Computing and reading

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Computing and reading is a series of lectures from my current research toward a book on the history of computing in the study of literature. In it I take up computing's unfulfilled and often lamented promise to become, in Margaret Masterman's stirring phrase of 1962, a critical "telescope for the mind" with effects on literary studies comparable to Galileo's on our conception of the world. Many explanations have been offered for the failure of computing to transform or even significantly influence literary studies, but with very few exceptions these have not taken notice of the wider historical context in which computing has developed, multiplied, spread and interpenetrated our imaginations. They have offered a narrow chronological view of specialist achievements, not a genuine history. Here I make first efforts toward such a history.

I am concerned in these lectures more with what did *not* happen than with what did (and was mostly ignored) while a great intellectual ferment powered by computing took place elsewhere, apparently without much involvement of the humanities despite massive public attention. My purpose is not to assign blame – the gulf between computing and the humanities has until recently been formidable – rather to extract for literary studies what can be learned from the trajectories computing has taken toward a resonance with the human interpreter. Hence I cast a broad net, extending over areas of research in the theoretical and applied sciences, whose methods, being closer to computing in its native mode, give us valuable clues. Reactions in the popular press and curiously gratuitous remarks in the scholarship provide other important clues and point to the significance of the more formal questioning in the technical literature. My governing argument is that by some combination of finding and constructing solid historical ground, a great "inductive leap" (in Northrop Frye's paraphrase of Bacon) may be made to a vantage point from which bright futures for literary computing may be convincingly charted.

1.   A Pisgah-sight of readers and texts

If we imagine a future for readers and their texts in which computing provided the "machine to think with", what might that future be? When the literary critic Ivor Richards used that phrase in 1925 to describe the codex book, the machine he compared it to was the loom. Hence my point of departure for this series of lectures and for this introductory lecture. If we

accept that the book as we know it is a machine, and we imagine in addition to it a different sort of machine that, like a loom, we might use to accomplish kinds of work for which previous methods were not well adapted, what would that machine do?

In the first lecture I consider the way in which we tend to think about the future, in recurrent but evolutionary imaginings, and the inadequacies that develop from them. I then look in detail at a few exemplary textual objects to consider the challenges that they pose to our ideas of them and of computing: an illustrated book from the early 20th Century; a 9th-century Carolingian manuscript; contemporary public textuality; and a short poem by Seamus Heaney. I consider where we are now in dealing with such objects and some historical conditions that have shaped what we know how to do. I conclude with an intellectual and social vision of my own.

2. **The profits of anxiety and failure: Critics and computers 1949-1991**

This lecture begins with some agonizing over the difficulties of articulating questions clear and specific enough to advance our understanding of what as lovers and critics of literature it is possible to do with computing. It ends as it begins, with the central question of language but with considerably more detail on the kind of difficulties practitioners encountered in attempting to overcome the silence between criticism and computing in the incunabular period. In pursuing the history of their efforts, however, I have found it impossible to ignore the much broader contexts of their work, both in the scientific research – the subject of my fourth lecture – and in popular culture of the time. Thus I justify a maeander here through the immediate hinterlands with which we may presume practitioners were familiar, in which I pay attention particularly to their expressions of desire and fear and to the widespread ignorance, incomprehension and indifference to computing among literary scholars. I then survey the signs of trouble in the professional literature of literary computing. I conclude with a brief look at the master/slave dialectic endemic to the scholarly discourse on our subject.

3. **Emergent theory: Writing a recent history of the present**

In this lecture I attempt to come to terms with the problematic historiography of my project, with numerous examples from it to anchor the emergent theory to actual problems. I consider the role of disciplinary history in disciplines and the reason why for humanities computing such a history is paradoxically welcome but poorly done. I identify the wide acceptance of computing in the disciplines as a major problem; I argue that familiarity as well as hype hides the history we need. For literary computing itself, this history turns on the

curious relationship between criticism and the machine at the time when they first came into contact: to the orientation of New Criticism and to the machine as it then was and as scholars experienced it. Following Michael Mahoney's advice to look to the embracing history of technology, I consider at some length the doctrine of technological determinism, the closely related "paranoid style" of history and the interrelationship of historical strands that came together in the machine. I also consider the problems of writing a recent history by drawing on work in the recent history of science. I conclude with the problems that software poses to the historian, in particular the evanescence of something that for research is only what it is in performance – in its role of modelling toward construals of something new.

4.   **Excitement elsewhere: Cybernetics and complementarity**

The fear provoked by refiguration of the human that computing demands of us is a vital and vitalising source of energies to be turned toward creative use of the instrument. As John Lewis Gaddis argues for history, this refiguration empowers as well as humbles us. In this lecture I concentrate on clues to the empowering excitement widely felt among those involved with computing in the early years, to try to see what they saw and to ask why so little of it is found among humanists. I survey approximately the first 18 years of digital computing machinery, reciting from a catalogue of publications in the popular media, to establish the easy availability of information about what was then going on in research laboratories across England and North America. I then consider the outburst of activity with computing found in the humanities, as attested for example in the *Proceedings* of the 1964 IBM conference on Literary Data Processing, finding there evidence of the self-limiting programme quite other than that recommended e.g. by Roberto Busa and Joseph Milic. The lecture then comes to focus on the Macy Conferences on cybernetics, held from 1946 to 1953, and especially on Ivor Richards' paper at the 8th Conference in 1951. It is this paper, I argue, which gives us the most crucial insight for a history of the present.

5.   **The future: What's going on?**

The question, "What's going on?" is meant to ask not just "what's happening" but also quite literally, "what is going on from here? what do we want to continue into the future?" But the future, like the present, is conditioned by the past, which means both enabled and constrained. I have argued that literary computing in the incunabular period was constrained far more by limited ideas than primitive machinery, that what enables us from the past is precisely what our forebears ignored. It seems more than plausible that practitioners, fixed on their concordances, were well aware of the excitement

elsewhere but could not see its relevance. We can now see it, and so our attention is drawn to its inheritors in the cognitive sciences and in artificial intelligence, where our attention must go. We see fear in the history of the period; I have diagnosed attempts, such as the master/slave dialectic, to turn aside a refiguration of the human, which is that historical fear's gift to us. We are drawn to ask: what real questions are we turning aside? The determinism in that fear schools us to ask if we can wriggle free from the inheritance of positivist criticism, so well documented historically and transmitted to us in the doctrine that text is an "ordered hierarchy of content objects". Ivor Richards speaks to us still through his project of feeding forward to establish the common language we so badly require. All this I argue in the final lecture.