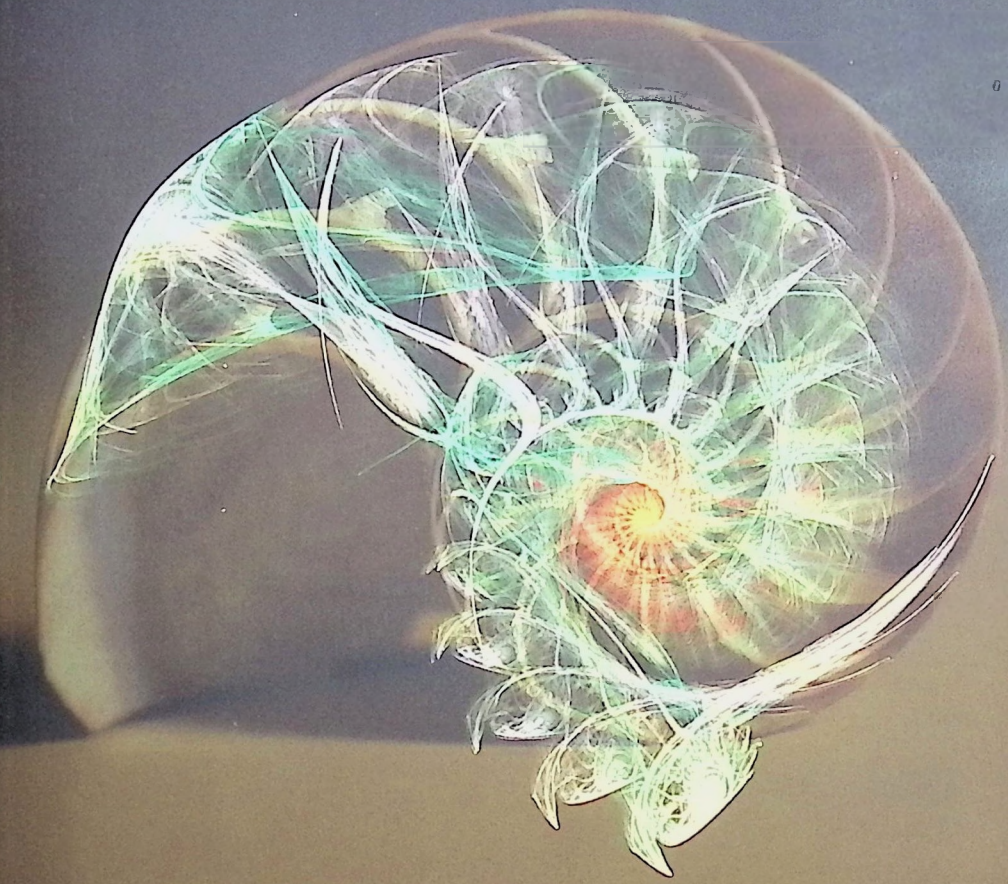
Humanities *Computing*



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Humanities Computing

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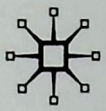

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To Harold Short, *nisi tu* ...

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Preface to the Paperback Edition

In the Acknowledgements to the original edition I quoted Jacques Derrida to express my ambivalence and melancholy at finishing a book I had been mulling over and working on for many years. Then, in hope of a resurrection, I added John Milton's soaring declaration from the *Areopagitica* that 'books are not absolutely dead things'. But, I realize now, to have the 'potency of life' Milton ascribed to books, 'to be as active as that soul whose progeny they are', means that they change with us, their readers, and with the world we inhabit. Some bits of a book retain their truth-value or relevance, other bits become quaint, musty and then in time interesting for what they tell us about how people once thought and wrote. Insufficient time has passed for much of historical interest to have surfaced from this book but enough for a paperback edition to require comment and invite reflection on the bits which I think remain true to the field and those that have been superseded.

This would not be happening if our tendency to professional amnesia and naïve belief in technologically deterministic progress were winning. (They aren't, but the battle continues. Vigilance is still called for!) There are now signs that we may one day have a genuine history of digital humanities and with this history a perspective from which a trajectory for the discipline can at last be glimpsed. A few who suffer from lack of history assert that 'humanities computing' denotes an irrelevant set of concerns quite distinct from those of 'digital humanities'. It's true that the former was a child of a different time, one ruled by the defining grip of the Cold War. It is abundantly clear that the onset of the Web in the mid to late 1990s brought about a diluvian change in the discipline and became part of if not directly energized a slower change in scholarship. But to sever the discipline so rudely from its past and so heedlessly deprive it of continuity with its previous half-century of work is to render it directionless, hence vulnerable to whatever forces might wish to co-opt it. *Mirabile dictu* – and it does seem a miracle to someone who cut his rhetorical teeth on colleagues' dismissal of and contempt for computing – digital humanities has become an object of desire and so worth stealing. For this reason, were I to rewrite the book's last chapter I would move the seventh item on my

proposed agenda, 'Writing history', to first place, which it must inhabit. But more about the agenda later.

Humanities Computing was written in direct response to personal experience with my own and others' research and to the many claims made in preceding years for the value of subjecting the interpretative disciplines to the rigour of algorithmic methods. Intense struggle over a decade and a half to render Ovid's imaginative language computationally tractable (pp. 55–71, below) led me to the idea of modelling that is this book's central concern and the subject of its first chapter. It seemed to me then, and seems to me now, that the stark oxymoron which became the book's title captures what modelling is all about: collision of two forms of reasoning, or to paraphrase Jerome McGann and Philip Davis together, crafting of a gap between representation and what it stands for, not to eliminate difference but to open up a cornucopia of difference for us all to feed off and develop (pp. 1, 4, below).

There's truth in Brian Cantwell Smith's argument, also from 2005, that the genius of the digital computer is to make digital representation irrelevant. Belief in that irrelevance puts the machine's reasoning processes in a black box and turns our attention to their effects on people and cultures. This book holds to the opposite belief in the microcode of the discipline. It struggles to pop open that black box and, as Ian Hacking recommends, 'take a look' – by which he means much more than just looking, or thinking or discussing in isolation from one another. He means a kind of reasoning that puts them all together with making and from them crafts means for intervening in the world. But as a result of fascination with those inner workings through years of interventionist analytical modelling, I gave short shrift in the book to simulation and the question of complexity (pp. 34–5, below), which now seem to me a large part of the future for digital humanities. Were I writing this book now I would devote an additional chapter to simulation of complex systems (such as we and our cultural expressions are), say what I think we can learn from it enormous importance in the physical and social sciences and give a fa better account of it in digital humanities, especially in relation to gaming and the arts.

The chapter on modelling would doubtless change as a result: would put at its centre historian David Gooding's crucial work on con strual (e.g. 1990), which I had not yet encountered when I wrote th book. I would also devote much attention to the statistical modellin of patterns in textual data on both small and large scales, e.g. in studie of authorship and of literary history. I would argue that modelling i

what they are doing. I would find a much more perspicuous example of modelling than my own work toward an *Analytical Onomasticon* (pp. 53–71, below). Although labouring over the *Onomasticon* taught me most of what I know about the subject, including the great value of failure, the problem it attempted to address was too far beyond the state of the art then *or now*. Embarrassingly I did not take David Hilbert's wise advice, that a problem 'should be difficult in order to entice us, yet not completely inaccessible, lest it mock at our efforts' (1902: 438). Those pages on the *Onomasticon* mock me.

To my knowledge the strongest criticism of the book was provoked by its emphasis on the sciences. I reasoned along with those who argue for 'thing knowledge', distributed cognition and material culture that an originally techno-scientific instrument embodies cognitive tendencies from the sciences which must not be ignored and cannot be understood without bringing their originating contexts into view. Putting so much emphasis on the sciences was in fact implicit in the book's oxymoronic title: I wanted to invoke the very sense of the alien that upset those critics. It was an integral part of my programme to focus sharply on both components in the transformative collision of reasoning styles denoted by Natalia Cecire's formula, 'digital + humanities' (2012: 55). For this I remain not merely unrepentant but insistent. (In my current research I am using the anxiety techno-science has always provoked as an essential clue to the intellectual common ground of computing and the humanities.) In his keynote address to the Toronto digital humanities conference in 1989 Northrop Frye recollected similar hostility for his use of the word 'scientific' in the introduction to *Anatomy of Criticism* (1957). He noted that software programming and computer modelling, unknown to the humanities when he wrote, were closer to what he intended (1991). But they too are scientific – if also responsible for changing our idea of the meaning and scope of science. For the humanities, and for digital humanities especially, there is no avoiding the great engine of 20th- and 21st-century change, of which computing is its most potent expression. The annoying distinction of separate cultures, used so often to rule the sciences out of bounds, is an increasingly obvious illusion: 'How does one distinguish between nature and artifact when we rely on artifacts to produce or afford access to natural phenomena...?' (Mahoney 2011: 159).

The sequence of the book, 'from the microscopic and private to the macroscopic and social' (p. 7, below), still seems right to me for a digital humanist's training as well as a rough description of the

discipline's history. The great rush into online and inevitably social media, taking hold as the book was being written, has unfortunately deprived many eager participants of the grounding in computational nitty-gritty to which the following pages are dedicated. Last year in a moving and humorous tribute Marco Passarotti quoted Fr Roberto Busa's assertion that such close work as I explore in this book is *sine qua non*, training us, Busa said, 'for an exploration of our own inner logic, which is the spiritual centre of the personal dignity and consistency of each of us'. This, Passarotti comments, 'is a continuous "know thyself" activity' (2013: 21). It is the implicit aim of all that *humanities* computing/digital *humanities* entails.

The question of genre addressed in Chapter 2 is still hanging, still being addressed and experimented with at all levels across several disciplines. It remains vexed by the separation of human and machine, which are kept apart as much or more by fear of techno-science as by technological insufficiencies. Terry Winograd's suggestion that we think in terms of habitat or 'interspace' rather than interface and Jerome McGann's insistence on resonance beyond interaction remain as cogent (pp. 74f, below). Winograd's 'new ways for people to communicate with other people' online have developed beyond anything anticipated in 2005 – but, I fear, to the neglect of new ways for people to communicate with themselves, with artificially intelligent approximations and, for editors and readers of texts, with authors. We are as far as I know still lacking detailed comparisons of printed books in their expressive range and power to digital productions, as I attempted briefly to explore in Chapter 2 with Dodds' *Bacchae*. We still use the problematic term 'digital library' mostly letting pass without comment the challenging operational differences which it could reveal if pressed. How do we in fact and in detail use our own and others' digital collections?

My recommendation of ethnography and its explication in Chapter 3 as meta-discipline for exploring disciplines seems now as solid an idea as ever. But now I would say more about how interdisciplinary research can be undertaken, with what kind of expectations and perils as counterbalance to the dominant focus on what interdisciplinarity (a reifying abstraction) might be in relation to other kinds. (See my chapter, 'Becoming interdisciplinary' in the forthcoming *New Companion to Digital Humanities*, ed. Schreibman, Siemens and Unsworth.) The focus of Chapter 3 on how in any particular case 'we may get to the disciplinary conditions from which specific methods arise as desire or need direct' seems right as well – with one serious

qualification, however: the tendency in the very idea of method to confuse roles with rules. I find the same problem in that 'intellectual and disciplinary map of humanities computing' (p. 119, below), which in the manner of a cosmological diagram implicitly asserts definition of our disciplinary world as a 'Methodological Commons' with 'formal methods' at its core. What that map mapped was the institutional environment in which the mapping was done. But digital humanists are still in the process of figuring out what kind or kinds of environment might be most conducive to that which the discipline is becoming. The big problem with this map is that presenting it as 'a model *for* the field's extensions of itself into the humanities' is prescriptive – a political act. Oddly I argued against precisely that at some length in Chapter 1 (pp. 32–4, below) but did not, as I would now, carry over the lesson into Chapter 3. But an even more serious problem is the implicit suggestion in 'formal methods' of a finite set of methodological primitives, i.e. an operational axiomatic bedrock for the discipline based, as Hilbert's formalist ambitions were, on pure manipulation free of significance (see pp. 81–2, 167–8, 217–20, below). To leave meaning to the other disciplines would be fatal. I suspect that the anxiety of the time, over whether the discipline had anything to say for itself, made the chimera irresistible – though the question of autonomy remains. But that is a subject for another book.

The power of examining a discipline's 'tropes and imageries of explanation' (Geertz's phrase) remains, I think, primary to explorations of disciplines other than one's own, and then perhaps one's own. This power has been demonstrated many times over by another scholar of whose work I would, if rewriting this book, take much more account: Evelyn Fox Keller. Among many other things I commend to your attention 'Language and Ideology in Evolutionary Theory' (1991) and *Making Sense of Life* (2002).

Chapter 4, Computer Science, was intended insofar as possible to provide as simple an account as I could manage of the discipline's mathematical and logical aspects in their historical origins. Again in the spirit of oxymoronic collision my aim was to confront head-on what digital humanists were at the time and perhaps still are mostly avoiding. Had I known Hugh Kenner's *The Counterfeiters: An Historical Comedy* (2005/1968) this chapter would have grown. But I also wanted to get close enough to a recognizable description of computer science to provoke computer scientists, other than those two who helped me with it, to offer commentary and corrections (which, alas, has not happened). Since then I have not seen much evidence of systematic,

institutionalized cross-talk between digital humanities and compute science apart from the Chicago Colloquium, though steps are bein taken at the University of Western Sydney. The creative arts (whic take what works and use it) have been ahead of the humanities in thi respect since the post-war beginnings of digital computing. See, fo example, the journal *Leonardo* and its several spin-offs, especially it book series; see Hannah B. Higgins and Douglas Kahn's *Mainfram Experimentalism* (2012). A rewritten *Humanities Computing* would pa very close attention to the arts.

For a long time it has been broadly obvious through the channels o science fiction and other forms of popular culture that robotics woul one day put before us a device that requires no hype to be considered 'life's companion'. Only a matter of time, I say. The desire for such a entity is clear, as we have seen recently through such films as th Bollywood *Enthiran* (2010), Spanish *Eva* (2011), the Swedish *Äkt Människor* ('Real Humans', 2012) or 'Be Right Back' from the Britis *Black Mirror* (2013). In 2013 the Science Forum of the IEE International Conference on Robotics and Automation, at the instig tion of roboticists, hosted a session entitled, 'Robotics Meets th Humanities'. An additional chapter? The hypothetical rewritten boo grows again.

I have already taken Chapter 5, Agenda, to task by moving to to place the writing of a genuine history, from whose perspective the fac we have in abundance become questions toward a realization of ho we got here. My comments on the *Analytical Onomasticon* will have su gested why analysis cannot come first. With one exception (comput tional stylistics) we not only do not know how to advance beyond bas corpus techniques to a genuinely *close*, i.e. intimate co-reading but hav no language in which to theorize the problem. Theories from elsewhe are on offer, as McGann has demonstrated (2004b), but which of the fits digital humanities well enough not to pull it disastrously off cours This, again, is the question of which course we are on. The move th Franco Moretti has championed (but Mark Olsen advocated a deca earlier, at the MLA in 1991; see Olsen 1993) ironically requires us trade close reading of individual texts for close reading of experiment results (Sculley and Pasanek 2008: 417). This may suit the literary hist rian who has already done his or her close reading, as Moretti has, a so should be welcomed, but as is so often the case many seem to hav taken it as a replacement for a practice away from which literary theo has turned. The same bandwagon-effect with the same deleterio effects is well known in digital humanities.

The discussion of 'Disciplinary relations and kinships' as an agenda item seems now to me both naïve and excessively tentative. For reasons Frye understood well, autonomy is basic to a discipline's integrity and survival. Underscoring the importance of Alan Liu's question long before he asked it (2012), Frye observed of his own discipline exactly what we can see in ours now: that 'the absence of systematic criticism has created a power vacuum, and all the neighboring disciplines have moved in' (1957: 12). Where indeed is the criticism in digital humanities? Like literary studies in the mid 1950s we are now 'in the cultural situation of savages who have words for ash and willow and no word for tree' (13). Digital humanities still cannot adequately theorize what it is about because 'the terms in which such formulations can be cast are, if not wholly nonexistent, very nearly so. We are reduced to insinuating theories because we lack the power to state them' (Geertz 1993/1973: 24; p. 150, below). And that is not a problem which can be solved by being useful to others. The knowledge and wisdom gained from the work in crafting useful products does, however, offer raw material for a language that would allow us to make sense of ourselves and so make sense of ourselves to others. The resources digital humanists have built are not in themselves the discipline's achievements but materially uttered questions tending to one big question that will be a great achievement once addressed: what are the organizing or containing forms of digital humanities' conceptual framework? (Frye 1957: 16)

To me the most interesting problem regarding forms of publication and conversational activity, only touched on in Chapter 5, is extending the 'mantle of recognizable scholarship to cover ... the software arising from this work' in digital humanities, which as noted depends on the ability 'to *read our machines*' (p. 210, below). The literature on 'thing knowledge' (Davis Baird's phrase), 'epistemic things' (Hans-Jörg Rheinberger's) or 'things that talk' (Lorraine Daston's) has grown enormously since the turn of the century and demands complementary work from software studies and from digital humanities especially. The unique nature of computer software, as Mahoney's editor Thomas Haigh put it, 'a self-executing text bridging ... mathematics and machinery' (Mahoney 2011: 7), immaterial yet materially effective, brings us by a different route back to the collision that I celebrate in the title of this book, the crash-site that needs interpretation. Much more in the rewritten book would now have to be said about the hermeneutic puzzle of software in light of this literature. Hackers will know well their online equivalent (in blogs with bits of code,

breadboard wiring diagrams, videos and photos) of Renaissance eng
neers' communication through diagrams and drawings (Ferguso
1994). A start has already been made but needs sustained critic
attention.

The bibliographic problem, or 'Doing the homework' (pp. 215–1
below), looks considerably different now, again because of the exte
to which the Web has grown and become part of ordinary research lif
As I found out in working on *The Humanities Computing Yearbook* in th
late 1980s, digital humanities had already put comprehensivene
beyond reach or sense. Now it is hard to imagine that anyone woul
try. It is not just or even primarily a matter of the shift from difficul
of accessing to difficulty of coping with secondary literature. The bi
liographic problem has become the problem interdisciplinary researc
since research now, only with the greatest (and I think doomed) effo
can remain within well travelled and well structured disciplinary rut
In other words, the whole style of doing one's homework has change
even what it means to get that homework right.

Evidence of an early stage in that shift is among the first things o
is likely to notice about *Humanities Computing*. Even for an obsessive
referential author, it seems odd now to plow into such a thicket
quotations as meet the reader of this book – evidence, I have just su
gested, not simply of diluvian change in access but of early days
digesting the riches. Consider the prefatory and often verbose gestur
of obeisance, gratitude and respect in early printed books, which toda
may seem barriers between reader and text. This book was in its wa
similarly beholden to an older, far more accomplished and powerf
establishment. Roaming far and wide through its disciplines collecti
what one can is more than ever imperative to connect digital huma
ities with them, to grow and strengthen it. Obvious referentiali
beyond digital humanities helps make that point. But we grope for
styles of expression. None of what we find will in fact do. Other sig
of reaching out are the length of the bibliography, density of intern
quotations and a rather formidable index, analytical to an extrem
with its own way of denoting the levels. But my point in putting th
book's attempt under a microscope is not to identify changes I wou
make (of which there are many) but to suggest how questions of sty
and design are informed by the discipline's history, by its (if I may) t
jectory. Form and content are, we know, inseparable.

That is enough, I think, to indicate both this author's delight
finding so much he can stand by and so much he would change bet
to be true to the maturing of digital humanities over the last doz

years. My thanks to Benjamin Doyle, Senior Editor at Palgrave, for the chance to propel *Humanities Computing* into an extended life in paperback and for the suggestion that the contents might need comment.

Willard McCarty
February 2014

'This landmark study is fundamental to understanding the history and future directions of the expanding field of digital humanities, written by one of its pioneers.'
— **Professor Paul Arthur**, *The University of Western Sydney, Australia*

'Vital, energetic, engaging — and more pertinent than ever!'
— **Ray Siemens**, *Canada Research Chair in Humanities Computing and Distinguished Professor in the Faculty of Humanities, University of Victoria, Australia*

Humanities Computing, now in paperback for the first time and with a new preface, aims to provide a rationale for a computing practice that is of and for as well as in the humanities. It engages philosophical, historical, ethnographic and critical perspectives to show how computing helps us fulfil the basic mandate of the human sciences to ask ever better questions. It explores the challenges of imagining and constructing new scholarly resources. It strengthens current practice by stimulating debate on the role of the computer across all disciplines, examining and developing the key notions of collaboration and interdisciplinarity. It gives practitioners a way of conceptualising their practice as an ongoing anthropological encounter, and it gives those with whom they interact a new way of understanding the interdisciplinary language of method. It sketches the complex amalgam of computer science and suggests the basis for a productive relationship. It outlines an agenda for the field to which individual scholars can contribute.

Willard McCarty is Professor of Humanities Computing at King's College London, UK, and Professor, Research Group in Digital Humanities, University of Western Sydney, Australia. He is editor of the British journal, *Interdisciplinary Science Reviews* (2008–), founding editor of the online seminar *Humanist* (1987–) and convenor of the Institute for Digital Textual Studies, National Humanities Center (2015–16). In 2013 he was awarded the Roberto Busa Prize by the Alliance of Digital Humanities Organizations (2013).

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