

Collaborative Research in the Digital Humanities

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When a new freedom comes into being, the kind of thing it leads to depends largely on the characters of the people who first enjoy it. And, character being a less rigid thing than an already fixed and limiting set of traditions, the element of chance in the determining of events becomes unusually large.... Thus it follows that any fitting account, or, to put it more solemnly, any adequate history [of how this new freedom was used] must deal largely with persons and their characters. It cannot avoid regulations and other academic events but it would be superficial and misleading if it confined itself to them. It must have as its topic certain people: by what accidents they became involved... what ideas they had, and how they translated them into action.

E. M. W. Tillyard, *The Muse Unchained: An Intimate Account of the Revolution in English Studies at Cambridge*, pp. 11-12

This is a *Fest* (celebration) in the form of a *Schrift* (publication) honouring the professional career of an extraordinary man, Harold Short, by looking at his work and beyond it to the digital humanities he has done so much to establish, in the style and with the trajectory he has helped to give to the field. But it is also a *liber amicorum*, a testament of friends to the enduring and improving difference he has made through an inseparable combination of love, imagination, thought, patience and stubbornness: love, in energetic devotion to our subject and to many of its practitioners; imagination, technical, intellectually critical and administrative; thought, in puzzling out the implications of computing and attending to all the details of implementing it collaboratively; and, yes, both patience and plain stubbornness in the face of uncomprehending resistance to new ideas and ways of working. He reminds us that at the centre of all that we do are people, some very special people.

This introduction attempts to point toward the significance of what Harold has done. It does that in a densely referential style, which given my admiration for clear and simple language needs some comment. Hence a brief personal note. At some point in my career, when I noticed that this density was on the rise, I was forced to consider what it might be a symptom of: pride? insecurity? hostility? weakness of argument? After rigorous self-examination I drew a blank. But, I realised, whatever the besetting sin, this style has a real function: to manifest the degree to which our computing is not merely *in* but more essentially *of* the humanities; to articulate the connections with the ideas and questions which inform the digital humanities and

which it transforms; rather more militantly, to oppose with a great arsenal of evidence a tendency of the field to become boringly workaday, rule-bound and mindlessly industrialized; but finally, joyously, to suggest how fertile the ground is that Harold has prepared and tended all these years in London, removing stones, adding compost, turning over the soil, watering, protecting, tending the flowers as they emerge. “Human nature is a garden”, Lorraine Daston has written (2010). This is especially the case for someone so much at home in his adopted country.

The collaborative imagination

‘Collaboration’ is a problematic and should be a contested term. It is often used nowadays to denote what Peter Galison has called a transcendental virtue (2004: 380), that is, a good without qualification, which having enshrouded its object has nothing much to teach us. Harold has given collaboration real, specific and effective meaning in the only way this could be done, by working with colleagues across the disciplines and by creating an environment greater than himself in which collaboration is institutionalised – given, as Mircea Eliade said of ancient burial practice, a stone body so that the soul is able to continue to act in the world once it has gone on to presumably better things (1978: 116). As we know all too well, monuments are broken down, stones carried off and used for other, lesser or at least different purposes. This is why recognition, here and in other ways, is essential to the project. The stone body he has built is a house for us to live in and take care of and pass on to the next generation of digital humanists.

True collaboration within a group happens rarely. Even rarer, I expect, is collaboration that is manifested in group after group of individuals, as has been instantiated at what Harold named the Centre for Computing in the Humanities – now, signifying its success, the Department of Digital Humanities – at King’s College London. I suspect that Harold’s style of bringing these many collaborations about makes the subset even smaller. It is the style of an “un-boss” – someone who makes it happen and administers its progress but who steps back as often as possible to become just one of the boys and girls, or perhaps more accurately, *primus inter pares*. Creating an academic department for a new academic discipline requires an administrative imagination – itself so rare an attribute as to seem oxymoronic if not cruelly euphemistic – even more magnanimous. Harold has fulfilled both by building this house not according to the usual template but in response to the needs of the activities and people it is meant to house. Its success tempts us immediately to take this house as an institutional model (which seems to me the best so far in our relatively short history). But to do so in those terms is to treat it as a finished product, and so ultimately to solidify a liberating institutional development into a rigidly inhibiting structure. Eliade’s metaphor must be laid aside for a more adequate one.

In his yearly lectures on the Bible at Victoria College, Toronto, Northrop Frye would commonly refer to a story in the book of Jeremiah in which Jehudi, secretary to King Jehoiakim, is commanded to read the prophet Jeremiah's words of denunciation to him from a scroll:

Now the king sat in the winterhouse in the ninth month: and there was a fire on the hearth burning before him. And it came to pass, that when Jehudi had read three or four leaves, he cut it with the penknife, and cast it into the fire that was on the hearth, until all the roll was consumed in the fire that was on the hearth. (Jer 36: 22-3)

Frye comments in a book that arose from his lectures on the Bible,

This must have been a papyrus scroll: parchment, besides being out of the prophet's price-range, would have been tough enough to spoil the king's gesture. The king's palace totally disappeared in a few years, whereas the Book of Jeremiah, entrusted to the most fragile and combustible material produced in the ancient world, remains in reasonably good shape. The supremacy of the verbal over the monumental has something about it of the supremacy of life over death. Any individual form of life can be wiped out by the smallest breath of accident, but life as a whole has a power of survival greater than any collection of stones. (1982: 200)

The moral I draw is that Harold's Centre, now a Department, is best regarded as a current form of an idea in process of development. Taking CCH/DDH as a finished model or template diverts attention not only from the process of modelling the idea but also from the modeller, who always plays an essential but often ignored role. "The model relation is inherently ternary", Marvin Minsky reminds us (1996), and this is best seen *when it is happening* rather than after the fact. Especially because computing is present-participial in nature, our attention must be focused as much on how this temporary state of affairs has been invented as on its manifest virtues. So we look to the modeller. How has he done it?

Socially the history of computing in the humanities has involved a long struggle to establish computing practitioners and non-technical scholars as equals in research, "not as a matter of courtesy," historian Jaroslav Pelikan wrote 19 years ago in *The Idea of the University: A Reexamination*, "much less as a matter of condescension, but as a matter of justice and of accuracy". He argued that the future of universities turns on the kind of social contract Harold has done so much to negotiate. Thus Pelikan:

The integrity of the idea of the university as a community of research lies to a considerable extent in the development of mechanisms for... collaboration.... [I]f the university is to attract and hold for its teaching mission those who are engaged in... pioneering research work, as it must, it needs to become more imaginative about devising new systems and new standards for its faculties" (1992: 62, 64).

Behold CCH/DDH at King's. But again, collaboration (if the term is to be other than a euphemism of social control from above) must occur on level ground. It must be work (*labor*) done together (*co*, from *cum*, "with") in every sense. The technically focused researcher must work *with* not *for* the non-technically focused scholar, must serve the research co-authorially. Of course equality in research, where this is possible, brings with it equal demands on *both* sides, and so a host of questions about how both are to scale the steep learning-curve that faces each. This in turn raises questions about how scholars are trained, and so about the institutional relationship between the sciences and humanities.

By tradition, or by more than just tradition, humanists work normally alone. This makes them especially vulnerable to forgetting the social dimension of knowledge (though hero-worship in techno-scientific circles shows the same tendency to attribute everything to a solitary researcher, such as Vannevar Bush or Albert Einstein). To borrow Ludwik Fleck's insight and terminology, the many voices and resources of the "thought-collective" within which an individual works remain mostly tacit and unrecognized, though fundamental (1979/1935). Actual collaboration makes this collective partially explicit and so can illumine the common problem by giving other voices a chance to speak, to argue. Opposition, William Blake wrote, is true friendship.

The collaborative emphasis of DDH demands that we ask not merely the question I raised earlier – How did he do it? – but also, as Harold would surely insist, the collective one, How did *they* do it? Much of the historical evidence needed to answer it has unfortunately vanished because it was never recorded. The demands of establishing the department and proving its worth through successful completion of many collaborative projects, with little certainty that one day the day-to-day work would become historically interesting, left no time for gathering this evidence. No doubt at the time some of what was happening seemed better to forget than to remember! (The opportunity remains for suitable doctoral students of the sociology of knowledge and in related fields to be participant observers and so have the chance to find out what is actually happening at this crucial moment in our history.) Lacking this evidence I cannot be certain, but my guess is that with this evidence we would have an portrait of collaboration as a spectrum of work-styles varying in time as well as with the project, from solitude at one extreme to collective reasoning at the other. On the one hand, the intense struggle to realise something heretofore unrealised, demanding all one's intellectual resources, justifies and demands a researcher's turn away from the group to solitude, summoning and dismissing interlocutors as they prove useful or not to whatever formal expression he or she is developing. The immediate pleasures as well as difficulties of articulating it obscure, must obscure at least for a time, the world of others' words, deeds, artefacts and expectations. On the other hand, even in the least dependent modes of work the goal is to catch someone's attention, to interest him or her in what has been made, to

provoke a response, even if the maker does not know who this will be, when or where. The fundamental truth remains: our work is for communication. This is often best done as a trial with close and trusted colleagues; a good collaboration provides a formal, reliable means.

Those who come to the meeting of minds and hands from the technical side, as Harold has, are at this point especially apt to feel the fragility of collaboration's goodness (to borrow from Martha Nussbaum) if not also the peril that everywhere threatens it in these severely anti-intellectual times. They, along with the rest of us who have thrown our lot into the "methodological commons", as Harold and I have called it, may well be inclined to chafe against the very slowly and unevenly shifting institutional barriers that in specific instances make the possibility of genuine, fully realised collaboration seem distant. But hope for better is not foolish. In 1987, when a small group of us formed the *salon des refusés* out of which *Humanist* emerged, those exclusionary barriers seemed an utterly insurmountable Berlin Wall. What indeed must the situation have seemed to Jeremiah when his words were burned to ashes by his king? For the preservation of his book "in reasonably good shape" our debt isn't to superior muscle but to millennia of human devotion to an idea, or perhaps better, to a question whose answer keeps changing. To compare great things with small (and so gain inspiration and humility at one go), our gaze is likewise directed to the questioning for which all the work, collaborative or otherwise, is directed. How is it to be done?

We have always known (and have struggled against realising) that as Heraclitus is reputed to have said, *ta pánta rheî*, "all things change" and have always been changing.¹ But those of us whose professional lives orbit computing know the rapidity of this change and the instability of our intellectual objects especially well. We are of course driven with Descartes "to cast aside the shifting earth and sand in order to find rock or clay" (1998/1637: 16), but must notice eventually that the shifting never ceases, that there is no final axiomatic bedrock, that it's turtles all the way down. "Summoned before the Law, wisdom can no better represent itself than in the step by which it moves away from it" (Heller-Roazen 2006: 442). We use the algorithm, strictest of the Law's forms, to govern our move toward the Something Else of the humanities, which have always defined themselves by what they were not – not the *literae divinae* of the theologians, not the nomothetic theorizing of the scientists, not the double-entry bookkeeping of the accountants. I am fond of quoting the pioneering computer scientist Alan Perlis' 74th epigram: "Is it possible that software is not like anything else, that it is meant to be discarded: that the whole point is always to see it as a soap-bubble?" (1982). Or as the great historian of computing Michael S. Mahoney used to insist, the scheme that Alan Turing gave us

¹ The attribution to Heraclitus is traditional, but those words are not to be found in his writings; they come from Simplicius' commentary on Aristotle's *Physica* (1313.11); cf. Plato, *Cratylus* 401d, 402a; Peters 178.

is for devising indefinitely many computings, limited only by the human imagination (2005), most definitely *not* to settle forever on one form we declare final.

Data and machine

The anthropologist and digital humanist Morgan Tamplin (Trent, Canada) taught me to think about the changes wrought with the machine by meditating on the act of seeing an object of study “as data”. This act involves not just filtering perception to admit only the computationally tractable elements of an object but also choosing rather more consciously than otherwise which of them are to be digitized. Here collaboration becomes essential, whatever the project: either external, between technical and non-technical researchers, or internal, between two halves of a bicameral intelligence. The problem is not just preserving both the filtered-out and the filtered-in elements for consideration side-by-side, but more that the play of interpretation, ideally drawn out and refined with the aid of digital tools and methods, alters what we take these elements to be. Seeing “as data” is inflected by the question, what *is* the data, or even, what is *data*? Such questions may be pursued theoretically apart from particular circumstances,² but my point here is that true collaboration instantiates the hermeneutic circular struggle, and that in the struggle the technical, data-minded intelligence plays half the game.

In this context the technically focused researcher is no longer a ‘rude mechanical’ (as I was once dubbed in my hearing, with reference to *A Midsummer Night’s Dream*, by someone who really should have known better) but is nevertheless a mechanic – of a sort. It’s the sort that is the revelatory rub.

In his 1968 Turing Award Lecture the engineer-mathematician Richard Hamming celebrated the fact that the largest professional organization for computer scientists was then and is still known as the Association for Computing Machinery (1969: 5). He argued that to lose sight of the machine was to cut the ground out from under computer science. The constraints that physical implementation imposes on logico-mathematical algorithms hooks computer science into the real world of finite resources and permits discovery by experiment, but there is more to computing machinery than that, as important and exciting as that can be.

A clue to its world-altering importance is the degree to which computing has evoked fear – historically well attested, loudly in popular media during the first few decades, somewhat more quietly in the professional literature but there nonetheless.³ Socially the upset caused by this new machinery resonated with the earlier

² See esp recent work by Jerome McGann, e.g. 2004. See also Armstrong 1986, which discusses Wayne Booth’s attempt to deal with the question by use of Stephen Pepper’s distinction of *danda* from *data*.

³ It is still with us, as the fact of the 2009 Asilomar meeting of the American Association for Artificial Intelligence and the reactions to it demonstrate. See Markoff 2009; Horwitz and Selman 2009.

disturbances to working life brought about by automation, to which in its early years the computer gave, and was seen to giving, highly publicized reach and economic advantage. But public reaction to computing was not simply to its roles in business and industry (nor to its role in warfare – but that is another story). Juxtaposing two nearly simultaneous events – the release of Charlie Chaplin's *Modern Times* and the publication of Alan Turing's "On computable numbers", both in 1936 – not merely suggests a relation indicating, as Robin Gandy says, "something in the air, which different people catch" (1995: 51), but a crucial difference. The upset caused by computing was of a wholly different order than the perceived threats to employment, the workplace and daily life. This upset is comparable not so much to the Industrial Revolution, Taylorian principles and Fordism as to that which Sigmund Freud called the insults "flung at the human mania of greatness" by Copernicus in the 16th, Darwin in the 19th and Freud himself in the 20th centuries (1920: 246-7). Each, Freud wrote, shows that we have little idea of who or what we are – hence the compelling need to rethink the human.⁴

The idea of the human as machine – something constructed and therefore constructible – has a long pre-history; it is implicit in "Darwin's dangerous idea", as philosopher Daniel Dennett (1995) and biologists Jacques Monod (1972/1970) and Ernst Mayr (1997) have shown. But Turing's machine and the allied work which has followed is even more interesting than merely yet another blow to vanity. Commenting on Minsky's impish remark that, "The brain... happens to be a meat machine", Pamela McCorduck remarks in her delightful book *Machines Who Think*, "The problem, I suppose, is our own associations with the notion of mechanism, or machine" (1979: 70f). We tend immediately to summon notions of behaviouristic absolutism, as in the work of Pavlov and Skinner. But Minsky points out that the mistake we make in this association is to apply a pre-computational notion of machine to ourselves. A new idea of "machine" is needed. The outlines of this idea seem reasonably clear from Turing's scheme, but since this machine acts on the world its meaning is a matter still largely to be determined from argument *and* engineering *and* experiment. Hence the pivotal role of the digital humanities: to help figure out this new "machine" in its encounters with the study of human cultural artefacts, and to figure out what these artefacts now mean in an intellectual world permanently altered by its presence. Its potential to model and so additionally to affect our idea of the human was realised early, e.g. in a paper by the philosophical neurophysiologist Warren McCulloch and the logician Walter Pitts (1989/1943), whose work informed John von Neumann's sketch of machine architecture (1993/1945; cf McCulloch 1989/1961), whose implementation has continued to provide the wherewithal to think about the brain. Computer to brain to computer to brain, a feed-back and feed-forward cycle to be continued.

⁴ National Humanities Center project, onthehuman.org/.

The rootedness of technical researchers in the machine becomes an increasingly more important condition of scholarship as the accumulating effects of computing on the humanities and greater social license to be openly digital encourage scholars to get involved. As Harold has outlined on several occasions, a *metanoia* lies at the heart of the interaction among technical and non-technical collaborators (cf. McCarty 2005: 121-9). A crucial part of the mind-change occurs through the non-technical scholar's becoming grounded in digital methods, as a result of which he or she is able to understand in detail what the translation of a research question into digital language means. This grounding renders the non-technical scholar fit to participate in the design of whatever tool or resource is the object of the exercise. Participation often changes the initial research questions, as several of our colleagues at King's have testified. Without this grounding, without the collaboration which provides it, scholars labour under a severe difficulty of which the theoretically inclined are especially unlikely to be aware.

The horizon

The computer is a product of many disciplines but chiefly those in the mathematical, physical, biomedical, psychological and social sciences. (If you are surprised at the presence-at-birth of any but mathematics, engineering and physics, look carefully at the composition of the hugely influential Macy Conferences.) Historically the computer came to the humanities from outside and was received as a foreigner, in "fear and trembling" (Nold 1975) as well as with curiosity. In its reception by the humanities over the last six decades – coincident with both Harold's and my own lifespans – we can see among other things the opening up of an opportunity for scholars to treat their objects of concern as if these objects were natural, like rocks, rather than cultural, like sculpture, and by doing so to embed analogies of scientific research within the humanities and learn from them (McCarty 2009). It provides great help with constructing what G. E. R. Lloyd has called "bridgeheads of intelligibility" between the humanities and the sciences (Lloyd 2010: 210). Actualising such construction institutionally, across very distinct schools as well as departments, is in its very early stages. But the significance of what Harold has done reaches to it. This reaching could, if we attend to the potential thus revealed, continue into the receding horizon for as far as we can imagine going.

The contributions which follow comprise a proper *Festschrift* because they are manifestations of influence and respect from colleagues and co-workers. They are unified by their common concern with the new discipline to which the department that Harold created and shepherded into its full academic existence has given a home. They are expressions of gratitude. Well done, my friend.

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