of ever

[1] March 15, 2007, http://www.flickr.com/groups/adayinthelife.

expanding digital space, deleting becomes an almost obsolete act and archival technologies are created in order to manage the saturation of recorded information.

This paper examines the development of digital storage spaces and recording devices through an engagement with the discourses and practices of interdisciplinary scientists who convene around the design of prosthetic tools for memory.[2] Drawing on fieldwork in the UK, this paper addresses how the production of personal recording machines redefines what counts as remembering. By considering the language used in the design of new objects, it looks at how these technologies inform understandings of the self as well as notions of human disability and enhancement. Using Foucault's genealogy of the western subject to form a kind of montage, this paper leaps over the millennia, from Antiquity to the present, to explore personal archival practices and to map future avenues for research. By addressing contemporary debates on the intentions that govern the making of recording machines, this paper hopes to show how technology design is shaped by – and helps shape – conceptions of selfhood and identity that have long been tied to ideas of authenticity and memory.

## Capturing Memory

In his famous *Atlantic Monthly* article, "As We May Think" (1945), Vannevar Bush, head of the United States Office of Scientific Research and Development during World War II, introduced the concept of the Memex, or "Memory Extender," a device now considered to be the prototypical hypermedia machine. It would have allowed an individual to store all his books, records and communications so that they might be consulted with ease and speed. Theoretically, the Memex would have consisted of a desk that would display microfilms of entered data such as books, articles and photographs. The data would be associated by threads of key words and saved links, and later retrieved using a kind of code, much like the World Wide Web, Wikipedia, or desktop searches today. Bush described it as "an enlarged intimate supplement to his memory" (1945).

Bush's Memex was never built. Nevertheless, the ideas behind this memory device have spawned numerous current technologies, which allow for the capture, the archival, and the retrieval of large amounts of data. Microsoft Research in Redmond, Washington is presently designing a database system called MyLifeBits that allows for the storage and the management of a person's entire collection of digital media, including text documents, images, sounds, and video (Gemmell, et al. 2006). When discussing MyLifeBits, Microsoft claims to have been directly inspired by Bush's vision of the Memex. Their goal is that with this technology "users will eventually be able to keep every document they read, every picture they view, all the audio they hear,

[2] A version of this article was presented at the Enkidu summer conference "Identities in Transition" in Mexico City, June 2007. I would like to thank the organizers and participants for their engaging discussions and feedback. I would also like to thank the *Social Science and Humanities Research Council of Canada* and Rice University for their ongoing support toward this project.

and a good portion of what they see," allowing fragments of memory to be retraced and indexed in a personalized presentation.[3] To capture what the user sees, as well as environmental cues, Microsoft Research in Cambridge, UK is also developing the SenseCam, a badge-sized camera equipped with light, temperature, and position sensors. Preprogrammed, and relying on the sensors, the wearable device determines when to take a picture and record information (Hodges, et al. 2006). This new digital recording technology promises not only to extend human memories – here seen as images – but also to enhance them by recording bodily and environmental cues and activities not even perceived by humans, such as one's pulse, eating habits, and GPS readings.

Gordon Bell, senior researcher at Microsoft in the San Francisco Bay area has volunteered to become the main guinea pig for both MyLifeBits and the SenseCam. Starting in 1998, he decided to go paperless and digitized all the material in his filing cabinets and notebooks. He has been recording every web page he visits and every instant-message he writes since 2003. Today, "Bell's archive [...] contains a hundred and twenty-two thousand emails; fifty-eight thousand photographs; [and] thousands of recordings of phone calls he has made" (Wilkinson 2007:38). He is the extreme example of what is now known as "lifelogging." But his collection raises a key question: what to do with all this information? Bell and several other researchers are currently working on issues such as how to best organize and manage his extensive archive, and for what purpose.

Microsoft Cambridge's development of the SenseCam, and its research into how these tools may be used takes place in the larger context of a UK initiative to build what is being called a "common problem space" for interdisciplinary research into memory. This UK initiative, commissioned by the United Kingdom Computing Research Committee (UKCRC) in 2004, involves creating a space where various disciplines – neurobiology, psychology, sociology, computer science, and engineering – are brought together to collaborate on a "grand challenge" referred to as "Memories for Life." [4] Memories for Life is "a cluster of research projects" that seeks to bridge gaps and to encourage communication between disciplines that are working on the problem of storing information about the past. Memories for Life sets its goals around the need to understand human memory and to "augment it with technological support" in the hope that artificial memory storage will improve natural human memory in a seamless interaction between humans and machines (O'Hara, et al. 2006:361). The various projects within the Memories for Life UK initiative thus provide arenas through which memory can be examined both as a negotiated concept and as a working design.

In December 2006, a workshop and a conference were held in London as part of the Memories for Life initiative.[5] The participants at these events included interdisciplinary researchers from the Universities of

[3] April 10, 2005, http://research.microsoft.com/barc/mediapresence/MyLifeBits.aspx.

[4] November 10, 2006, http://www.memoriesforlife.org.

[5] Four previous workshops were held since 2004 as part of this network initiative to identify and to map out potential research areas.

Southampton, Sheffield, Lancaster, Dundee, Oxford, the British Library and Microsoft, among others. Judging by the extensive media attention, these scientists were addressing what seemed to be a hot topic: the future of our past. With approximately fifty participants coming from different backgrounds, one might wonder how large concepts such as memory and forgetting were rendered commensurable. How did neuropsychologists, for example, discuss the making of recording technologies with computer scientists? To start with, they each have different disciplinary attitudes towards the phenomenon of forgetting. Socially and biologically, forgetting is seen as a necessity for keeping order in an otherwise messy accumulation of information. But in computing, forgetting is seen as a failure of hardware or software. When discussing memory tools, what precisely does each of them wish to preserve? And what are the relative implications of a desire to supplement human memory? In an attempt to bridge disciplinary gaps, some of the questions addressed by the Memories for Life initiative were described as centered on the idea of biologically inspired memory technologies. Organizers of the workshop from the University of Southampton, a philosopher and a computer scientist, spoke of the possibilities of "nature-inspired computing" – some that may also involve forgetting (O'Hara, et al. 2006:354). By attending to the problem of biological memory in the brain, these researchers sought to improve the development of tools used in the storing of information outside of the body.[6]

At the workshop, a Mathematician from Lancaster announced that "if Moore's Law continues to hold [… in 70 years] it would be possible to store a continuous record of life on a grain of sand" (Dix 2002, O'Hara, et al. 2006:352)[7]. During his talk, which spanned several disciplines, this same mathematician referred to Roland Barthes' *Camera Lucida* and emphasized the importance of affect in remembering. In his famous text, Barthes describes his unique relationship to an old picture of his deceased mother. For him, the medium-specificity of the photograph, its imposition of the undeniable fact that "*the thing has been there*" confuses the concepts of real and alive, and thus creates a particular élan of emotion in the viewer (1981:58). The subject photographed, according to Barthes, "has been" and continues "to be" through its unique luminous rays captured onto the chemical emulsion that is the photograph. But what does it mean to capture and to preserve light long after the object or subject has gone? In Barthes' words, a "sort of umbilical cord links the body of the photographed thing to [the viewer's] gaze: light, though impalpable, is here a carnal medium" (1981:60). Highlighting an ontological struggle with memory, mortality and self-erasure, this scientist's reference to Barthes is an important one in that it implies the lingering of an individual through a

[6] Although this paper focuses on the discussions between individual researchers present at the workshop and conference, it is important to note that the participating companies and university departments function as institutions in a larger political economy that has now become saturated with techno-aesthetic personal spaces, artifacts and memorabilia. Take only the new and improved iPods, iPhones and Facebook accounts as minor examples. Most participating institutions have vested interests in creating new products and applications to be sold on the 'memory market.'

[7] Moore's law in industry refers to an increase in memory and processing power while circuit, chip and transistor sizes decrease, thus allowing for faster, smaller computers. Performance is famously said to double every two years.

photographic medium. Perhaps not meant to be taken literally, the rhetoric of a person living on via the collected pictures they have left behind appeared in many of the workshop and conference presentations.

As though speaking about cell lines, where "the substance of the human body is now routinely maintained alive outside the body," information scientists described memories as entities to be captured, cloned and shared (Landecker 2007:3). No longer bound to the organism or moment itself, memories and identities are to be sustained in artificial environments to be later used to extend the finite life of the person from which they came. Many scientists present referred to collections of notes and photographs as a "digital me," playing on the illusion of a kind of isomorphism between persons and external representations. From the early days of cinema, medical imaging, psychoanalysis, and anthropology, the chimera persists: that one can read a person, a mental process, in an image. Following this tradition – at least semantically – memory was addressed as a separate entity that could lead to a mechanized knowledge of one's self, bringing about not only the decontextualization of images from past events, but also the decontextualization of the very notion of self as something transposable, that can be externalized, mobilized and supplemented.

A Human Computer Interaction psychologist and a neuropsychologist from Microsoft warned against the possible complications that might arise with a failure to differentiate between the design of a "memory aid" and the claim to capture "memory" or "experience." They presented studies using the SenseCam as a support for memory with a patient who suffers from amnesia (Hodges, et al. 2006). According to these researchers, the results of their study proved enormously hopeful as the patient demonstrated significant improvement in recall from the use of the device. That is to say that after reviewing the images captured by the SenseCam, the patient seemed to show a better recollection of past events. However, within their presentation, these researchers from Microsoft raised questions as to what exactly was being captured and stored. They sought to distinguish the kind of memory that was being triggered through the use of the device. Was the experience of remembering for the amnesiac an experiential one, (what computer scientists and psychologists term episodic memory), or was it a factual one, (semantic memory), (Hodges, et al. 2006)? In other words did the patient remember after viewing images of her day, or did she simply know what activities she had done? The autobiographical memory with which one constructs a sense of subjectivity through the recollection of past events seems to differ from the functional memory involved in finding one's car keys. And this points to yet another problem, does one need to represent the actual experience in order to support its recollection? By what means does data evoke the experiential?

As such, discourses around the design of memory tools affect the practices of building recording devices, of testing their uses, and of conceiving how and where they might be inserted as part of the social, and as part of the body as prosthesis. Notions of memory and identity remain deeply embedded and at times hard to distinguish. But,

outlining the theoretical and practical tensions involved in the design of memory tools, Microsoft scientists working on the SenseCam argued that what was being captured by their device was a series of memory "cues." One could not talk of capturing "memory" or "experience," let alone a "person." Doing so would be simply misleading and unproductive. Rather, they suggested researchers concern themselves with figuring out what these devices are actually good for. Doing so might help further understandings of what specific kind of memory aid these machines actually provide. This critique has led to more recent research around possible creative uses for the SenseCam. Perhaps built with the concept of memory in mind, SenseCam designers are now interested in seeing if this device can be used for other things. For them, the fact that a device captures photographs does not automatically make it a "prosthetic memory." Thus they insist that their use of the term *memory tool* depends on the user and the context.

Despite the call for a more nuanced appropriation of the terms "memories" and "experiences," many presenters at the workshop and conference continued to address digital personal records as transposable selves, highlighting their underlying engagement in an important philosophical debate about what constitutes an authentic, objectified memory, and what some call a "digital me." Indeed, much has been written linking the notion of identity to that of memory and agency. Historically, one can return to the period in which the self as the locus of subjectivity is debated among such philosophers as Descartes, Locke and Hume. Looking back at the constitution of the very concept of self, Charles Taylor argues that the Cartesian objectification of the body and its activities, as separate from the mind that observes it, creates a form of "modern disengagement" (1989:175). Taylor's disengagement, coupled with the contemporary desire to capture experience, implies the objectification of memory as separate from the self or mind in which it operates. It is the self representing and interpreting itself. J. Lenore Wright defends this Cartesian separation of knower and known in so much as it allows for self-knowledge and thus a kind of self-representation (2006:71). For Wright, the dialectical relation between the two is brought to the fore in processes of self-narration where the lines between the self who knows and the self who is objectified are paradoxically blurred.[8] But for the purpose of considering added ethical dimensions of the self, and its external "memory tools," we will leap cavalierly over the millennia, from the Stoics to the present and focus on Foucault's genealogy.

## The Care of the Self

According to Michel Foucault, the West's cherished notion of subjectivity developed in Antiquity through the very practice of collecting personal data. In his studies on the *care of the self*, he

[8] A great deal of work has been done on the concept of "self" in anthropology and social theory, from Marcel Mauss (1985 [1938]) to Shweder and Levine (1984), Turkle (1984), Carrithers et al. (1985), De Certeau (1990), Giddens (1991), and Pandolfi (1993) to name but a few.

explores the role of ancient writing practices in the knowledge and the creation of the self. He inquires as to how, through a system of phenomena and historical processes that we now refer to as culture, the questions of truth and self-cultivation were generated (1982:243). He argues that about 2000 years ago, with the Stoics and Epicureans, the western concept of self developed through the keeping of personal notebooks and through correspondence. In Foucauldean theory, the *care of the self* (referred to by the Ancient Greeks as *epimeleia heauto*) revolved around the reflections, the practices, and the experiences through which an individual catalyzed transformations that granted access to true self-knowledge. Foucault states that "around the care of the self, there developed an entire activity of speaking and writing in which the work of oneself on oneself and communication with others were linked together" (1986:51). In other words, Foucault describes what he terms *technologies of the self*, which were methods and techniques through which identity was composed, performed and monitored.

Foucault analyzes the historic notion of "knowing thyself" that was professed as an "art of living."[9] In Antiquity, the acquisition of knowledge of oneself was put into practice through the widespread use of *hypomnemata*, or personal notebooks. In these books their authors would jot down citations, fragments of reflections, sketches, examples and accounts of actions either witnessed or learned, creating an archive – described as a physical memory – available for future reference. They were "the meditations, the readings, the notes that one takes on books or on the conversations one has heard, notes that one reads again later, the recollection of truths that one knows already but that need to be more fully adapted to one's own life" (Foucault 1986:51). These notebooks were also used to keep a kind of track record of one's mental, physical and spiritual health. Thus *hypomnemata* were by their very nature continually unfinished, and in many ways intrinsically disorganized. Furthermore, they had to be available at a moment's notice. The possibility of using them spontaneously was one of their key characteristics. Discussing the impact of *hypomnemata*, Foucault claims "this new technology was as disrupting as the introduction of the computer into private life today" (Dreyfus and Rabinow 1983:245). As mentioned earlier, unlike intimate diaries that reveal unspoken secrets, these ancient notebooks were also used to capture the *already said*. So citational practices were common within *hypomnemata*. The author constituted his own identity through a mass of writing that he would not only appropriate but also embody. More specifically, this practice pointed to a self that wasn't yet what it strove to become. Thus, rather than being considered merely archives, selected bits of the past were to be used in the making of one's future self.

This said, could the SenseCam, readily collecting the *already seen*, be considered contemporary *hypomnemata*? Again, the intent in keeping these notebooks did not revolve around the simple practice of

[9] Foucault contrasts the classic period with the later Christian period, which was founded on the renunciation of the self through confessional rituals. The classic form of care of the self was transformed with the rise of Christianity and became a religious necessity for achieving salvation rather than an "art of living."

recording everything about the past per se, but rather around a practice of carefully collecting directed toward an ethical realization of a future self. On its own the omnipresent SenseCam does not seem to incorporate the act of selecting and editing, key in the constitution and elaboration of oneself for oneself.[10] However, the exercise of recording one's activities combined with the use of an archival technology, which would allow one to recognize, annotate, retrieve, and share only certain bits of recorded information, may indeed help one understand when and how to intervene in order to better their physical and mental health. Mnemonic technologies geared toward the enhancement of one's wellbeing could then be considered *technologies of the self* in Foucault's sense. In other words, through the process of selection, editing and reviewing, (re)collection might be seen as a means towards a kind of self-fulfillment.

In fact, even within the context of differing discourses on "self," "representation," and "experience," most researchers affiliated to the Memories for Life initiative shared an interest, and justification, in the domains of health and in the therapeutic uses of memory tools. Computer scientists and a specialist in Artificial Intelligence and language from the University of Sheffield presented projects aimed at improving health and longevity through the development of electronic "life companions." Also referred to as "personal agents," these scientists are designing robots as furry and cuddly friends, not as the metallic and rigid R2D2 companion we've all grown up to imagine.[11] Referring to the fact that "people with pets live longer than people without pets," the builders of these companions consider their research a significant contribution toward happier, healthier and longer lives for humans, (although one might wonder what a life of old age accompanied by furry robots might actually entail). As a senior companion, the furry robot could remind one to take his medications and more importantly, stimulate a conversation, thus combating loneliness. According to these scientists, these animal robot companions might allow anyone to become a kind of autobiographer. These companions could be spurred to ask the user questions about his or her life and in turn record and document the responses and narratives.

The role of the interlocutor in Foucault's understanding of *technologies of the self* is an important one as he serves as a means to verify one's impressions and experiences of the world. The interlocutor acts as an outsider who can attest to one's pertinence and truthfulness. In fact, according to Foucault, western notions of subjectivity were developed

[10] If a popular contemporary digital practice was to be compared to that of keeping *hypomnemata*, it might be blogging. As the blogger navigates the plethora of information on the web, he selects but certain ones to comment on, elaborate on, and return to. The choices he makes while collecting and exposing both his and others' thoughts may be constitutive of a kind of exercise on himself. Another such technology might be Microsoft's MyLifeBits. Ironically however, archival tools such as this one create the problem of remembering how and where things are stored in order to retrieve them efficiently. Designers of various information management technologies are actively addressing this challenge and trying to come up with ways of automatically annotating pictures, documents and videos in order to alleviate some of the difficulties related to the management of large amounts of data.

[11] March 29, 2007, http://nlp.shef.ac.uk.

further through correspondence rather than simply in the collection of words *already said*. In Seneca's letters with Lucilius and in Marcus Aurelius' letters with Fronto, Foucault locates narratives that he describes as an "account of one's relation to oneself" (1994:217). The letters he examines consisted in reviewing and making accounts of one's entire day, in its quotidian banality, as a means of attending to oneself. Self-cultivation was then considered "not an exercise in solitude, but a true social practice" (1986:51). For Foucault, to write, to record oneself, was to exhibit oneself, to make oneself seen. Self-narration became a specific method of reflexive representation while simultaneously revealing oneself to others. In Antiquity, this form of correspondence regularly occurred between a master and a student. The student was told to record all his daily thoughts and activities and report them to the master who would act as an interlocutor. In the process of reviewing and narrating one's memories to another, one would be caring for oneself.

At the workshop, the furry robot from Sheffield was presented as a kind of contemporary master interlocutor who could verify the truthfulness of one's interpretation of the past and monitor the relation between his experience and the outer world. Researchers from Sheffield gave the example of a lonely and forgetful elderly woman who could reminisce and view old photographs with her robot companion. Based on previous conversations, the companion would have learnt about this woman and thus be in the position to help her tell stories about the photographs being viewed. Moreover, should the woman become confused about who is in the photograph, the companion could correct her and steer her towards more accurate recollections of her past, producing a kind of hyper-reality for the forgetful subject. In this case, recorded memories appear as positive historical facts. In what Jean Baudrillard would call "the restitution of an absolute simulacrum," the memories of the forgetful subject are said to conform to the data. Reminiscence is characterized by a "performative and demonstrative logic [...an] obsession with historical fidelity [or...] a perfect rendering" (1994:47). The woman's actual memories come second, cued and enhanced by the captured images prompted by her electronic pet.

## Enhancing the Human

Recent developments in both the life sciences and information sciences lead many researchers to believe that the possibilities for human enhancement, whether through the use of robotic assistants, nano implants or drugs like prozac are virtually limitless. During the Memories for Life workshop and conference, the more common use of the term "enhancement" referred to improving the lives of individuals who are subject to disease, disability or illness. However, human interventions in living beings and matter are far from limiting themselves to these terms. In examining the creation and proliferation of prosthetic technologies that extend the human body and its capacities, one wonders what the implications are when these recording technologies are conceived, not solely for people with memory disorders such as amnesia or Alzheimer's, but for healthy users such as Gordon Bell.

When scientists propose to record images, pulse, temperature and GPS readings from our daily lives, they are no longer fixing or replacing what may have been considered a 'normal' function of memory. Rather, they are proposing a new way of conceiving of the past by carefully logging our body's physical reactions and movements within space.

Many theorists and scientists argue that we must transcend our fragile bodies and limited life spans through the use of technology and thus should not limit science to the task of repairing innate functions of the human body.[12] For them human memory is fallible and can and should be improved; and only through an intimate interaction with technology will mankind truly thrive. As Donna Haraway's anticipated cyborgs, "any objects or persons can be reasonably thought of in terms of disassembly and reassembly; no 'natural' architectures constrain system design" (2000:365). Nature becomes a synthetic domain and the prosthetic is presented neither as a supplement, nor as an extension of the organic human body, but rather, the prosthetic *as* human body. The documenting cyborg represents the breaking of boundaries. Hybrid, its nature extends that of public and private dichotomies; and "memories" produced, captured, and shared or stolen, pull the individual into the public.

Numerous ethical issues and privacy concerns arise with recording practices made easier with the SenseCam and furry robot companions. As commodities, whom do these so called memories belong to? Once "outside" the body, can they be considered social memories, part of public history? What is to be made of Flickr's thousands of "days in the life of…?" By diffusing representations of lived experiences that are at once individual and collective, recording technologies participate in the creation of a present and a past that can be consulted at any given time. The desire to build a representation that current and future generations can contemplate is not a new phenomenon. For centuries, archives, artifacts and monuments have been mediators of social memory. But in this society, real and virtual, personal and global, who are the scribes or sculptors? Who are the agents that control the transmission of memory? "New technologies of transportation and communication […] have profoundly altered our sense of time and space, the 'reach' of power, and the possibilities of reifying, and hence 'preserving' images of the past," and in so doing, have altered the possibility of "preserving" images of ourselves (Boyarin 1994:3). We've all said things we wish we hadn't said. We've all taken bad pictures of our friends, and been places we perhaps didn't want our mother to know about. Following this contemporary "record all, share all" fantasy, will everything we say and do echo into digital space for years to come? Should computers be programmed to forget? In what a researcher from Memories for Life calls "an era of pervasive electronic recording of all human activity [… will] the collective have the right to subpoena individuals' memories?" (O'Hara, et al. 2006:360). Beyond the scope of this paper, future studies need to examine the practical and ethical consequences of producing, reproducing and owning

[12] Here I am referring to scholars generally characterized as posthumanist such as Haraway (1985), Hayles (1999), Negroponte (1995), and Stelarc (2000). However, posthumanism is itself a highly contested term and arena, and does not represent a unified form of thought.

memories in the forms of images, documents, sounds and video. The commoditization of memories captured by new recording technologies, their challenge to legal structures and shifting notions of property and privacy, need to be addressed while such tools are being developed.

Finally, does the wish to enhance human memory and build personal recording tools come out of a need to leave conceptual offspring, a form of lineage, an evolutionary and procreative obsession common to all living beings? Or do producers and users of these technologies experience what anthropologist George Marcus refers to as "the documentary impulse," which he pairs with a general atmosphere of "hyperawareness of great changes at work in the world" (1993:2)? In *Public Culture: Globalization*, Andreas Huyssen portrays memory as a primary concern in the western world (2001:57). He associates modernity with the notion of "'self-musealization' by video recorder [...] confessional literature; [and] the rise of autobiography [...] with its uneasy negotiation between fact and fiction." Are we witnessing "an archivist's fantasy gone mad" (2001:61)? Have we become culturally obsessed with notions of the eternal, of memory and of forgetting? The techniques practiced by Foucault's Stoics are neither governed by a concern for salvaging the self, nor by a concern for memory per se. Rather memory is a means by which one creates a guidebook for one's actions. One draws lessons from the past in order to better oneself. To what degree are today's technologies built on anxieties about memory rather than on the realization of an ethical self? Pervasive new recording technologies reflect a change in attitude and perhaps a change in the way we construct ourselves. The idea that if one records everything one will better know oneself is quite different from the practice of selection involved in the keeping of hypomnemata. Both can be seen as a commitment to self-knowledge, but with ancient *technologies of the self*, it is not necessary to record everything, rather only bits and pieces relevant to oneself. Foucault's history of the concept of self in the West problematizes memory as a means to self-fashioning, whereas today's grounding of memory in authenticity promotes the discovery of an omnipresent, recorded self.

All these personal documenting media including Nokias Lifeblog, the new and improved iPods, iPhones, as well as MyLifeBits, SenseCam and furry robots just discussed create a plethora of archives. But, are we really preserving the memory of our time? Paradoxically, as Plato points out, documenting may also make us forget (Plato 1973). We place our confidence in these collection bins and in doing so imagine that we are making room for other things. In preserving the memory of our era, in actively creating the archeology of the future, are we compromising our own memory, that of the present? Recording everything may actually have the opposite effect than that desired. In a short story by Jorge Luis Borges, a character named Funes falls off a horse and loses consciousness. Upon awakening, he finds "the present [...] almost intolerable it [is] so rich and bright; the same [is] true of the most ancient and most trivial memories" (1962:112). Funes discovers that he is crippled but that his perception and memory have become "infallible." He describes his immense power of recollection: "*I have more memories in myself alone than all men have had since the world was a world* [...] *My memory, sir, is like a garbage disposal*" (1962:112). Overwhelmed by details and the particular, Funes

becomes incapable of formulating thoughts and generalities. He spends his days in the dark, enumerating the different memories that come to mind, each one as important as the last. Rather than enhancing the human through a so-called 'memory extender,' might we become like Borges' Funes, who because of his incredible memory is plagued with the impossibility of discerning? Would knowledge be replaced by data? An information overload renders all things equal and the self, overwhelmed and incapable of action, becomes catatonic. Like Borges' narrator who interacts with "Funes, the memorious," we might become "benumbed by the fear of multiplying superfluous gestures" (1962:115).

The implications related to navigating social theory in a sea of personal records and "archived memories" are significant, although not necessarily new to the anthropological discipline. Salvage ethnography helped shape the future of social science, and nineteenth century armchair anthropologists believed that "without literary records neither history nor civilization [could] properly be said to exist" (Morgan 1985:31). In the 1920s, Bronislaw Malinowski feverishly kept notes on the minutiae of everyday life in the cultures he studied, believing that "foolish indeed and short-sighted would be the man of science who would pass by a whole class of phenomena, ready to be garnered, and leave them to waste, even though he did not see at the moment to what theoretical use they might be put!" (Malinowski 1922:20). Thus he could fulfill one of the goals he attributed to fieldwork: amassing a "collection of ethnographic statements, characteristic narratives, typical utterances, [...] to be given as a *corpus inscriptionum*, as documents of native mentality" – the creation of an enormous eternalized snapshot (Malinowki 1922:24). Some argue that contemporary recording technologies such as digital photographs, blogs and videos have turned the average citizen into a potential ethnographer, producer of his own history or life story. Has the keeping of records and field notes, a characteristic typically attributed to anthropologists, become a common social practice? Does ethnography belong to everyone? Who will write the ethnography of whom (Jewsiewicki and Pastinelli 2000:11)? Despite the "archive fever" exhibited by many early social scientists, the act of pushing a red record button and collecting data does not necessarily make one an anthropologist (Derrida 1995). But, while they may not be regarded as social theory, autobiographies and digital archives "carefully interrogated, can provide *one* important database for reconstructing social theory 'from the bottom up', because they provide fine-grained experiential loci of the interaction of changing social forces" (Fischer 2003:192). Today, individuals are at once the narrators, heroes and spectators of their own lives. And contemporary anthropologists are faced with a two-tiered challenge: to examine the way individuals record, archive and narrate themselves, and in turn to create an ethnographic representation, a kind of second order observation. In doing so, anthropologists must consider how discourses and practices shape – and are shaped by – the way we document, and thus the design and adoption of new digital recording devices.

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# Résumé/Abstract

Cet article examine le développement d'appareils d'enregistrement numériques en mettant l'accent sur les discours et les pratiques de chercheurs interdisciplinaires qui se rassemblent dans le but de créer des outils pour la mémoire. En observant la conception de ces nouveaux objets, nous considèrerons la façon dont ces technologies sont liées à une perception particulière du sujet ainsi qu'aux concepts de déficience et d'avancement humain. Par une généalogie foucaldienne du sujet, nous effectuerons une sorte de montage mettant en contraste des pratiques d'archives personnelles classiques et contemporaines afin de suggérer des futures pistes de recherche. Enfin, en partant des débats contemporains qui ont lieu à propos des intentions qui gouvernent la création d'appareils d'enregistrement numériques, nous montrerons comment leur production est formée par – et forme à son tour – des notions de sujet et d'identité, des notions qui sont depuis longtemps reliées à des idées d'authenticité et de mémoire.

Mots clés : Mémoire, numérique, technologie, prothèse

This article examines the development of digital storage spaces and recording devices through an engagement with the discourses and practices of interdisciplinary scientists who convene around the design of prosthetic tools for memory. By considering the language used in the design of new objects, it looks at how these technologies inform understandings of the self as well as notions of human disability and enhancement. Using Foucault's genealogy of the western subject to form a kind of montage, this article leaps over the millennia, from Antiquity to the present, to explore personal archival practices and to map future avenues for research. By addressing contemporary debates on the intentions that govern the making of recording machines, this work hopes to show how technology design is shaped by – and helps shape – conceptions of selfhood and identity that have long been tied to ideas of authenticity and memory.

Keywords: Memory, Digital, Technology, Enhancement

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