

Quondam et futurus

Workshop on Problems and Futures,
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The creature that learns is not the mythical amphisbaena of the ancients, with a head at each end and no concern with where it is going. It moves ahead from a known past into an unknown future and this future is not interchangeable with that past.

Norbert Wiener, *Human Use of Human Beings*, pp. 48-9

When my friend Peter Robinson contacted me about coming here, he said in Homero-Miltonic style that the audience needed “an inspirational speaker who can look into the future, summon spirits from the vasty deep (and have them come when he calls them), and put his visions into singing prose”. He said the workshop needed “people to speculate with wild irresponsibility [on] ‘the possible shapes of scholarly editing in the world to come’”.¹ He asked me to predict the future, and since he meant the future of *digital* editions, this amounts to predicting the future of something that, he has repeatedly argued, doesn't yet have a present, or at least not one in which we can have any confidence.

So what, given this obviously impossible assignment, can I do? How does one tell the *future* of anything? Think on it. How would you know what I am going to do tomorrow? Or 5 minutes from now?

Here is a thought-experiment. Assume that you do not know me at all, and take the latter, easier version of the question, the 5-minute prediction. To predict the future of my performance I'd suppose you would do something like the following. You would consider this typically academic setting, and draw on your knowledge of what is probable. You would observe my typically academic behaviour. You would then guess, with a high degree of certainty, that five minutes from now I will be lecturing on the same topic, and probably by then (here hope enters in) no longer be running this thought-experiment. In other words, to speak metaphorically, you would fit my

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Private e-mail, 3/8/2009.

current behaviour to a well-known trajectory and so be able to calculate its probable coordinates more or less reliably at any point until its probable end.

Note that I am speaking here, can speak here, only of probabilities. But probability is no cheat. As Ian Hacking wrote twenty years ago, “The most decisive conceptual event of twentieth century physics has been the discovery that the world is not deterministic.... the past does not determine exactly what happens next” (1990: 1). The world’s probabilistic all the way down and all the way up.

So how would you be able to predict that suddenly I would switch from talking about lecturing to quoting a philosopher of science on twentieth century physics? You’d likely be able to make a reasonably secure guess solely on the basis of the language I have been using: “running” a “thought-experiment”; “fit” to a “trajectory”; “calculate... probable coordinates”. Knowing more about my past, my interests and current activities – for example that I edit a journal called *Interdisciplinary Science Reviews*² – would give considerable weight to your guess.

Let’s make this more difficult and interesting than rocket science by switching to improvisational music, such as jazz. There, I would suppose, the question is much less about *predicting* what will happen next than (to use a musician’s technological metaphor) being “in the groove”. How *does* this happen? We know that many years of intense training and practice as well as talent are required to improvise successfully. Or how about an informal conversation among friends. How does it happen that without any planning at all we can have a conversation worthy of the name as a coherent interchange? What keeps it moment by moment from being a chaotic jumble? I am stumped by this question, but I would suppose that in addition to knowledge of the past – of what jazz has been and what the musician has done before you hear a performance, or of who the conversationalists have been before they started talking – there’s the dance of the present moment, knowledge of everything in that moment, which figures in.

Ok, enough of the figuration and refiguration. What does this say about the digital textual edition? In answer, two questions tumble out, or rather one question, inflected for past and present: First, where have we been, with what, intending and doing what? Second, where are we now, with what sort of tools, trying to do what, exactly? That’s what’s important: not predicting what will come about independently of us but what actions to take here and now best to realise that which we desire to be, constrained by various contingencies and directed by emergent phenomena.

To the past, then. I’m not the only one to insist that we need to study the editions and commentaries we have in meticulous detail, as a master palaeographer and

intellectual historian studies a manuscript. For our project such a study begins, as I. A. Richards said in *Principles of Literary Criticism*, by taking the codex book to be “a machine to think with” (1924: 1). This, as you know, is harder than it sounds because of our deep familiarity with that particular machine. So, we need to defamiliarize it (which viewing as a machine helps to do). Then we need to examine the parts and their interrelations, i.e. view the book in its historical context as a system and part of a larger system, while realising that any act of systematization is an abstraction, a model of the thing systematized, from which the thing itself cannot be reverse-engineered. This model of the book certainly includes but is not limited to the material conditioning of the book’s uses by the stuff of which it is made and by its design, the material culture in which it came to be used and broader historical conditions. Examination goes down to the minute details of the *apparatus criticus* and other textual commentary, asking what is said and what goes without saying, to whom and why. From a study I did of a single commentary paragraph in E. R. Dodds’ edition of Euripides’ *Bacchae* (McCarty 2002), I’d say that for masterworks of editing such as that, one is likely to end in profound admiration for the subtleties of expression and in doubt that anything remotely as good can be done with current tools in the digital medium. Hypertext as we know it? Give me a break.

Jerry McGann comes at the question from its opposite end, considering the edition as a “metatheoretical statement”, in particular recent editions that press the print medium to its breaking point. In writing about the Kane-Donaldson edition of *Piers Plowman* as elucidated by Lee Patterson, for example, he quotes William Blake’s declaration from *Jerusalem*, “I must Create a System or be enslav’d by another Mans” (2001: 76). We can see the appeal to the theoretician, who in the manner of Einstein, in a great visionary stroke invalidates mere implementers’ works. But for our purposes it is worth questioning the historical relationship between, on the one hand, such medium-bursting editions and the leap to a level of abstraction from which to view them metatheoretically; and, on the other hand, the development of the digital medium, which both demands and supports methodological abstraction.

But note two aspects of my questioning: first, that I am asking, not telling, since I have not done the research into the history of editions that might qualify as medium-bursting; second, that I am certainly not positing or even suggesting a causal relationship between the digital medium and editorial theory. I wouldn’t be surprised if in some cases computing as we know it were a more a conduit through which influence on editing came than itself a source of that influence. Allow me to suggest that it is much more fruitful to think in terms of computing and the genesis of new editorial impulses as coeval manifestations of a much deeper cultural change rather than as phenomena linked in a causal chain. The kind of historiography I have in mind is perhaps best illustrated by Hugh Kenner’s brilliant essay, *The Counterfeiters: An historical Comedy* (2005/1968), in which he considers a great cultural metamorphosis from Alexander Pope and Jonathan Swift through Charles Babbage, Alan Turing and Andy Warhol. His historiography is, as this list of names suggests, involves computing’s origins. Such a glance reveals multiple forms of what we know

as computing and diversifies, spreads and deepens the interrelated strands which combined in complex ways to bring to us the tools we now puzzle over.

By saying what that glance shows I may seem to imply that I have had a good look. Rather I am reporting with some admixture of guesswork on what I think I see from early efforts to puzzle out a history of textual computing in its incunabular period, when, in historian David Mindell's words, "the burgeoning attempts in numerous fields to represent the world in machines" were well underway (2002: 161). In the more tractable fields, such as cognitive psychology, George Miller recalls that at the time "computer programs began to look like the language in which you should formulate your theory" (Edwards 1996: 226). Workers in artificial intelligence, such as Seymour Papert, Marvin Minsky and John McCarthy, were saying exactly this about psychology as it was becoming cognitive. My point and historical thesis is that cognitive theorizing began to blur into programming not because computing was the thing to do or had overrun a weakened or exhausted psychology but that a common way of looking at the world was surfacing in multiple places at once, including but not limited to physical circuitry.

If computing and new editorial theory were not kindred products of something much larger and consequential, then we would be confined to talking about a new tool to do an old job. This would leave us merely with a list of inadequacies (as I am confident a study of printed textual editions would show) and the new capabilities about which much has been said and some done – but no guidance for responding to the first or for deploying the second. Is this, or is it not, the present condition to which our less than half-aware understanding has led us?

I hope not, but I hear that it is, more or less. If so (now shifting to the second of my questions) then the suggestion I have is twofold, with an uncertain bridge between. The first fold is to look to our theories of what text is, the second to look to our tools for acting on and with what we say text is now. The bridge between the first and second folds is language we don't yet have to describe each to the other. I am tempted to say that we are now, with respect to textual scholarship, where psychology was before computing supplied that language. We seem slower because our problems are *much* harder.

What *is* text? If a genuine history of textual computing (as opposed to a chronology of it) can be written, then I think the central story it will tell for the humanities is the asking of this question. Its centrality is hardly a given, however. Rather it is an argument to be made, since mostly the question has precisely *not* been asked. (Insightful ethnography, Greg Dening has suggested, depends as much or more on hearing what is not said than what is.) As far as I can tell, for nearly all of the history of textual computing, from the code-breaking of WWII, machine translation and computational linguistics, to philology, lexicography, corpus linguistics, literary studies and textual editing, text has been assumed to be fixed textual data, i.e. character strings comprising the primary transcription of the spoken or written

word, sometimes with interpretative metatextual information attached. Nevertheless, from the early 1960s on, textual computing has been assessed repeatedly, for literary studies with a typically negative result attesting not to rejection but to neglect by mainstream criticism (Potter 1989: xvi). This neglect has been variously blamed e.g. on French critical theory and on Chomskyan linguistics, but the *ad disciplinam* accusations merely put upon others a fault all share, literary computing perhaps especially: an inadequate idea of what text is. In 1978, in *Computers and the Humanities*, Susan Wittig identified this idea as the positivistic conception which literary computing inherited from the dominant critical theory of the time, New Criticism. More recently, Jerome McGann has asked the question of text again, responding in a wild, thrilling assembly of raw theoretical material toward the formation of a critical language with which it might better be addressed (2001; 2004). I will return to that bridging language in a moment.

What is computing? On the other side is this question of tools, which as I argued is informed by the results from our historical investigation of codex editions. But the question of tools begins in the realisation that in principle “computing” is present-participial, plural and indefinitely metamorphic. Let me unpack that assertion a piece at a time. By “in principle” I mean according to Alan Turing’s scheme, given its extension into the world by making the tape of the Turing Machine into a more adequate, very rapidly responsive transducer, as we have done. By “present-participial” I mean a process rather than a thing, modelling or simulating rather than any model or simulation, however good. By “plural and indefinitely metamorphic” I mean what is already implicit in the Universal Machine, i.e. not just the many forms computing has already taken, in the urban landscape almost ubiquitously, but more the capability of becoming any machine humanly imaginable. But beware of the idea which you imagine: as Minsky has pointed out, since Turing the word “machine” has meant something new (McCorduck 1979: 71). Hence the defining difference between behaviourism’s mechanics and cognitive science’s.

Given the present-participial, plural and indefinitely metamorphic nature of computing in principle, wouldn’t you think that our textual tools would be likewise? Not, perhaps, as long as we think that text is a thing, indeed one true thing in the out-there real world (suffering the indignities of transmission, corruptions, glossing and so forth) and that an edition is also a thing, shrink-wrapped or downloadable, as kickable as the stone was to Dr Johnson. There’s the rub, you see. And it’s a very big rub because of what the “DIY Edition”, as I like to think of it, implies. These implications I will leave to Peter, Peter, Paul and Jerry (Robinson, Shillingsburg, Eggert and McGann) and others who know a great deal more about the thinking in this area than I do. But I can see a dense cloud of question marks hanging overhead.

Now back to the critical language needed to bridge more adequate ideas of dynamic text to the building of tools that might suit. Jerry McGann’s and Johanna Drucker’s *Ivanhoe* was a brave gesture in that direction. McGann’s corraling of theoretical biology, quantum dynamics and so forth to the purpose is both exciting and

promising. But I find myself wondering, why *these* ideas in particular? What's the connection? What is literary computing that it should give a preferential home to them and not to others? And if we start with these ideas, how do we translate them into a machine that is resonant with the interpreter, not just his or her obedient and ever so helpful servant? What in the development of computing lends support to such ideas, and what entailments does it bring with it? (I have in mind here the serious question of the degree to which created objects encumber meaning and so influence those who use them.)

In part these are questions to put to the artificial intelligensia, since it is an actively intelligent digital edition we want – or as the physicist Donald MacCrimmon MacKay said, *minding* rather than *mind* (McCorduck 1979: 79). From our side of the house, however, these questions belong in the first instance to a history yet to be written. They are questions which amount to a questioning that, I have suggested, begins by asking what the last 60 years of textual computing have shown it to be as a disciplined activity. But I have also suggested that because computing is present-participial, plural and indefinitely metamorphic, the static question of identity has to become the dynamic question of what I have called “trajectory”. For many good reasons we need to know where we, as a professional group of people, are going with this thing, the digital edition. The analogy to the flight of a projectile invoked when we speak of a trajectory is not without its merits. But let's be cautious with the power of metaphor. An improvement would specify that the analogy is to a spaceship whose astronauts are in control; even better would be to attribute direction and motive power to their propellant desire. Or perhaps we should be even more cautious, since there is no pre-existing object towards which to fly – the very nonexistent object I was playfully asked to predict – and scrap the analogy altogether for the cybernetic idea of teleological mechanism or, even better, for the physico-biological idea of emergence, as McGann does. Or perhaps it would be better yet to continue to climb the Great Chain of Being and look to other human activity, such as experiment, specifically to the kind of modelling historian of science David Gooding proposes for Michael Faraday's work (1992). Gooding describes Faraday's “construals”, as he calls them, emergent from the scientist's groping toward what it is that he later is said to have “discovered”.

The view from the administrative here-below suggests that funding councils and university bureaucrats do not welcome such language, that what they want from the likes of us are secure predictions of a bankable future, which will prove their good judgement. Hearsay suggests that what they get from us are a mixture of results already in hand, plausible stretchings of the truth and promotional blather. Anecdotal evidence, for example from the Director of the Leverhulme Trust and the chief programme officer of the Mellon Foundation, unsurprisingly reveals a far more complex situation that puts in doubt our assumptions about what the elusive “they” want. I leave to craftier heads the navigation of such troubled waters. But as far as genuine research is concerned, the important thing for us, I'd think, is to be with Faraday as he was when he didn't know which construal would lead him on, which

lead him astray, when the future was in part to be made, in part to be welcomed. We need, that is, to summon back into active use the full ambiguity of the word “invent” – simultaneously “to devise” and “to come upon” – and then to invent with all our might. That’s the future I look forward to.

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