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History, Memory, Place, and Technology: Plato's *Phaedrus* Online

Gregory Crane

“Databasing the world,” as Geoffrey C. Bowker (Chapter 2, this volume) describes it, puts us in new relation to some old problems. As Walter Ong and others have pointed out, Plato’s *Phaedrus* treats writing much the same way that many now treat computing, as a kind of alien and alienating technology (Ong, 1982). The Egyptian god Theuth offers writing as a drug for memory. The king Thamus replies that writing, far from strengthening our memories, makes us lazy and undermines our ability to internalize knowledge. While Plato’s *Dialogues* sketch a vision of transcendent knowledge and portray human existence as a shadow of higher reality, the *Phaedrus* suggests that written information has value only insofar as human beings absorb that knowledge and make it their own. With typical irony, Plato uses writing to present a scathing critique of writing as a medium of communication.

The arguments of the *Phaedrus* are too complex and important for detailed analysis here. One could argue that the *Phaedrus* is the foundational text for all information science, because it confronts the problems that emerge when human beings are able to represent language in a durable form external to the human brain. Consider, however, the following critique:

Writing, Phaedrus, has this strange quality, and is very like painting; for the creatures of painting stand like living beings, but if one asks them a question, they preserve a solemn silence. And so it is with written words; you might think they spoke as if they had intelligence, but if you question them, wishing to know about their sayings, they always say only one and the same thing. And every word, when once it is written, is bandied about, alike among those who understand and those who have no interest in it, and it knows not to whom to speak or not to speak; when ill-treated or unjustly reviled it always needs its father to help it; for it has no power to protect or help itself. (Plato, *Phaedrus* 275d–e)

The invention of print, however revolutionary it may have been, did not address the criticism that writing is inherently static and cannot anticipate the needs of its future audiences, much less adapt itself to the needs of its current readers.

Traditionally, we have addressed the problem by producing books about books and encoding ever more knowledge in material form, whether the medium is stone, paper, magnetic disk, or other tangible physical medium. As Bowker argues, the electronic world has already changed the way in which many—and arguably most—readers consider orienting themselves when they confront a new topic or problem. A Google search of “Phaedrus writing,” for example, as I write (in June 2004) quickly brings up very serviceable course

notes and essays that succinctly summarize major points and allow readers to orient themselves within reasonably accessible conversations about this text. For better or worse, the consequences of this shift are already immense and are still evolving. We may be able to influence future development but, barring a collapse of global society that would probably devastate print culture as well, the change is irreversible. The success of tools such as Google reflects, among other things, the reality behind Plato's critique: Documents do not speak for themselves and we often need to elucidate what we see.

Nevertheless, tools such as Google do not convert documents from static illustrations into living things. Instead, they augment one static document with many other static documents. We have not, in print culture, addressed Plato's critique that writings are inert. We have simply added more and more inert documents, as if we were modeling the image of life with more and more individual color pixels.

We face at least two complementary problems. First, documents often assume that readers have internalized specialized knowledge, such as a particular branch of mathematics, a human language, or even the practicalities of a particular place (e.g., the basic layout of a city). A grammar, lexicon, and original language source text of *War and Peace* do little for the reader who has not studied Russian. We need—and are already beginning to see—documents that can restructure themselves to meet the needs of particular people at a particular time. Second, documents are, however, still not intelligent—our books must talk to each other without ongoing human mediation if they are truly to address Plato's critique: A historical text should, for example, be able to ask an atlas to produce maps customized to illustrate its own contents. At the high end, a foreign language document should be able to converse with electronic lexica, grammars, and so on, to translate *itself* into different languages for different users: If grammars, lexica, and other resources are online, Tolstoy's *War and Peace* should be able to translate itself into any language. While polished machine translation remains elusive, we can already do more with language now than we could in a print world.

Many contemporary readers already encounter public domain documents such as (older translations of) Plato's *Phaedrus* online. A substantial portion of those reading the original Greek now exploit electronic reading environments such as that provided by the Perseus Digital Library (<http://www.perseus.tufts.edu>). This now rather venerable system contains not only links to manually authored annotations but also automatically generated linguistic and

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Classics: **Plato, *Parmenides, Philebus, Symposium, Phaedrus***
 Classics collection contents
 About the Classics collection Φαίδρος

Word Study Tool

ζωγραφία	the art of painting	Entry in LSI or Middle Liddell
ζωγραφίαι	fem nom pl	
ζωγραφίαι	fem voc pl	
ζωγραφία	fem dat sg attic doric aeolic	

Frequency in other Authors			Greek Word Search		
Corpus	Words	Max. Inst.	Freq./10K	Min. Inst.	Freq./10K
Plato	561902	3	0.05	3	0.05
Greek Texts	4857285	6	0.01	6	0.01

Click on a number in the **Max. Inst.** column to search for this word in that

Click on a number in the **Freq./10K** column for a more detailed frequency

Other position.

γεγραμμένα.

οιον ζωγραφία και γαρ τα εκείνης ἔκγονα λόγοι· δοξαις μὲν ἂν ὡς τι φρονούντας αὐ σημαίνει μόνον ταῦτόν αἰε· ὅταν δὲ ἅπαξ

There is one comment on or cross reference to this page.

Cross references from Raphael Kühner, Bernhard Gerth, *Ausführliche Grammatik der griechischen Sprache* (ed. Ildar Ibragimov): 411 [Doppelter Akkusativ.]

Preferred URL for linking to this page: <http://www.perseus.tufts.edu/cgi-bin/ntext?lookup=Plat.+Phaedrus+275d>

FIGURE 3.1. In a modern reading environment, systems structure information on the fly for a particular text and, ultimately, for particular users with particular interests. In this screen shot, the Perseus Digital Library has generated links from each inflected form of Greek to corresponding morphological analyses and dictionary entries. The reader has called up information about the Greek word for *painting* and can pursue various other links. At the same time, the system has identified other documents that cite this particular passage, thus converting the one-way citations into bidirectional links, pointing back to their source.

statistical data. Rule-based systems apply general procedures to the particular text of the *Phaedrus* and to all classical Greek texts in the Perseus collection. The system thus reads and adds information to more documents than the human author of the system will ever be able to read. Such intelligent systems support increasingly sophisticated and open-ended interactions between reader and text. The Greek reading environment in Perseus answers much more basic questions than those higher levels of interpretation that Plato probably had in mind, but questions of linguistic analysis and lexical meaning are essential to modern readers trying to decode the Platonic dialogue in classical Greek.

The screen in Figure 3.1 illustrates something qualitatively different from a Google search. The system has, in this case, “understood” and converted into usable knowledge the rules of Greek morphology—the system has read and, to some extent, understood a grammar and thus understands what endings can be applied to a given stem. The system has also read and understood the

morphological information in online lexica. From this second source, the system has recognized that there exists a first declension Greek stem *zographi-*. The system then combined grammatical and lexical information when it subsequently read a third document, in this case Plato's *Phaedrus*. Encountering the form *zographiai*, the system recognized several different possible morphological analyses. Such rule-based systems (of which the above is a fairly simple example) produce annotations that may not be written down in any text (e.g., the particular analyses for this particular form) and that are customized for a particular document. Since a single Greek verb can, when combined with various preverbs and dialectical variants, generate millions of possible forms, human annotators cannot enumerate all possible variations of a single form. Even the 91 million words in the *Thesaurus Linguae Graecae* (<http://www.tlg.uci.edu/>) text corpus, although a static body of material, would defy human annotation. Basic tools such as morphological analyzers, by enabling a three-way conversation between grammar, lexicon, and text, thus begin to address Plato's critique of knowledge as static.

Personalization has emerged as a major new area of research. Basic database technology can enhance the dialogue between the reader and the Greek text above. We can, for example, compare a reader's previous experiences with the task at hand. We can thus help readers track all the words and texts that they have encountered, whether the reader has studied the first 15 chapters of vocabulary from a Greek textbook or has been reading Greek texts for some time. The system can then automatically identify those words that the first-time readers of the *Phaedrus* have never encountered while reminding them how often they have consulted entries on particular terms. Lexical disambiguation techniques described in forums such as SENSEVAL allow us to begin identifying not only new terms but new usages (e.g., *bank* as financial institution vs. border of a river).

A reading environment should help readers identify topics of potential interest to them. For the reader of Greek, identifying key terms and phrases may be important, since that will allow the reader to select a subset of unknown language for close study and active understanding. The significance of particular terms varies, however, based on the current state of the reader. Readers working through Xenophon's *Anabasis* should pay attention to terms that recur in this particular text even if these are not common elsewhere; the reader examining one passage of Xenophon extracted from a broader search should simply view glosses of any terms important to Xenophon but nowhere else.

A mature reading environment should also make inferences about the reader's interests, adjusting the presentation to their past behavior. The system should be able to extract and gloss documents to suit the interests of military historian, political philosopher, and cultural historian. Since the same people may combine multiple interests, the system should intelligently gauge the current focus of a particular reader. Ultimately, every time we confront a new document, our reading environment must labor to help us make the best use of the scarce resources, both cognitive and temporal. The human life span is short: If we read one book a day, every day, for 80 years, we would cover only 30,000 books—3% of a modest research collection.

the library on the street, in the field, and in the mind

The previous section suggested some of the things that we could implement with reasonable effectiveness today with well-documented techniques. Were all the computer scientists at work in the world now to stop their research and the record freeze as it stands in 2004, the implications of their work would nevertheless continue to increase and the shock waves would probably grow in intensity as new historians, their habits not yet formed and their backgrounds immersed in technologically aided thought, took fresh looks at how we conceive and explore history.

Consider one simple category of application. A “touring machine” tracks the location of a person in space and is able to deliver relevant information. In augmented reality, the system tracks the gaze and strives to determine automatically what the viewer sees, adding overlay information on a visor (Hollerer, Feiner, & Pavlik, 1999; Pascoe, 1998). There are difficult technical problems involved in identifying what a person sees: GPS measurements only place us within a few feet of a location, while even a slight lack of precision in analyzing the angle of the vision rapidly projects outward to a large variation, with the error growing greater the farther away the object is perceived. Building an augmented reality system for visitors to an observation tower looking at particular buildings and landmarks would therefore be difficult. The principle is, however, clear enough and, if we are to plan seriously for historical studies, we need to imagine the implications for such systems when they follow the PDA, cell phone, MP3 player, and other gadgets now ubiquitous in our society.

Augmented tourism is easy to imagine. A family might choose to explore where its roots extended a century before. Pushing several generations back probably carries most American families beyond the confines of North America

and/or into a cultural space in which they no longer master the language. They might find themselves in a particular neighborhood of Warsaw, a farming community in Mexico, a fishing village in China, a town in Syria—almost anywhere on the planet. The system should aggregate information about their family and the world in which they lived, coordinating where possible historic representations with present locations, administrative data such as census records and city directories (if these exist), as well as more general cultural data, including representations of the music and culture current at any given point in the past. The system should provide basic translation and other language services to help visitors interact in the present.

The technical aspects of this scenario should not distract us from a much more profound shift. In the above scenario, the library has burst the bounds of its physical limitations and traveled outward into the field. The digital library system that manages all this information reduces immense bodies of data to a manageable amount—and, conversely, extrapolates from partial data to offer plausible readings for gaps in the record. For the human, however, space has become readable. Wherever we turn our gaze, whatever language finds its way into our ears, whatever fragrance we draw in can become an object of query and reflection. For some, this may threaten mystery, but for many of us, knowledge and knowing are the pathways to wonder and beauty.

The tourist tends to pursue a Herodotean view of history. We spend large sums to visit historic locations, listen to our guides, wonder at the spectacles and curiosities that we have never seen, scarcely prepared ourselves for, and preserve them as memories rather than as starting points for further contemplation. The tourist industry depends for its existence upon instincts to wander and to escape our daily environment. Touring machines as they are commonly conceived thus tend to be associated with superficial, if expensive and momentarily intense, intellectual processes. Enhancing our experience of new and strange environments may shock us into a broader perspective of the world but does not in itself support the difficult, incremental, and lengthy processes of learning.

Consider then, as another example, a 5-mile commute, each day the same except when traffic or bad weather lengthen a dreary routine. How many stories do we pass that, like Plato's statues, remain mute? How many people lived and died along those streets? Who toiled and struggled to coax crops out of the stubborn soil now covered by asphalt? What Native Americans crisscrossed this land as hunter-gatherers? What teams of architects worked long

into the night struggling to win the contracts for each glittering new office building? What dreams surrounded the now-tired facades and what visions of beauty animated their weathered ornamentation? Every space has its own stories and its own special sources of wonder. John Stilgoe's little book *Outside lies magic: regaining history and awareness in everyday places* (1998), as well as his more academic publications (Stilgoe, 1982, 1983, 1994; Stilgoe, Parry, Dunwell, & Robinson, 1993), lets the reader see the world with new eyes.

Our libraries can follow us wherever we wish to bring them. We can explore a new story every day we travel to work. The city of Cambridge in which I live sent 4,000 men to fight in the Civil War. If one were to hear about one of these people per day, one could spend more than 15 years of commutes with a new life story to contemplate each day. The 58,000 names on the Vietnam memorial would occupy more than 200 years.

The point is not how many individuals would actually spend every day for decades cycling through the stories of a single group. Rather, such numbers indicate the depth of information that quickly surrounds any public space. Thirty thousand spectators at a single sporting event spend as much time in that one partially shared day as we live in a lifetime. The depth of information—of ongoing history—around is vast and seen by most of us as often as if it were stored on one of the moons of Jupiter. We who are historians and whose responsibility it is to communicate an understanding of the past must now think about the conversations that our fellows will be able to pursue. We can now think not only beyond the classroom and the book but also beyond the broadcast and the couch and into a world that is alive with answers to the questions that our curiosity selects.

conclusion

If we see in history an analytical process—perhaps a habit of critiquing sources or of understanding change—the applications of information technology are clear enough. Computerized databases are effective because human societies have been progressively organizing themselves to fit the categories of bureaucratic governance for thousands of years (Scott, 1998). Information technology extends a vision that began to take shape when the first accountants pressed sticks into clay. This vision leads to immense benefits—most of us now alive would be dead if we followed the actuarial tables of humanity before the 20th century. Nevertheless, our formal academic work often draws its strength precisely from its reductive and top-down perspective.

Information technology offers immense advantages for the disciplined subjective experience of history. We can not only convert knowledge into information but help others turn that information into knowledge and that knowledge into the wonder and felt beauty that for many of us is the goal of our most ascetic labors.

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