[Extended Abstract]

The Technology of Collective Memory and the Normativity of Truth

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1. INTRODUCTION
The last two decades have seen extraordinary growth in the development of small, democratised, fragmented efforts to establish collective memories for various groups and cultures, aided by new technology and media, especially collaborative Web tools [1]. This has led to considerable dislocation – one commentator has noted the apparent contradiction of an "obsession" with memory in a society "terminally ill with amnesia" [2]. In this paper I will examine some of the effects on memory, collective and individual, of the memory boom in the context of the spread of technology.

One terminological note: if human memory is a paradigm, then the application of the term to collectives or machines is metaphorical. In this paper, I shall not attempt to analyse the similarities and differences between the various types of memory. I shall assume only that they are distinct, and that individual memory is affected by the other types in at least some respects.

2. COLLECTIVE MEMORY
The nature of collective memory has often been disputed, although its importance is not [1]. The two particular disputes with which this paper will be concerned are (i) the relation of the individual to the collective, and (ii) the normativity of truth in this area.

A collective has a memory, or its own interpretation of history. A collective is also a possibly structured collection of individuals, each of whom has an individual memory. The first question is how the collective memory relates to the individual ones. Many have argued that the nature of this relationship has not really been explored [1]. Is a collective's memory the sum of the (relevant aspects of the) individual memories of its members? Those who agree tend to neglect the technology of memory as well as the ways in which cognitive and even neurological structures are affected by social processes, while those who disagree fail to address the issue of how social and cultural memory can be constituted by psychological dynamics [3].

The second issue is the normativity of truth. Of course, truth is generally normative for memory, but for a collective, memory has other important functions that provide rival requirements. Memory is not history; it is also required to sustain social cohesion, communal ties and values and public aspects of personal identity. Too strong a focus on literal truth may well undermine these rival requirements [4]. There are postmodernist arguments that truth has no place in history or memory (e.g. [5]) – if these are accepted, then truth cannot be normative at all, but for the purposes of this paper I assume these fail, and thus assume the *possibility* of truth being normative for both history and memory.

3. THE TECHNOLOGY OF MEMORY
Technological development has always influenced memory and its place in society. Plato's *Phaedrus* questioned the effect of literacy on not only the society but also the psychology of the citizens of Athens, encyclopaedias and libraries have been intended as information stores to supplement the capacity of individual memories [6], while universities function as cultural memories vital to innovation [7]. Mass media and photography changed the nature of our understanding of veridicality of memory. Technology has also allowed us to measure memory – the incredible feats in oral cultures, where certain people could apparently 'remember' long genealogies or histories, are exposed by mechanical recording as creative acts (no less impressive) with little or no connection with either the past or indeed previous recitals [8].

Digital technology, including the World Wide Web, has pushed the envelope further. Indeed, comparison of the purpose of the Web with Diderot's original description of the *Encyclopédie* is very instructive [9]. In this paper, as examples of memory-based technology I will consider the programme of research into *Memories for Life*, and the practice of *lifelogging*.

3.1 Memories for Life
The capacities of digital storage and retrieval systems have become so impressive that very rich traces from an entire life can be stored [10], and research challenges such as the EPSRC's Memories for Life (http://www.memoriesforlife.org/) are intended to foster interdisciplinary research in this area. Lives are being mapped out increasingly often by amateur users, sometimes going back generations via genealogical sites, sometimes focusing on the here and now using Web 2.0 technology such as social networks blogs and photo sharing sites. The storage and retrieval of information is being rapidly democratised.

The Web has also been used extensively to generate expressions of memory to create collective accounts of some event or period. The BBC's Memoryshare project (http://www.bbc.co.uk/memoryshare/) aims to create a "living archive of memories", while the Second World War has also been the focus of projects such as the Shoah Foundation Institute, which commemorates the Holocaust (http://college.usc.edu/vhi/), and the BBC's People's War (http://www.bbc.co.uk/ww2peopleswar/).

3.2 Lifelogging

Our daily lives leave behind evidence trails, and undiscriminating collection and curation of such evidence is called *lifelogging*. Lifelogging can be passive – storing the by-products of the life one would have lived anyway – or active – surrounding oneself with sensors and information capture tools to create as rich a picture of one's life as possible. Typical types of information to be logged include emails, documents, digital photographs and video, diaries/calendars, geodata using the Global Positioning System (GPS), music downloads, listening habits, blog entries and Web browser bookmarks and navigation history. The result for the user is a large store of information much of which will be trivial or ephemeral, but whose potential for associative recall is immense.

The value of such information can vary, and may not be clear even to the lifelogger at the point of storage. However, in an information-intensive age where the surrender of digital identity is a commonplace, lifelogging has the potential to reaffirm the individual's control. The lifelog is a constructed identity that outweighs the others simply by weight of evidence, complexity and comprehensiveness. It is likely to include other identities, and amalgamate and supplement them [11].

4. THE INTEGRATION OF HUMAN MEMORY AND TECHNOLOGY

Technology hardens the yardstick against which memory's veridicality is measured, by providing solid evidence about events in the past. Web technologies have gone further, by gathering subjective accounts of, say, the Second World War, and fixing them in time. Meanwhile, it is noticeable that when technologies such as photography appeared, artistic endeavour began to depict memory less in historical terms than imaginative ones. The melting or drooping watches of Dali's *The Persistence of Memory* satirise the idea of fixed time, while Proust's *Remembrance of Things Past* depicts memory as a mechanism for the imaginative recreation of a past world. Art seems to have tacitly surrendered its role as a standard which memory needs to meet.

Memory is of course a whole set of diverse capacities – episodic memory, short-term memory, semantic memory, habit memory all have their parts to play. The technology of memory focuses on particular types; it tends not to be involved with procedural or semantic memory, but is primarily associated with (a) the logging of facts, not all of which need to be associated with or generated by the subject, (b) remembering to perform tasks (often called future memory), and (c) bringing together narratives or other materials into fruitful juxtaposition to aid associative linking and recall.

This paper will argue that the technology of memory brings with it support for episodic, autobiographical and factual memory, as well as providing access to information generated by others to give a context for associative recall. The effect is to outsource the storage of information, so that human memory will have fewer facts to store, but will have to include information retrieval skills. There is also an inevitable shift away from the first-person perspective in some respects. There are fascinating overlaps with recent developments in the neuropsychology of memory here too, although these are beyond the scope of this paper.

With respect to the two issues cited earlier, we see important effects whose significance has yet to be fully digested, and whose discussion will be the main point of the paper. With respect to the relation of the individual to the collective, as memories become laid down technologically, there will be a tendency to move towards a model where the collective is the sum of individual memories, rather than a more integrated account, as the most frequently used technology is an aggregator of (possibly diverse) memories/accounts, rather than being a genuine integrator. However, this claim demands further analysis and raises further questions: for instance, what are the effects of algorithms that can measure the statistics of linking and downloaded, PageRank-style to produce lists of content ordered by relevance?

With respect to normativity, eye-witness accounts and testimony on the Web will not generally evolve with time. Hence the truth of a statement now is more easily checked for broad factuality, and immediate reactions and feelings can be fixed, and need not be judged with hindsight. Ease of access to such immediate testimony means that it can be seen unfiltered by anyone who cares to look. Hence an effect of the Web on collective memory is that it may well increase the normative requirement to truthfulness, possibly at the expense of other functions of collective memory.

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