Thinking Differently About Thinking: *Pliny* and Scholarship in the Humanities

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The Summit on Digital Tools in the Humanities (University of Virginia, September 2005) recognised that "only about six percent of humanist scholars go beyond general purpose information technology and use digital resources and more complex digital tools in their scholarship". (pg 4) and that "although humanists are on the verge of … a revolutionary change in the scholarship… that such a revolutionary change has not yet occurred". (pg 5). As a participant in this summit I felt a strong sense of déjà vu, having felt for many years (see Bradley 2003 and 2005), that much of the outcomes from the digital humanities did not seem to strike at the core of humanities scholarship in ways that caused many humanists to respond to them.

As well as a sense of déjà vu I found myself in a state of excitement because one of the four major topics of the meeting – Interpretation – seemed to me to touch directly on the project I was just at that point beginning to develop seriously – the software that eventually became *Pliny* (Pliny 2006-7).

Finding a more broadly accepted role for digital humanities tools within the humanities as a whole requires that one see what computers can bring to the whole range of the tasks associated with humanities scholarship. In Bradley 2005 I noted that our mental models for computers often block us from seeing some possibilities – and noted that most humanists nowadays have both noticed computing in their work in terms of the World Wide Web, and simultaneously hardly noticed their use of computers for word processing. They adopted the *conduit* way of thinking about the computer as something to quickly and conveniently deliver research materials to their desktop. Those in the Digital Humanities, on the other hand, thought about a role for computing by using two other models – *transformation* and *markup*, and, in Bradley 2005, I made the case that neither of these connected well with how most Humanists actually conducted their research. Thus, I proposed one more model for thinking about computing that I thought captured more of the flavour of what the "thinking" phase of humanities scholarship – thought broadly – was all about. *Pliny* is a piece of software meant to enable some further thinking about this.

It is hard to get a clear handle on the process of doing scholarship – something essential if we are to be able to think clearly about possible roles for the computer to support it. Even a book with the title "Research Methods for English Studies" (Griffin 2005) disappoints in this area. Griffin herself, in her introductory chapter remarks:

> "Until very recently, research methods were not widely discussed in English studies … – research was what you did, and the best you could hope for was a brief introduction to the vagaries of the library."
>
> (p. 1.)

She acknowledges then that even today "significant numbers of English studies academics in the UK" are "surprisingly in- or possibly non-articulate about what they do to achieve … results" (p. 1).

There have been, of course, attempts to describe some research processes – often to train new researchers. Richard D. Altick's classic book The Art of Literary Research (Altick 1963) is such a work, and in the chapter "Making Notes" he describes a process of notetaking based on notecards and describes strategies for organising them that is probably familiar to many scholars. The description of the research process implied by this book matches more recent research by William S. Brockman and others (Brockman et al 2001) which suggest that the key stages of research for most humanists (a) begins with reading of a diverse range of sources (with some taking notes as they read), then (b) developing an interpretive model in their head that represents issues of interest to them, and finally (c) writing about this model in scholarly articles and monographs. Further evidence (see both Brockman et al and Siemens et al 2004) suggests that humanists do not find good tools to support note taking and the task of organising their thoughts in preparation for writing the article.

There has been software to support the development of an intellectual structure that arises out of reading texts. Much of the software has developed for the Social Sciences – see discussion of this in Bradley 2003. Indeed, some humanists have looked at these tools (Atlas.ti, NVivo, Tinderbox) to see how they could be applied to humanities scholarship. See Griffin in her article on Discourse Analysis (Griffin 2005), who is largely positive about such an approach:

> "The process of coding is critical for the discourse analytical process since codes both reproduced the interpretive frame with which you approach your material, and produce building blocks for your analysis ..."
>
> (p. 104)

In spite of Griffin's evident endorsement, I have seen several times that the attaching of a classification element from a scheme developed by the researcher to bits of source texts has been a stumbling block for some humanists beginning to use such systems. The coding represents a classification scheme which

should be emerging out of the research rather than the starting point of it. (Griffin recognises this as a problem).

Pliny operates in broadly the same area as these Social Science tools, and provides computing support for the task of analysing texts in perhaps a broadly similar way – but its models about what in the reactions to reading it should support are somewhat different and it deliberatively places itself more strongly in a "pre-coding" context. A researcher can use *Pliny* even at the early stage of reading before s/he has a clear conceptual framework into which his/her ideas should be put. Instead, *Pliny* supports the researcher in expressing proto-concepts as annotations as they emerge from thinking about his/her reactions to what s/he is reading. *Pliny*'s tools then allow the researcher to begin to organise his/her proto-concepts into larger groupings and further define concepts as s/he finds some of them becoming more prominent and clearer in his/her thinking.

Pliny's meta model focuses on six structural elements – resources (objects the user is studying, and *Pliny* resources can encompass both digital and non-digital objects), notes, anchors and links, the "reference area" and types. In *Pliny*, notes are considered a kind of personal resource since the user first uses notes simply to record responses to readings, but later may also find him/herself using them as a tool to represent themes, topic or classifications. As these classification notes grow in this way they become more like resources themselves and need to be able to play the same kind of roles as external resources such as web pages, monographs, etc. Examples of how *Pliny* works with these things can be seen at the *Pliny* website (Pliny 2006-7).

All resources, including notes, have a 2D visual space associated with them where references to other resources can be laid out. In this way a resource can hold references to other resources, and *Pliny* allows for objects to be grouped together – like stacks of notecards, but with the further facility to use the 2D space to further express relationships between them. What appears in the 2D area is a reference to a resource rather than the resource itself. This means that the model can express mathematical graphs rather than just trees, since the same note may be referenced in more than one reference area – may be linked to more than one other object.

The terms Anchor and Link echo language used in hypertext, and aspects of hypertext are present in this model. However, whereas much thinking about hypertext in the humanities puts hypertext in the context of links from spots in text to spots in another text (see much of Landow's work, for example (Landow 1997)), reference, anchor and link in *Pliny* are placed in a 2D context instead, and in this way draw more attention to the schematic and visual nature of the hypertext relationship rather than the textual one.

Finally, the *Pliny* type class allows links between references to be typed. Types can be used to say something about the kind of link that is provided, such as this object is an example of this other kind of thing, and this other object is a counter-example. Typing allows the user to specify these kinds of natures, or others, explicitly within *Pliny* and promotes the movement towards more structure that makes the capture of this kind of material more useful within the computer.

As a tool, what does *Pliny* contribute? It doesn't seem to do very much. Nothing happens to the data unless the user does it – adds a note, drags it around, creates groups of notes, names them. What is its value? Indeed, part of the problem that arises in describing *Pliny* to those in the Digital Humanities – particularly those who are "tool builders", since the language of tools and tool building is used almost exclusively in the context of my proposed "transformation" paradigm – is that it is hard to imagine a tool like *Pliny* which does so little automatic transformation itself.

Surprisingly perhaps, *Pliny* is more closely aligned to the model of how computers help scholarship that exists in the markup community – although *Pliny* deliberatively avoids a whole set of issues implicit in textual markup – elements, attributes, tagging, linking, document order, single-hierarchy, etc – that comes with markup as it arose out of SGML and XML. Like markup, *Pliny* provides a recording environment – a way to record one's response to textual material. Unlike markup, it does not base this recording environment around the basic concepts of text that are implicit within SGML and XML: documents and hierarchical textual structures. Indeed, the 2D reference area that is central to Pliny is argumentatively not a truly comfortable model to represent expressively within XML.

In that *Pliny* is not tied to a textual model of resources, it is actually similar to that great inspiration of hypertext – Vannabar Bush's Memex. Like it, it supports research by allowing its user to bring together a personal set of research materials, and to express personal relationships between them – Like the Memex, *Pliny* acts as a mechanical clerk to the researcher, allowing him/her to express his own materials in the system. In this way it also echoes some of the ideas implicit in Douglas Engelbart's work that resulted in the enormously influential Augment system in that it is inspired by Engelbart's H-LAM/T perspective: "Human using Language, Artefacts, Methodology, in which he is Trained" (Engelbart 1962, p 9). Understanding Englebart's view of a role for computers is important to understanding part of the motivation for *Pliny*.

Pliny is only a first approximation of a tool consciously tailored for humanities research. Even if its model about what humanities research is, and how it can be supported with the computer, is right, it needs considerable work to make it into a tool that could in fact be widely adopted. I believe that this presentation should be only a beginning in opening up some talk about this kind of role for computing in the humanities within the DH community.

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